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(Eds.)

***New Modes of Globalizing:
Experimentalist Forms of Economic Organization and
Enabling Welfare Institutions***

Lessons from the Nordic Countries and Slovenia¹

¹ Final report of the project “Transnational learning through local experimenting (Translearn), EU-funded 6th Framework program

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Preface

Until recently the financialization of the global economy, the transcontinental penetration of multinational corporations, the shake ups of national champions, and the off-shoring of all kinds of operations were seen as challenges to, in particular, the Nordic Welfare States. But instead the Nordic countries have surprised observers. Despite high taxes, high unionization rates and egalitarian income distribution they have demonstrated that it is possible to improve competitiveness, secure macro-economic balances, lower unemployment and engage a high proportion of women, youngsters and senior people in economic activity.

A number of explanations have competed to understand this paradox. Norway's oil; Finland's Nokia and the copying of Sweden's innovation system; and Denmark's flexicurity stand out in the debates in Europe.

But all these explanations are very general and do not really account for how the interaction among firms, entangled in global games, and national institutions, constantly pressured for reforms, have changed since the first oil crisis. In our view, this interaction constitutes a new force field and arena in need of further investigation as this is probably where we shall find the explanations for how firms and employee groupings have turned the institutions of the welfare state into enabling devices that they can use for coping with globalization and growing uncertainties.

In the emerging arenas, economic and political games are triggered by landslides in the global economic flows but also by bottom-up initiatives of companies, managers, employees, and their search for institutional resources and new forms of risk sharing mechanisms. From such

miniature scale experiments surprising outcomes have emerged. In many countries a large number of firms, employees, citizens, localities, and regions have seized opportunities within global value constellations and turned crises into successful transformative processes. To understand such bottom-up renewal processes, a large number of contingencies must be taken into account. In addition to the varieties of national business systems and welfare states, one should also heed new modes of decentralised experimentations that occur not only in national contexts but also in new transnational spaces and arenas.

To explore further such bottom-up initiatives, researchers from four Nordic countries and Slovenia launched a project called Transnational Learning through Local Experimenting (Translearn) in 2005. The researchers have earlier contributed to comparative studies of economic organizations within the National Business System research tradition and as part of the activities of the Standing Working Group 1 of EGOS (European Group for Organisational Research). The project received EU funding from the Framework Program 6 under the topic “Citizens-5”. The project was started in April 2006 and will be finalised in end of March 2009.

For the national case studies we identified samples of firms that were in processes of repositioning themselves within global value chains, negotiating new mandates within larger corporate entities, initiating new businesses due to shake-ups of established corporations or they were start-ups revealing features of capabilities and use of institutional resources. It turned out that managers, experts and other employees were engaged in constant reforms of work organization and in activities that enhanced their collective competencies. And even more importantly, a wide scope of both internal and external actors initiated and participated in tailor-made project that were partly resourced by public agencies and private citizens. The projects ranged from labour market issues to education, from product and process innovations to new business models, from health care services to investments in infrastructure, etc. It turned out that the local cases contained different kinds of examples that could be seen as creations of novel dynamic complementarities among subsystems and involved also various levels of governance. Thus by adopting actor-centred institutionalism as a heuristic orientation toward the local case studies, it turned out that in the economic and political games the inter-linkages to the socio-economic system were unexpectedly wide. Thus to make sense of the phenomena in the case studies, we had to relate the finding to secondary material based on quantitative surveys. Again unexpectedly, the variable based cross-national

patterns helped us justify that in the studied Nordic countries transformations of various subsystems have, unintendedly, provided institutional resources to various types of local actors and helped them participate in the global economy in new and frequently changing roles.

From a methodological point of view, it is clear that the case study based narratives of companies and localities are not generalisable to a story of a current state of a national business system. However, even at this stage of the research process we are convinced that enough evidence has been accumulated to challenge the relevance of the existing division of work between several research traditions, like those of national business systems, varieties of capitalisms, national innovation systems, welfare state theories, etc. More constructive dialogues are needed among these disciplines. We see this report as a start for such a cross-disciplinary dialogue.

The report is structured in the following way: *the first chapter* takes stock of international quantitative data to position the Nordic countries comparatively. It starts with an overview of how the Nordic countries benchmark on a number of dimensions in terms of economic competitiveness. Then follows an interpretation of how the platform for global innovation and competitiveness has shifted from a Chandlerian type of a closed corporation to platforms based on open and networked innovation systems. Comparative survey data on work organizations and governance suggest that the Nordic countries have moved in this direction as their comparative performance has increased. To explain why, we search for the distinctiveness of the Nordic countries in terms of education, welfare, public services, active labor market policies and further training; how their governance systems, rooted in local autonomy and widespread use of open corporatist negotiating bodies, make it possible to coordinate and make novel use of institutions. We then proceed to raise a number of questions for the subsequent national case studies; a particular question is whether a transitional country, Slovenia, will be able to follow the evolutionary path taken by the Nordic countries.

The next five chapters are reports of the national case studies. Each starts with a short characterization of its distinct national business system and its evolution, then moves into a deeper investigation of recent dynamics within firms and their relations to institutions, searching for how dynamic complementarities are created to deal with globalization, winding up in a short characterization of the emerging national business system and its comparative

strengths and weaknesses. The sequentially constructed and reported cross-national comparisons are not based on a matched pairs design. Instead they are designed to highlight the differences among the Nordic countries while at the same time underlining their similarities in comparison with many other European countries.

We start with Finland, summarizing the transformation from an economy based on the forest sector built around the pulp and paper industry to one based on high tech ICT and radical product innovations. From this national context we have focused on firms that have been taken over by foreign multinationals. The acquired subsidiaries were located in a town at the outskirts of the Finnish innovation system. Then follows a Danish study of how an economy based on low tech and SMEs has used its labor market and vocational training institutions to reposition its firms and employees in a manner that contrasts with the Finnish national system, but in a way that makes them central players in global innovation networks. Norway is then compared and contrasted with the Finnish and Danish cases. We show how Norway follows, on the whole, a rationalization strategy for the refinement of raw materials and oil. Nevertheless, a number of cases reveal that in the periphery of this core of the economy firms are breaking with general patterns, joining international networks to form global innovation systems and value chains, and engaging actively in shaping multinationals. Sweden constitutes an enigma, because it seems to break away from a past in which a set of globally known multinationals underwent such radical changes that they shed the employees that constituted their knowledge bases. By studying the transformation of a locality we find that these knowledge bases became re-employed in a transformative drive by which whole communities were transformed and made novel use of the institutions that used to underpin innovation in large Swedish firms. Finally a contrasting case, Slovenia, is first used to show how firms have transformed in a very different way, and yet by comparison with the Nordic countries reveal institutional pockets of small-scale transformation that may be enlarged if informed by the institutional mechanisms of change that the Nordic countries have revealed.

In *the final chapter* we take stock of our findings and convert them into a comparative characterization of how the different countries have been able to either complement or dynamically combine enabling institutions and defensive and offensive risk sharing methods, thereby allowing employee groupings in firms to continuously explore the uncertain potential of the global economy. In each of the Nordic countries the emergence of an enabling welfare state and an experimentalist business system have been the unintended consequences. If this

fourth way is to become deliberately designed and elaborated, a number of new steps are required. More case studies have to be conducted to understand better how to make the enabling welfare state more comprehensive, how to make its institutions increasingly better at enabling and risk sharing, how to govern the continuous improvement of institutions, and how to assist firms in searching more systematically for ways of becoming embedded in the most dynamic parts of global innovating processes.

Though we adopted the concept transnational learning to the name of our project, the current report is only setting the scene for discussing what transnational learning could mean in the constantly changing global economy. Our position is that a prerequisite for transnational learning is the availability of comparative national case studies that reveal the complexity of institutional settings that are relevant and must be taken into account when evaluating the renewal capability of companies in global value constellations, facilitating opportunities for citizens to participate in the global knowledge based economy, and designing potential policy measures for such objectives. The path-dependency of national systemic models is the first obstacle for any kind of emulation of institutional reforms or transfer of sub-systemic best practices transnationally. The second obstacle is the periodically changing architecture of the global economy. Global level contextual changes may close windows of opportunities for distinct national economic trajectories that existed before certain structural landslides. That is why documentations of even small scale experimentations may have relevance beyond their immediate institutional context, because they render visible such enabling institutional resources that are not conceived in other institutional contexts. Such contrasts may lead to searches for analogical or substitutive resources and thus enable actors to find new paths in their existing institutional contexts.

We have had a Scientific Steering Committee (SSC) and a Practitioner Steering Committee (PSC) to comment and support the project team at various stages of the research process. In the SSC we have had Marie-Laure Djelic, Glenn Morgan, Sigrid Quack, Charles Sabel and Jonathan Zeitlin. In the PSC we have had Sven Gunnar Edlund, Antti Hautamäki, Mateja Mesl, Eirik Normann and Jorgen Rosted. Without their help and suggestions, this report would have been much less clarified and more poorly documented. We are grateful for their engagements and intellectual inputs during our journey.

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Chapter 1

The Co-evolution of Experimentalist Business Systems and Enabling Welfare States: Nordic Countries in Transition

Peer Hull Kristensen

Introduction: Benchmarking the Nordic Countries

Over the past couple of decades, the enigma of mechanisms for and barriers to economic development has not become smaller for social researchers. They have seen first a move from a Keynesian to a Washington Consensus, the latter then being questioned by quick and radical shifts in country names from which have been drawn new and shifting and less than comprehensible benchmarking lessons for economic development. This book is both a continuation and a critical re-examination of this flow in the emerging tradition of comparative studies of the performance of divergent forms of capitalisms, as our aim is to understand how and why the Nordic welfare states, against previous predictions to the contrary, are currently doing well in international comparisons. We shall search for causes of their success, what they might learn from each other, i.e. whether they jointly constitute a model that can be perfected by learning from each others. Finally, we want to know how they compare to and what lessons may be drawn from them for other transitional economies, exemplified by Slovenia, against which we shall discuss what can be transferred as helpful lessons. We embark on this mission from the conviction that institutions, and institutional experimentation, matter and that it is a distinct match between the experimental search for improved institutions in a society and the ongoing transformations of the international economy that may explain how distinct societies, at given moments, may create benchmarking performances that can inspire other countries to institutional search and experimentation. Obviously, as more and more researchers leave grand theories of universal capitalist development mechanisms as an inspiration for how to engineer economic development, the benchmarking and comparative study of prosperous nations serve only as a less than optimal solution for our navigation. However, it does look more promising than encapsulating and reducing enigmas of post-modern capitalist development to the dual positions of Keynesianism and Neo-liberalism. The route we take is shaky, but the known alternatives are dangerous.

In this light recent changes in debates over the futures of welfare states constitute an interesting subfield within social research. For those who witnessed the neo-liberal revolt against Keynesianism after the first oil crisis, the present debate is as surprising as was the debate then, when Margaret Thatcher and Ronald Reagan signalled a return to the “market”. The expectation was that de-regulation and globalization would force even strong unions and Social Democratic welfare states to retrenchment in a race to the bottom (Pierson, 1994) as international competition would force countries to lower standards of social protection to reduce social charges on enterprises:

This perspective sees the welfare state as having to cede place to a “competition state”. The latter seeks to protect the competitiveness of enterprises located in its territory by reducing the legislative and tax demands it makes on them, including by intervening minimally in the labour market (NESC, 2005, p 12).

Current debates are more subtle. Some welfare states are doing well, e.g. the Scandinavian ones, while others have alternately been seen as “miracles” (e.g. “the Dutch Miracle” (Visser and Hemmerich, 1997); Finland’s Information Revolution (Castells and Himanen (2002), Moen (2002)). Some even hold the view that the race has rather been towards the top as less developed welfare states narrowed the gap towards the more developed by increasing their tax as percentage of GDP (Baldwin and Krugman, 2000). Yet Ireland broke this alternative pattern and lowered taxes while performing very high scores in GDP-growth from the mid-1990s (Arnal et al. 2001, p 7). Whether this is in part explaining its current crisis is another question? Before the financial crisis in 2008, it was becoming increasingly conspicuous that two, seemingly very opposite systems, represented by Anglo-Saxon and Nordic countries, were competing for the highest growth cores. This is despite the fact that while Nordic countries show tax-rates between 46.6 and 52.2%, the Anglo-Saxon countries only “carry the burden” of 31.9-36.3% tax levels (NESC, 2005; Campbell, 2005; Sachs, 2006). Countries that have taken a middle-road concerning tax levels, such as Germany, France and Italy, seem, on the other hand, to have become rather static with lower growth and high unemployment. Because of this paradox debates on the welfare states have changed as it has been suggested that the Nordic countries constitute a viable alternative to the neo-liberal orientation of the Anglo-Saxon world:

“The “Euro-pessimism” in many parts of the continental Europe, and the claim that Anglo-Saxon liberalization is crucial to economic well being, is belied by the persistent high performance of the Nordic economies. For decades, these economies have maintained high levels of GNP per worker, low rates of poverty, high rates of innovation, and high levels of labor force participation.

The continental European countries seem to be caught, in some ways, between two urges: the social welfare impulses of Northern Europe, and the liberalizing influence of the Anglo-Saxon model. The result may actually be the worst of both two worlds. The continental European countries spend like the Nordic states, but do not generate the tax revenues to support that high level of social spending. They instead run chronic fiscal deficits. (Sachs, 2006, p 19-20).

The reason for the vitality of the Nordic countries is not that pressures from globalization to lower costs have been more modest than forecasted. From 1973 to 2003 the share of low wage countries in developed countries imports of manufacturing products has grown from 11 to 47% (China alone from 1 to 16%) (Sapir, 2005), and rivalry over the flow of Foreign Direct Investments (FDI) has strongly intensified. Measured by the weight of the public sector, the level of wages and union power, the Nordic countries could have suffered most from this development.

The truth is that they actually did for a time. By 1980 Denmark saw itself as moving towards an economic disaster, creating huge and fast growing deficits in public budgets, foreign trade, etc. Shocks came later to Finland (around 1990) with the collapse of its economic relations to the Soviet Union and an early, failed attempt to globalize its national enterprises, and to Sweden, which in the beginning of the 1990s faced a financial and currency crisis that seriously questioned the continuation of the “Swedish Model”. Due to huge, but volatile, incomes from North Sea oil, Norway has been the least effected of the Nordic countries concerning the dramatic shifts that have taken place from 1973 until recently. Because of its huge extraordinary incomes from oil, Norway has been forced to take a cautious view on balancing activities and spending as an optimistic exploitation of its economic room of manoeuvre would have caused enormous inflationary pressures and dramatic deficits in manpower.

During the 1990s, so it seems, the Nordic countries underwent a major shift in the constitution of their economies. The in- and outflow of Foreign Direct Investments (FDI) increased from being a marginal phenomenon to becoming a major characteristic of their economies.

Table 1.1: Foreign Direct Investments (stock) in percentage of GNP 1990 and 2002

Country	To/from	1990	2002
Denmark	To	6.9	41.7
	From	5.5	43.4
Sweden	To	5.3	46.0
	From	21.3	60.5
Finland	To	3.8	27.0
	From	8.2	52.8
USA	To	6.9	12.9
	From	7.5	14.4
England	To	20.6	40.8
	From	23.2	66.1
Germany	To	7.1	22.7
	From	8.8	29.0
France	To	7.1	28.2
	From	9.1	45.8
Ireland	To	72.3	129.1
	From	24.5	29.9
China	To	7.0	36.2
	From	0.7	2.9

Kilde: Eriksson et al. 2006: 9¹

Where their interpenetration with the global economy by 1990 was considerable lower than the Anglo-Saxon and Continental countries, the Nordic countries were contesting the leading countries in terms of globalization by 2002.

Today, 10 to 20 years after these major crises and restructurings of the Nordic welfare states we can see that they did not effect a major retrenchment or “race to the bottom” of their welfare states. It is our hypothesis that instead, crises and restructuring co-evolved with a drift away from the Keynesian welfare state, focusing on demand management, incomes transfers, macroeconomic regulation and standardized forms of social security, toward, what we will call, an enabling welfare state. The latter is supply oriented, offering individualized services that enable micro-dynamic adaptation to constantly changing economic environments, where in the Nordic countries² individuals and enterprises share with the state the risks of experiments. We call this a co-evolution and not a reform or a planned change, because the

¹ This overview gives no indications about Norway, Eli Moen, however have calculated that the level for Norwegian stock of outbound FDI ranges a little less than 30% of GNP in 2002.

² A number of observers have introduced new notions to capture the transformations going on in the nature of Welfare states. Bob Jessop (2000) has seen the transition to a Schumpeterian Welfare State. Salais and Villeneuve (2004) speak about a Capability Welfare State. Perhaps the most highly elaborated attempt to develop a new vision comes from the Irish NESC (2005) using the notion of the Developmental Welfare State. Zeitlin and Trubek (2003) offer a richness of observations on the heterogeneous experiments that are going on the American and European continents.

change is an outcome of unintended consequences stemming from compromises, which neither of the negotiating parties opted for or foresaw. In the Nordic countries political discourses over the future were probably worded in similar ways as in other countries, where the neo-liberal turn perhaps pointed in a more definitive direction. However, Social Democratic resistance was probably better organized, unions stronger and therefore the parties happened to take very heterogeneous routes in reform, very seldom guided by a clear vision of direction. Ironically and gradually neo-liberal critics of Social Democracy in these countries were forced to advocate savings on social spending and state regulation for the sake of better protecting the welfare state. None, however, developed a new vision for an offensive form of welfare state that could help people and enterprises master or better adapt to the changing circumstances that came with globalization, intensified innovation and competition. As a result we have only ambiguous knowledge about what is actually the new form of welfare state that is in the making and why it has developed important complementarities with firms.

The aim of this study is to collect empirical evidence of the nature of roles that institutions and states in Nordic countries are developing by following each their non-teleological experimental process. We think it can be investigated by studying employees, enterprises and regions engaged in constant attempts to reorganize their economic activities within a global context. Our aim is to discover and disclose how they, in different beneficial ways, make use of institutions in accomplishing a process of constant transformation, and how in each of the Nordic countries the state and wider public sector enter into these processes in distinct ways. By comparing similarities and differences and aggregating across the experiences of the four Nordic countries, we are aiming towards a synthesis of what the emerging enabling welfare state is all about. What can distinct countries learn from others so as to create richer and more appropriate forms of institutional complementarities to the experimentalist economies they are evolving?

As Jeffrey Sachs already indicated in the above citation, there seems currently to be good reasons for taking a closer look at the Nordic countries, individually and as a group. Over the last decade, Nordic countries have been among the countries that have improved their position the most on a number of indexes on growth and competitiveness. Thus from 1996 to 2003 Denmark moved from rank 11 to 3, Finland from 16 to 1, Sweden from 21 to 4 and only Norway moved in the opposite direction, from 7 to 9 in the World Economic Forum index on

Competitiveness (see www.maaw.info/WorldCompetitivenessReports.htm). In an index on the aggregated health of national OECD economies in 2004 (including factors such as unemployment, deficits in public sector, inflation, inflationary stability and balance of payment deficits) Norway ranks 1, Denmark 3, Sweden 8 and Finland 15 (Økonomi- og Erhvervsministeriet, 2006, p 204). Among the OECD countries, the Nordic countries dominate the list of countries showing surplus on public accounts (ibid., p 205), have the lowest public debt (ibid., p 206) and the highest surpluses on balance of payments (ibid., p 209). These achievements have come without destroying the general humanitarian situation as they have been able to better defend high positions on Index of Human Progress than other highly ranked countries such as the US and Japan (see The Index of Human Progress on www.FraserInstitute.org) in the latter part of the 1990s, with Denmark ranking 2, Finland 7, Norway 5 and Sweden 8 in 2000. Norway is the only OECD country that in terms of GNP per capita really challenges the number one position of the US economy in 2004. Achieving 80% of the US level, Denmark is positioned 7, and Finland and Sweden 12 and 13, the latter two reaching approx. 75% of the American level (Økonomi- og Erhvervsstyrelsen, 2006, p). The Nordic countries have reached these levels with approx. 10% less working hours per capita than in the US (Norway 25% less) and by being 10-15% less productive per working hour (except for Norway with 22% higher productivity than the US) (ibid., p 33). A very high participation rate of women in the labour force is one of the most significant examples of the distinctiveness of the Nordic societies (Ibid, p 39).

Despite the resulting high gross participation rate in the labour market, since the mid-1990s the Nordic countries have been able to reduce unemployment more drastically than other OECD-countries. In 2004 Sweden and Denmark shared with USA an unemployment rate of less than 5%, Norway fared best with just 4%. Finland, though celebrated for its high international competitiveness, shared the ill fate of a number of EU countries with unemployment around 9% (ibid., p 171). Since then unemployment decreased to extreme low levels through 2007 while the Anglo-Saxon countries witnessed increases.

One of the most important achievements of the Nordic countries is perhaps that they managed to reduce the above average unemployment among the labour force with short education (ibid., p 50) without introducing a dual labour market structure as in the US. Compared to the US where the wage gap between high and low educated is about 160%, Denmark is the most equal country with a difference around 40, Sweden 50, Finland 59 and Norway 62% (ibid., p

51). The Gini-coefficients also reflect this. Here all the Nordic countries, together with Slovenia, show the lowest coefficients (from 22 to 24) among the EU-countries (European Commission, 2004, p 161). In Denmark, and to a lesser extent in Norway, wage differences between the two groups were reduced, while in Sweden and Finland they increased (10-15%) (Økonomi- og Erhvervsstyrelsen, 2006, p 52).

The proportion of long-term unemployed (more than 12 months) as percentage of all unemployed was especially reduced in the Nordic countries from 1994 to 2004. In Norway from nearly 30% to only 9%, in Sweden from 25 to 19%, in Denmark from 32 to 22%, and in Finland from 38 to 23% (ibid., p 171). In short, the Nordic countries seem to have been able to improve their abilities for creating social and economic space, i.e. inclusion, for an increasing number of social groups, though globalization has made it increasingly difficult for many to hold on to usual jobs.

These measures – international competitiveness, the high proportion of the population being economically active, low unemployment, low or no public and foreign debt, etc. – indicate that the Nordic countries have solved the crisis and the short-term threats of globalization. But they do not say anything about how well they score on long-term development potential. In need of a comprehensive theory of development in the new economy, we are unable to predict the longer-term prospects. The World Economic Forum Lisbon scorecard constitutes an index in which the focus of interest is on how well countries develop the characteristics that enable them to change towards modern, knowledge intensive economies, and as such it is at present one of the few indexes that aims at comparing how well countries have developed their potential. In 2002 Finland was the only EU country that on average outperformed the US on the Lisbon scorecard (World Economic Forum (WEF), 2002). In 2004 Denmark and Sweden followed Finland on the 2nd and 3rd place, all three outperforming the US and the UK (as they had done in the latter case since 2002) (WEF, 2004). In 2006 six EU countries ranked higher than the US, with Denmark in the top followed by Finland, Sweden, the Netherlands, Germany and the UK (WEF, 2006). What is remarkable in these developments of comparative development capability is that not only the Nordic countries but also a number of likeminded welfare state countries like the Netherlands and Austria have improved their relative position vis-à-vis the Anglo-Saxon countries.

Most benchmarks that position the Nordic countries in high rankings, including the Lisbon scorecards, are concerned with how well the regulatory regime gives space for capitalist enterprise, entrepreneurship and the free reign of market forces. Some emphasize the outcome of a free enterprise economy in terms of employment/unemployment rates, income distribution and innovative performance, which are all areas where markets and public policies need create dynamic complementarities so that theoretically recognized market failures do not lead to sub-optimal welfare outcomes. Others emphasize the ability of the state to create a healthy macro-economic set of balances of public budgets, trade-balance, inflation, etc. The Lisbon scorecards take us a step further by assessing how well the infrastructure is developing in favour of sustaining an information- and networked economy, and to which extent the population is taking part in it.

However, none of these measures readily address the more structural and recently emerging characteristics of the new economy, characteristics which are poorly recognized by general economic theory and abstracted concepts of markets and firms. Under globalization industries are restructuring in a very fundamental way, creating a shift in innovation modes that leads to an experimental economy, constantly redefining the roles and boundaries among firms (Herrigel, 2007). We need a deeper understanding of this process before we can hypothesize on why the Nordic welfare states may have reached a match between the economic process and their institutions.

Transformative Dynamics of Innovation and Industry

Among policy circles and social researchers a broad consensus has spread that for highly developed countries to stay competitive under intensified globalization, they must move up the ladder of the global value chain and focus on innovative activities. Measured in inputs and outputs from such activities, the US is still the uncontested world leader according to all comparative indexes, but two Nordic countries – Sweden and Finland – seem able to contest the American leadership in most respects, while Denmark moves close if a broader set of data on innovation is used to construct the index. The growing debates about how to measure both innovative in- and outputs (Jensen et al. 2007; Innometrics 2008) are related to how production and innovation are becoming integrated in networks in the most advanced countries, and how societies “enable” firms to evolve in these new directions may be decisive

for their macroeconomic performances. The US and the UK may have been leading during the first phases of these transitions in both industrial and innovative organizations, but the Nordic and other welfare countries may be quick at picking up?

Paradoxically the US leadership owes itself to a very strong leadership in the old Chandlerian Innovation System (ChIS) and to a first mover advantage in the new Networked Innovation System (NeIS) of open innovation, but with the emergence of the NeIS, new constellations of social institutions may provide better complementarities between industry and the state than in the US? In what follows, we shall try draw up the contours of the new economy as we see it.

The Chandlerian Innovation System (ChIS) and its pitfalls

In the aftermath of WWII and deeply associated with Fordism, the growth of large scale scientific, primarily military, programmes, Keynesian welfare states and the Cold War rivalry among social systems, we saw the emergence of what we shall term Chandlerian Innovation Systems (ChIS). In the US the reinforcement mechanisms of large corporations and military programmes cultivated these systems to the extreme. In ChIS governments were, in principle, responsible for advancing general science and basic research, while firms were building research laboratories that could guard scientific advances and turn these into novel generations of products and enterprises, gradually changing corporations from being functionally integrated into divisional forms. Schumpeter (1970, Part II) saw the emergence of the modern industrial laboratory as a routinization of innovation and entrepreneurship, as novel products would flow continuously from these labs and put an end to the traditional capitalist entrepreneur that had been the prime mover of technology during early capitalism. Freeman (1974) confirmed statistically this picture. An increasing number of manufacturing branches were dominated by firms that invested in large labs comprising a large number of persons, representing a multiplicity of scientific disciplines, seen to be necessary for developing products within advanced sectors. To Freeman this gave a new twist to oligopolistic competition, as firms had to pay a certain price or pass a certain threshold of scientific personnel in order to become first movers or early followers in the contest of bringing new products to the market (or to the military).

Some saw this innovation mode to pose a new problem for small developed countries. These would face a competitive squeeze between large countries able to build up highly diversified scientific infrastructures and industrializing countries, able to enter mature product markets with a huge army of cheap workers (Kristensen and Levinsen, 1982). There seemed hardly to be any space in international competition for such small countries as the Nordic welfare states – though Sweden seemed much better than the other Nordic countries to follow suit with this evolution, with a number of large scale technology programmes and highly advanced firms. To be in the game, small countries seemed to be forced to pick a winner strategy and specialize R&D in a coordinated way, but this was also very risky. In many ways Sweden constituted a test-ground, creating military high-technology programmes, concentrating much power in the hand of a financial elite that could coordinate the allocation of resources to a limited number of very large enterprises that soon grew international.

In the ChIS, firms create research labs that include all the scientific disciplines necessary to develop a new product and to protect new products from competitive imitators by concealing the development process and taking out patents before releasing the products. In such laboratories, development work is often split up into pieces and deliberately kept away from the normal factory floor to disable individual researchers, engineers and employees from getting the whole picture of an emerging product, which rests with project managers and top executives, whose loyalty economic and positional incentives secure. Obviously, this way of organizing innovations in the making is highly costly. The advantage of the involved corporations is that only a few players can afford to be part of the game. For that reason monopoly or oligopoly profits can be expected from the innovation process – not to speak of the societal gains in terms of employment, trade balances and military power for the country in which innovation takes place.

In many ways, the ChIS still constitutes the basic framework from which politicians, economists and state bureaucrats have coined new policies for how developed countries can move towards knowledge societies. They believe the knowledge society to constitute the necessary context for firms to renew, on a continuous basis, oligopolistic market positions by holding and continuously renewing patent pools, making it difficult for new entrants to compete. The perspective has nested a whole generation of innovation system scholars that have tried to discover and invent new linkages between the public and the private sector in search of new supply-oriented policies for enhancing innovative performance of mature

economies. The latter is believed to allow for employing highly paid employees, trade surpluses, cheap global finance, etc., making it possible for mature economies to achieve prosperity at a time where Newly Industrializing Countries (NIC) challenge their traditional industrial products.

From the 1970s these visions became shared throughout the world. If a country had no indigenous firms capable of establishing large R&D labs, governments would often step in and finance large programmes or labs that would compensate for and lead to the evolution of ChIS. Countries such as France, Sweden and Norway, with strong ties between firms and the state for planning, became early adopters of such policies, making it possible to enter post-war programmes in nuclear energy, computer-development, weapon systems, etc. In Finland such policies used to be more oriented towards core-sectors such as pulp-and paper, while in Denmark support of innovation rather came in the form of general technical institutes supporting whole industries, on the one hand, and advanced demands from an advanced public sector (medicaments, hospital- and measurement equipment, hearing aids, etc.). Picking winners among firms and technologies, and supporting their build-up of large labs, was also a favoured strategy, for instance in many NICs such as Taiwan, Israel, Ireland. All over the world there were examples of such moves, leading to the diffusion of ChIS – but increasingly in a variety of different distinct constellations.

No doubt, ChIS and its peculiar dynamic still have an impact, in particular on the military sector and pharmaceuticals, where secrecy is vital not only in relation to competitors, but also because government procedures for approving and testing novel products imply protracted and costly R&D processes. Since Freeman (1974) investigated its foundational characteristics a huge number of confusing problems and phenomena has, however, contested the functionality of ChIS, which has led first to questioning its mode of working and then to qualitative changes in a number of core characteristics. Researchers are, perhaps a little reluctantly realising, in a process of discovering and understanding, that a much more Networked Innovation System (NeIS) transgressing corporate and national borders is in the making?

First, by diffusing the ChIS to a multiplicity of countries, the probability of firms gaining monopoly or oligopoly positions in a complicated new high-tech product is reduced, because many corporations and countries are rushing to develop similar future products and markets.

Together with a number of other factors this has affected an increase in the speed of innovation and a shortening of the product cycle. Thus the costs for individual countries and corporations of pursuing the ChIS model may increase, while the probability of harvesting gains is diminishing. ChIS has become a high-risk business. In effect, the rate of failure has increased exponentially. Due to its exceptional fast diffusion the ChIS is facing a so-called crowding out or poison effect. Second, by building up ChIS in many countries, knowledge and innovative search has spread from a few, large Western countries to most of the world, offering the world an enormous complex of different sources for inventive inputs. Third, investigating large R&D labs, von Hippel () found that research organizations of the ChIS type would first be quite unproductive, then witness some years of high productivity and then decline in inventiveness, suffering from the “not invented here syndrome”. Probably what happens in such research labs is that they become closed around themselves, partly because of imposed secrets among members and towards the outside. They become so to say self-limiting by coming of age, and yet one of their ways of protecting their assets is to keep people tied and loyal to the lab. Sweden, in particular, seems to have suffered from this as the outcomes of very high levels of spending on R&D in large firms (Mariussen, 2006) proves to be low.

External Challenges to the ChIS

Against this background it was hardly surprising, though observers at the time when it started to be recognized were surprised, that small- and medium sized (SMEs) firms were more inventive than large firms. However, it was believed for a while that large firms' R&D labs were more efficient in bringing novel ideas from a premature to a mature level in the innovation chain, not least because such labs were embedded in environments rich on resource and thus possessing better marketing capabilities.

Yet, from the 1980s onwards it became clear that clusters of SMEs in industrial districts were not only able to compete with large firms in mature industries, but also to organize production in flexible ways. In effect new product-cycles could be launched with higher frequency and be more differentiated to match different groups of customers than was possible for ChIS that was heading for significant changes in product models for mass-markets, supported by large scale investments in productive facilities. Often gradual differentiation and product-modification of SMEs ousted the new products that ChIS had in the pipeline, making the

latter products obsolete from their introduction. This period was the heydays of Italian industrial districts. Also Japanese and German car manufactures were increasingly basing their products on networks of suppliers each capable of innovating on parts and subsystems of the car, leading to continuous improvements of products – even during the same “model” (Piore and Sabel, 1984). One could say that the ChIS and the emerging NeIS were being integrated.

But the ways of organizing innovation activities were also contesting each other. Even in the core economy of the ChIS, the USA, observers discovered that areas such as Silicon Valley were based on many small innovative companies, connected by a very fluid labour market in which employees would be moving among various projects, depending on which firms were active in inventive processes and could offer challenges that permitted high-tech engineers to keep abreast with the fast moving and changing skill requirements (Saxenian 1996, Barley and Kunda,2004). One of the reasons why Boston was less inventive during these years was probably the tendency of firms in the area to be more inclined to organize R&D labs along the model of ChIS, even in medium sized firms, reducing the options for re-combining and developing new skills as technology changed.

Numerous large firms tried adapt to these new tendencies by setting up venture departments to search for and invest in up-coming stars from the outside, to use these to speed-up their internal innovative performance. The Boston Consulting Matrix created a mind framework for working with divisionalized firms after a novel concept of how portfolios of investments should be distributed. On the other hand, small inventive groups of researchers and development engineers started to organize themselves in ways making them visible to large investors – to gain riches though they were far from or even erroneously routed for a successful product. Such mutually adaptive ways of behaviour, rather than giving way for a new self-reinforcing innovation system led to bubbles – such as the bio-tech and the IT-bubbles.

These were confusing years – also in the Nordic countries. Whereas Norway generally moved away from an economy with high state-ownership in industry and a high profile in government funded industrial research, Denmark liberalized its sector- and branch-institutes; Finland took a very different route and its public and private spending in R&D leaped

creating one of the most admired Innovation Systems around 2000. Nokia emerged as the focal enterprise of this transition from a raw material based to a high-tech economy.

Steps to an ecology of a new innovation system

Yet, the outcome of these successful and failed experiments moved the world from a pattern of discontinuous cycles of innovation followed by stable mass-markets to one in which innovation has become continuous as new parts and pieces for integrated products pop up from everywhere in increasingly decentralized, global value chains. *Wintelism* was used for a while to signify the new situation where firms use components from famous, innovative suppliers of parts and programs. Under such conditions organizing product innovation after the earlier ChIS recipe is almost self-defeating. According to ChIS, R&D personnel will work in a highly planned way with the new generation of a product shielded off from the external context and in such a way that nobody – apart from project managers - can see the whole blueprint towards which the lab is heading. To make proper use of outside suppliers the boundaries of corporations must be opened up.

For this reason, and to speed up the innovation process, labs have experimented with novel ways of organizing work. A new template for doing innovation is concurrent or *simultaneous innovation* (Helper, Duffie and Sabel, 2000) where the idea is to bring people together across specialties and let them communicate rather than separating them to secure secrets:

Design follows a disciplined, decentralized process known as simultaneous engineering. Each subunit (internal or external – PHK) responsible for a constituent component proposes modifications of the initial plan, while also considering the implication for like proposals from the other subunits for its own activities. Provisional designs are thus evaluated and refined, and the cost of each attribute is compared to its contribution to functionality using the technique of value analysis/value engineering.

Once production begins, systems of error detection and correction use breakdowns in the new routines to trigger searches for weaknesses of the design or production process that escaped earlier examination. As in pragmatism, the continuous adjustment of means to ends (and vice versa) is both the means and end of collaboration among the producers. (Ibid., pp, 29-30).

Together simultaneous engineering and systematic error detection has created a new *experimentalist dynamic* in a number of sectors and places of the world, and for any nation, sector, region or firm to become truly innovative it must cultivate endogenously the new ways of working with innovations and connect to firms and regions that already work in novel

ways (Unger, 2007). Seen from this perspective, globalization not only offers tense competition but also ongoing promises in the form of possible networks among highly experimentalist economic entities that may bring societies, employees, regions and firms with quantum leaps in development. A major question in the present book is whether, to what extent and how the Nordic countries have been engaged in these new dynamics?

The new practices do not come automatically and are not equally easily implemented in companies throughout the world. For instance, as Lam (2005) shows in her comparative study of British and Japanese engineers collaborating on an innovation project, differences among countries are largely dependent on the structuring of the general labour market. Where in Japan the *nenko* system makes it fairly easy to practice simultaneous engineering as people can work jointly on a first draft of a product, and then engage in multiple and shifting combinations of continuous improvement of it, because they expect to be recognized by their colleagues and superiors within the firm, British engineers are in a very different situation. They neither expect nor opt for life-long employment in the same firm. Thus if they want to advance their career through the external labour market, they need to have their own separate contributions recorded in their CVs. This in turn requires that their tasks are specified and can be isolated from the larger project. This again calls for close planning from the outset of a project and the recruitment of different specialists qualified for specialized, distinct and pre-specified tasks within the larger project. This makes it very difficult to practice simultaneous engineering. Thus if firms want to reform their labs by increasing the flow of manpower in and out of their facilities with shifting projects, they may face difficulties in changing their internal work organization towards a mode of working that faster produces better results. Thus the very form of organizing innovative activity in ChIS is limiting its possibilities for reform.

But corporations are generally forcing economies to take steps in the direction of experimentalist practices. First, as trendsetters within financial “markets” started to question some of the basic organizational traits of the divisionalized firms, managers were forced to change behaviour. While divisionalization into diverse activities that could mutually stabilize cash flows and business cycles was earlier regarded as beneficial, financial institutions in the late 1980s held the view that this would lead to managerial incompetence and make it difficult for shareholders to assess the performance of a corporation. Concepts such as “core-competencies” have since become tantamount to strategic planning for corporations wishing

access to cheap financial resources from the stock market. But this is also undermining the rationale behind centralized large scale R&D-departments and increases pressures for outsourcing. Second, chasing cheap financial resources lead to waves of mergers and acquisitions as corporations try to regroup from earlier conglomerates of businesses towards being more focused on core competencies. In effect large corporations buy up entire corporations with many individual subsidiaries, sell off both new and old subsidiaries, essentially winding up with corporations where only a few HQs top executives know what is going on. To show results to financial investors, they eagerly impose on their subsidiaries monitoring principles that lead to simultaneous engineering and pressures for continuous improvement. Subsidiaries of corporations are mutually rivalling over innovativeness and cost effectiveness to improve their positions. Some of the best try to comply by innovating new mandates partly to serve their owners to the best of their knowledge, partly to break out of the deadlocks that they feel their owners are opting towards. In any case subsidiaries try pursuing low budget innovative strategies by building ties to the contexts in which they are embedded and to innovate through collaborative ties with customers, local institutions and suppliers (Kristensen and Zeitlin, 2005; Sölvell and Zander, 1998). In this way the institutional environment, the labour market and the larger local cluster of enterprises becomes highly important for the ability of different subsidiaries to gain comparative advantage over their sisters. As some MNCs see this as an opportunity to gain cost reductions in innovation activities and start deliberately distribute R&D budgets globally, subsidiaries rather than corporations develop portfolios of novel potential technologies that provide for them an enlargement of future possibilities (Sölvell, 2003) – more connected to the science parks, industrial districts or clusters in which they are embedded than with the multinational of which they are part.

As Herrigel (2007) demonstrates this means that firms must constantly redefine their roles towards other firms so that the division of labour among them is constantly being revised to reduce costs and speed up the innovation cycle in the global value chains of which they are part. Consequently, firms, as parts of global value chains, are engaging in mutual ongoing redefinition of roles and rules.

The point is that relations are extremely dynamic and heterogeneous in contemporary manufacturing, both within firms and between firms. The role of customers and suppliers in any given bidding round are fundamentally ambiguous, even to themselves. The division of roles only becomes clear through repeated interaction and reciprocal efforts to define the possibilities and

limits of a jointly defined project. And even then, it is merely provisional, stable and clear only until the end of the project and the beginning of another bargaining round.

This role ambiguity is accompanied by, bound up with, and exacerbated by a growing ambiguity regarding the territorial scale of production. Under pressure to innovate and reduce costs, customers and suppliers seek to achieve their goals wherever they can: components can be drawn from far away or nearby, collaborators identified in foreign locales or in neighbouring cities. As in the distribution of roles, this ambiguity is only resolved in the process of interaction. Customers and suppliers both have an incentive to expand the terrain in which they can both learn about new technologies and produce them profitably. Crucially, this does not involve abandoning the most local and proximate locations for production. Rather it involves supplementing the capabilities of local agglomerations with those of other places.

Role and scale ambiguity are currently constitutive of industrial practice across the world's industrial economies. Continuous pressure for innovation and cost reduction are the drivers of this ambiguity and a vertically disintegrated supply and value chain with highly volatile and heterogeneous relations are its manifestation. The emergence of these kinds of relations in industry has generated tremendous pressure for change on all the institutions that constitute national business systems—in industrial relations, vocational training, finance, welfare provision, regional industrial policy. (Herrigel 2007).

However to be able to make constant external re-definitions of roles, firms must internally decentralize to operative levels responsibilities for continuous improvements so they can be quickly recomposed. So-called high performance work organizations (HPWO) striving for continuous learning become part of the experimental landscape, such as team-based organizations and lean managerial techniques. But decentralizing to teams the responsibilities for continuous improvements, demands more skills of the employees, which simultaneously enable them to contribute to innovative activities, in turn undermining the traditional demarcations of jobs in firms between those that work with formal R&D and those in production, making it less than easy for managerial apexes to coordinate these activities.

Life in organizations shifts character and means:

- a. a levelling of hierarchical distinctions,
- b. an interpenetration of units designed to enhance the integration and maximize the coordination of previously autonomous functions
- c. a dramatic increase in the amount of behavior that is not rule-bound,
- d. hiring and promoting people who are creative and have a feel for the job,

- e. shifting assignments in and out of flexible work teams, and
 - f. more widespread access to information within and across organizations
- (Carnivale 1991; her citeret fra Hage and Powers, 1993:5)

Compared to the bureaucracy of Weber, these changes are radical. Whereas bureaucracy so to speak structured social interaction between fixed and stable routines and roles in a rule-bound way, continuous interaction (mutual negotiations, adoption of new ways of coordinating and governing) triggers change in emerging organizations leading to the formation of roles that are non-bureaucratic. A number of forces further reinforce this:

- a. As the pace of technological change increases people change roles more often, and these requires adjustment.
- b. As technology releases people from more routine activities, roles focus more on problem solving, which requires that people be able to "read" clients in order to ascertain what their problems are.
- c. The more advanced technology becomes, the more progress we make in overcoming small, disciplinarily narrow problems. Consequently, we spend more time addressing interdisciplinary problems with people from different fields, who speak different disciplinary languages, with all the communication problems that this entails.
- d. Demand for customized products, services, and personalized attention means that scripts must be supplanted by individualized treatment.
- e. The breakdown of traditional institutions throws even the most clearly defined roles of the past open to renegotiation.
- f. The deconstruction of occupation, department, hierarchy, and even organizational boundaries means that scripts in jobs are being replaced by high amounts of interaction and role redefinition (Hage and Powers, Ibid: 93).

Re-defining the roles of firms in larger value chains and the organization of work in HPWO is self-increasing because teams can easily be eliminated or new ones created. This process may in itself offer employees opportunities to learn to be reflective and communicate with associates to deliberate the constant change of work arrangements within and among teams. But though the process could be self-propelling, when first initiated, it might involve many institutional preconditions to allow for it to happen in the first place. Whether employees are

willing and able to take on such responsibilities depends on how institutions co-create employees through education, community life, etc., and the way in which professions balance openness and control over job jurisdictions.

Sabel (2006) sees the transformation of firms as one of introducing “revolutionary routines” or routines which are constantly changing by trying to transgress existing boundaries of work – both in terms of innovation and of improvement. They do that by expanding search and the networks through which search takes place. In this way, one may imagine that a firm can expand its search-network by expanding the number of employees that have access to search-networks. This again is often dependent of with whom external to the firm that different employees are interacting, and how they move in and out of companies (Barley and Kunda, 2004). The more employees meet with colleagues from other corporate settings, the better they may be able to overcome the barriers for creating search-networks. This again may depend on institutions, such as centres for continuous training, professional societies and union arrangements.

Whereas government funded research and universities used to be the dominant institutional matrixes for such open communication and search-networks, today we are witnessing a set of revolutions much closer to the boundaries of firms. Saxenian (2006) gives an example in her latest book demonstrating that the influx of especially East-Asiatic students to elite universities such as Stanford provides an important ground for creating the mobile labour market that has made Silicon Valley so innovative in the first place. As many of these foreign students later return to their native countries, often very rich in terms of money and experience, the foundation for worldwide nexuses are created. Another example is the Linux-network within which IT-workers jointly can expand their knowledge and innovativeness during spare time and turn gained experience into skills that can be harvested economically, when working for private firms during temporary contracts. Such networks may simultaneously have a social dimension, such as the quasi-professional networks created in the labour markets that Barley and Kunda describe. In Denmark, we have found such networks among e.g. CNC-workers, who have met during a number of further training courses, got to know one another, and are now drawing on each other when facing novel problems. Such networks might become communities for developing and assessing skills much more properly than either their general profession or the firm in which they are working. Obviously, the Internet provides an ideal media for easily organizing such webs of

contacts that help form temporal sub-professional communities. IT-professionals say that on average it takes 15 minutes over the Internet to find a solution to a programming problem, if one knows how to address the right communities in the right way.

The existence of collaborative communities changes the role of entrepreneurs, designers, etc. To bring a number of representatives from diverse communities together under a joint aim in a process of simultaneous engineering makes it possible not only to re-combine a number of specialties, but also to benefit from a number of other commons with each their different vegetation of skills and knowledge. The problem of capitalist corporations, however, is that they would like to draw on these resources, but owe their future prosperity to their ability to privatize the use they make of them and by returning as little as possible to the commons. Existing professions might in a similar way have an interest in relating their own members to such commons, but try keeping other professions and groups of workers away to protect their own interests. The possibility of opportunism and free-riding is huge, also at the level of individuals (Boltanski and Chiapello, 2007). Dependent on how national innovation systems were organized in the past, different routes to and versions of NeIS may emerge in the future. For that reason, in what follows, we will first give a gross picture of what the national systems looked like in the different Nordic countries to preliminary assess their functioning in the transition from ChIS to NeIS.

Innovation and Business Systems in the Nordic Countries

If we search for a general explanation of why the Nordic countries have performed well in the last 10 years, it is certainly not because they have developed a distinct and similar innovation system. The state seems to play very different roles in the four Nordic countries in terms of public spending on R&D. For instance, Denmark is a middle-range country in term of public spending on R&D (together with countries such as Germany, Netherlands, Japan and Great Britain – i.e. close to the EU-average). On such indexes Finland, Sweden and Norway (in that order) score much higher (Økonomi- og erhvervsministeriet, 2006, Figure 6.6., p 99). Concerning Gross Expenditure – that is when private sector spending is included - on R&D as per cent of GDP, Sweden leads the Nordic league (more than 4% and close to the American figure), whereas Finland follows right after (3.5%) and with a gap to Denmark (2.3%) and

Norway (1.6%), because the private sector is a low-spender) (Mariussen, 2006, p 229). This indicates that in Finland and Sweden, the state shares risks in R&D with private companies.

Mariussen has analyzed how these input-factors correspond to different new measures of output, showing that whereas Finland and Sweden by these inputs generate a share of turnover by new or improved products at the level of 25%, Denmark follows at the level of 20% and Norway at 10%. If only new products are included, the ranking shifts with Finland at the top (22%), Denmark second (10%), Sweden third (only 6%) and Norway at the bottom (3%). In terms of efficiency (turnover divided by innovation costs), Denmark performs markedly above the rest, followed by Finland with a gap to Norway and with Sweden at the bottom. Mariussen uses these data to characterize the differences in their business systems' ways of transforming and innovating (Mariussen, 2006, p 228-232):

- Most Norwegian companies are process-oriented, focussing on incremental process innovations rather than new products. Engaging in too much R&D is seen as increasing costs, whereas gradual rationalizations save on costs and manpower.
- Swedish corporations share many similarities with advanced Japanese and German firms by having sophisticated and advanced knowledge bases, highly developed industrial organizations, owners with a profound interest and financially backed commitment to technology and knowledge. Large-scale projects organized across firms and between the public and private sector characterize the innovative dynamic.
- Finland demonstrates a “transformative” ability as it is able in a coordinated way to re-allocate industrial and knowledge resources into novel areas and turn-around the entire economy after the 1990 crisis. Nokia serves as a paradigmatic case in point, showing that coordinated market economies are indeed able to undertake major transformations.
- Denmark is able to make rather modest investments in R&D very effective in producing a high output of new products by making use of skilled employees (a craft system of innovation) and tight contacts to customers. Interestingly, in no other country are SMEs as R&D intensive and spend as high a percentage of GNP on R&D as in Denmark (Økonomi- og Erhvervsministeriet, 2006, p 109).

Consequently public spending on R&D is supportive of very different innovation processes in industry in the different countries, and the different patterns could indicate that there are problems involved in changing towards NeIS as they mostly were created in support of ChIS. The inner workings of these national innovation systems are difficult to comprehend. For instance, in both Norway and Finland private business co-finances to a high degree public research, this is not the case in Denmark and Sweden (ibid., p 102). Paradoxically universities are more frequently the sources of innovations to a higher proportion of firms in Sweden than in Denmark, Norway and Finland, with Finland at the bottom, probably because universities in Finland cooperate with a smaller segment of firms. Within this segment, however, the ties seem very close:

A comparative survey conducted by the European Union in various member countries shows that by the turn of the century 70 per cent of all innovating companies Finland had established contact with R&D institutions or educational institutions On this indicator Finland had the highest position among EU countries. (Moen and Lilja, 2005: 370).

Whether this is an indicator of a transformation towards a NeIS or an integration towards a ChIS remains to be seen. The range of search and networks is here the determining factor. But the Nordic countries' seem all to cultivate their infrastructure for innovative collaboration. This is expressed in phenomena such as e-readiness and digital infrastructures where they all rank among the 10 best in the world (Økonomi- og Erhvervsministeriet, 2006, p 201; Arnal et al. 2001, p 12).

The current situation in the Nordic countries is an outcome of very different moves within them. For instance, in Denmark a rather well-developed sector-oriented system of technical service institutes has been subject to radically reduced public financial support, making most of them dependent on their ability to sell services to customers. The same has happened in Norway, where large scale technology programmes have been "privatized" in a similar way. In Sweden, the debate has often focused on how its large MNCs have engaged in re-allocating globally its R&D facilities. But to our knowledge no analysts have assessed what these moves in the Nordic countries have implied for their evolution towards globally NeIS. Only in the Finnish case do we know that a more coherent national innovation system has developed, but the question is whether this is simultaneously used as a platform for better integrating into the world of experimentalist practices? The same is true for the "innovation systems" of the other countries, where the current situation is in need of in-depth case-studies to assess how firms have reoriented themselves.

On enterprise level, however, European Working Conditions Surveys demonstrate that work in the Nordic countries seems to be organized in ways highly different from most other countries. As the following figures indicate, the three Nordic countries in the EU have all developed towards the “learning” form of work organization (Lorenz and Valeyre, 2003, p 13).

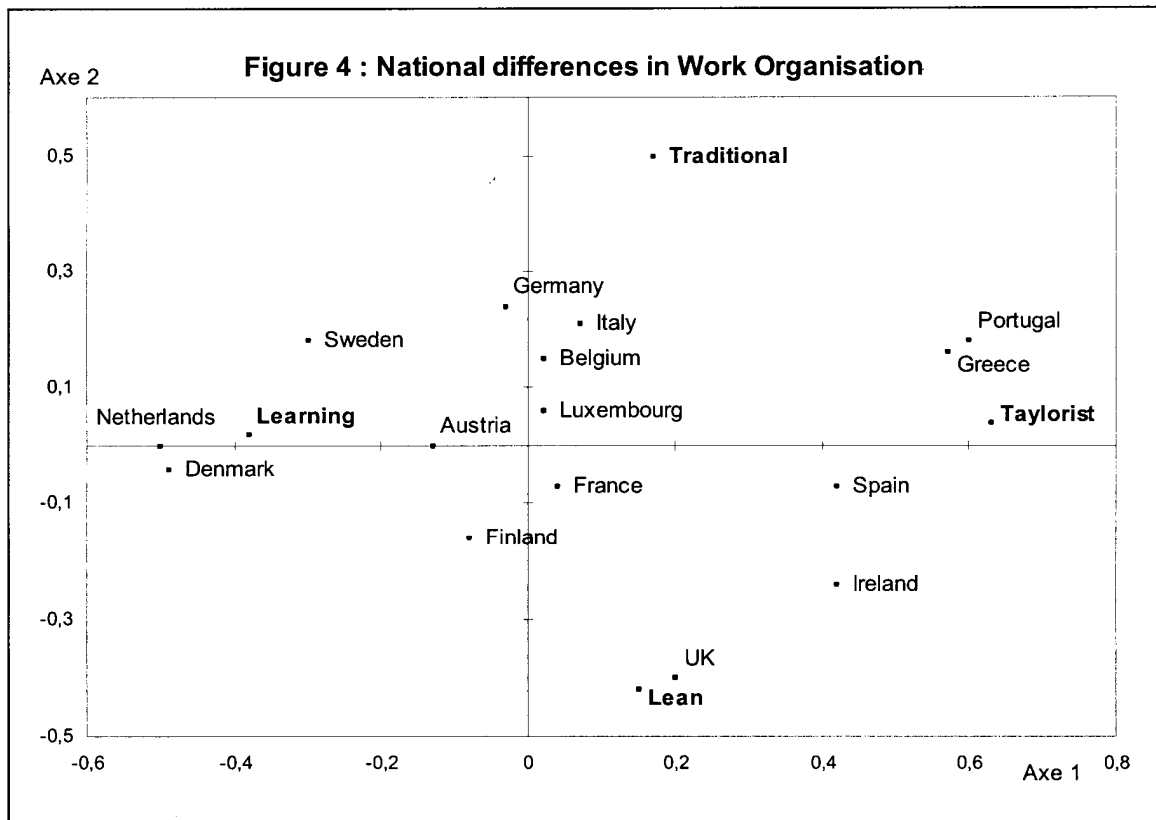


Table 6
National Differences in Organisational Models

(percent of employees by organisational class)

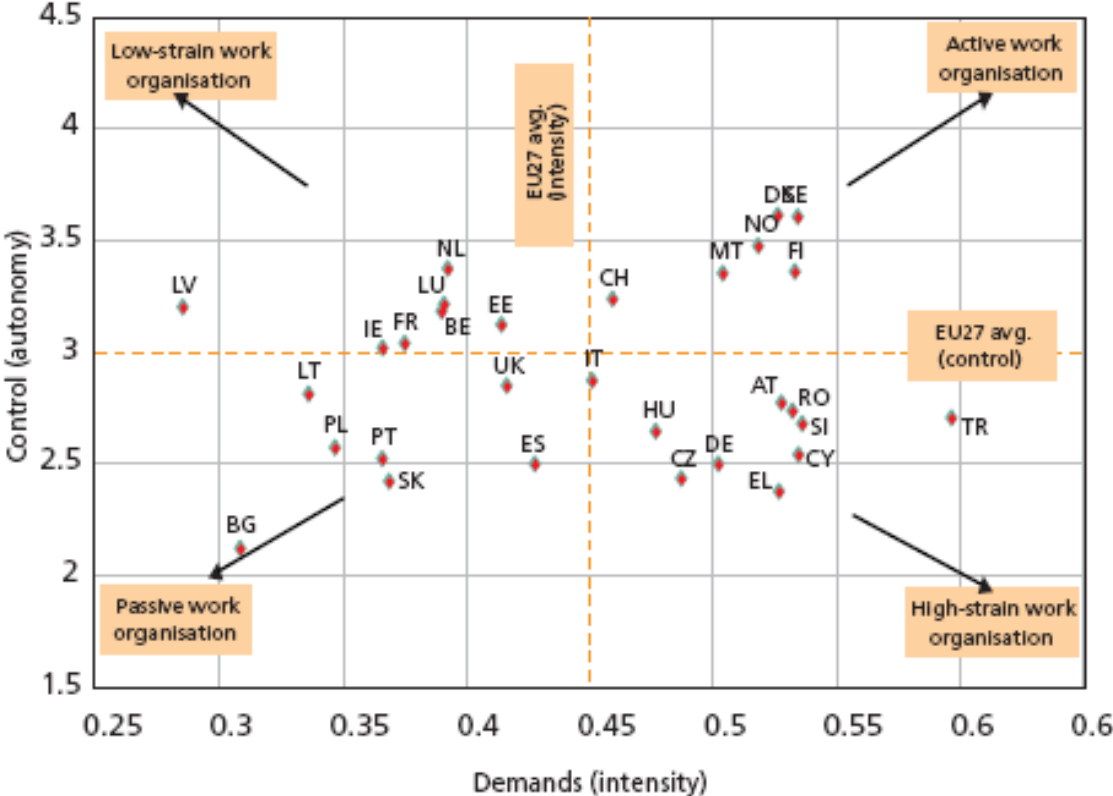
	Learning organisation	Lean production	Taylorism	Traditional organisation
Belgium	38,9	25,1	13,9	22,1
Denmark	60,0	21,9	6,8	11,3
Germany	44,3	19,6	14,3	21,9
Greece	18,7	25,6	28,0	27,7
Italy	30,0	23,6	20,9	25,4
Spain	20,1	38,8	18,5	22,5
France	38,0	33,3	11,1	17,7
Ireland	24,0	37,8	20,7	17,6
Luxembourg	42,8	25,4	11,9	20,0
Netherlands	64,0	17,2	5,3	13,5
Portugal	26,1	28,1	23,0	22,8
United Kingdom	34,8	40,6	10,9	13,7
Finland	47,8	27,6	12,5	12,1
Sweden	52,6	18,5	7,1	21,7
Austria	47,5	21,5	13,1	18,0
EU-15	39,1	28,2	13,6	19,1

Source: Third Working Condition survey. European Foundation for the Improvement of Living and Working Conditions

This “learning” form of work organization is “characterized by over-representation of the variables autonomy and task complexity, learning and problem solving to the extent of the variable measuring individual responsibility for quality management. The variables reflecting monotony, repetitiveness and work rate constraints are underrepresented. This cluster would appear to correspond to the Swedish socio-technical model of work organization or to what Freyssenet (1995) has referred to as “reflexive production” “(ibid., p 6). The learning mode of organization and the room for applying own ideas at work seem systematically to co-variate with universal welfare states, placing the Nordic countries in a very distinct situation compared to other EU countries. Thus the data suggest that in the Nordic countries, organizations have shifted faster toward NeIS than in any other comparable European countries, when it comes to work organization.

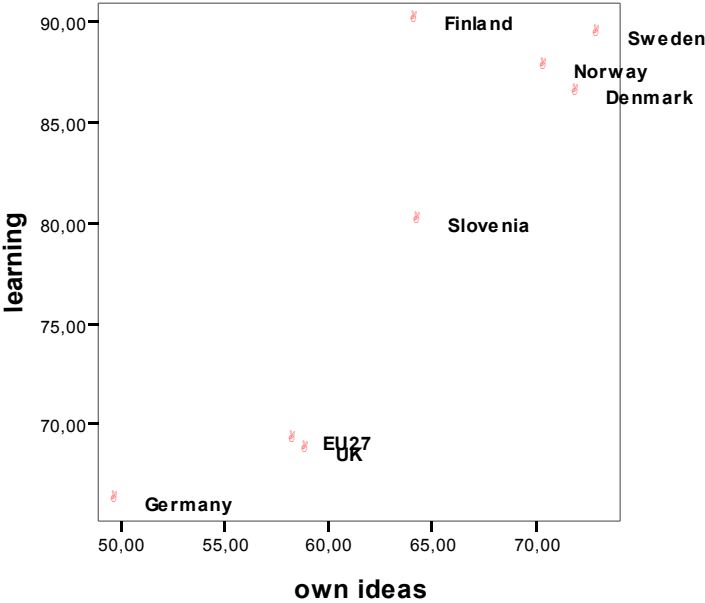
This co-variance becomes even more pronounced, when we consider the following figure from the Fourth European Working Condition Survey (European Foundation for the Improvement of Living and Working Conditions, 2007: 60):

Figure 6.12: Job demands and control, by country



The figure clearly shows that all the Nordic countries (NO, FI, DK and SE) are uniformly combining the highest degree of work autonomy with the highest degree of demands on work-intensity. Interestingly, if different occupations in Europe are sorted after the same criteria, the general work situation in the Nordic countries resembles mostly that of managers (Ibid, Figure 6.13) – but in the Nordic countries all employees work as if they were managers. Work-intensity is high neither due to the pace of machines (Ibid:54) or high demands of superiors (Ibid: 57), as these factors are lower in the Nordic countries than anywhere else. Demands from people (customers, suppliers, colleagues) set the pace of work, suggesting that employees work in a way that we would expect if they were engaged in NeIS. The the figure below indicates the same, showing that people to a higher extent than in any other European countries is both learning new things and applying own ideas at work in the Nordic:

Nordic countries, Slovenia, EU27, UK and Germany:
Generally, does your main paid job involve learning new things ..
You are able to apply your own ideas at work
 Fourth European Working Conditions Survey



Source: Åge Mariussen adapted from (Ibid)

Thus the Nordic countries seem to have made it possible for firms and employees to develop work organization that may be highly compatible with globalization and the new experimentalist economy.

Though these forms of work organization are highly intense they seem not to cause dissatisfied workers. The two countries ranging lowest on the proportion of employees dissatisfied with their jobs are Denmark (5%) and Finland (7%), while in Sweden it is 15% (European Commission, 2004, p 166). In the Nordic countries working conditions are among the best concerning health and safety risks, and working hours are much more compatible with family and social life. Because of highly elaborated bodies for employee participation, workers become co-designers of jobs and work organization. This leads not only to the protection of workers, but, as Arnal et al. (2001, p 47 ff) argue, also to a high correlation between worker representation and the scale and speed of the diffusion of novel work practices.

The Distinctiveness of Nordic Welfare States in the Transformation to Experimentalist Economies and NeIS

The question is whether the significant co-variance between “learning organizations” and the Nordic Welfare States can be seen as an institutional effect? The transition to experimentalist economies, new forms of work organization and NeIS has, in most countries, been painful for most social classes. In the US it has led to a dual labour market in which the ever-expanding number of new projects offers the financial community, lawyers, R&D-personnel, etc., great opportunities, while it has led to stagnating incomes for most middle class families and factory workers and to low salaries or poverty for emigrant service workers (Reich, 1991). Similarly Boltanski and Chiapello (2007) have seen the emergence of the *projective city* as one that puts a premium on those who are highly mobile in networks making one project the admission to a new one. This favours certain mobile elites of the French society, whereas those who are bound by young age, space, family, traditional occupations are outright excluded from entering the projective city, partly being exploited by the new economy. In some societies the networkers, the immobile and the excluded may co-create a complementary dynamic between “great men” and “small people”:

In a connexionist world, where high status presupposes displacement, great men derive part of their strength from the immobility of the little people, which is the source of their poverty. The least mobile actors are a salient factor in the profits that the mobile derive from their displacements. ...

If it is true that some people’s immobility is the precondition for the profits others derive from their ability to move around, and that mobility procures

incomparably greater profits than those who remain *in situ* can aspire to, then we may say that the immobile are exploited in relation to the mobile. They are exploited in the sense that the role they play as a factor in production does not receive the acknowledgement it merits; and that their contribution to the creation of value added is not re-numerated at the requisite level for its distribution to be deemed fair (Ibid, p 363).

Mobility in Boltanski and Chiapello's universe is foremost a question of being able to move among projects – physically or mentally. It is a question of not being tied to existing routines, loyalties, habits of life or possessions of property. But seen from this perspective most people from “humble stations” (Smith, 1969) do indeed seem quite immobile. They are simultaneously inscribed within a narrow or low education, tied to family obligations – both children and parents - dependent for the little they have achieved in terms of incomes on loyalty to a single employer and risking a lot if they neglect their space-bound obligations.

On the other hand, if we imagine a family, where both husband and wife would be able to live a mobile working life, engaging themselves in shifting projects with shifting working hours, where they temporarily have to be away from their house, their children and their normal jobs taking new courses or new educations, perhaps going abroad to set up a new plant, join an international project team, the challenge seems clear. Everything else being equal such a working life only seems possible for people with incomes high enough to pay for the services of others that can help them look after children, parents, garden, etc. For that reason, it seems very difficult, in France as well as in the US, to transform from the ranks of the immobile to the ranks of the mobile.

The question is whether the welfare state makes a difference? Could it be that the Nordic welfare states enable firms and employees on a broader scale to engage in the mobile life of learning organizations and NeIS? Mostly, observers hold the view that high taxes and incomes redistribution explain why the Nordic countries are more egalitarian than other societies. This might have been the explanation in the past, but today this egalitarianism may be much more related to features that enable a higher proportion of the population to become mobile citizens of the experimentalist economy or the “projective city”.

André Sapir (2005, p 7 ff.) suggests that the Nordic Model combines high efficiency (as it provides sufficient incentive to work and therefore relative high employment rates) with high equity (as the risk of poverty is relative low). High efficiency the Nordic Model shares with the Anglo-Saxon Model, which is, however, low on equity. High equity it shares with the

Continental (European) Model, which is, however, low on efficiency. The Mediterranean Model is low on both equity and efficiency. Efficiency in employment rates seems easier to achieve by unemployment insurance (as in the Nordic countries) than by employment protection legislation (as in the Continental and Mediterranean countries). According to Sapir, redistribution (via taxes and transfers) can only to a limited extent explain equity and the avoidance of poverty risk. However, “the correlation coefficient between the index of poverty and the measure of educational attainment” is very significant. “The proportion of the population aged 25-64 with at least upper secondary education is highest in the Nordic (75%) and Continental (67%) countries and lowest in Anglo-Saxon (60%) and Mediterranean (39%) countries, a ranking that matches perfectly the position of country groups in terms of poverty risk” (ibid., p 8)³. Perhaps there is no guarantee that education gives access to the projective city, but it seems quite evident that it provides individuals with an armoury to become more flexible and to get access to the means that make it possible to redefine one’s role more easily.

Hacker (2006) offers another clue to the difference. In his detailed discussion of retrenchment in American welfare he shows that such retrenchment has not taken place at a general statistical level. Rather, it has come in the US by an increase in risks themselves combined with state and political actors having abstained from recalibrating social programs to the new risk-profile that has come with globalization and changed family structures (ibid., p 12). Hacker summarizes the new risks and their consequences for the American society in this way:

The constellation of risk that citizens face has changed significantly in the past three decades due to linked changes in work and family (Esping-Andersen 1999; Skocpol 2000). In the employment sector, the shifts include rising levels of earning inequality, growing instability of income over time, increased employment in services and in part-time and contingent work, and increased structural (rather than cyclical) unemployment. In the realm of family relations, the changes include rising rates of divorce and separation, declining fertility (a root cause of population ageing), and the increasing prevalence of lone parent, female-headed families. Connecting the two domains is perhaps the most and fundamental shift in the worlds of work and family – the dramatic movement of women into paid employment. (Ibid., p 20).

Increasing inequality and a tripling of instability (between 1970 and 1990) of incomes follows in the wake of these new social risks in the US (ibid., p 23). Framed in the language of Boltanski and Chiapello many try or are forced to be mobile in the American economy, but

³ This may be further elaborated by the fact that apart from a few other countries in the Nordic countries less than 10% (and for Norway only 5%) leave school without a qualification (OECD, 2006, p 138).

fail and are faced temporarily or permanently with drops in family incomes. In such a system the threat of winding up in poverty, divorce and social de-route is huge – at least for the lowest strata. But the American outcome is not unavoidable:

In principle, U.S. social policy could have adapted to changing social realities. As the path breaking feminist writings on the welfare state show (e.g. Orloff 1993; Steson and Mazur 1995), some nations – most strikingly, the Scandinavian welfare states – have dramatically expanded public protections that help women enter the labour force and balance work and child-rearing. Many of these same nations have also tackled the new realities of the labour market with active employment and training policies (Levy 1999). Putting aside some modest exceptions, however, the United States did not follow this path. (Ibid., p 24-25)

As Wheelock and Mariussen (1997) show, the core characteristics of welfare states may influence, to a high degree, the dynamics in families and their relations to the labour market. For instance, in means-tested systems, such as in the US, there might be economic incentives for a breadwinner becoming unemployed to ask his wife to withdraw from a part-time job in order to get the maximum benefits, while in a universalistic welfare state where the social benefits follow the individual, an unemployed breadwinner might do household work in order for his wife to expand labour market activities. In the first case, bad luck may double; in the second it may be exploited as an offensive opportunity. Social protection schemes in the Nordic countries may allow families to fail in the projective city without risking a dramatic social de-route, and, on the other hand, social services may enable the family members to take part in the unpredictable working life of the experimentalist economy.

Combined, this suggests the following reasons for why the Nordic countries may differ from most other western countries:

- First, by offering their citizens much more equal educational opportunities they equip a larger proportion with the educational background for handling risks, shifts and changes⁴;
- Second, by sharing these (family and working life) risks with their citizens, the states help citizens transform from one job to another, from one life-phase to another, from a high to a low income situation, etc., so that citizens can be continuously more economic active than in other types of societies.

⁴ This does not imply that they have solved the educational problems. Compared to Finland, Norway and Denmark and to a lesser degree Sweden performs poorly in PISA-tests

- Third, by providing social services that make it possible to live a non-routinized, non-space- and profession-bound life for both females and males, it becomes possible for families to enter the experimentalist, projective economy and in this way enable “learning organizations”.

The institutions that support such risk sharing and servicing, we hypothesize, have grown in importance, sophistication and significance with globalization and increasing participation rate in the labour market in the Nordic countries. In most other social models, we expect these risks and the costs of services to have become privatized and therefore must be insured against or paid for by either employees or employers, thereby creating, among the population, very unequal capabilities to deal with them. Differences become bigger between the included and the excluded, and it is close to impossible to move from being excluded to become included, whereas the other direction is a permanent risk.

The state can share risks with families in two ways. First, by transferring cash benefits to compensate for lost or missing incomes in times of problems, temporary unemployment, etc., enabling to concentrate on getting a new job. Second, by providing services the state creates an infrastructure making it possible for families to live under the hectic pressure from the new forms of work organizations or, if in trouble, help the individual back on her feet. NESO (2005, table 2.4) shows that the great differences between high and low performing countries in terms of employment to population ratios are their abilities to engage older people, women and persons with low levels of education into active employment. Not only are these latter groups exposed to greater risks than others, but they “exhibit significant heterogeneity with specific constraints potentially facing – for example – lone parents, people with disabilities, members of ethnic minorities” (ibid., p 30). In particular the very heterogeneous needs of such groups evoke a demand for tailor-made, individualized public services that can help them out of difficult situations. Developing an ability to provide such services for particular groupings may spur welfare state institutions to learn to act in ways that enable other social groups, for instance through active employment policies.

In terms of public services Sweden and Denmark ranked 1 and 2 among EU-countries in both 1993 and 2001, while Finland moved from 3 to 7 (ibid., table 4.1). The generosity of the Nordic countries is in particular significant when it comes to expenditures on disability and unemployment services (where Denmark is the number one spender) (ibid., table 4.7). But

public spending on childcare, probably the most urgent for maintaining a family in the experimentalist economy, was also highest in the Nordic countries:

As a result of the system of comprehensive public financial support for childcare, enrolment rates for very young children under three years of age are around 40% or above in Finland, Norway and Sweden. Enrolment rates are even higher in Denmark and Iceland, the countries with relatively short periods of paid leave. On average across the OECD countries for which data are available, 23% of zero- to three-year-olds use formal childcare; in Austria, the Czech Republic, Italy, Greece, Germany, Mexico and Poland, it was less than 10% in 2004. (OECD, 2007: 135).

Child-to-staff ratios in childcare institutions in the Nordic countries are fairly low (lowest in Denmark and highest in Finland) (Ibid, p 144) and the staff is generally better educated in the Nordic countries (Ibid, 15 ff). In Denmark and Sweden similar services are provided for out-of-school-hours for school children. In all Nordic countries, the percentage of a salary parents pay for these services is among the lowest of the OECD-countries.

The effects are quite convincing. Fertility rates are comparatively high, 1.77 for Sweden. 1.80 for Denmark and Finland and 1.84 for Norway, against the OECD average of 1.63. The general participation of women in the labour market is comparatively very high and extremely high for mothers and sole parents compared to other OECD countries, while child poverty rates are very low (2.4 for Denmark, 3.4 for Finland and 3.6 for Norway and Sweden) (OECD, 2007: Table 1.1. p 16). In 1980 data suggested that fertility rates were lowest in countries with the highest employment rates for women (as we should expect), but surprisingly in 2005, OECD (Ibid, p 35) found that fertility rates are highest, where also female employment rates are the highest. However, without the Nordic countries' influencing the slope of the curve this latter relation could hardly be established. This is all the more interesting as the tendency for women to work full time in double-income families is also highest in the Nordic countries (Ibid, p 47 n)

This situation does not necessarily mean that Nordic families generally find that they are in an ideal situation. An OECD (2007 B) study showed that Nordic families are indeed working many hours per week. Double-income families (aged 20-50 and with a child under six) are typically well off and both these and those who "just manage" have a high preference to get reduced working hours. Stress is rapidly spreading in the Nordic countries, indicating that people are "included" in the turmoil of the experimental economy. Without the support of an

enabling welfare state this degree of inclusion would hardly be possible. The table below gives an overview of the extent to which the Nordic countries provide support for families (including the elderly) compared to the Anglo-Saxon liberal market economies and it is obvious that here lies a major explanation for their diverse constitution:

Table: Public spending as percentage of GDP on families and on elderly 1998 (1):

	Public spending on families	of which Services	Public Spending on elderly	of which services
Denmark	3.77	2.23	9.77	2.95
Finland	3.36	1.44	8.53	1.54
Sweden	3.31	1.68	11.17	3.71
United Kingdom	2.22	0.49	10.58	0.81
United States	0.51	0.29	5.20	0.05

(1): Cash amount for a two-earner family with two children as a percentage of GDP.

Source: OECD, 2007 B, p. 66

The Next table shows that among the Nordic Countries there are huge differences in how public services and transfer incomes are distributed on different activities, and it is obvious that the different Nordic countries act as enablers of very different types of behaviour.

Table 1: Expenditure on chosen benefits in PPS per inhabitant, 2005

	Category / Country	SI	DK	SE	FI	NOR	A	EU-15	EU-27	SI vs. NORDIC	SI vs. EU 15	NORDIC vs. EU-15
1	Paid sick leave	194	265	485	302	940	301	227	197	55%	85%	154%
	In-patient care	444	990	610	592	1301	900	937	810	61%	47%	78%
	Out-patient care	729	449	873	806	689	775	725	631	103%	101%	98%
2	Disability pension	177	503	700	523	1020	410	287	255	31%	62%	200%
	Accommodation	32	169	154	27	15	49	67	57	27%	48%	174%
	Home help	0	101	217	50	69	5	22	19	0%	0%	558%
3	Old age pension	1255	2055	2256	1787	1991	2318	2404	2096	62%	52%	85%
	Anticipated old age pension	496	529	198	147	52	262	100	98	170%	496%	291%
	Accommodation	9	34	473	103	380	84	60	51	4%	15%	339%
	Assistance with daily tasks	0	455	191	71	261	21	38	32	0%	0%	629%
4	Survivors pension	69	0	179	233	109	103	287	245	50%	24%	48%
5	Maternity allowance	41	152	181	113	195	29	40	35	28%	103%	372%
	Parental leave benefit	68	-	-	58	60	1	17	16	117%	400%	341%
	Family or child allowance	163	273	214	232	294	627	306	263	68%	53%	78%
	Child day care	106	440	241	240	309	105	73	63	35%	145%	421%
	Accommodation	4	139	83	52	60	33	18	15	4%	22%	507%
6	Unemployment benefit	52	371	330	393	205	217	254	215	14%	20%	144%
	Early retirement for LM reasons	38	-	0	112	8	17	25	22	68%	152%	224%
	Vocational training	7	-	36	39	6	34	19	16	19%	37%	197%
7	Rent benefits	3	199	147	69	15	28	147	127	2%	2%	94%
8	Income support	99	178	86	71	114	14	41	37	89%	241%	272%
TOTAL		3986	7302	7654	6020	8093	6333	6094	5300	55%	65%	119%
TOTAL other benefits in kind		158	1338	1395	582	1100	331	297	253	14%	53%	372%
TOTAL in-cash benefits + health care		3828	5964	6259	5438	6993	6002	5797	5047	62%	66%	106%

Source: Eurostat, 2008; own calculations

Legend: -other benefits in kind

Functional groups:

1– Sickness / Health care; 2– Disability; 3– Old age; 4– Survivors; 5– Family/ Children; 6– Unemployment; 7– Housing; 8– Social exclusion

Notice, for instance, what Norway spends on sickness-, disability- and old age expenditures and services, while relatively less on unemployment and vocational training. It is also apparent that Slovenia falls in a very different category, when we compare it to Nordic countries and Italy, which is apparent in the following table:

Table 2: Social protection as share of GDP and share of other in-kind benefits within it

Country	Social protection as % of GDP (2000-2005)	Share of other in-kind benefits
Slovenia	24,6 – 23,4	4
Italy	24,7 – 26,4	3
Greece	23,5 – 24,2	11
UK	26,9 – 26,8	12
Denmark	28,9 – 30,1	21
Sweden	30,7 – 32,0	23
Norway	24,4 – 23,9	18
Finland	25,1 – 26,7	16
EU-15	27,0 – 27,8	9

Source: Eurostat, 2008, p. 3 and 6

Comparing the structure of social benefits, two things are noticeable. First, Nordic countries generally spend less on pensions and healthcare, but more on other cash benefits and other in-kind benefits. Second, focusing on in-kind benefits only, an interesting pattern appears: Nordic countries tend to spend a lower share on healthcare and a higher one on other in-kind services. It is the other way round with other countries.

This second pattern could mean two mutually excluding things. One explanation could be a simple difference in treatment of certain expenses in Nordic countries which would underestimate the healthcare expenditure and overestimate other in-kind benefits. Another, and possibly more plausible explanation, would, however, be that Nordic countries have in fact taken an “enabling” approach to social protection resulting in replacing hospital care with domestic care and assistance. Data from Table 1 support this reasoning. While expenditure for in- and out- patient care in Nordic countries is below the EU-15 average for 22% and 2% respectively, Nordic countries spend 74% more on accommodation and 458% more on home help to disabled persons, 239% more for accommodation and 529% more on assistance with daily tasks for old people than the EU-15 average.

Table 3: Structure of social benefits for selected countries (%)

Country	Cash-pensions	Cash-others	Kind: Healthcare	Kind: Others
Slovenia	47	21	28	4
Italy	59	13	25	3
Greece	50	13	26	11
UK	42	17	29	12
Denmark	38	23	18	21
Sweden	41	18	18	23
Norway	34	25	23	18
Finland	43	20	21	16
EU-15	47	20	24	9

Source: Eurostat, 2008, p. 6

Active Labour Market Policies and Flexible Labour Markets

In macroeconomic terms there are very good reasons for why the Nordic welfare states should be on the move in reducing structural unemployment and increase participation rates. OECD (2006, p 187-189) has calculated how 1% reduction in unemployment effects potential GDP growth and cyclical adjusted public budget balances in different countries. While the effect on potential GDP only varies between 1.1% and 1.6% in all OECD countries, the Nordic countries get consistently the largest effects (1.5-1.6% compared to an average within the EU-area of 1.3%). Variations in effect, however, are very considerable on public budget balances. Whereas countries such as the US and Japan are only effected by 0.3% and the Euro-area with an average of 0.6%, the effect is 1.2% for Denmark, 0.9% for Finland, 1.0% for Norway and Sweden. Obviously the problem is much more pressing for states in the Nordic countries when they run into periods of high unemployment. They have good reasons for investing more readily in institutions and services that may assist their populations in finding employment quicker. However, by doing so they paradoxically increase the costs of unemployed and the potential effects of bringing unemployment figures down – or up. Obviously this means that Nordic welfare states might either enter a very vicious or a very virtuous economic dynamic in different time periods. Perhaps this was the very lesson that the Nordic states had learned by the beginning of the 1990s?

Soon after the first oil crisis in 1975, international organizations like the OECD held the view that generous and long term unemployment benefits might not only prevent market forces from reducing wage increases, but also amplify external economic shocks, for instance by making it attractive – not least for young, old and single family workers – to continue on unemployment benefits as long as possible. This - basically neo-liberal - point of view has continuously and persistently been activated in proposals for reforms throughout most countries, also in the Nordic, and all countries have continuously cut back in one way or another on levels or/and duration of replacement rates. A number of countries, e.g. the Netherlands, Ireland, Denmark, Sweden and Norway rather than simply making these reductions initiated a number of instruments to activate unemployed by providing social services and controlling that unemployed are actively seeking employment.

In a recent study, OECD (2006, Ch. 7) assesses the effect of unemployment benefits taking into account the combined existence of activation programmes. It shows that in countries with a strong activation programme, unemployment is much less self-propelling than in countries with no such activation programme (ibid., Figure 7.4, p 217). Following just after the Netherlands and Ireland, measured in terms of expenditures per unemployed as a percentage of GDP per capita in 2000/2001, are three Nordic countries, Denmark spending 60%, Sweden 50% and Norway 40%. Only Finland seems to have embarked on a different route, spending only around 20%⁵. Comparing level of activation services with unemployment figures (see for instance Madsen, 2006, p 341) there seems to be a very convincing co-variation: the higher the activation expenditure the lower the unemployment figure and the higher the employment frequency of the population.

Especially in Denmark Active Labour-market Policies (ALP) is emphasized to constitute a third pillar of the “golden triangle of flexicurity”, the other two ones being a generous welfare system and a flexible labour market (Madsen, 2006, p 331). Flexible labour markets have preliminary been seen as systems that avoid restrictive practices on employers’ rights to hire and fire employees, while rigid labour markets may be institutionalized through Employment Protective Legislation (EPL). Consistently, the Anglo-Saxon countries have the less restrictive EPL, expected to give the employers the most free hand in hiring and firing workers. But Denmark stands out in terms of flexibility both among the Nordic and the

⁵ A similar pattern – though with some deviation especially concerning the Netherlands - is found in Salais, 2003, figure 12.3., p 339.

Continental welfare states. Thus in an aggregated index of OECD countries Denmark is numbered 10, Finland 14, Norway 21 and Sweden 22 in terms of flexibility (Økonomi- og erhvervsministeriet, 2006, p 175). Mobility analyses confirm this picture, showing that in Denmark more than 20 % of employed change workplace during a year (1998), while the figure for Finland is 19%, 17% for Norway and 12% for Sweden. In 2001 the average seniority in the same job in Denmark was less than 8 years, close to 9 in Norway, close to 10 in Finland, while Sweden topped at a level of 11 years (ibid., p 167). Ironically, Norway and Denmark were simultaneously the countries in which employees felt the highest degree of job security (ibid., p 168). This is highly contrasting with Spain where the proportion of yearly job shifts is higher than even Denmark, but in Spain employees feel very insecure in their jobs (ibid.) (see also Arnal et al. 2001, p 26). Another dimension of the labour market flexibility of the Nordic countries is a high participation rate in vocational training courses. Typically, (in 2003) in the Nordic countries around 60% with higher education participated in such training, 40% with craft skills and 30% of the (so-called) unskilled workers. While the level in the US was similar for the two former groups, the difference was sharp with respect to the unskilled, only 13% (Ibid, p 169). Denmark spends the most public resources on adult- and further training (0.85% of GNP), primarily on unemployed and marginalized groups (0.67%) but is also the biggest spender in relation to employed. Finland comes much lower, spending only 0.2% of GNP, primarily on unemployed (ibid., Figure 11.6, p 170). As Table 1 above indicates a dramatic shift seems to have happened in Norway, becoming a low spender on active measures (unemployment benefits and vocational training) and a high spender on paid sick leave and disability pensions.

These issues all have effects on the so-called “transitional labour markets” (Schmid and Gazier, 2002), emphasizing that during a life course individuals run through a number of “transitions” (from education to employment, between family life and employment, between employment and unemployment and back and between employment and retirement). In general the Nordic countries seems to master such transitions most effectively and to the effect that they also prolong employment age the longest, in particular Norway, Sweden and Denmark (OECD, 2007 B, p 155; Hult and Edlund, 2008). A quite clear pattern among different welfare states and capitalisms seems to emerge:

In the United Kingdom, Ireland, Denmark, the United States and Australia, employment rates are high for all age groups. In Belgium, Greece, France, Italy, Germany and Luxembourg, employment is heavily concentrated on the middle of the life cycle, with low employment rates for both youths and seniors.

Observations available for two further country groups show asymmetric situations: Austria and the Netherlands have relatively high employment rates for youths but low rates for seniors; by contrast in Sweden, Finland, Portugal and Japan, they are relatively low for youths and high for seniors.

.... In the so-called “liberal” countries, the relatively low level of social protection and the more limited role of education and training create incentives to work throughout a life-time, while the Nordic countries favour better equilibrium between training (education and in-career training) and employment. Note that the case of Denmark is special in this respect: youth employment rates are high in the country but this mainly reflects the employment of students, compatible with continuing education. (Ibid).

This means that in continental and Southern European countries careers become compressed to the median age group (age 25-54), which is simultaneously also the period of child rearing. This gives the lower strata very bad conditions for cultivating the skills and capabilities that it takes to live in learning organizations and by the experimentalist economy and to progress along its emerging career routes of frequent role- and project shifts. Another interesting aspect that emerges by studying the Nordic model from a life course perspective is that interpersonal redistribution is much less than the intrapersonal redistribution of incomes. Basically the system can be seen as a way for the individual in periods of high earning through taxes to pay for the periods of “trouble” (unemployment, education, retirement) or transition (OECD, 2007 B, chapter 8).

Several authors have emphasized the importance of flexible labour markets for the emergent new economies. Obviously, the standard macroeconomic point of view has been that the easier it is for employers to fire workers, the more and faster will they expand employment during upturns, thereby bringing about the positive effects on the potential GDP growth rate and improvements on public budgets that we mentioned above. However, perhaps the effects of less flexible labour markets are worse when it comes to innovation and adaptability. A number of authors have compared the US and Germany and find that the German pattern of long-term careers within a single company together with employment protection systems favour large and established companies that can offer the most promising R&D personnel better career opportunities than the small and less consolidated. Thus it is almost impossible for Germany to create a labour market – as for instance in Silicon Valley – that redistributes competencies among firms as the innovation processes change location (Casper and Vitols, 1997; Casper et al. 1999; Casper 2000; Whitley 2000). This innovation dynamic is only a fraction of a much wider issue of relocating labour from firms that encounter problems in

adapting to ever shifting roles in the international division of labour to such firms that are experimenting with actually defining new, prospective roles for themselves. In a recent paper Zysmann and Schulze-Cleven (2007) emphasize this aspect, arguing that flexible labour markets offer much better space for experimental processes on a broader scale than merely technological innovation more narrowly defined. ALP and further training complement the process of experimenting within and among firms.

Situational Negotiated Economies: Agency, Recombinant Associational Ties, Local Autonomy, Industrial Relations and Governance

Obviously the Nordic countries with a high element of personalized public services easily could develop clientelism making public bureaucracies a means for sorting up the ex- and included, and whether this is indeed becoming the case in Norway, is an important question, but generally they position themselves very high (usually among the five best) in terms of good governance on indexes including co-determination and responsibility, political stability and absence of violence, bureaucratic efficiency, quality of regulation, rule of law and control with corruption (Økonomi- og Erhvervsministeriet, 2006, Table 13.3, p 193). Probably universalism instead of means-testing, the use of “framework laws”, a dense system of institutions for appeals and decentralization constitute part of the explanation. But it could also be the case that public institutions have learned to combine in networks to supply these services in more relevant ways than under the more bureaucratic welfare states of the past?⁶

A major reason for why Nordic economies may be able to explore global opportunities much more efficiently than other economies may reside in their constitutions, which tend to hand over major responsibilities to local levels both through the division of labour among state, regions and municipalities and among the local and central levels of unions and employers’ associations. It is a generally held view among those studying local autonomy (see e.g. Rattsø, 2004; Demokrati-udvalget, 2004) that it is very high in the Nordic Countries, in general because they decentralize more widely spending and administration of larger welfare schemes to local levels that hold taxation rights. Sellers and Lidström (2007) have constructed a comparative index that systematically proves this. They also show that in Denmark, Sweden

⁶ This call for studies along trajectories that have been suggested by Dorf and Sabel , 1998 and Liebman and Sabel (undated). For a condensed argument, see Sabel 2005.

and to some extent Norway the Social Democratic Welfare State was pre-conditioned by high degrees of local autonomy:

Both functionally and politically, local empowerment of this kind helped make the construction of the Social Democratic welfare state possible. First, the resulting infrastructure gave local governments the administrative, legal, and fiscal capacities to pursue the universalistic, egalitarian aspirations of the welfare state. Second, in conjunction with the strong national system of local parties that had emerged across the country (...), empowered local government provided a vehicle to mobilize local support for the welfare state. National legislators in the coalitions of Social Democratic and Agrarian parties that passed welfare legislation could trust the political leadership in the local governments to carry out new welfare-related policies. (Ibid, p 624)

Finland stands as a contrasting case, as it was only by learning from the other Nordic countries that the central state level initiated the construction of a modern welfare state, and for that reason initiated also the up-scaling of local administrative capabilities.

The effect is that institutions mutually and their users are much closer connected in tight networks than in any other countries. As Sabel (2005) emphasizes, this makes possible situational co-design of public services, which may in this way be recombined in many different ways, dependent on how institutional actors, private citizens and enterprises form various forms of “polyarchies” to help solve novel problems in experimental ways. In this way, experimental ways of organizing may spread from the private to the public sector – and vice versa..

Simultaneously, the Nordic countries early on developed an elaborated form of corporatism, based on a high unionization rate. By still holding unionization rates at the level of 70-80% (Norway being at the level of 55%) compared to levels between 20% and 40% in most other EU countries, the Nordic countries stand out concerning the nature of their corporatism (European Commission, 2004, p 17). During the heydays of Keynesianism this provided the basis for a strong system of centralized negotiations in which wages, working conditions, etc., could be effectively negotiated and coordinated with state spending on welfare schemes. Finland and Norway seem to have stuck to this centralized pattern, whereas Sweden and Denmark have moved to sector-levels, and in Denmark in particular, to local enterprise bargaining and –agreements (ibid., p 36 ff).

With these tendencies a new overarching pattern of interaction among the state, social partners and municipalities has been evoked simultaneously:

- Probably it is impossible to explain why the Nordic countries have been able to reduce nominal wage increases to a reasonable level and combine it with modest, but quite steady growth in real wages, while at the same time reducing unemployment significantly (ibid., p 46 ff; Madsen, 2006, p 329) without taking this into consideration. The strength of unions and employers now seems to be used to modify wage drift in tune with macro-economic policies of the state, so that the business sector is better able to exploit, in a competitive way, international cyclical upturns.
- Towards municipalities, the state has simultaneously delegated the implementation and administration of welfare services, while at the same time initiated negotiations that limit the spending level to secure that public deficits do not go out of hand, though there might, in principle, be an unlimited demand for free social services (Demokratiudvalget, 2004, ch 2).
- With the growing implementation of the welfare state at local levels, corporatism has increasingly moved from centralized levels to localities or regions, has broadened its scope and included increasing numbers of associations (environment, housing, culture) that try influence the local specification of how services should be designed and developed.

In Denmark, for instance, this movement has in particular led to the involvement of users in the governance of welfare services (patient groups to hospitals; parents on school boards, etc.). As most of these services have run under continuously reduced budgets, institutions have been forced to innovate and collaborate across boundaries to deliver individualized services in novel and cost-reduced ways. This has led to what Bogason (2001) terms “fragmentation” of the public sector as decisions are, apart from the budget, increasingly taken by the individual institution. Demokrati-udvalget (2004, p 29-30) summarizes Bogasons findings in this way:

- The various institutions of a municipality (schools, childcare, etc.) are increasingly independent. Professionals draw up strategies – for politicians remain budgetary decisions.
- Users’ governance of institutions, area councils, etc., gives non-elected decision-makers influence over part of the enterprise.

- Municipalities have increased free choice among public and private suppliers of services. Citizens can exercise power as customers, in addition to their power as electorate and citizens.
- The increasing use of ad hoc projects creates temporary organs that parallel more permanent institutions and organizations.
- External changes increase the need for cross-municipal collaboration, moving another layer of decisions and initiatives outside the normal, hierarchical decision structure.
- Changes in system of financing and governance call for collaborative negotiations among different layers of the public sector to develop services and initiatives in novel situations.
- EU membership increases the opportunities for municipalities to initiate novel projects and various types of collaborative partnerships, but introduces a novel set of rules that influence independence and self-determination.

The result is a local system of institutions interacting in a network that has lost its former rule bound, routinized and predictable way of functioning. In many, but diverging, ways the public sector may itself have become part of the experimentalist, networked “projective city, where services can be innovated, combined and recombined, according to changing circumstances and needs. The participation of users, interest groups and social movements may mobilize a much larger segment of the population in determining the social use of institutions, and the public sector may be used for highly shifting ways of co-constructing complementarities. In this way, the public sector itself may serve as a gateway for being included into the high mobility mode of the new experimentalist economy.

The described evolution is based on a Danish study, and though the Nordic Council uses this to describe a general Nordic tendency, it might be the case that this evolution has progressed more significantly in the Danish society than in the others. In Denmark interest in and understanding of politics (Demokratiudvalget, 2004 p 65), satisfaction with democracy (ibid., p 67), participation in elections nationally (Ibid, p 71), etc., are higher than in the other Nordic countries, though for all Nordic countries these indicators are generally higher than the EU average. In Denmark, Norway and Sweden the average number of associations to which a citizen holds membership is 1.6, 1.7 and 1.8 respectively, while in Finland it is lower (0.9%),

probably reflecting that local empowerment is a recent and perhaps only coming phenomenon. This pattern, thus, reflects the changes in the pattern of local corporatism mentioned above, where a number of new self-help movements are expanding (local activists, self-realization groups, culture clubs). The propensity to make use of possibilities for participation and influence in the Nordic countries is at a significantly higher level than the EU average, especially in working life, where the indicator for Denmark is 69, Norway 66 and Sweden 61, while it is 44 for Europe (Ibid, p 93). This may also be another reason for why learning organizations have evolved quicker and more consequently in the Nordic countries – as we saw above.

A Re-interpretation of Findings and Hypothesizing a Closer Enquiry

No wonder then that the public attitude toward globalization is rather positive. “A recent Eurobarometer survey shows that the proportion of those considering that globalization either represents a threat to employment or has a rather negative effect on employment is far greater in continental (52%) and Mediterranean (45%) countries than in Anglo-Saxon (36%) and Nordic (37%) countries” (Sapir, 2005, p 9).

The Nordic countries seem (for the time being) to have found one of the answers to the current challenge. The issue is what kind of society they have in the making? What questions are the Nordic countries answering with such virtuosity?

In his highly imaginative book, Roberto M. Unger (forthcoming, p 201) poses the question in this way:

How can society and culture be so organized that large numbers of ordinary men and women have a better chance to awake from the narcoleptic daze, outside the circle of intimacy and love, without having to do so as pawns and belligerents? This same question presents itself in another form, unburdened by the struggle between friend and enemy or by the terrible ambiguities of war. How can an individual born into a small country live a large life? How can the state help him redefine the stage on which he can live such a life?

Unger answers his questions in a way that more than anticipate and may offer a re-interpretation of the course on which the Nordic countries have embarked:

The general answer to all these questions is the development of political, economic, and social institutions that both equip the individual and multiply his

chances of changing pieces of the established setting of his work and life as he goes about his ordinary activities. Diminishing the dependence of change on calamity they raise him up; they make him godlike. The specific answer to all these questions is that the state should help the individual not to be little. (Ibid., p 201-202)

What is needed is an experimentalist democracy, where individuals experimentally change identities in tight association with others that are able to recognize their contributions as well as future potentials, and where all may participate in redesigning the institutions that allow for such transformations at group and individual level. By doing so the citizens of a state may simultaneously discover new comparative advantages.

As the business systems of the Nordic countries are very different, the path for transforming themselves into vanguard experimentalist practitioners must by necessity be very different. The difference between Denmark and Finland might be the most pronounced one, why these two countries might show two very different routes of transformation.

We would hypothesize that in Denmark, people are going through complicated cross-corporate working careers that also engage them in occasional continuous training that makes employees highly autonomous, ready for open-ended experimentation and rich on collegial networks to enterprises and institutions. Thus in Denmark enterprises may change practices as ways of being better able to recruit people in a labour market where competition over employees with the most promising potential has always been intense and is currently becoming extremely intense. In Finland, to the contrary, the logic seems to be that an advanced national innovation system set up by the mechanisms of the coordinated market economy has made it possible for a number of firms to use this system to jump to vanguard sectors. This again has transformed the work organization of firms, and they are now in the process of transforming the identities of their employees and their mutual interaction. With Finland and Denmark as extreme poles on the scale, we expect to find Sweden and Norway to be positioned between the two, eventually pointing to other variant forms and pathways of experimentalist economies.

Societies are facing particular challenges to engage in co-evolution exist when the economic systems of regions collapse. In such cases there might be a serious need for a given locality to negotiate a whole set of jointly coordinated ways of making use of institutions to restructure

both firms and the nature of the locality. Hanell and Persson (2006, p 190) show that the differences among regions in terms of unemployment rates and employment change are very narrow in Denmark, extremely dispersed in Finland with Sweden and Norway occupying the middle ground. Whether this is the cause or effect of transitions already made in the four countries must be a key issue in our analysis. In Finland, Sweden and Norway industrialization often came about by creating mill-towns (Brukssamhällen) in peripheral localities. Transforming such entities in an age of globalization, rapid innovation and restructuring calls for more overarching co-design by a coordinated type of market system than the Danish one, where craft communities have connected the periphery to the wider national labour market through vocational training centres. Is mobility – regionally, socially, in terms of jobs and roles, of firms – inscribed into the foundational construct of the Danish society? And does it have to be installed in other Nordic countries? Have they been able to do so?

Are the transitions going on in the Nordic countries similar to those going on in other transitional societies? Or are there lessons for other countries to be learned from the Nordic countries?

To answer such questions, we have included in this study Slovenia, formerly a part of Yugoslavia. Slovenia forms an interesting contrast, because in many ways it resembles the Nordic countries. It is small, had a developed form of corporatism, was famous for its co-determination laws concerning firms, shares with the Nordic countries an egalitarian income-distribution, a high participation rate for women and high work intensity. In contrast it seems not to have developed high autonomy forms of work organization, not to have created jobs that satisfy their holders, is rather constructing from scratch than restructuring a national innovation system and is poor in terms of public services like most other South European societies, where the family plays a core role. Can Slovenia develop modes of globalizing similar to the Nordic countries? Will it be able to cultivate learning- and high performance work organization without expanding its enabling public services and risk sharing institutions?

In all these countries, we set out to study firms, localities or networks that represent traditional industries that may only survive globalization through radical restructuring processes. We want to study whether and how such firms, employees and localities are able to

make use of existing institutions in traditional or innovative ways, enabling them to transform their organizations, identities and outlooks to resemble local and global practices of the vanguard sectors. To create “vanguardism outside the vanguard” (Unger, *ibid.*, p 198) by the mutual transcendence of identities of employees, of organizational practices in enterprises and of the way in which a dense network of welfare state institutions constantly is being recombined is what we expect to be able to study in the cases subject to investigation. In this way we hope to be able to say a lot more about the variety of experimentalist processes by which enabling welfare states take form, the way in which working lives can be explored outside the realm of well-defined hierarchies, and how firms may look when they resemble a ship setting out for exploration rather than for merely fishing. We hope this will allow us to point to important cross-country lessons to be learned, enabling the Nordic countries to progress even further and perhaps provide lessons that ease the road of transition in other countries.

Chapter 2

Fighting for Global Mandates from Peripheral Regions of the Finnish Innovation System

Kari Lilja, Juha Laurila, Raimo Lovio and Jari Jääskeläinen

Introduction

This chapter approaches the Finnish case by constructing two interrelated historical narratives at two levels of analysis. The first narrative focuses on changes in the Finnish national business system from the mid-1980s to the end of the year 2007. Thus it has not been possible to cover the impact of the outbreak of the global financial and economic crisis. The first narrative is structured by presenting three theses and providing justifications to them. The second narrative has its starting point in the shake-up process of a large family-owned company, the Ahlstrom Corporation. The shake-up process also started in the mid-1980s. This latter narrative has its focus in the subsidiaries that were divested from the diversified multi-divisional corporation when it accelerated its internationalisation process. Thus the second narrative complements the first one from a locality and business unit perspectives. The subsidiaries in question were located in the town of Varkaus, situated about 400 kilometres from Helsinki. The narratives and their temporal and structural contextualisation help us to explore how dynamic complementarities may emerge within a national business system.

As to the narrative on the systemic change, the first thesis is that in the mid-1980s Finland was a prototype of a coordinated market economy (CME), based on several strong coordinating mechanisms beyond individual companies. The second thesis is that during the 1990s the national business system (NBS) was transformed via radical reforms in several subsystems. One significant outcome of this transformation was that multinational corporations (MNC) both of Finnish origin and from elsewhere became the main drivers of the economy. However, due to the CME tradition, cross-sectoral coordination was not completely abandoned. Mobilisations of cross-sectoral elites for a distinct period-specific national project helped to divert institutional resources to new uses (Tainio and Lilja 2003). This facilitated the next step that took place after the turn of the century. Our third thesis thus states that since the turn of the century business renewal occurs in globalised value

constellations where managers and employees of both Finland-based companies and foreign-owned subsidiaries are in search of new roles for their business units and for maintaining and enhancing their mandates within MNCs under changing rules of the business game.

In order to give further evidence of the nature of change in the NBS implied by the second and the third theses, the second narrative is constructed. It focuses on subsidiaries sold by Ahlstrom Corporation to other MNCs (Kosonen 1994; Lilja and Laurila 2003; Jääskeläinen and Lovio 2003). The narrative concentrates especially on three of the business units and we intend to justify three claims. First, *all three subsidiaries have been able to secure and even widen their mandate within the MNC* despite the fact that their proportional contribution to the turnover of their parent corporations has reduced dramatically. Second, *the subsidiaries have carved new niches and roles in global value constellations* by introducing new business models and exploring new business opportunities. Third, *such mandate maintenance and role redefinitions have been partly based on institutional resources embedded in the Finnish business system and tailored to offset the loss of previously dominant risk sharing mechanisms.*

By linking the two narratives, it becomes possible to explicate a multi-level and interactive dynamic process within the tradition of actor centred institutionalism. We are especially interested in exploring how actors gain agency in force fields where they initially are underdogs. Gaining of agency can be based on luck and on historically accumulated competences and mobilisations of institutional resources that were originally earmarked for other uses or by the formation of new institutional layers that direct resources more effectively to new needs. Inferences can also be made from the narratives whether the complementarities can be characterised as being dynamic, implying a pro-active and enabling capacity with respect to the unfolding contingencies. In addition, by detecting limits in sub-systemic complementarities contra-factual reasoning can be used. Both forms of analysis can produce relevant viewpoints for policy-making and for transnational learning. This is the more so when accumulated understanding emerges from cross-national comparisons.

The old national business system in Finland and the globalisation process: Still a coordinated market economy?

In this section we go through the three theses on the change in the Finnish business system and justify them with various kinds of indirect evidence. Hence, our intention is to reconstruct the overall pattern of economic and political games in the Finnish context.

Thesis 1: Finland as a Prototype of a CME

The Finnish national business system of the mid-1980s had a strong resemblance to the post-war Japanese and West-German national business systems. Strong coordinating mechanisms beyond individual companies made the NBS very centralised. While in the other Nordic countries the neo-corporatist system of collective bargaining and macro-economic regulation constituted the core of the non-market based coordination mechanism, Finland started to share this feature only in the 1960s (Lilja 1992). But in Finland there were also other and even much more dominant institutions and power structures. Besides the bank spheres of influence, the state was a major economic actor. It was an owner of major industrial corporations and banks and controlled from the Finnish side a distinct governance system used for negotiating and implementing bilateral trade with the Soviet Union. Because the economy was specialised in one dominant sector, i.e. the forest sector, there were strong domino effects across all the coordinating mechanisms especially with respect to exports. This supports the point made that in CMEs there are strong complementarities across sub-systems.

In business life, banks that provided a full range of services were dominant economic actors. Prior to the early 1980s, loans from banks were the only way to finance business start-ups; expansion and the need for working capital, because private risk capital was not available. This made banks the centre of the economy. They could increase their market share by providing more loans to companies. In this way companies convert their loans to ownership stakes and thereby increase their control in companies. The system of corporate governance was also inseparable from the bank groups to which industrial and commercial companies belonged. Moreover, there was reciprocity between the directors of companies and those of banks. Both groups of directors were members of each others' supervisory and/or executive boards. Strategic decisions were based on insider knowledge of companies and their business prospects.

Specialisation of the Finnish economy in the forest sector meant that each bank group wanted to have at least one flagship company in the forest industry. Because production of pulp and paper is capital-intensive, such companies were especially dependent on financing from the banks. It was typical that the amount of debt exceeded the annual turnover of forest industry companies. These companies also started to diversify their businesses early on. One obvious direction was mechanical engineering to which they could enter by expanding their own maintenance workshops and by buying relevant suppliers. Banks also shared the business risks here when the companies that belonged to the same bank groups made deals with each other for prototypes of machinery and other supplies. Such deals especially helped companies in mechanical engineering to develop their prototype machinery (Laurila 1998). After being adopted, the technology was improved incrementally in continuing collaboration between technology suppliers and users (Alajoutsijärvi 1996). Finnish pulp and paper companies did not suffer from product specialisation because for foreign sales, the forest industry had set up joint sales organisations. After WWII, these sales companies were market leaders in most west European countries, (Heikkinen 2000).

Because Finland gained most of its foreign currency from the export of forest products the competitiveness of the forest industry was a critical macroeconomic variable. If investments in new capacity occurred at the wrong time with respect to the business cycle, they led to overcapacity and a decline in product prices. Such cycles threatened the survival of forest industry companies. To help out, the Bank of Finland had to intervene and devalue the currency. After WWII, this happened approximately once in every decade. Shocks in the economy caused by devaluations of the currency made it difficult for small and medium-sized companies to take risks and grow; this was also materialised in the slow diversification of the Finnish economy. A further effort to avoid over-investments and overcapacity, forest industry companies jointly regulated the pecking order for new investments. One criterion for its decision-making was an estimate of the availability of raw material for the new production line (Kuusela 1998).

The need to diversify the economy had been on the political agenda of the state since Finland became independent in 1917. The state also expanded its role in the economy. In the early 1920s, the state took over Gutzeit Ltd., a forest industry corporation founded by a Norwegian entrepreneur. This began the establishment of state-driven businesses in mining, engineering, oil industry and others, not to mention investments in infrastructure and public services. The

expansion of the state-owned sector was especially strong after WWII. The political backing for this came from the Social Democratic Party, which wanted to expand state-owned core manufacturing companies, and from the Agrarian Union, which wanted to develop the more rural areas and keep the vast country inhabited. The notion of developmental state fits very well the approach taken by the Finnish state after WWII. Investments made by state-owned companies helped to diversify the economy to new industries.

After WWII, trade between Finland and the Soviet Union started to grow. Deliveries paid as war indemnities were a natural bridge for trade relations. The Soviet Union continued to be interested in buying modern machinery, ships, equipments and later on textiles, clothing, shoes and other consumer goods. Finland, on the other hand, bought oil. This type of trade was turned into long term bilateral agreements, containing specifications for annual trade levels and quotas for different types of products. A bilateral trade commission was set up for the operation. Directors of Finland-based companies had to do considerable lobbying first on the Finnish side to obtain appropriate quotas in the trade agreements for certain types of products. After that they competed with each other for the deals with the Soviet authorities. Export incomes generated from the Soviet trade were very significant for the industrialisation of entire Finland.

On the whole, the centrally coordinated system of business and the state was highly effective. From the early 1970s, Finland started to catch up with Sweden in per capita GDP and almost closed the gap by the end of the 1980s (see Kokkinen et al 2007). The deep economic crisis in the early 1990s, however, worsened Finland's position in comparison with the EU countries and also with Sweden. Due to external shocks, mistakes in the liberalisation of the financial market and a real estate bubble, the Finnish economy entered a severe depression and the business system was pushed to a transition phase. In the early 1990s, the outcome could not at all be forecasted.

Thesis 2: From Centralised Coordination to Flagship-Company-Driven Internationalisation and Indirect Support for Competence Formation

The period from the beginning of the 1990s to the start of the new millennium turned out to be the end of centralised coordination across all sectors of Finnish society. The collapse of the Soviet Union in 1991 and the deep recession in the early 1990s were the watersheds. Exports

by Finnish companies to the Soviet Union accounted for 25% of all exports; it was said that half of the profits in Finnish companies came from the Soviet trade. When exports to the Soviet Union dropped radically, the liquidity and finally the solidity of many Finnish companies were also eroded.

The recession, the burst of the real estate bubble and the devaluation of the currency led to a financial crisis. The largest bank went bankrupt and the two dominant commercial banks merged. Since 1993, restrictions on foreign ownership of Finland-based companies were totally abolished. This opened the market for corporate control and increased the liquidity of shares in the stock market. This occurred at a time when share prices were at the bottom due to the deep recession. Some pioneering investors quickly made huge profits and new financial investments started to flow in. All banks sold controlling ownership stakes in companies to the increasingly liquid financial markets. This was the end of the bank spheres of influence. Also, the state re-evaluated its role in the economy and started to privatise its ownership stakes in companies. The government stopped providing direct subsidies for industrial sectors. Instead, the state increased its funding for R&D activities, despite the huge deficit in the state budget and the increasing burden of debt.

By the mid-1980s, major Finnish industrial companies had become highly diversified. Managerial competences were concentrated in a few dozen flagship companies linked to dominant banks. Such companies had both the financial and intellectual power to enter new industries by new internal business development or via acquisitions of promising companies. Nokia is one example of these companies. It was then a conglomerate involved in various products such as rubber, paper, cables, consumer electronics and telecommunication networks and mobile phones (Häikiö 2002). In the early 1990s, many of Nokia's product areas were unprofitable. The consumer electronics division suffered from particularly huge losses due to acquisitions in Sweden and Germany. The board intervened and nominated a new top management team in 1992. Under the leadership of Jorma Ollila, the team decided to accelerate internationalisation by step-wise narrowing of the business portfolio. After several divestments, only the telecommunication businesses remained. This high-risk corporate strategy turned out to be a success due to the fit with the technological mega-trend in the ICT sector. Simultaneously, Nokia also became a globally targeted stock. Listing on the New York Stock Exchange was a major facilitator for the explosion in Nokia's market capitalisation from the lows of the 1993 to the highs of the turn of the millennium. This development was

also a strong signal to global financial markets and helped other Finnish companies listed only on the Helsinki Stock Exchange to become international investment targets. In a short period of time the sources of financing for established and start-up companies multiplied (Tainio and Lilja 2003).

In 1995 Finland joined the EU, at the same time with Sweden, and in 1999 became a member of the EMU. To prepare for the EMU, devaluations were abolished from the economic policy repertoire of the state.

The characteristics described above imply that several cornerstones of the Finnish business system were complemented by new ones or were completely replaced. Firstly, the Finnish economy became less concentrated as the strong sector based on the forest industry complemented with the ICT sector and the pace of growth of the latter quickly surpassed the old driver of the economy and international trade. Secondly, with the collapse of the bank-groups so-called patient capital became scarce. Companies previously linked to bank groups had to search for new funding sources. For that need, the vitalisation of the stock markets and the opening of the markets for corporate control turned out to be beneficial. In line with Nokia, other diversified Finnish corporations analysed their business portfolios carefully during the 1990s and increasingly concentrated on businesses in which they had opportunities to become international or even global. Other divisions and business units of these corporations thus became potential targets for foreign MNCs. Within a period of ten years, the rules of the game in corporate strategy were changed. In stock-listed corporations, the board and the top management were forced to introduce finance-driven objectives in corporate practices and culture (Tainio 2003).

The above means that during the 1990s several coordinating mechanisms beyond the company level were abolished. Despite this, the business and political elite was able to negotiate a new “national project”. It could be called “indirect support for competence formation via upgrading the national innovation system”. Several intellectual cornerstones and governance mechanisms of such a national project had already been crafted during the 1980s (Miettinen 2002). But the shock caused by the recession motivated the private and public spheres of society to join forces and facilitate funding for a scheme with four elementary parts.

The first part implied that in 1993 the Ministry of Trade and Industry launched a cluster-based strategy for concentrating and upgrading competences. In many ways this was based on the good experience gained from the existing inter-organisational practices typical in the forest sector. Other already existing or potential clusters were now being sought to fuel the renewal of the economy. Secondly, the government set the target to increase the R&D spending from two to three per cent of GDP. This target was reached within half a decade due mostly to significant expansion of R&D in the private sector. Thirdly, a reform in tertiary education was implemented by giving the status of universities of applied sciences/polytechnics to 29 institutes with operations in 80 locations. After a period of probation, they received the right to grant Bachelor's degrees and be central institutions in regional development and in the diffusion of knowledge and technology. Many vocational institutes, such as technological and commercial colleges and occupational educational institutes for health care and service businesses were merged and upgraded. All these initiatives had interrelated objectives, funding sources and relations to the existing system of universities and research institutes. Fourthly, new funding programmes were introduced also at the regional level. These provided incentives for companies, the two types of universities and research institutes to form regionally relevant competence concentrations. Based on proposals specified centres of expertise were selected in 1994 for a five-year period. Such competitive bidding process has been continued thereafter.

The upgrading of the Finnish innovation system during the 1990s was hence a national project. It indicates that the forming of new decentralised participatory and experimental governance mechanisms did not delete all coordination mechanisms typical for CMEs. Besides the new tools for setting up a regional innovation system, the centralised neo-corporatist system of collective bargaining had a strong role in the macro-economic recovery of the Finnish economy after the middle of the 1990s. The Social Democratic Party had special reasons to support wide incomes policy agreements because the prime minister in coalition governments during two consecutive parliamentary terms was Social Democrat.

After the turn of the century, the surprising outcome of the Finnish business system was that despite the cross-sector complementarities built between WWII and the end of the 1980s, radical transformations in several subsystems took place. The main indicators for these transformations were (1) the shift from a national bank-based financial system to an open financial market based system, including the strong role of the stock market, a market for

corporate control and reform in the system of corporate governance; (2) successful globalisation of several Finland-based corporations and (3) the redirection of state involvement in the economy for different purposes and functions. These concern the way state-owned companies were privatised and the way state agencies were turned into joint stock companies, many of which were then privatised. The state also withdrew from the use of direct subsidies and increased the use of indirect support through the enhancement of the national innovation system. This co-evolutionary process between companies and the formation of new institutional structures and policy-making tools provided the competence stock that could be used during the next phase of globalisation after the turn of the century. This phase was triggered by the collapse of the Internet bubble, new competitive pressures from Asia and failure in several acquisitions made abroad by Finland-based MNCs.

Thesis 3: Business Renewal in Globalised Value Constellations

During the first phase of globalisation the renewal of the Finnish NBS was still based on relatively centralised initiatives to diversify the economy. After the turn of the century, the Finnish business system allowed path creation at a more decentralised level. We may distinguish three types of strategic games played by MNC in global contexts. The first type is characterised by Nokia because as the first mover, it has been able to change the rules of the game in its core sector several times. The second type is much more reactive and with respect to path creation, at an early stage. The forest sector is a typical example. The third type is linked to foreign-owned MNCs that have acquired business units in Finland. Below we will elaborate each of these three types in more detail.

Nokia has gained considerable attention in academic research and the media due to its excellent performance since the mid-1990s. Since then, Nokia's management has had to reposition the accumulated competences of the company to the changing competitive arena at an interval of two to three years. For this reason, the top management took the concept of strategic agility as the cornerstone for their strategic management agenda. The key dimensions of strategic agility are sensitivity, collective commitment and resource fluidity (see Doz and Kosonen 2008: 3-36). To contribute to all these capabilities, all kinds of interactive forms of collective action are needed within the corporation and in relation to the external arenas of work. In the case of Nokia, a major breakthrough is related to the orchestration of resource fluidity. Divisional hierarchies have been complemented with matrix

organisations and centralised functional management processes based on ICT technology and platforms supporting global virtual organisations. This means that managers have to accept that they lack dedicated resources for strategy implementation. The turmoil is intensified by periodic changes in the divisional structures and reallocations of businesses and project portfolios for innovations.

There is no doubt that the shuffling of organisational structures and the rotation of managers to new responsibilities also has negative consequences for individuals. High potential managers, used in expatriate assignments, typically leave before their mistakes become visible. Opportunism in career games may also intensify (cf. Kristensen and Zeitlin 2005). In the R&D context, projects are terminated due to changes in technology regimes, strategic reappraisals and changing competitive situations. For these reasons it is difficult for experts to exploit the knowledge accumulated in earlier projects. Heavy-weight human resource management and generous compensation principles are needed to make up for the mistakes, frustrations and voluntary turnover of experts. Otherwise it is not possible to balance collective commitment and personal feeling of injustice.

The reality of decentralised experiments producing innovations, new business models and cost reductions becomes even more complicated when experiments are made in the inter-organisational networks of several companies. Designing such networks has been one of the sources of Nokia's success. Networks and alliances with customers and suppliers, however, include not only collaboration but also competition. The competition concerns the division of value, even before it is created. Over the longer term, the competition concerns the issue of which companies will be included in the value constellation in the future. Thus during the ongoing phase of globalisation efforts for radical innovation resembles patchwork. Governance of such processes can only be based on pre-sensing, pilots, deliberations on their progress and redefinitions of roles and identities of the participating actors (Sabel 1994; Herrigel 2007; Scharmer 2007). Radical new path creation typically starts from small initiatives, leads to unintended consequences and gains momentum from unexpected contingencies. Policy discourses that outline road maps for radical innovations are typically silent on vast amounts of efforts that do not lead to success. In the case of Nokia, by being tolerant of the experimentation conducted in its Venture Division and in the huge global R&D arm, it has been competent to move to new businesses and create completely new markets and end-user needs.

The forest sector can be used as an example of the second type of strategic game, played in the global context. The flagship companies in this sector became locked into their strategy to become global leaders in printing and publishing papers. A few years after the turn of the millennium, it turned out that by taking a strong role in the mergers and acquisition wave they went too far. They had to face eroding demand for paper in the USA and a stalemate in Europe. This led to overcapacity in many product groups in Europe, a decline in paper prices and the ensuing profit squeeze, also caused by increases in the price of raw materials. The overcapacity was also caused by simultaneous massive investments in Greenfield sites in Latin America and Asia. On these continents the demand for paper has been growing substantially. In Latin America forest plantations provide raw material and advantages in logistics that surpass those of the northern hemisphere.

It took some time before the largest players in the forest industry started to tackle the falling return on capital and the restlessness of investors. Among the Finland-based companies, UPM was the first to respond to the worsening scenario. It had two advantages in being the first mover to cut capacity. First, it lost the bidding competition in the US market for Champion to International Paper, the largest forest industry company by turnover. UPM was not burning excessive amounts of capital on the market for corporate control at a time when stock prices were at peak levels. For many years its annual return on capital was the best among the Finland-based forest industry companies. Secondly, a new CEO was nominated in 2004 and a new top management team was formed. Thus in 2005, UPM made the unexpected decision to close an entire paper mill in Voikkaa, one production line at a nearby mill and to announce a cut in the number of its personnel in Finland by 2557 within a three year period.

StoraEnso and M-real, the other large Finland-based companies, were much slower to react. In the autumn 2006, StoraEnso made the first intervention to cut production capacity. The main target was one production line in the integrated mill at Varkaus. In the summer of 2007, a new CEO had taken over and had formed a new top management team. By September, operations in North America related to Consolidated Paper were sold to an investor consortium, acknowledging at the same time huge losses from the acquisition made in 2000. The next downsizing step came quickly after that. In November a decision was announced that an entire paper mill in Hamina, a production line in Anjala and two pulp mills would be closed down, affecting 1700 employees. In addition, considerable reduction of employees in staff functions elsewhere was announced. Since the turn of the millennium, M-real has gone

through several downsizing rounds , also closing mills and production lines in many European countries and selling both core and non-core business units to increase its liquidity and solidity.

In connection with the sale of Consolidated Paper, the new CEO of StoraEnso declared a redefinition of the strategic vision that may have profound impact on strategic moves for the next five years. He claimed that the reason for selling Consolidated Paper was that the forest industry is not a global industry. Within the industry there are completely different competitive force fields, value chains, products and modes of operation. For instance, to be on the leading edge technologically in the industry there is no need to have a presence in North America as a producer. On the contrary, there is a danger that companies in the Nordic countries and continental Europe may experience a similar drift in their technological leadership that occurred since the 1950s onwards when the technological leadership travelled from North America to the Nordic countries and Germany. New production lines with the latest technology were invested in the latter ones, giving assignments to local engineering companies to experiment with customers and incrementally producing a new generation of process technology with the help of accumulated tacit knowledge. A similar type of drift may occur in the forthcoming decades from Europe to Latin America and Asia. For instance, in 2000 StoraEnso formed a joint venture called Veracel Celulose with Aracruz Corporation to build a new pulp mill. When it went on line in 2005 it was the largest single-line pulp mill in the world, with the capacity of 800 000 tn/pa (Toivanen and Barbosa Lima Toivanen 2009).

Thus it is not a surprise that the expansion of the forest industry to Latin America and Asia is interpreted to be a threat to the knowledge-intensive activities within the sector in Europe. To proactively counteract the potential loss of technological leadership and to support radical product innovations, the EU has set up a distinct technology platform, called the Forest-Based Sector Technology Platform (FTP). It is based on a long history of collaboration and competition between forest-related research institutes, universities and companies (see Lilja et al. 2008).

The third type of strategic game occurs in MNCs that have grown through acquisitions. Within such MNCs, subsidiaries compete with each other for distinct mandates and within global value chains for distinct roles (Kristensen and Zeitlin 2005). In this strategic game actions taken by the subsidiary management team are crucial. It needs to legitimate a

mandate, maintain or enhance it and at the same time negotiate a role with customers and suppliers in value chains or more complex constellations. Negotiations of mandates and roles are further intensified due to deverticalisation as value chains involve increasing number of companies and product life cycles shorten and because MNCs are searching for cost savings in new host countries based on production regimes. In Finland, like in many other European countries, these types of restructurings have led to massive closures of plants, firings and threats of unemployment. Until the end of the 1980s, the intended and expressed strategies in Finnish companies were transparent and communicated in a top down fashion. This has taught several generations of managers to act like boy scouts in strategy implementations (cf. Morgan and Kristensen 2006). That is why it has taken some time for middle managers to learn the issue-selling skills that are needed to influence top management decision-making in foreign-based MNCs.

It is, however, possible to promote new mandates within an MNC by explicating business opportunities that are, for instance, based on local and national institutional resources. For instance, work systems in Finland have in most industrial workplaces and in the service sector been under constant renewal. One important facilitator for this has been the increasing level of education and further training of employees. As many as 50% of all employees annually attend courses that improve their occupational skills. In OECD surveys, Finland scores high on indicators that measure phenomena related to the “learning organisation”. In the public sector, several policy-related reforms have been made and many more are underway. In the national innovation system, the reforms implemented in the 1990s have recently been complemented with the identification of strategic concentration areas in research and development. This is complemented with a reform that will merge several universities or otherwise creates stronger research milieus. To facilitate the third function of the universities, the R&D funding agency of the state TEKES offers funding for applied research that is done in cooperation with companies. Finally at the level of the localities, the government has from 2007 onwards encouraged municipalities to merge with each other. By so doing municipalities are expected to secure a better service level for citizens and a simultaneous increase in efficiency. In addition, municipalities extensively use services of private companies based on competitive bidding.

However, there are also subsystems that have not undergone radical changes. One of them has been the industrial relations system where reforms related to work organisation have been

only partially decentralised to the workplace level as part of the practice of collective bargaining. We may discern a duality that is very much linked with the industries in question (cf. Lilja 1998). In the metal, engineering and electronic industries breakthroughs for experimenting with new organisational practices and allocations of working time had already been made extensively in the middle of the 1990s. The recession had taught new competitive realities to the representatives of the strong blue-collar union. In the pulp and paper industry by contrast, similar decentralisation of experimentation did not occur. This is mostly because shutdowns of production lines were, until recently, compensated by new technological investments, resulting in significant increases in the volume of production and productivity. As a result, the number of blue-collar workers has gradually declined, and until recently without shocks, from 42,000 in 1980 to 24,000 at present. Due to its bargaining power, the Paper Workers' Union blocked such experiments that were perceived as threats to workers' interests.

Based on the above narrative, we may thus conclude that globalisation has forced both the private and public spheres of society to search for new paths at multiple levels of action. From the point of view of the national business system, this means a shift *from centralised coordination to decentralised experimentation that occurs at multiple levels and requires implicit synchronisations both vertically and horizontally*. This shift in path creation reflects recognition that radical innovations occur increasingly in a context that is characterised by the open innovation paradigm. New modes of competence development that have the character of creative destruction are a major challenge to managers, experts and employees. They have to build new professional and occupational identities due to changing organisational structures and modes of operating. Managers have to constantly negotiate temporary orders at multiple levels of the company and in inter-organisational horizontal networks of the value chain. In the next section of the chapter we examine how different types of actors use available resources when competing for mandates within MNCs and for renewing roles in value chains and cross-company value constellations.

From the national to the local

Sampling of a Locality and Subsidiaries for a Case Study

As explicated in the introductory section, the second narrative has its starting point in the shake up of a diversified corporation that had a significant presence in Varkaus. We chose this specialised industrial town as the case because it differs radically from the Helsinki metropolitan area and the regional centres in Finland. The metropolitan area of Helsinki benefits from the fact that major corporate administrative and most government activities are located there. Thus the Helsinki metropolitan area has for a long time been able to attract more inhabitants. The same is true for half a dozen regional centres that typically host a university, local government bodies, small and mid-size firms and subsidiaries or production facilities of major Finland-based or other MNCs. In contrast to these regions, rural areas have been much less successful since the 1960s. The problems in specialised industrial towns, however, are much more recent. For this reason Varkaus, as a research setting, provides evidence of acute problems and a variety of attempts by the local actors to tackle them with various policy-making practices and tools.

Since the early 20th century, the industrialisation of Varkaus has taken place hand in hand with the development of Ahlstrom Corporation. In the 1930s, Ahlstrom Corporation was the largest manufacturing company in Finland, having 5000 employees at that time. By the mid 1980s, Ahlstrom was a diversified and internationalised company. Its core business was the pulp and paper division and the integrated mill in Varkaus was the largest production facility (Jääskeläinen and Lovio 2003; 2004; Lilja and Laurila 2003). In the middle of the 1980s, owners of several family-owned paper industry companies in Europe and the US started to ask whether they could continue to invest in this very capital-intensive industry and grow under the simultaneous wave of mergers and acquisitions that was accelerating in the Western economies. Krister Ahlström, a fourth generation family member was hired in the early 1980s from the outside to become the CEO of the corporation. He was soon exposed to the emergent process of consolidation in the forest industry. As a result, he started at the same time to internationalise and to streamline Ahlstrom Corporation (Kosonen 1994). In 1987, the pulp and paper manufacturing facilities in Varkaus were divested. The buyer was Enso Gutzeit, a state-owned forest industry company. This was the start of a transformation of the industrial setting in Varkaus.

Table 1 Examples of acquisitions of Ahlstrom's businesses made by MNCs in Varkaus*

MNC	MNC country of origin	MNC turnover and number of employees	Time of acquisition	Number of subsidiary employees	Line of subsidiary business
Andritz	Austria	EUR 1,481 million 5,314 employees	2000	300	pulping technology
CAE (Canadian Aviation Electronics)-AFT (Advanced Fiber Technologies)	Canada	EUR 50 million Ca. 500 employees	1992; 2001	150	screen plates
Foster Wheeler	USA	USD 2,660 million Ca. 10.000 employees	1994	450	energy technology
Hartmann	Denmark	DKr 1,642 million 2,593 employees	1999	50	egg cartons
Honeywell	USA	USD 25,601 million 109 000 employees	1992	350	industrial automation
StoraEnso	Finland/Sweden	EUR 12,396 million 43 779 employees	1987	1,300	pulp, paper, board, and sawmill products

**Statistics indicate the situation in 2004*

Since the late 1980s, a large number of business units belonging to Ahlstrom Corporation had become parts of MNCs originating from different countries. These MNCs include Foster Wheeler and Honeywell (both USA), Andritz (Austria), Hartmann (Denmark), Stora Enso (Finland-Sweden) and CAE-AFT (Canada). To elaborate our three main claims, we concentrate on subsidiaries in three parent companies: StoraEnso, Foster Wheeler and Honeywell. The post-acquisition development of these three subsidiaries and their relation to the local, regional and national environment forms the focus of the present section. In particular, we will explore the relations of these subsidiaries and their management teams to

the other actors at the local, regional, national and international level. This should help to shed light on the distinctive features of the Finnish business system and welfare state and their contribution to business activities at the present stage of globalisation.

The analysis proceeds with three steps. We start by describing the post-acquisition integration of the three subsidiaries (Phase 1) and then move to examine how after this integration they constructed a new mandate within their new parent corporations (Phase 2). We end the analysis by focussing on the impact of the local environment on the maintenance and promotion of the subsidiary's mandate and role on the one hand, and on the extended micro-political exchanges in the games between the managerial teams and the wider institutional environment on the other.

Post-Acquisition Integration in the Three Subsidiaries: Phase 1

As far as the three subsidiaries are concerned, the post-acquisition integration in the end left them with positive results. This is the case although the starting points were not similar. While the StoraEnso subsidiary, for example, had been one of the largest production sites of the former Enso Gutzeit, it also belonged to the parent company core businesses after the acquisition. One of its main customers, the printing facilities of the largest newspaper publisher, also remained right beside it. The starting point for the post-acquisition integration of the *Foster Wheeler* subsidiary was also relatively unproblematic. The unit had a strong position among customers in power plants due to its path-breaking boiler technology. The new parent company was able to exploit this position as a bridgehead to the European markets in its other energy-related businesses. Even the subsidiaries in Poland and Spain were soon led from Finland. In addition, while the business in the Finnish subsidiary was running well, Foster Wheeler Corporation in general suffered from low profitability. This contributed to the fact that the operational modes and the business mandate of the Varkaus subsidiary were not systematically defined in this phase. The impact of the new parent was here visible first in financial reporting that had to be modified to meet the demands of a company listed in the NYSE.

For the *Honeywell* subsidiary, the starting point was much more difficult. The parent company had acquired the subsidiary not because of its products but especially because of its customer accounts and competent process control software designers. In Finland, there was a substantial market for process automation systems used in modern pulp and paper mills and

even in other process industries. Within this market the Varkaus unit was an established player. Because Honeywell headquarters was not interested in further developing the products of its new subsidiary, but instead in replacing them with its own, it gave notice to a large number of local R&D personnel within a few months after the acquisition was announced. At the same time, several parts of production were outsourced.

These problematic circumstances did not, however, prevent a positive outcome even in the case of Honeywell subsidiary although it took a few years to materialise. As the first step towards this, Honeywell headquarters soon noticed that the turnover of the Varkaus unit was in decline because its previous clients rejected the new Honeywell products and instead purchased a competitive product of another Finland-based supplier (i.e. Valmet). Thus, Honeywell rapidly lost the market that it had targeted with the acquisition. In order to solve the immediate problems, Honeywell headquarters gave the Varkaus subsidiary temporary permission to resume sales of their old product called Alcont, to supplement sales of Honeywell branded products. Simultaneously, it launched a new automation system in the U.S. with the aim of later replacing both Honeywell's own previous systems and the systems developed by the Varkaus unit. Even the temporary permission to resume sales of the previous Alcont system was, however, sufficient to indicate to the management and personnel of the Honeywell Varkaus subsidiary that they might continue to develop their own products. This was so although they had to compete for the same customers with other Honeywell subsidiaries in different parts of the world with no dedicated R&D resources to further develop the Alcont system. In this situation, the subsidiary management aimed to develop Alcont in the form of 'bootleg projects' together with key customers. At the same time, Honeywell headquarters continued to keep a close eye on the Varkaus subsidiary in general and in particular by appointing an American to head the subsidiary between 1996 and 1997. At this point, however, both because Honeywell acquired Measurex, which supplied automation systems to process industries and adopted an organisation structure based on customer segments (e.g. pulp and paper industry producers), the Varkaus subsidiary re-established its position as a relatively independent unit.

Thus, in conclusion, the three subsidiaries in question managed to survive the post-acquisition integration processes in the 1990s. We may take up two particular reasons for this. First, we need to mention that the Finnish economy grew strongly over the period in question. The second and more important reason is related to the managerial culture of Ahlstrom, which

seems to have had a positive influence even several years after the subsidiaries had been taken over. The internationally oriented managerial cadre and a cultivated style of management with many social ties across business and societal spheres continued to prevail. Moreover, different types of small businesses started to emerge at Varkaus during the 1990s on the basis of the previous sub-contracting networks of the Ahlstrom Corporation. The town and the regional authorities (especially the regional employment and economic development centre) set up various types of programmes to implement a localised version of the Finnish innovation system in co-operation with a unit of the university of applied sciences.

We recognise that the positive experiences among these three subsidiaries, all operating in Varkaus, may also have given a false confidence to the local actors that they could adjust to the globalisation process. In any case, there is a need to admit that during this first phase, the local managerial teams of the subsidiaries were successful in meeting many challenges that were posed to them. When we move in the description of the post-acquisition development thereafter, it becomes evident that the overall picture of the subsidiaries and their development becomes significantly different. Since the turn of the century, the subsidiaries and their management have needed to solve many new problems and to renew their operations, both within the MNC and in the market. Next we will take a case-by-case look at these Phase 2 mandate building and maintaining processes.

Building of New Subsidiary Mandates in the Three Subsidiaries: Phase 2

The StoraEnso Case

As a part of its parent company, the Varkaus subsidiary had a strong position for more than a decade. This position, however, significantly weakened as StoraEnso was formed in 1999 and this new parent then acquired the US-based Consolidated Papers in 2000. StoraEnso was then the largest paper and pulp producer in the world. At this point, StoraEnso's Varkaus subsidiary with its more than 1000 employees was still a substantial unit in Finland, but it was only one of ten largely similar units, in the same product area. When main headquarter functions of StoraEnso were transferred to London, the hierarchic status and informal contacting interfaces of managers of Finland-based units deteriorated further.

The fact that the Varkaus subsidiary had become a part of a huge multi-national corporation was materialised, in the period 2001-2006, in two main ways. First, the subsidiary lost one of its production lines, paper machine 1 (PM1). In general, this was not a complete surprise as PM1 had been under scrutiny since the 1970s, due to its relatively small production capacity. The machine had already been upgraded to more demanding paper grades but its capacity of 96,000tonnes/pa. was still at the lower end in comparison with its Finnish benchmarks. Neither could reductions in manning levels and other arrangements to improve productivity offset the continuing decrease in product prices. At the corporate level, the return on capital of StoraEnso was constantly stuck below the expectations of financial markets. In 2006, StoraEnso followed the example of its main Finland-based competitor UPM and announced that it would take part in industry-level capacity decreases by shutting down Varkaus PM1.

As the Varkaus mill integrate has reduced only incrementally its manning levels the closure of PM1 had to be handled very carefully from the point of view of the employees, the local labour union and even the national union. The mill management entered the negotiations with an unexpected proposal. It suggested that although PM1 employed 155 workers, the number of jobs and workers to be reviewed was 800; these were employed in the pulp mill, in PM3, in the wood handling section and in the maintenance occupations. Occupational skills and especially the degree of multiple skills were set as the basic criteria for selection. These principles and the combination of representatives who were to participate in the negotiations were defined beforehand. All responsible managers of the production units were personally involved in the selection processes. Altogether 16 negotiations were held. As a result, a large proportion of PM1 workers obtained a new job on PM 3 or in other local units. This was so because they were relatively young and well educated. At the same time, many PM3 workers were moved to other units and workers previously in these units were then employed elsewhere. At maximum, an individual change of jobs had an impact on four employees. After having gone through the negotiations, 38 permanent blue collar and seven permanent white collar employees lost their jobs.

The senior shop steward who was in charge of the negotiations from the blue collar workers' side opposed the principles and received strong support from the national union for his stance. He argued that old workers who were no longer employable in external labour markets should keep their jobs. Thus he preferred a principle that resembled the seniority-based bumping rule used in the US paper industry. But in the Finnish paper industry, the collective bargaining

contract does not a rule of this kind. The employer only complied with the demand that all temporary workers be dismissed even though their educational level and skills surpassed those of old employees.

In the end, when the result of the negotiations was announced, the final decision of the employer did not lead to employee walkouts or support strikes. It seems that the handling of the closure process was sufficient to provide legitimacy to the endeavour. Another reason for the outcome could be that parallel measures by StoraEnso's competitor UPM had been even more drastic. This is not to say that personal relations between the employers' and employees' representatives would not have been under severe strain. The shutdown and the other arrangements, however, seemed to act as a platform for something new to emerge. Special measures were taken both at the levels of both the integrated mill integrate level and the headquarters.

As to StoraEnso's Varkaus subsidiary, the change process in job assignments could be used as a trigger to a new type of teamwork because it transforms the way in which skill enhancement in teams is implemented. As a first step to support such a transformation, the mill management initiated an extensive coaching programme for all personnel with managerial or supervisory responsibilities. The "Focus on the future" programme signalled the need to go beyond the stress created by the PM1 closure decision and to trigger the renewal in the local leadership and work culture as well. Soon thereafter, the local employment figures revealed that most of the employees that had been laid off had found a new job. In fact, whereas originally 155 jobs had been threatened, only 12 previous StoraEnso employees were unemployed six months after the shutdown. In general terms, this indicates that the absorptive capacity of the internal and external labour market has been considerable.

As to the headquarters, it made swift decisions to support the integrated mill. Firstly, an investment decision was made to upgrade PM3 in Varkaus. Its capacity was now to be increased by an amount equal to the cut at PM1. Secondly, the benchmarking exercise on market opportunities and cost structures conducted in Varkaus and in other StoraEnso units made new opportunities for making productivity increases apparent. Thus decisions to switch product mandates between several units were made. Thirdly, to support all three remaining paper machines in Varkaus, a decision was also soon made to upgrade the pulp production facility. Finally in 2006, a joint venture of StoraEnso and Neste Oil was announced with the

intention of building a bio-fuel pilot plant in Varkaus. All these decisions could be understood as signals from the headquarters to support the future of the integrated mill and community.

The Foster Wheeler Case

When we consider the post-acquisition development of Foster Wheeler's Varkaus subsidiary, we must keep in mind that its current parent has always been essentially a construction company with only little involvement with highly R&D intensive businesses. It is therefore understandable that problems in profitability of the corporation at the turn of the century had an impact on its Varkaus unit, too. These influences were of two kinds. Firstly, in 2002 the subsidiary was put up for sale to alleviate the immediate solidity and liquidity problems of the parent company. By early 2004, no satisfactory offers for the Foster Wheeler Varkaus subsidiary had emerged. Instead, the creditors of the Foster Wheeler Corporation now required that the subsidiary should remain a part of the parent company (Jääskeläinen and Lovio 2004: 141-142).

Secondly, the corporate management encouraged the subsidiary to offer turnkey projects on power plants instead of merely selling technology (i.e. boilers). This forced the subsidiary to negotiate with other suppliers for different types of equipments and their instalment. In addition it took responsibility for the construction of the infrastructure (e.g. roads, railways) needed for the operations of a power plant. Surprisingly, the Foster Wheeler Varkaus subsidiary soon received several turnkey projects in Europe: one in Poland, one in Germany and one in Ireland. As only the first one of these was successful, the Foster Wheeler headquarters reacted by deciding to integrate the Varkaus subsidiary with the re-established global corporate structure and to end many of its previous operational and product mandates.

These rearrangements were not made without severe consequences. As the most concrete implication, major turmoil in the subsidiary managerial cadre resulted. This started with an American controller being sent to Finland. Soon after that, the managing director of the Finland-based operation was fired. He had been the figurehead for the former mandate expansion and one of the core developers the core boiling technology of the subsidiary. The controller was then appointed as the new subsidiary head. His approach to running the business, which was based on accounting figures, was disliked by most managers of Finnish origin who, however, were unable to question his position because of their own failures in

managing the major turnkey projects. In spring 2005, a new Polish managing director was appointed, only after a year under strict U.S. style control. His recipe for tackling the losses was to focus on cost reductions. The transfer of manufacturing operations from Varkaus to low wage countries would provide leverage. In addition, his mode of leadership was not acceptable to Finnish managers because they were accustomed to wide autonomy in the making of minor investment decisions while the Polish director wanted to have centralised control over the use of all resources. Finally, another US-based managing director replaced him.

At the level of organisational arrangements, it is most important to note that after 2002, the Varkaus subsidiary no longer enjoyed privileges over other subsidiaries within the Foster Wheeler energy business area. Moreover, operations in this business area were now placed in two divisions, both containing a new matrix-based organisation. The corporate headquarters decided that the Varkaus subsidiary should act as a technology-centred boiler supplier for power plants of energy companies. However, even though the mandate was narrower than the old turnkey delivery positioning, it catalysed a positive working mode within the subsidiary. It showed a profit 2006. Since then the Foster Wheeler Varkaus subsidiary has benefited from the upward swing of the international economy, especially in the field of energy technology. The subsidiary has remained profitable and the alterations in the strategy based on R&D competence have for their part started to influence the local professional labour market dynamics.

By 2007, it was clear that Foster Wheeler corporate management had again become convinced that its Varkaus subsidiary may have a prospective future as an elementary part of the corporation. In addition to the shown ability of the subsidiary to remain profitable, this seems to be related at least to two issues. First, the subsidiary has proven that its true nature lies in intensive R&D at least to a significant degree. On the one hand, it has a long history of developing new boiler technologies (e.g. Pyroflow burning technique) and of operating in extensive nationally co-funded R&D projects with universities. On the other hand, it has proved able to initiate new projects of a similar kind, which include projects on one through unit (OTU) boiler technology and on the use of pure oxygen in burning processes. A demonstration site for the latter is being built in Spain and the target deadline for a pilot plant is 2015.

Second, the Foster Wheeler Varkaus subsidiary has shown that it is among the most developed players in its line of business. Most essentially, this is based on the personnel, who numbered 520 in 2007 and of whom more than 90 per cent have a university education. The new drive in the demand has also put focus on human resource competence management, which was downplayed during the previous turmoil of the subsidiary mandate and mobility in the managerial cadre. In the engineering function, a junior management education programme originating from the time of the Ahlstrom Corporation continues. Besides investing on management education, the most urgent issue is now the circulation of specialists from one team to another. Because the number of boiler delivery projects has multiplied, there is a need to speed up the internal diffusion of best practices between projects, most of which also involve sub-contractors. In the orchestration of its projects, the Foster Wheeler Varkaus subsidiary uses a 3D-software-based working and communicating space among multiple suppliers and service providers. The software updates on a daily basis the contributions made to the planning projects by the teams across company boundaries. Finally, we may mention that bids and deliveries of turnkey projects have increased the network linkages of the subsidiary considerably across the whole spectrum of power plant technology. The current business model also includes selling licences giving the right to use the boiler technologies developed.

The Honeywell Case

Above we already indicated the many difficulties that characterised the post-acquisition integration development of the Honeywell Varkaus subsidiary. By the turn of the millennium, the subsidiary had passed these difficulties and re-established its position in a way that also acted as a platform for further positive development. Allied Signal Corporation's acquisition of a dominate holding in Honeywell in 1999 support these developments. Another option for the then barely profitable Honeywell would have been to merge with General Electric Corporation. After the ownership arrangements had been settled, Honeywell headquarters made several decisions intended to improve short-term profitability throughout the company. For the Varkaus subsidiary, this implied appointment of an American director. Since 2002, however, Finns have headed the subsidiary and with the resources granted by the parent further enhanced its position by developing its own products and customer relationships.

The re-establishment of the mandate of the Varkaus subsidiary was indicated and furthered by particular corporate initiatives. First, some core characteristics in the products developed by the Varkaus subsidiary were taken as the standard for all Honeywell products for the forest industry customer segment. Its geographical market responsibility was also expanded at the expense of other Honeywell subsidiaries in this customer segment. Even more importantly, the subsidiary was also given a global product mandate within the corporation on paper and pulp process automation products. Second, in 2003 the Honeywell headquarters decided to supplement the Varkaus subsidiary with a new R&D development centre. The centre especially intended to combine leading edge sensor technology and software in controlling the output quality of paper and pulp production processes. This technology increases productivity by helping to avoid breakdowns, downtime and scrap. In addition, experiments were to be made with new wireless and camera technologies in process control systems. Two years after the founding decision, the new centre already employed more than 50 researchers.

The resources and leeway given by the corporate parent soon also resulted in alterations in subsidiary customer relations and the prevailing business model in general. As a concrete example, the Honeywell Varkaus subsidiary started to develop a new generation process control system with interfaces in the expanding ICT platforms used by its customers. More important, a new service business model aiming at a profit-sharing partnership with the customer was launched. The model contained rules for how the technology supplier benefits from the improved productivity of the customer that result from the iterated co-design processes (cf. Sabel 2005: 114-117). For Honeywell, the model implied an extension of the hardware and software support service that it had already provided.

The first contract representing the new service business model was signed in 2006 between Honeywell and a Finnish speciality pulp mill called Savon Sellu. The customer was also a subsidiary of Powerflute, a foreign based MNC currently quoted on the London Stock Exchange. The key individual behind Powerflute was an Irish entrepreneur, Dermot F. Smurfit, a former chairman of board producer Jefferson Smurfit. Together with other investors he had bought Savon Sellu two years earlier. His previous industry expertise allowed him to streamline the work organisation of the mill completely. The number of employees at the time of the acquisition (2004) was 252. In 2007, with a simultaneous increase of production output from 245,000 to 275,000 tons/pa, the number was 180. This outcome was possible both because of the acceptance of the personnel for outsourcing and the

contribution of the Honeywell partnership. The process knowledge and a life cycle management support for all process control made it possible to optimise the production process by using statistical data and experimentation. Significant cost savings resulted making the mill profitable again and turning it into one of the most efficient board mills.

The first positive experience resulted in later activities of the same kind. On the customer side, Powerflute Corporation is also looking for new acquisition targets. On the technology supplier side, the experiences from the first partnership allowed the Honeywell Varkaus subsidiary to pilot and develop the new service business model in practice. After the contract described above, the unit made a similar type of agreement with the Finnish Valio Corporation for a facility producing milk products. Honeywell's service team is responsible for implementing the new system, which permits potential upgrading of the partnership-based service business model.

The Impact of the Local Environment on the Maintenance and Promotion of the Subsidiary's Mandate and Role

This subsection intends to supplement the material already presented by concentrating on how subsidiary management teams have used local, regional and national institutional resources in maintaining and enhancing the subsidiary's position during the post-acquisition period. We argue that the subsidiaries seem to have found several ways of benefiting from such resources. Firstly, personal acquaintances established under the previous corporate parent continued after takeovers by the foreign MNCs but now in the form of partnerships and customer relationships. Secondly, the municipality (Varkaus) has initiated a wide scale of activities that support the subsidiaries. Thirdly, the local trade unions and the labour movement in general, have had to adjust to a new situation in which there is no longer a single local dominant employer. However, the initiatives to support MNC subsidiaries have not been able to scale up the capabilities needed to take over new mandates and implement new business models. As a consequence, the number of inhabitants and jobs in Varkaus has been in constant decline. Most recently, Honeywell made the most dramatic move: it decided to transfer its operations to Kuopio, the regional centre. These aspects will be discussed in more detail below.

The heritage of the former corporate parent

After the individual subsidiaries in Varkaus no longer belonged to the Ahlstrom Corporation, it was still possible to continue many of the previous collaborative relationships between the subsidiaries. They remained technologically related and there were still many ongoing joint R&D projects. Over the post-acquisition period, however, the amount of cross-subsidiary R&D has significantly diminished as the business activities of the individual subsidiaries have become more focused. In some cases, this is also because the subsidiaries have become direct competitors, at least with some of their products. For example, the Andritz and CAE-AFT subsidiaries (see Table 1) ended their previous co-operation after the former extended its business area to that of the latter. CAE-AFT has experienced another loss of a previous Ahlstrom-based customer as StoraEnso's main technology supplier Metso also started to supply similar products. Examples of cross-subsidiary co-operation that continue include Honeywell's twenty experts who provide process control services for StoraEnso. Honeywell also still uses the facilities of StoraEnso to test some of its new measuring devices. Moreover, Andritz and the Foster Wheeler subsidiaries have agreed on flexible use of the same manufacturing facilities in Varkaus. Finally, we may mention that the Honeywell and Foster Wheeler subsidiaries together built a worldwide innovative waste burning and recovery facility for StoraEnso.

Hence, despite the fact that there was no longer a shared corporate parent that would have encouraged the individual subsidiaries to collaborate, the previous intra-company relations continued to at least some extent. But the contrast to the time when the headquarters of Ahlstrom Corporation was committed to risk sharing in long-term cross-divisional R&D projects has been significant. The headquarters of the new parent MNCs have no specific motivation to encourage such long-term co-operation across company boundaries. Under these circumstances, neither the municipality nor local political leaders have the capacity to influence the strategic decisions of the subsidiaries.

The contribution of the municipality

Between 1990 and 2007 the number of inhabitants in Varkaus has decreased from 24,600 to 23,400. Already prior to the early 1990s, Varkaus had lost more than two thousand jobs from the highs of the 1980s. Since then the downward spiral has continued. Since 2003 the

shrinking tax base has compelled the municipality to borrow more to cover the annual income deficit. In 2007, the town was granted crisis municipality status by the Finnish state. To fight against the high level of unemployment, the town has implemented a variety of programmes to keep the locality attractive to companies and inhabitants.

After the former Ahlstrom subsidiaries had been taken over by the new MNC parents, representatives of the town recognised that parent MNCs were not particularly dependent on the subsidiaries. Whereas roughly a third of Ahlstrom's turnover came from operations in Varkaus, for most new parent MNCs it was only a tenth. Hence, the continuation of these subsidiary operations in Varkaus – with the exception of StoraEnso - was much less certain than before. But even StoraEnso did reduce about 400 jobs from its Varkaus subsidiary between 2000 and 2007. For the town administration it took a long time to understand what the new and constantly changing context created by globalisation meant for the businesses in Varkaus. Due to the described turmoil, it was very difficult to tailor indirect support for the MNC subsidiaries. Nevertheless, the town did not abstain from meaningful support to local businesses and labour markets. We may mention four areas of such support: (1) forming of network organisations for sub-contracting firms, (2) founding of business service companies especially for small businesses, (3) setting up a technology centre for knowledge intensive SMEs and R&D projects and (4) making investments in the infrastructure.

Already in the early 1990s, when most of the subsidiaries in Varkaus still belonged to the Ahlstrom Corporation, the town established *network organisations* to support the development of local sub-contracting firms. These firms proved important when the new parent MNCs outsourced parts of the previous subsidiary activities. After the acquisitions, the MNC subsidiaries in Varkaus have become increasingly dependent on these sub-contracting and service firms. For instance, the largest sub-contractor, Sahala Companies Ltd., provides versatile services to various industries from stand-alone device deliveries to comprehensive plant-wide installations on a turnkey basis. It employs some 250 engineering professionals and craft workers.

From the early 1990s onwards, the municipality has set up business service companies for various types of purposes. For this purpose complementary funding has been available from regional and national sources. The Finnish Government had set up programmes to fund development projects in distinct competence areas in line with the cluster-based national

innovation strategy. To complement the first Centres of Expertise programme, a Regional Centre programme with more pragmatic objectives was launched in 1994. Together, the programmes provided tools to decentralise the national innovation system to specific areas and regions. The newly formed universities of applied sciences initiated development projects and obtained funding in collaboration with universities, research institutes and local businesses. Since 1995, when Finland joined the EU, the amount of funds available for peripheral regions like that in which Varkaus is located increased substantially. In 2000, the amount of EU fund allocations for this region increased by a further twenty per cent. These EU funds that complemented the national funds were also allocated through the Centres of Expertise and Regional Centres programmes.

In 2004, to supplement the business service companies that already employed more than thirty persons full-time, the town of Varkaus established another service company, called Aduser Ltd. Its mission was to “offer cost-efficient research and technology services to companies in the Varkaus region to enable them to respond to structural change and effects of globalisation”. This service company aimed to enhance co-operation between local MNC subsidiaries and Finnish universities and research institutes by applying funding for joint research projects. Linking Varkaus with university activities is especially critical the nearest of them is located in Kuopio, eighty kilometres away. As a concrete measure, two research directors were appointed to operate in Varkaus, although their formal employers were universities. To further encourage the inflow of small firms the municipality also used EU regional funds to build a technology centre offering office space for small and medium sized companies and the R&D units of larger companies. Aduser Ltd. was also located in the centre that provided daily contacts between companies and units.

The efforts of the municipality in building infrastructure include the still ongoing effort to launch a bio energy science park. That should host different kinds R&D activities (pilot plants, laboratories, educational and business services) and especially feed the energy-related production activities emerging in Varkaus. Examples of more direct support for individual subsidiaries by the municipality include funding the building of a new factory building for Foster Wheeler and its sub-contractors to lease. This immediately increased the subsidiary return on capital. The municipality also provided financial support for airline service from Varkaus to Helsinki to encourage the local habitation of the management and personnel of the MNC subsidiaries.

Local trade unions and the labour movement

The governance traditions of one-company towns have been very peculiar in Finland. From the administrative point of view, they were originally parts of municipalities governing the neighbouring countryside. Due to the interests of the dominant company they were later turned into independent municipalities. Thereafter the dominant company continued to build the infrastructure in its areas and provided many of the inhabitant services until the 1960s. When the scope of welfare services provided by the state was widened and financial support from the state for the municipalities increased, the dominant companies started to withdraw from their previous duties in the community. In contrast to the neighbouring countryside, the labour movement has had a strong representation in the elected bodies of the municipalities. Typically, left wing parties have had a majority in the elected bodies and many of the high visibility persons have also been representatives of local unions. Insider understanding of the needs of the dominant company has helped to focus the developmental activities of the municipality in ways that suited the needs of the company (cf. Lilja 1997). During the time of the Ahlstrom Corporation, contacts between the town administration and the local top management were frequent.

After the MNC takeovers of the subsidiaries, the relations between the town, labour movement and the subsidiary management became much more complicated. Especially the local trade unions found it difficult to have a voice. There was no longer a local dominant employer with which the terms of employment and problems in the labour markets could have been negotiated. Simultaneously, the overall level of education among the employees had increased and become more differentiated. A single shop steward was therefore able to represent only a small number of employees. These changes encouraged a more co-operative orientation among the employees towards the management of the MNC subsidiaries. This orientation has been apparent during the post-acquisition period from the early 1990s onwards when advances in company-level collective bargaining have been made. For example, in most MNC subsidiaries in Varkaus, the employees are accustomed to flexible working hours, depending on the season and business cycle. Many of the subsidiary employees also work in two or three shifts. These arrangements have significantly decreased investments needs in production facilities. However, in many comparisons done in the parent MNCs on labour costs, the costs in Varkaus are not the lowest. Being constantly subject to such comparisons may partly explain the decrease in the frequency of strikes during the post-acquisition period.

This also indicates the already mentioned change in the basic orientation of employees. It can be argued that instead of confrontation, the relations between teams of subsidiary management and shop stewards have become more co-operative. In addition to extended use of company level collective bargaining, the tradition of employee participation in development projects and mill-level managerial teams was already introduced during the time of the Ahlstrom Corporation. In many other subsidiaries of the parent MNCs in question the degree of participation of employee representatives is not as wide as it is in the subsidiaries in Varkaus.

Gaps in the availability of competences and resources in Varkaus

Above we have described a wide array of initiatives to mould the local business environment to fit the needs of the MNC subsidiaries. Even these, however, have not been sufficient for the most knowledge-intensive activities already planned or conducted by the subsidiaries. This especially applies to the R&D activities of Honeywell whereas Andritz, Foster Wheeler or StoraEnso did not have substantial R&D activities in Varkaus even at the end of the Phase 1 post-acquisition period. Similar problems are apparent from the fact that the sales activities of many subsidiaries in Varkaus have been transferred to the metropolitan Helsinki area. In part, this is because of difficulties in recruiting new people to work in sales, act as key-account managers for international customers and live in Varkaus. But from the perspective of the town and its attractiveness to business, it was a major shock that instead of Varkaus, Honeywell first extended its R&D activities in Kuopio, the regional centre and finally, in early 2006, decided to move its office and almost all of its operations to Kuopio. By taking a closer look at this process, it is possible to make visible some of the crucial gaps in the institutional resources available in Varkaus.

For the transfer of Honeywell's operations to Kuopio, the parent company gave a strong impetus. It is the policy in the process automation division of Honeywell that each of its units remains capable of integrating new technological improvements to its products. For example, the process control systems must be periodically upgraded to increase the scope, mobility and transparency of information that is collected to the management information system. As a locality, Varkaus offered only limited opportunities for the maintenance and expansion of such knowledge-intensive R&D operations. When the choice of a new location for was put on scrutiny, Honeywell also considered Jyväskylä in addition to Varkaus and Kuopio. Jyväskylä

is another regional centre like Kuopio with a university and operations of subsidiaries of global companies. However, Kuopio outperformed Jyväskylä, in part because it was possible to persuade the Technological Research Centre of Finland (VTT) to establish a process automation unit in Kuopio. An important factor was also that Metso, Honeywell's competitor in the same automation systems customer segment, has a strong presence in Jyväskylä, and also close connections with the university there and with other R&D institutions. Honeywell felt that proximity to its competitor could lead to knowledge spillover.

The university in Kuopio, by contrast, had already collaborated with Honeywell in R&D projects and was now interested in extending this co-operation. The City of Kuopio had invested a lot in the university campus through its own real estate company. Now the Honeywell subsidiary was offered an opportunity to rent office space. On the same campus, the regional university of applied sciences also has laboratory facilities that offer relevant services to Honeywell. Hence, while Varkaus was also able to provide attractive office space to Honeywell, Kuopio offered a much more diversified scope of relevant activities. For the key-account managers who must often visit customers the flight connections are much better from Kuopio than from Varkaus. It was much easier to find new sub-contractors and collaborators for R&D projects in Kuopio than in Varkaus. As to professional labour markets, Kuopio offers better opportunities for new recruitments, better services for present and future Honeywell employees to combine work and educational activities in their professional development and better employment opportunities for the spouses of Honeywell employees than Varkaus.

On the basis of the above it is thus quite understandable that moving from a more peripheral locality to a regional centre allowed Honeywell's subsidiary to maintain its previous product mandates and to provide a stronger platform to extend them in the long run. This decision to change the office locality reveals the importance of local institutional environment for the maintenance of subsidiary competitiveness. The first figures from spring 2007 did not show significant fallout of personnel from Honeywell because of the decision.

Extended Micro-Political Exchanges in the Games Played by the Managerial Teams

Taken together, the second narrative above demonstrates that the post-acquisition development of MNC subsidiaries is an eventful and in many ways surprising process. It

makes visible the subsidiary-level actors that have been able to maintain and promote the mandate of their units in the MNCs and redefine their role in the value constellations. But to succeed in such games, they have had to extend their micro-political exchanges from the local to the global level. However, for understanding the ongoing process of globalisation and the ways in which national business systems are linked with it at multiple levels, it is not enough to take the perspective of a managerial team of a MNC subsidiary. As demonstrated above, the locality, the wider regional institutional context, and their mutual relations can be equally or even more important to innovation processes that occur in a global context and to the services and ways of living provided by localities for their citizens. People are free agents to make their own choices. For policy making at the national level, responsiveness to the distinctive features and needs of companies, localities and people becomes essential. Unified, top down blueprint sector policies do not materialise the potential at the grass roots and in the ongoing decentralised experimentations for new businesses, business models and roles in value constellations (Lester 2007). In this subsection we once more explicate the extended micro-political exchanges made visible in the subsidiary specific narratives (cf. Morgan and Kristensen 2006: 1475-1485).

StoraEnso Varkaus subsidiary

As part of StoraEnso, the management of the Varkaus subsidiary has to adjust its strategy to the ambitions of a globally leading forest industry company. StoraEnso has several strengths with the help of which it is a likely survivor in the next phase of restructuration that is expected to happen in the forest industry. It has a strong corporate brand in Europe, with a wide portfolio of products, high technological efficiency, multiple sourcing opportunities and roots via the former Stora Corporation to the 13th century. Two camps dominate its ownerships structure, the Finnish state and the Swedish Wallenberg sphere, each of which has sufficient control of the company without holding a majority. It is unlikely that this company will be taken over by investors and cut into pieces during the next phase of industry restructuration. However, it is possible that the Wallenberg sphere might want to swap its ownership stake for more attractive financial investment targets. Neither is possession of an ownership stake in StoraEnso critical for the Finnish state.

Despite some stability in its ownership structure, StoraEnso's top management has to attend to changes in its market capitalisation of the company, as this is also a concern of private

equity investors. A high return on capital is also important because internally generated funding is necessary to master the current challenge for corporate renewal. StoraEnso lacks a portfolio of new products with high growth potential. To be able to keep its position among the globally leading flagship companies, new growth opportunities in science-based inventions are needed. The decision made by the headquarters to explore opportunities in bio fuel production is clearly a step in that direction.

The bio fuel pilot production plant, owned and management together with Neste Oil, was one part of the micro-political exchanges that StoraEnso linked to the closure of Varkaus PM 1. The plant conforms to increasing demands for the use of renewable energy sources. It extends the use of certified wood based raw material to unused parts of it. In addition, the chain of logistics is already in place. The pilot plant provides a vision of new jobs in an industrial environment where productivity increases in existing production lines reduce the need for labour. Finally, it is a perfect fit for the energy sector, which has been designated a core competence area for the town and the basis for building a local concentration of companies.

Within the global MNC, the new pilot plant will probably increase the overall attractiveness of the Varkaus subsidiary. When comparative benchmarks between mill integrates are done for choosing the location for full scale production of bio fuel, the Varkaus subsidiary is well positioned. Thus, despite the closure of one production line (PM 1), the dominant logic indicated here is not at all related to the transfer of production operations to cheaper production regimes. Nevertheless, the Varkaus subsidiary is a typical case in the Finnish forest industry. It has concentrated on constant productivity increases and failed to develop a dualistic model of renewal through simultaneous radical innovations. The building of such a dualistic model of renewal is important for the local labour market as well. In any locality, young people between 20 and 34 are the most likely to leave the town where they have been born, first to get the education they prefer and then to move to the locality where they can get employment.

Foster Wheeler Varkaus subsidiary

The case of the Foster Wheeler subsidiary tells a story of constant attempts to upgrade one core technology used in power plants and also to take an integrator role in power plant turnkey projects. Within the MNC, the subsidiary management team has benefitted from an

initial appreciation of the distinct technological competence of the unit, wide autonomy and a generous operational mandate. Failures in implementing the integrator role in turnkey projects led to a complete change of the management team, close surveillance from headquarters and a phase of uncertainty about the viability of the chosen strategy for business renewal. The intra-corporate game regarding the new mandate was resolved by putting R&D-driven technological renewal at the core of the strategy of the business unit and building the unit's role in the value constellation accordingly. This meant a return to the initial success path of the subsidiary, although this time within a new MNC and during a favourable business cycle. These changes quickly turned the business unit profitable again.

Paradoxically, the fact that Foster Wheeler remains in Varkaus was partly facilitated by the departure of Honeywell. As the former needed new experts, it was eager to hire about ten of them that had previously worked for Honeywell but no longer wanted to commute between Varkaus and Kuopio. The availability of housing close to the largest lake area in Finland with affordable prices is thus one reason why Foster Wheeler has been able to recruit new employees. Neither do poor flight connections hamper the choice of the locality as the 3D-software based virtual working and communicating spaces reduce the need for travelling and meetings.

Honeywell Finland

The successful globalisation of a large number of Finland-based companies active in the forest sector was the major impetus for Honeywell to give its Varkaus subsidiary the global mandate to serve this sector. Intimate understanding of the needs of the customer has been built into the operations of the subsidiary and could be delivered elsewhere due to benchmarks with best practices. Demands from the headquarters to integrate new technologies with the existing product platform via R&D and the pressure to supplement the previous business model with service business elements forced the subsidiary management to focus on new sources of competence. This resulted to the transfer of subsidiary office location from Varkaus to Kuopio.

The story of Honeywell Finland in particular makes visible many gaps in the institutional resources available in small and medium-sized industrial localities. To meet the regional, national and global level competition, such localities have severe difficulties including a small

population base and a growing aging population. At the same time local companies and inhabitants expect that the municipality can upgrade the service level and widen the service scope. In Varkaus, the educational programmes of the regional university of applied sciences have focused on automation technique, machine- and production technique and industrial engineering. While this fitted the local labour markets, such a narrow scope is not enough to satisfy ambitions of all in the relevant age cohort. Nor can this scope of educational programmes attract many young people from elsewhere to Varkaus due to educational opportunities.

In Finland, the number of industrially specialised localities similar to Varkaus is considerable. This is due to the raw-material-based industrialisation of the country and the original choice of the location for industrial production due to the availability of hydropower. Thus, the competence and resource gaps identified here also reveal weaknesses in the Finnish business system as a whole, which are partly related to the large geographic size of the country. On the other hand, new virtual ways of working in R&D and in project-based engineering assignments, as demonstrated by the Foster Wheeler case, may imply that the digital revolution can reposition localities as to their status and attractiveness. Thus correct focus in the value chain, the substance of work in the business model, the way of life offered by the nature and basic welfare services may provide a virtuous circle for some localities to prosper.

The dynamic logic of the Finnish national business system

The purpose of this section is to link the historical narratives sketched in the two previous sections into multi-level contextual settings. This should visualise the dynamic logic of the Finnish national business system. The linking is done first by pointing to *the changes of the focal actor* that have been the period-specific drivers for business renewal in Finland. The main point of the first subsection is that *for each of the three temporal contexts covered there is also a new focal actor*. Secondly, due to the shifts in focal actor, the relevance of different institutional resources changes dramatically and unexpectedly. This is highlighted by the abolishment of previously critical risk sharing mechanisms, shifting priorities of the subsystems and the launching of new risk sharing mechanisms suited to the new focal actor. Thirdly, the section is concluded with a reflection on the types of actors that have been able to

carve their space as front-liners and thus become the focal actor of the current period and also make comments on missing types of actors.

Changes of the focal actor during the last 25 years

When taking a look back over the temporal cycle of 25 years, we assume that our two narratives have demonstrated the fact that the period-specific focal actor in the Finnish business system has changed. There is not doubt that before the end of the 1980s the bank groups and the state were the focal actor. By various risk-sharing mechanisms they could shelter bold investments done by companies that belonged to their ownership spheres. Such risk sharing allowed these companies to diversify their operations into new industries or become engaged in other types of high risk business opportunities. During the 1990s, however, the internationalising national champions turned out to be the new focal actor in the Finnish business system. That space was opened by the collapse of the bank groups, the step-wise privatisation of state-owned companies and the withdrawal of the state from a position of dominant actor in the economy.

Then after the turn of the century, several internationalised national champions had taken on the role of the flagship company in global value constellations. This helped a large number of suppliers to internationalise with them. Because many Finland-based MNCs had internationalised through mergers and acquisitions, their governance acquired more federal features. In addition, they started to allocate distinct mandates to their units in other parts of the globe, as did foreign-owned MNCs in Finland. Such shifts in governance modes have given much autonomy to operations based on product and value chain, the more so when the emphasis is on innovations. In this new context of global value constellations incremental business renewal occurs constantly in customer-vendor relations. For radical innovations the scope of mobilisations covers a variety of companies, research institutes and universities. In such contexts the accumulated competence from earlier phases of development is essential. Especially for this reason front-liners have also become the new focal actor in the Finnish business system.

When taking a closer look at the type of occupations and professions involved in such front-liner assignments but having their home base in peripheral industrial towns we note that their core is occupied by engineers, natural scientists and ICT specialists. They have tertiary

education as a background and have accumulated their work-related competences in circulating from one development project to the next and/or also being responsible for teams and sections in different functional departments. However, when this is compared to the educational background, types of expertise and assignments of front-liners in the Finland-based flagship companies, the variety in their organisational platforms is manifold. This is due to the complexity of organisational models used for business renewal, scope of functions covered as well as the types of exploratory community building assignments implemented with stakeholders, in line with the open innovation paradigm.

Abolishment of previous risk sharing mechanisms, constructing new ones and making use of existing ones

The emergence of new period-specific focal actors has co-evolved with changes in the availability of distinct risk-sharing mechanisms. During the centralised mode of operation in the 1980s, the focal actor had internalised the risk sharing mechanisms in to its structure. This concerned both the bank groups and the state. Even on the second tier of the fixed power structure, like in multi-divisional companies, the headquarters had also internalised risk-sharing, to a certain degree. Being involved in various industries was motivated by the fact that economic downturns hit various industry-based divisions at different phase of the economic cycle. This provided cash flow to the corporate level at each phase.

In the 1990s, when multi-divisional corporations started to focus their business portfolio they lost the risk-sharing mechanism related to diversification. At the same time they were facing the need to launch radical product innovations at a shorter time span than earlier and face global competition when becoming more international. In such a context the priorities of various societal subsystems started to change. The commitment of the state to increase public funding for the R&D was a highly important signal. However, leading companies, that were at the driver's seat in R&D projects, had to involve also suppliers and business service companies to projects, in addition to research and educational institutes. This facilitated the spillover of knowledge that emerged from partly publicly funded projects.

After the turn of the century, leading Finnish flagship companies in the ICT- and forest based sectors had established their positions at the global level and set up both production units and R&D centres on several continents. Similarly, foreign MNCs had experimented with the

competence bases of the subsidiaries they had bought from Finland. Thus the headquarters started to shift their focus from setting up locality based competitive advantages to giving leeway for local actors. The latter could start making suggestions on how to encourage bottom-up processes to improve their role in customer relationships and in wider cross-company value constellations. But to succeed in issue selling for product innovation projects and new mandates within the company or new roles in value chains, the local actors had to accomplish benchmarks that were satisfactory when compared with other alternatives in a global context. Because globally leading companies have access to new knowledge wherever it is produced and they are increasingly committed to open innovation processes such competitive comparative search processes speeded up innovation processes. Fortunately, the investments in research and education in Finland had created relevant intellectual environments in regional centres and even in peripheral industrial localities.

During the 1990s, reforms of the educational sector and implementation of new funding tools for cooperation between companies and educational institutions facilitated new openings. The publicly funded programmes for centres of expertise and local competences have created collective network-based actor identities across sectors and types of actors at the local and regional levels. Such programmes have also provided incentives to localities to collaborate with each other. In this way institutional resources from regional centres have diffused to the smaller localities. Regional funds allocated from the EU have complemented these types of expertise enhancement programmes in a beneficial way.

For globally operating companies projects that are funded from such programmes are not significant because they have considerable resources of their own for developmental work. Their main source of knowledge input comes from the access to the core R&D centres nationally and internationally. But for front-liners that have been working in project-based assignments such sources of funding were highly relevant. They provided employment opportunities in cases when the proposed tasks of the current employer did not meet the ambitions of the front-liner or in cases when the employment was terminated. They provided also funding for assignments that could be included in degree programmes of educational institutes.

Inductive inferences on dynamic complementarities between the needs of the new type of focal actor and the systemic architecture

The case studies of business units originating from Varkaus gave justifications for the conceptual generalisation that frontline experts in global value constellations are the period specific new focal actor. Even though they do not get dedicated resources for their projects from the higher echelons of the organisational hierarchy, they muddle through. This is possible by relying on their accumulated professional competences from previous assignments, through their intra- and inter-professional contacts and by making use of the national innovation system in its entirety and especially its R&D funding tools. It is obvious that among the front liners various engineering professions are at the core. This inference is validated also by the first narrative that outlined the nature of change of the Finnish business system in the 1990s. The cluster-based competences were to a great extent based on the introduction of new generation technologies by integrating a wide scope of existing scientific knowledge to new industrial context. Also, the policy making tools of the national innovation system were geared for that since the early 1990s and enhanced very recently by setting up the programme to create national centres for science, technology and innovation in 2006. Only in the new national innovation strategy, launched in 2008, a vision for widening the risk sharing operations towards more user and employee-driven approaches is acknowledged.

In the value constellations of the local case studies, entrepreneurs did not seem to play a significant role. After the withdrawal of the Ahlstrom Corporation from business operations in Varkaus, the shake up did not seem to create new opportunities for entrepreneurs that operate with the front liners of the subsidiaries. Their increased significance could only be recognised at the supply side and mainly with local input. This picture is in line with the general situation in Finland. Entrepreneurship has not been a widely shared dream. When comparing citizens' preferences with respect to the trade off between entrepreneurship or having wage labour, Finns more than citizens in the other EU-15 countries and the US, lean towards the latter (Hyytinen and Pajarinen 2005). One reason for this is the fact that during recessions centralised macroeconomic risk-sharing operations, such as regulations of interest rates and devaluations, have targeted national champions while owners of SMEs have suffered. In the recession of the early 1990s, thousands of SMEs went bankrupt and this has caused entrepreneurial families long-lasting trauma. Thus only younger generations under the age of 34 have a more positive attitude towards the entrepreneurial option as a way of life.

This is verified by survey results among the Nordic countries (Autio 2007). One reason could be the fact that the Finnish ICT-cluster has been a seedbed for several “Born Globals”. They have established customer relationships with globally leading companies from the very start of their business operations (see e.g. Luostarinen and Gabrielsson 2006; Gabrielsson, Gabrielsson, Darling and Luostarinen 2006; Laanti, Gabrielsson and Gabrielsson 2007).

Another reason for low enthusiasm towards entrepreneurship has been the lack of equity capital in the financial markets. The availability of venture capital has been even scarcer. Although equity investment funding in Denmark is 0.4% of GDP, in Sweden it is 0.3% and in Finland only 0.1% (OECD Science, Technology and Industry Scoreboard 2007). International equity investors and venture funds have not targeted start-ups even though international equity capital started to flow to Finland in 1993, after the liberalisation of ownership of companies.

In the work system, there are nationally distinct mentalities that have their origin in the dream of life-long employment, especially within the organisational units of national champions. They were considered to be the most valued employers. Moreover, among white collar workers advancement in the organisational hierarchy was the model for career until very recently. Such mentality-related factors also restrict the type of employees that become tied to front line activities in global value constellations.

Thus in industries other than construction, engineering, consulting and business services, the adoption of project-based organisational models and temporary employment agreements have been a managerial challenge during the last decades. Neither have employee-driven innovations related to work organisations been a major policy issue, even though for two decades the Ministry of Labour has allocated funds for research-based organisational development work. In the cases reported above, the issue-selling initiatives within the MNC and in the search initiatives for new roles in value constellations were not related to distinct innovations in work organisations.

Towards new negotiated orders between levels of action and governances and across subsystems

The above analysis has indicated that if front-liners are the new focal actor in the renewal of businesses in MNCs and in global value constellations, then new risk sharing tools should be developed for them within the national innovation system. Free tertiary level education and increasing share of age groups that have participated in such education have contributed to the overall transformation of the Finnish business system during since the early 1990s. The dynamic complementarity between these phenomena emerged from earlier institutional investments unexpectedly in the late 1990s. But there seems to be a long way to go before new tailored practices are put into use, for instance, to facilitate employee-driven innovations. The project-based style of organising work in open innovation contexts and inter-firm relations also extend the renewal demands other subsystems. Obviously they have to be reformed or layered to provide proactive risk sharing mechanisms that enable the balancing work and private life of the increasing number of professional and occupational communities.

However, our material also suggests that success in bottom up business related endeavours is not only dependent on technology and business related competences but also requires personal support mechanisms for front-liners and their families. In the case of the Varkaus subsidiaries, continuous upgrading of occupational competences and leadership skills were put into the agenda after difficult phases of corporate restructuring. What was probably even more important was that the whole fabric of public sector services turned out to be an important facilitator for employees involved in global value constellations.

This means that the role of welfare services is increasing and the challenges related to them are linked with the issue of how can their wide scope be secured cross the whole country and in this way keep peripheral localities attractive places to live for front-liners and their families while the care-takers work in assignments that are parts of global value constellations.

Because there is always a scarcity of institutional resources the modes of governance are highly relevant in directing resources to the needs of the new focal actor. It appears that the legacy of the neo-corporatist tradition of stakeholder participation is not sensitive to the experiences of the front-liners. Neither is the involvement of civil society been aligned with

the shifts in focal actor. This is especially so in decentralised settings where the local organisations of political parties, trade unions and chambers of commerce have been the channels of civil society that influence the service provision of municipalities and wider regional contexts. New negotiated orders are needed and new modes of experimental governance have to be invented.

Chapter 3

The Danish Case: Complementarities of local and national dynamics

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Introduction: Denmark – An experimental laboratory for an alternative route to the New Knowledge Economy?

This chapter explores processes of organizational and institutional experimentation by which Denmark copes with globalization and intensified innovation, how companies experiment with new organizational principles and how institutions are being changed to serve citizens to fill into new jobs, create new working careers and professional identities, thereby trotting new paths of development.

Danish firms - small, often family owned - and most regions have not entered the new global economy as expected (as in e.g. the US and Finland innovating in high-tech sectors), leading to the anticipated version of the knowledge economy. During 1995-1999 the contribution to growth in total employment of the rise in knowledge intensive employment was 4.9 for Finland, while it was only 1.0 for Denmark (Arnal et al. 2001, p 17). Yet the 1990s “employment miracle” rated Denmark among the top of EU countries concerning the ability to move to low unemployment rates (Madsen, 1999, 2003). Not a coherent transformation, but a patchwork of factors and labour market reforms combine to explain this development (Madsen and Pedersen, 2003). Some regions moved towards more knowledge intensive, though not necessarily high-tech occupations, but employment of formally unskilled workers and their average wage increases were higher than elsewhere, making Denmark more egalitarian, while others changed towards a more dualistic labour market (Andersen, 2003).

Flexicurity has been seen as Denmark’s major asset in coping with the new global economy. It is said that the ease by which employers can hire and fire workers makes the economy much more adaptable and able to shift resources to progressing firms and reducing employment in shrinking ones, while generous social security, unemployment benefits and active labour market policies ease periods of unemployment and make it possible for families

to continue living a fairly normal life, while searching for or learning to master a new job. Since the mid-1990s the rule-of-thumb has been that when 250,000 jobs are lost in Denmark, 260-270,000 new ones are created and approximately 20% of the labour force shift jobs, yearly. This is witnessing a dramatic rate of change and experimental vigour. Very few, if any, have seriously studied what is going on, how the processes look and why they happen. The question is what directs this change and what is the outcome?

The question makes indeed sense if we see it as reflection of larger global tendencies. For Herrigel (2007), one of the central phenomena of the new economy is that firms constantly must redefine their roles towards other firms in order to reduce costs to finance increasing innovativeness. Thus Denmark may be scoring low on investments in R&D, involvement in high-tech-sectors, etc. (Benner, 2003), but it might score high on the ability for continuous role redefinition. External role redefinitions of firms involve changes in the internal skill- and role matrix of the company, leading either to lay-offs, hiring of new workers with different skills or radical shifts, re-skilling and re-combinations of workers within the company. Obviously, Danish flexicurity could be a very attractive asset under such conditions (Hage and Powers, 1992).

Compared with the *Bureaucratic character*, which cultivated more and more specialized and corporation specific competencies, this new situation creates an *Interactive social character* that is better equipped for shifting between than of perfecting routines (Macoby, 2006), and may be better prepared for search (Sabel, 2006). Sabel points out that we only partly understand this novel form of firm, and if Herrigel is right, the understanding of institutions needs to move beyond stable states, e.g. where roles and rules change interdependently with the use made of institutions. Though a particular country study may not provide answers to such issues in general, Denmark might provide an ideal window for exploring empirically some of these issues for a distinct economy. Whereas discussions on flexicurity are basically framed by macroeconomists, and debates on global restructuring are held in universal tones, what we need is to understand the processes of micro-dynamics both within and among firms and the role that institutions play. The chapter progresses in three steps. Section 2 gives first a generalized characterization of the Danish Business System, and then depicts how citizens, firms, and institutions have, at an aggregate level, been aligning themselves to the global setting, and its possibilities and challenges. Section 3 is micro-investigations of how the mutual role shifts are occurring in and around case firms and towards their institutional setting

in their attempts to define for themselves a new place towards potential global partners. Section 4 synthesizes the Danish pattern of continuous adaptation, and compare it to other nations, in particular the other Nordic countries.

The traditional internal dynamics of the Danish Business System (DBS)

A major flaw in the discussions on Danish flexicurity is that employers are attributed the active role, while employees are seen as passive, accepting to get easily fired in exchange of generous unemployment benefits. High mobility springs as much from the aspirations of groups of employees, their fight for social space and reputation, mediated by the institutions they make use of and exercised by constantly searching in firms for better jobs, which they co-construct with employers. To understand this we must move beyond market reasoning and aim at socio-institutional patterns of interaction.

The DBS was constituted after the loss of Schleswig-Holstein in 1864, when all social groupings rushed to the pumps to save the ship (Kristensen and Sabel, 1997, Kristensen 1996). Centered in Copenhagen a bank driven industrialization by large corporations was set in motion. This was partly opposed by the farmers' cooperative movement that tried compensating for the corn-crisis in Europe by specializing in high quality export products such as butter, ham and eggs, organizing diaries, slaughterhouses and export companies. Locating their facilities in new railway towns they created space for craftsmen and craft shops that simultaneously provided the skills by which the farmers could continuously improve their facilities. Railway towns became yeoman republics, industrializing by SMEs, partly in opposition to and conflict with corporate Copenhagen. Though often in conflict, the two forms of economic organization also held an abundance of possibilities for diversification, created mutual complementarities and specialization. Without altering the fundamental setting, Denmark had an industrial structure that could cope with shifting challenges. Thus from 1890 to 1914, the farmers constituted the backbone of an export-led economy, backed by corporate Copenhagen's investments in shipping, ship yards, infrastructure, freezing equipment, and machinery. Between 1918 and 1945, the craft shops in railway towns took over and provided the import substitution that compensated for the decline in world trade and agricultural exports. After WW2, Fordism seemed to emerge from both the railway towns and corporate Copenhagen, but as the need for flexibility became visible after the first oil crisis, it

was clear that a very dynamic set of industrial districts had developed in Jutland's railway towns, creating a novel dynamic, for instance in clothing, machinery, wind mills and furniture.

Both corporate Copenhagen and the railway towns had based their industrialization on a strong position of craft workers, against the Fordist ideal of hiring primarily unskilled labour. The crafts had defended their position by creating numerous local (multi-craft) technical schools linked to national craft-specialized schools, so that a decentralized labour market was governed by general and certified curricula that made possible national mobility of the workforce. By 1907 this school system was crowned by a Technological Institute transferring new technologies to small firms, constantly updating curricula for existing crafts and developing new craft specialization (e.g. electricians, car mechanics). In effect craft workers came to dominate industrialization as their numbers expanded explosively, both as workers and as entrepreneurs, while other groupings had to waver for a training strategy, should they have any chance to contest the social space of craft workers. Thus, during the crisis of the 1930s unskilled workers initiated work technical schools organizing evening classes in new areas of technology to compete with skilled workers over jobs that had not already been fully colonized. Gradually, the unskilled succeeded in gaining increasing state support, and from the 1960s onwards they created a countrywide system of special worker schools that could organize curricula and compete more fully with the craft workers' technical schools. During the same period, craft workers were contesting the civil engineers by flocking to technicum engineering schools that visionary entrepreneurs originating from their rank and file had initiated. Through these schools and new courses for technicians at technical schools, the skilled workers came to dominate the new positions and organizational roles by modernizing after Fordist ideals. Thus by the 1960s different groupings in Denmark were organized in different unions, associated with different schools, all engaged in a rivalry over qualifying their constituencies to whatever openings would show up in the labour market with new technologies, new organizational forms, etc. The universal weapon for fighting for social space in a civilized way became training, and unions could only expand if their members and associated schools managed to capture expansive new job areas (Kristensen and Sabel, 1997).

This dynamic had an immense importance for the distinct Danish Business System. It pressurized firms to compete over reputation by recruiting highly recognized teams of workers and to offer them job challenges so that they would not need to pursue their craft

worker careers (Kristensen 1996; Sabel 1982) of continuous growth in skills by shifting employer. One might say that workers had succeeded in institutionalizing poaching, without creating the consequences that employers would under-invest in vocational training and education, as the welfare state increasingly financed an ever more sophisticated training system. Recruiting highly skilled and reputed workers was very difficult for mass-producing firms and therefore a fairly unusual firm type, the *skill-container*, specializing in mastering a number of technological processes for a multiplicity of purposes, became constitutive of the DBS. Given a dense network of skill-container firms, it became easy to form and operate another form of firms, the *project-coordinators*, which could easily organize a project of developing, producing and marketing new products by asking skill-containers to do most of the development and production and then eventually focus themselves on assembly and marketing. In this way it became very easy and cheap in terms of investments to bring new products to the market, as most of the value chain was outsourced to other firms. It thus became fairly easy for entrepreneurs to search for new comparative advantages, as they shared risks with many other entrepreneurs, making it easy to diversify.

A business system of skill-containers and project-coordinators does not simply develop into a hierarchical system of Original Equipment Manufacturers and suppliers, as for instance in Japan. Skill-containers would lose their gain in recruiting power by specializing into a narrow supplier of repetitive blanks. Instead it was a general rule-of-thumb that a supplier should never put more than one third of its turnover into one basket, implying that successful project-coordinators would quickly outgrow them. Standardized, mature pieces were outsourced to foreign suppliers, while Danish suppliers were used for experimental development of new pieces and products. Skill-containers became tied up to many different value chains - regional, national and since the early 1990s international. An abundance of new challenges therefore flowed into their workshops, offering highly skilled teams of workers new opportunities for experimental learning.

Danish factories, being characterized by high discretion employees (Dobbin et al. (1999: 277), looked – as their Nordic sisters - very different from most foreign factories already by the end of the 1970s. Danish blue-collar workers had as much autonomy as foremen in the US; Danish production managers were more autonomous than American CEOs (while a Danish CEO felt less autonomy than a Danish foreman). Mobility explains the differences. Universalistic welfare states give rights and privileges to workers not associated to the

employment contract as they tend to be in both Anglo-Saxon and in conservative welfare states. Therefore, workers are freer to search for new jobs, if dissatisfied with current employers, as they do not risk jeopardizing pensions, health insurance, etc. (Morgan, 1997). In Denmark most employees leave a job in exchange for a new one (Eriksson et al 2006: 104). Even during periods of high unemployment, say in 1980, this number amounted to 200,000 whereas only 80,000 were fired and went into unemployment. In periods of low unemployment, say year 2000, approximately 260,000 left a job because they had found a new one, while only 40,000 became unemployed. Thus, Danish *flexicurity* is to a great extent characterized by employees looking for new challenges in other places. Consequently, employees are as active as employers in creating the dynamic of the system, as they deselect employers not offering opportunities for improving skills.

This horizontal mobility coexisted with a hierarchical, class transcending mobility. Haldor Byrkjeflot (2001) has compared the social origin of CEOs in different countries by the end of the 1960s – when Fordism was thought to rule - and found astonishing differences. As expected, the typical pattern in most countries was that CEOs came from wealthy families and had academic educations. The US and Denmark differ most from this picture concerning class origin, but only Denmark differs with respect to the role of academic education (Ibid: 45) combining a higher proportion from lower and middle class with non-academic educations. Field studies have shown that many a manager started with as an apprentice, worked for a number of years as a journeyman, then engaged in e.g. a technicum-engineering education and finalized with a diploma-education in management (Kristensen, 1986). Having been involved in jobs at nearly all possible levels and within different firms constitutes people with a larger role-set and an ability to understand others in different stations, than when managers are recruited to a high level of bureaucracy after an academic education. Such managers will have a much better feel for how responsibilities can be distributed, may be better at “taking on the role of others” (Mead, 1967), and at exercising authority in a non-conflictual way (Barnard, 1938). In workers they may see future colleagues and give leeway for such aspirations.

A significant difference between the US and Denmark was mobility across firms. In the US employees primarily pursued an internal hierarchical career, whereas 42% of Danish managers had worked in three or more companies before achieving their current position against only 19% in the US (Byrkjeflot, 2001: 66). Barley and Kunda (2004) in their study of

itinerant experts show how normal employees develop a narrow network of relations within bureaucracies, while short-term contract workers achieve a large “network of practice”. Maybe the itinerant practices of Danish employees create a dense network among persons, but as this network is simultaneously combined with “permanent employment” in firms, it also leads to a dense and multileveled network among firms. In this network it is easy to exchange goods and services, but simultaneously construct a strong form of behavioural governance, where reputation can be quickly improved and destroyed – both at the level of employees, teams and entire firms. Informal “rules of conduct” play a major role in making business (Kristensen 1996; Nygaard, 1999) and create the foundation for high levels of trust.

About the time of the first oil crisis, Denmark was, before cumulative forces of change and globalization set in, a society in which equality was not only related to welfare state institutions, but also to education and vocational training, class-transcending careers at work and dense networks among firms and employees. Many of its behavioural codexes owed their origin to small railroad towns of the countryside in which employees shifted jobs and employers, from agriculture to craft to industry throughout the year and where life-courses moved persons from apprentice and farmhand to master-craftsman, farmer or entrepreneur (Kristensen, 1992). In these railroad towns flexicurity meant that a small number of people could construct a modern heterogeneous society, which would have been impossible if they had modernized by large bureaucratic organizations. Thus Danish industrial localities were in general very different from the mill towns (Brukssamhälle) so typical in the other Nordic countries.

The Danish Route to the New Economy

In many ways, the DBS was ideal for meeting the challenges posed globally by the first oil-crisis and onwards. With increasingly volatile markets and fast shifts in customer demands, it carried the possibilities for recombining firms and workplaces in new ways and creating novel products (Piore and Sabel, 1982). This happened through an overall rapid increase in the numbers and employment in SMEs in Jutland and a decline in large industrial cities in East Denmark (Kristensen, 1992:129-130), transforming farmers to craft workers and entrepreneurs by making use of vocational training institutions in agricultural districts. From the mid-1980s this process intensified as employees and unemployed from all professional origins flocked to courses in further training to achieve IT-literacy (Andersen, 2003: 108 ff).

Yet, transformation did not come easy. New and large cohorts of workers and women in increasing proportions entered a labour market, already depressed. Unemployment increased dramatically, also because the governments of the 1980s believed that a certain level of “structural unemployment” was necessary to keep down wages and inflation. Macroeconomic indicators looked very sad, and the Conservative-Liberal governments of the 1980s tried to stop growth in the public sector and change it away from bureaucratic habits. Some observers saw this as a change towards a negotiated economy, “where economic coordination was achieved through organized negotiations among autonomous actors in both the public and private sector” (Pedersen, 2004: 2; Kjær and Pedersen, 2001), being both able to solve conflicts and build mutual understanding among various actors, thus developing a common understanding of economic challenges and problems. Issues shifted from being primarily concerned with wage formation and labour markets, then focused, in particular, on the private sector’s inability to pick winners that could act as locomotives for industrial growth, on too low investments in R&D, on low levels of entrepreneurship, etc., and then finally on the size and growth of the public sector. With the active involvement of the Ministry of Finance and the Ministry of Trade and Industry, Denmark established a discourse on industrial adaptation very similar to the general, worldwide discourse. Kjær and Pedersen (2001) hold that the general effect was that all actors involved became highly focused on industrial competitiveness. This focus has taken several turns over the past decades. First focus was on how technology could modernize public institutions, then on how the public sector could service private firms. Finally, focus was directed toward how each and every sphere of society could and should adapt to life in a globalized environment. Modernization, learning and adaptation became focal issues at all levels, resulting in experimentation everywhere.

With a Social Democratic coalition government in the beginning of the 1990s focus was on gradually reducing structural unemployment. Out of this grew the active labour market policy (ALP) that gave an entirely new twist to Danish flexicurity . The ALP had the following main characteristics (Madsen, 2006, p 336):

- The introduction of a two-period benefit system, with an initial *passive* period of four years and a subsequent *activation* period of three years; during the passive period, an unemployed person receives benefits and is also eligible for twelve months of activation;
- A change in the assistance provided to individual long-term unemployed persons from a rule-based system to a system based on an

assessment of the needs of the individual (with the introduction of *individual action plans* as an important instrument);

- The *decentralization of policy implementation* to regional tripartite labour market councils, which are empowered to adjust programme design to fit local needs;
- The *abolition of the connection between participation in labour market measures and the unemployment benefit system*, with the effect that employment with wage subsidy would no longer prolong the period for which the unemployed is eligible for unemployment benefits;
- The introduction of *three paid sabbatical arrangements*: for childcare, education and to encourage job rotation by allowing employed (and unemployed) persons to take leave while receiving a benefit paid by the state and calculated as a fraction of unemployment benefit.

Madsen (ibid., p 337) points out that this program is constantly being modified and changed, e.g. where it initially had 32 individual programs, it is now based on three main types: a) guidance, training, and education, b) practical introduction to enterprises, and c) wage subsidies. At the core is the obligation of the system to, in collaboration with the client, make an activation plan. In this context the individual assesses aspirations in the light of what a whole complex of societal institutions can offer, to construct a program combining vocational training/education with agreements on job-training (in private enterprises or public services), which again might be combined with services such as childcare, help cure or cope with disabilities, addiction, etc. Focus was, in particular, on further training, the share of which increased from 24% in 1990 and to 56% in 1999 due to a rapidly increasing budget for ALP⁷.

This orientation of the ALP partly reflected ongoing transformations at the workplace, where Taylorist managerial principles were being abandoned, buffer-stocks reduced and novel forms of work-organization tested to the effect that planning and execution became re-integrated (Kristensen, 1986; Kristensen and Petersen, 1994). Though high discretion jobs already dominated Danish firms, a new quantum leap seemed to have happened in the 1990s. Andersen (2003: 105) asked in two surveys – 1985 and 2000 – Danish employees whether

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http://www.cesifo-group.de/portal/page/portal/DICE_Content/LABOUR_MARKET_AND_MIGRATION/LABOUR_MARKET/LM100_ACTIVE_LABOUR_MARKET_POLICIES/ACTIVE-LM-SPOTL-REP.PDF

they "use their own ideas in their jobs"? In 1985, 55% said they did so "often" or "now and then". By 2000, 90% said they did. 76% also said they had very good or good possibilities for exercising influence on their wider workplace (Ibid, p 107), indicating that they pursued these jobs by also engaging in transforming the larger organization. Among male workers, 71% often introduced own ideas at work, while 77% had good or very good possibilities for influencing the larger workplace. For women the percentages were 66 and 75, respectively. Though it was slightly lower for women, it was probably primarily among them that the increase in job autonomy and participation increased. Do these figures suggest that Danish firms have mass-mobilized the workforce to engage in continuous change and that major transformations have taken place?

A survey on the flexibility of Danish firms from the mid-1990s (Gjerding, 1999) found that 25% of the flexibility were both internal and externally (dynamic), 26% were internal and 8% were external flexibility. The remaining was characterized as static (Ibid: 7). Flexibility was predominant in industry, while static firms primarily represented construction and transportation. Thus where we would expect Taylorism, flexibility was dominant in the mid-1990s. Gjerding found also that while other Nordic countries used a number of modern managerial techniques to achieve functional flexibility, Denmark achieved it primarily by delegating autonomy to employees (Ibid: 10). Lorenz og Valeyre (2003) give a similar picture in a study based on the third "European Survey of Working Conditions" in EU-15 in 2000. Here only 6.8% of the Danish employees say that they are working under Taylorist forms of work organization, 11% in traditional (e.g. building and construction) and 21.9% under "lean" forms of organization. 60% say they are working in "learning organizations" characterized by high autonomy, absence of highly formalized forms of control, etc. (Ibid: 13).

When 60% say they are working in learning organizations the effects on our interpretation of a number of phenomena are dramatic, because their scope change compared to work arrangements of a more Taylorist kind. For instance, formal further training under Taylorism was often used to transfer a worker between simple jobs. In learning organizations, however, training courses play a different role – but which? And if work also means constant processes of role-redefinition, what does this mean for the traditional divisions among workers, supervisors, managers and white-collar staff? What is the difference between normal work, being continuously improved, and innovation?

On the whole, the dynamic of Danish innovation and its innovation system is somewhat of an enigma as was already said in the introduction to this book. R&D spending is pretty low, and yet Denmark is number five in the aggregated comparison of EU 25 (+ Japan and the US) of the *European Innovation Scoreboard* (2006: 8), which makes use of a complex set of factors to measure in- and output of innovative activities. At the same time Danish innovative performance is assessed to be progressing compared to the countries ahead of Denmark (Ibid: 4). Denmark owes its high position, in particular, to the proportion of population with a higher education, diffusion of IT-networks, lifelong education, collaboration among innovative SMEs, risk capital for business start-ups, use of organizational innovations in SMEs, employment in high-tech services and sale of new products (new to the firm, but not to the market) (Ibid: 13). When Denmark in this study only measures mediocre in terms of performance compared to inputs (Ibid: Figure 6, s 15), the reason is that Denmark seems to be poor at accumulating intellectual capital, in particular through patenting. In contrast it is very keen to claim "community design" rights concerning the design of products and "trademarks".

Jensen et al. (2007) discriminate between a normal Science, Technology and Innovation (STI) way of knowledge formation and a Doing, Using and Interacting (DUI) mode, and find that 30% of Danish firms make use of the DUI mode, 11% of the STI mode, while 19% combine the two (Ibid., p 687). Characteristically for the DUI mode is involvement by a multiplicity of employee groupings, while STI centres around scientifically trained personnel. This distribution reflects the ways of innovating in the Danish system embedded in crafts, but also suggests that during the last couple of decades it has integrated more of the STI mode into its operation, probably creating a very promising combination (Ibid: 689) that is close to what is needed in networked innovation systems (NeIS) in which employees at all levels participate.

In a LO financed study of the extent to which different employee groups are involved in development work (Rambøll Management, 2006 A and B) a number of case firms (Ibid: B) within both the private and the public sector proved this involvement to be very far-reaching for blue-collar workers. Therefore the general survey data below was considered rather disappointing to the investigators, especially concerning the formally unskilled (Ibid. A: 22ff), and yet the data discloses that many firms involve all employee groupings:

Table 1.3: Participation of different groups of employees in development work (share of firms in percentage, according to managers (2005)).

-Development of products, solutions and services			
	Medium and long-term higher education	Craft- or short-term higher education	Unskilled
Industry	90	75	29
Private services	86	74	41
Public Sector	95	90	51
Total	90	78	44

-Development of processes and practices			
	Medium and long-term higher education	Craft- or short-term higher education	Unskilled
Industry	93	81	36
Private Services	85	81	54
Public Sector	98	91	61
Total	91	84	54

Source: Rambøll Management 2006: 22-29

In a crosscutting analysis the study found that in 51% of the firms, both unskilled and skilled workers are involved in development work in some or to a high degree (Ibid. A: 30). However, in 31% of the firms unskilled are not involved at all, while skilled workers are. Firms that most strongly involve employees also produce the most satisfactory results of innovation processes (Ibid. A: 48-50) as they are also better at involving the customers (Ibid. A: 52). The general picture of Danish firms is that most employees are involved in not only the daily production, continuous improvements, etc., but also in innovative activities. This seems to happen in strong interaction with persons external to the firm. Thus a study found that 57% of employees worked with external partners on a daily basis, 20% on a weekly and 6% on a monthly basis. 80% had been involved in improving external relations (Undervisningsministeriet, 2005: 79), suggesting intense interactions involving frequent role shifts. In the above table, it is worth noticing that these practices are gradually gaining import in industry, but are extraordinary important in private and, in particular, in public services.

While Denmark seems to have enabled employees to take part in these processes through public institutions in further training, the public sector has done less and less to underpin innovative investments by a larger, partly public financed innovation system. In a comparative analysis of the Innovation Systems in the Nordic countries Gergils (2006) characterizes the Danish government since 2001 by “lofty promises and a de facto decrease in resources”. Obviously Denmark has neither established nor thrived on the sort of “innovation

pump” that has played such an impressive role in the US (Silicon Valley, Route 84) and in Finland (around Nokia) in terms of innovating new products. The Danish innovation pattern is diffuse and takes place in firms from many different branches. Beautiful furniture, fashion, advanced films, highly reliable pumps, and tricky equipment for developing countries, pharmaceuticals, well-designed hi-fi, economically efficient windmills, sophisticated enzymes, smart hearing aids and high-quality food come out of firms in a very heterogeneous business structure in a fairly steady stream making use of new generic technologies.

In the 1980s it was clear that Danes could export, while being weak in organizing and expanding through outbound Foreign Direct Investments (FDI). SMEs were believed to have neither the size (as had Swedish firms) nor the focus (as had the Finish forestry industry) that made possible international expansion. In 1990 Denmark ranged very low concerning outbound FDI, while foreign firms seem more tempted to invest in Denmark – as inbound FDI was remarkably higher than for both Sweden and Finland. However, a radically change in globalization took place from 1990 to 2002 – when also work organization and further training transformed - as the level of inbound FDI six-doubled, whereas it eight-doubled for outbound (Eriksson et al. 2006: 9). Denmark seemed to undergo a globalization revolution within a decade. SMEs had been active in bringing about this change:

In 2002 775 Danish business firms had at least one subsidiary in a foreign country, compared with 682 in 1997. 90% of the MNCs were SMEs with less than 650 employees. 34% of employees had jobs in SME multinationals, while 21% were employed by 78 MNCs with more than 650 employees (Ibid: 62).

This indicates that a limited number of fairly large Danish firms have been active and have drawn a larger swarm of SMEs with them, so that today a majority of Danish employees are working in firms with international activities and close interaction with foreign customers (Ibid.: 63 ff). The primary reason has not been to harvest the benefits of cheap labour, as foreign subsidiaries maintain the characteristics of skill-containers. On average, in Danish facilities 59% of employees are craft-workers, 25% formally unskilled and 15% of higher educations, and this pattern is repeated in foreign affiliates. It is indeed thought-provoking that the figures in foreign subsidiaries are very similar: 58% are craft-workers, 27% unskilled and 15% of higher education (Ibid.:66). And yet, very odd and paradoxical changes in proportions of the employees seem to happen. In 1997 8% of the employees in Danish affiliates are engaged in R&D, while the figure is only 4% in foreign affiliates. In 2002 the picture is reversed. Now 4% of the employees in Danish affiliates do R&D, while the

proportion in foreign subsidiaries has doubled to 8%. Are Danish firms constructing a global search system?

In many ways these evolutionary tendencies, fast FDI globalization by SMEs, dramatic increases in employee discretion, a quantum-jump in continuous training suggesting a change in professional identities, steep increases in R&D personnel, the emergence of learning organizations, extensive interaction with customers and suppliers, are signalling a new type of firm behaviour and a transformed DBS, the contours of which we shall explore through a number of case-studies.

Case-studies: Introducing many small worlds

In what follows we will simultaneously explore the experiments with novel ways of organizing work, redefining jobs and roles, the role played of the negotiating order, changing relations among firms and the way in which Danish firms globalize. Initially our search focused on firms that had been taken over by foreign MNCs, expecting inbound FDI to be the major source of Danish globalization, and that the role of MNCs in globalization depended on how well they fought for mandates and positions. As it became clear that outbound FDI played an equally important role, we included a Danish SME transforming to a small multinational. While studying the cases, the control over Sauer-Danfoss shifted back from American owners to be again controlled by the Danish Danfoss foundation, and the Radiometer-case demonstrated that a Danish firm may be included in a global MNC exactly because it has previously pursued an endogenous form of globalization. Thus FDI and ownership is just one of many different mechanisms by which firms on a global scale are mutually engaging in ongoing role-redefinitions – though very important ones.

From a larger sample (including also APV in Horsens, MicroMatic, Danfoss, Bombardier in Randers and Fritz Hansen), visited for a full-day in a first phase of the study, four case-firms were selected for closer inspection. In the second phase one of us would return and study each of the four firms for a full week, using participant observation, interviews and collecting written material. An ideal set of criteria guided the case-selection, but proved irrelevant. The four cases, we selected for closer inspection, were:

Unimerco (U), which produces cutting tools, nails and nail-guns, but sees its main business as offering customers production optimizing consultancy services, tool management and -maintenance as well as education and training. It is a Danish multinational with headquarters located in the village of Sunds north of Herning, Jutland. Since 1995 it has build up its international capacity with subsidiaries in Denmark, Sweden, Norway, Germany, the UK, the USA, China end the Czech Republic. Today it employs 560 people of which approx. 500 are working in Sunds. It is fully owned by management and employees, and ownership comprises 85% of the employees. The employees are working in teams in very unconventional physical facilities, set up along the ideals of a village community. The headquarters is one big 20,000 m² building in which production, stores and administration are literally placed on the same floor in one open room. On top of the building are seminar rooms, a huge auditorium, visitor rooms, etc., offering facilities for organizing courses for both customers and employees.

U is a genuine success story, which both financial results and an excellent work environment reflect. It has never operated at a loss in its 42 years of existence. From its beginning in 1964 the product program consisted of Tjep nailers and ancillary brads. Later on an exclusive distribution agreement for Paslode (now ITW) founded a long business relationship, and IWT is still U's key supplier of fastening products. Then U, in collaboration with Leuco, a Dutch supplier, started to distribute cutting tools for the woodworking industry. To do so, U needed to regrind cutting tools. It purchased a multi-purpose grinding machine, and began more generally to regrind tools for the region. Gradually U invested in more machinery and expanded the product program to service not only the woodworking industry, but also metalworking, food and graphic industries in a region that was expanding rapidly. By the late 1970s U expanded further by establishing business relations with numerous suppliers of tools for woodworking and furniture industries. From the beginning of the 1990s measurement and calibration equipment were added, and calibration services and measuring tools were offered to customers. In 1999 a tribology department, working with surface treatment (e.g. PVD coating and ion-implantation) and a training centre were set up. Thus sale of safety courses and other forms of education and training became a new field of activity. Recently U has used its knowledge to become certified as a quality toolmaker for suppliers to the automotive and aerospace industries. Technologically it has just moved into making use of nano-technologies to create new surfaces of its specialty tools. In short, by continuously expanding its activities U has transformed itself from a small local supplier of Tjep nails to a service-oriented total

supplier, operating on the global scene in a tight interplay with customers in need of high quality tools. The approx. 7,000 tools passing through the regrinding department every day illustrate the tight interaction.

U positions itself as a problem solver and supplier of total solutions, including customized tools and high know-how intensive services. It supplies “traditional” products such as cutting tools, lamina inserts, tool-fixtures, fastening systems, and measuring equipment, but always in combination with, for example, services such as tool maintenance, calibration and production optimization and to many industries (aerospace, automotive, building and construction, food, general machining, oil and gas, tele-communication, wind turbines, woodworking and furniture). Through its close interaction with customers, U has developed a wide range of competencies, and what it learns from one customer, can be used to service others. These competencies are collected under the “UM concept(tm)”. The total concept comprises competencies in production optimization, standard tools (complete tooling programs), customized/specialized tools, tool maintenance, tool management systems, and training and education. With the customers U works on continuous cost reduction and production optimization by analyzing and optimizing key processes, giving advice and guidance on machine and tool investments and offering guidance when customers introduce new products according to specific needs. Production optimization, according to U working methods, is thus a continuous joint process, built on collaborative partnership.

Sauer-Danfoss (SD) produces hydraulic, electro-hydraulic, and electric solutions for the slowly motioning vehicle industry. Its expertise is related to control and steering, work and propel functions, delivering high-performance components and integrated systems to a wide range of applications. With approximately 9,000 employees worldwide and revenue of more than \$1.7 billion SD has sales, manufacturing, and engineering capabilities in Europe, the Americas, and the Asia-Pacific region. The company's executive offices are located near Chicago in Lincolnshire, USA and in Neumünster, Germany.

The history of its making as a multinational is paradoxical. During the 1980s a German company, Sauer, produced a product licensed from an American company (AC). The product was successful on the European market. In the 1990s Sauer began to expand through mergers and acquisitions, and one of its targets was AC. First Sauer bought 50% of its hydrodynamic division and three years later the remaining 50%, and the hydrodynamic division of AC

changed from being part of an American company, quoted in the New York Stock Exchange, to be part of the family owned German company. The Danfoss part in SD is a very different story. In 1964 the first Danfoss hydraulic product was developed in the headquarters in Nordborg, Southern Jutland, where huge facilities for both Danfoss and SD today surround the HQs skyscraper. Between 1990 and 1996 acquisitions in the USA and Poland helped bring together global competencies in hydraulics, and in 1998 the company, Danfoss Fluid Power A/S (DFP), was separated from (though still fully owned by) Danfoss' core business (heat regulation). At the same time the DFP was proving its innovativeness by making radical innovations in valve technology and introducing team organization on the factory floor. In 2000 the German Sauer-Sundstrand and DFP merged into SD to reach sufficient scale and scope to become an important international player. Currently SD is listed on the New York Stock Exchange and on the Frankfurt Stock Exchange, but only limited amounts of shares are traded freely. Two shareholders, the German Murmann family and the Danish Clausen family each held 38.5% of the shares through the company Danfoss Murmann Holding A/S until 2008. In 2008 the Germans sold a part of their shares to the Danfoss foundation, which now controls SD.

When merging, the two companies did not have significantly overlapping products, but succeeded in gaining marketing advantages, boosting sales in Europe and the US. Especially sales of Nordborg's products on the American market increased continually. Two factors were decisive for this development. First, Nordborg's products had a competitive technological advantage. Second, American OEMs saw SD as an American company, run from Chicago. The triumph was that SD was elected a John Deere supplier, and later, in 2001, was recognized as Supplier of the Year by John Deere Dubuque Works in Deere's Achieving Excellence Process. This position opened the market towards other American OEMs, for instance Caterpillar, also producing slowly motioning vehicles. Nordborg's SD employment grew from 700 in 2000 to its current 2,400 employees, basically absorbing all the workers that left Danfoss, which outsourced large proportion of its facilities, but also whatever worker they could attract from nearby and from Germany.

The Danish Spirit Factory (DSF) or V&S as it was called, when visiting the plant, is located in Svendborg, a town in Fünen, and is specialized in bottling, storing and distributing different types of spirit and wines. During the last decades the factory, which was originally part of the Danish COOP, has been sold four times, and while it belonged to the Swedish

State owned multinational “System-Bolaget”, when we visited the plant, the Swedish government has now sold it off to a French multinational as a step in their privatization plans. These shifting positions and a tough market competition have forced the factory to maintain high quality and implement continuous cost reductions. Wine conditioning, transportation and bottling must be handled so that taste, alcoholic percentage, colour and transparency do not deteriorate, while low costs are tantamount. Recently competition has tightened further, as an over capacity in the Nordic countries intensified competition among subsidiaries of the Swedish multinational. A process of rivalry and negotiations over setting and meeting benchmarks among the different plants in Finland, Sweden and Denmark has been used to contest and evaluate the comparative advantages of each factory. Some relocation of production proved necessary, but it was difficult to determine how to organize production and which sites to close. Setting benchmarks was a complex task, having to take into consideration e.g. variations in regional marketing position, production capacity, location in relation to consumer markets and flexibility. Many of these variables were not controlled by local sites, which mainly could improve on productivity, flexibility, quality and cost-reduction. For two years, uncertainty prevailed about which of the factories should be closed. Another Danish site was closed recently and partly relocated to Svendborg. Hardly had Svendborg won this contest before the path was set for a new turn, when the new French owner took it over in 2008.

Radiometer (RM) has become the world’s leading provider of blood gas analyzers, measuring blood gases and other parameters used to diagnose patients in critical situations, and accessories, IT systems and support services for blood gas testing. RM employs nearly 1,700 people worldwide, and their products are sold in more than 100 countries. Its headquarters are in Copenhagen and its global organization comprises Radiometer A/S, consisting of three product companies: Radiometer Medical ApS, Denmark, SenDx Medical, Inc., US; Radiometer Basel AG, Switzerland, and a number of international sales companies. Thus the RM-story is about a Danish family-owned company going multinational by developing excellent products and services that make it possible to cultivate close ties to surgery departments in hospitals all over the world.

The new story, however, is that RM has become a subsidiary. In 2003 Danaher Corporation, a U.S. Fortune 500 company committed to continuous improvement, innovation and growth

took over RM. This shift has primarily implied a radical re-organization along Danaher's Lean model.

RM's main product company with more than 800 employees (approx. 450 are so-called unskilled), is located vis-à-vis RM's corporate headquarters in Copenhagen. It is surrounded by an old residential district, a shopping area and close to a beautiful lake. Inside the company the feel of locality, proximity and unity blends with employees continuously acting towards and being in touch with the world. People at RM express pride and commitment in talking about their company and work, and do not take success for granted, but are conscious that the long process of successfully improving financial results, finding new and better ways to solve problems and expanding throughout the world has been co-authored. Thus, the Danaher takeover created new challenges, conditions and re-organizations that stirred up habits and routines causing new uncertainties and more intensive and constant pressure for innovative changes.

But it also revived former capabilities. Since its early days, RM has developed products in close collaboration with Danish research institutions, such as the National Hospital (Rigshospitalet) and the Carlsberg Laboratories, which explains its reputation from such collaborative partnerships. During the years, when the Danish health system was leading in quality and funding, RM had an ideal home market for innovative performance.

In 1973 a son of one of the founders became CEO. Being a Harvard MBA, he caused a shift in focus from engineering to business, making growth in sales rather than innovative performance the target. Through the lenses of the then fashionable Boston-Consulting matrix, blood gas analyzers were considered "cash-cows" and when high growth and moderate competition turned into stagnating profits, declining growth and fierce US competition in the 1980s, RM saw a need for new "stars". RM started to acquire companies within new business areas and began to expand and innovate in new areas. Much of this strategy failed and proved the viability of blood gas equipment, but the period transformed RM into a much more global and experimental company, focusing on developing, in tight partnerships with leading hospitals and research centres in many parts of the world, new products and services to diagnose critically ill patients.

This way of operating has continued after the take-over. Though blood gas analyzers and production of instruments are the core metier, RM also offers a wide range of, for example, liquids, samplers and services such as process analysis, IT systems, quality as well as technical support and training. The market share of analyzers globally amounts to 40%, while it is 97% in Denmark. In 2002, 96% of RM's turnover derived from exports. 21% of the company's turnover derived from analyzers, 63% stemmed from accessories, 9% from services, and 7%, from non-RM products. It sold 41% of its turnover on the European, 25% on the US and 19% on the Japanese market⁸.

Co-developing partnerships with colleagues, costumers and suppliers is characteristic of RM. For instance, RM initiates a new customer relation with an analysis of the hospital's blood gas testing workflow based on dialogue, cooperation and exchange of experiences. The approach is called *The Red System* and is divided into three stages: First, process analysis of costumer needs, testing environment, etc., to identify opportunities for process improvement. Second, design of solution to optimize costumer testing environment, combining analyzers, IT systems and samplers. Third, provision of support in the form of training, QA, supplies of materials and technical support to ensure such degree of customer satisfaction that RM becomes an ongoing partner, helping customers save time and increase productivity (www.radiometer.com 28-02-07). These external ties are supported by a highly experimentalist work environment inside RM, where everyone is encouraged to explore new ways of continuously improving. The next step is to move towards the patient in Point of Care situations, especially around Acute Care, where RM wants to acquire technologies, develop new measurement parameters and products and service hospitals to continuously improve operations in acute sections.

The four cases – together with material from the other cases - give a clue about the transformations that have been going on in Danish firms over the last decade, how they have been able to integrate themselves into the larger global world and how active all levels of firms are in searching for novel ways to survive and grow, and how they make use of and change the institutions with whom they interact.

⁸ Source of information: www.knowledgelab.dk/now/shrm/Per%20Krogager.pdf

Lessons from case-studies:

1. The globalization process

Ownership has proven to be of ongoing concern for the firms. Whether they themselves become a multinational or a subsidiary, status seems to remain an unsettled issue. It is as much would-be subsidiaries that are active in searching for multinational owners as it is multinationals searching for targets of take-overs that serve to create a sense of volatility (Kristensen and Zeitlin, 2005). Subsidiaries may feel threatened by constant restructurings and preparing for being taken over by a new MNC. They are living in a landscape, where it is vital to be able to perform according to unpredictable benchmarks. The performance issue thus is not just emerging from the market, where they sell their products and services, but also from anticipation of how current and future owners may assess a subsidiary.

The paradox is that this vulnerability may arise as much from great successes as from crises and poor performances. For instance, it was the great successes of SD in inventive technologies and organization that made the previous owner realize the global potential of the plant. To harvest the fruits it was found necessary to form alliances with both German and American companies to capture the US market. Even in U the question was raised, during our investigation, whether to search for a financially powerful new owner that would enable it to exploit its potential to the fullest. U had become a multinational by following its customers globally and discovered that the products and services that they offered had a much larger market potential than they would be able to exploit by organic growth.

Globalization is not only about exploiting current capabilities, it is as much a way of exercising self-doubt and self-discovery of what are the strengths, weaknesses and limitations of a situation. Processes of self-doubt and –discovery also stem from global outsourcing. For instance, Micromatic outsourced a major proportion of its blanks to China, restructured again its work organization at home, and workers started to exercise continuous improvement, benchmarking themselves after their ability to compete on costs with their Chinese suppliers – despite much higher wages. By doing so they discovered new comparative advantages. A similar exercise was used to institutionalize ongoing changes in work organization in the 1990s in SD. Whenever the technical staff was preparing for outsourcing, the convenor would organize an autonomous team in the factory, and let it search for continuous improvements and cost reductions to beat external suppliers.

These mechanisms add new dimensions to the need for constant re-definition of rules and roles, which Herrigel (2007) finds to stem mainly from new competitions in product markets. Often firms, and SD in particular, are tied up with customers, which demand annual cost-reductions, while also expecting frequent extraordinary benefits stemming from innovations. Otherwise, they will start searching for novel suppliers. This creates a feeling of never being satisfied with performance and pressures everybody to always search for ways of improving and innovating. The corporate hierarchy is also a source of doubt and self-discovery. Even when a subsidiary is resting within a seemingly stable hierarchy of a multinational company, political games are played creating a sense of instability and unpredictability, as witnessed in the case of DSF.

As Kristensen and Zeitlin (2005) show the HQs of multinationals have to respond to the invention by the financial community of novel concepts for the ideal corporation by constantly imposing on subsidiaries new benchmarks, which cannot be ignored. They become institutionalized in new reporting and auditing systems, and are used in managerial promotion, decisions on the expansion and contraction of product mandates, and allocation of investments among subsidiaries. In nearly all of the cases we studied (apart from U), this hierarchically imposed benchmarking is the primary source of stress. In particular in the case of SD and RM, the American HQs ranked themselves in the eyes of the financial communities by elaborated systems to monitor lean forms of production and insisted that these systems became implemented. In both cases – but to various degrees – this caused chaotic processes of restructuring, declining performances, confusion and undermined some of the strengths of their past ways of organizing work.

Local managers are subject to great tension under such conditions and are more or less forced to play opportunistic lip-service to changing benchmarks. They make great promises, and are forced to try making short-run, short-cuts to come up with the right performance results. Apparently this leads to an abundant stream of failures. Some will be blamed, and a game about how to distribute blame is being played at all levels of the hierarchy to the effect that different managerial positions are only inhabited for a short while by the same person. Also in terms of managerial personnel, volatility prevails, and together with ever shifting benchmarks and conceptualizations of the ideal corporation, a sense of constantly changing rules of the game, if not lawlessness, is created. Sometimes ordinary employees are wondering how it is possible to keep the companies economically viable – given the losses from managerial

turmoil. Against this, in some of the subsidiaries, groupings of managers formed coalitions with shop stewards to engage in coordinated action to fight jointly for their survival.

Lessons from case-studies:

2. Work organization

Compared to case-studies from the mid-1980s (Kristensen, 1986), Danish managers have discovered the comparative advantages of leaving responsibilities to the floor of Danish affiliates. While job-discretion was earlier brought about through struggles among skilled workers and parts of the managerial staff, it now seems to be extracted in ever more elaborated ways. Still, it is often done in very informal ways as it is a codex received from the traditions of the craft community to do things increasingly smarter, and when it happens, narration will place improvers in the annals of local heroes. Thus narration is a way to appreciate progression – and could be observed in all the cases we studied.

Doing it in collaboration with managers, however, changes things. Increasingly, formal principles organize the extraction of high discretion. A previous study (Kristensen 2003) has made it clear that team-based high performance work organization (HPWO) was diffusing rapidly and constituted a core element in discussions among managers and shop stewards across the divides of firms and organizations. Visiting factories, however, also revealed that the same concept may refer to very different realities. In some factories, teams were like u-formed cells, in others they looked like a department and in yet others the concept was reserved for ad hoc groups, working on a temporary project. The teams were constituted differently, e.g. some were organized hierarchically by managers appointing team-leaders; in others the team-leader role rotated among members; some constituted themselves by electing a team-leader and others even saw the community of team-leaders as an extension of the union-club, where the board would nominate the persons among whom, teams could choose their leaders. We even came across a firm, then owned by a large Danish corporation, where instead of middle-managers, a large group of shop-stewards managed the floor. But the discourse across firms totally ignored this heterodox reality, meaning that people would talk about “apples”, while listeners would hear “pears”.

One of the ideas guiding the first phase of extensive case-studies was to identify a set of distinct types of team-based HPWOs, which in each their distinct way extracted discretion and spurred continuous improvement and innovation. An enquiry believed to bring about new substantial knowledge about “learning organizations” – seemingly just a residual category in surveys – and a set of best practises.

And such types were identified in the four firms selected. *DSF* constituted a lower boundary case in which teams had been formed, team leaders were selected jointly by management and union representatives, forming a partnership of enthusiasts, but struggling with a majority of lukewarm opponents, that would rather gossip negatively in the corridors than engage in serious processes of improvements in quality-circle meetings. This partnership shared our interests in revealing additional organizing principles by studying other firms. A number of cases did actually embody the germs to a solution. Factories where team-leader jobs rotated among the members of the team had lesser propensity to divide up between fiery souls and lukewarm opponents. Here team-members would be less critical and more constructive in their approach, they would watch and they would learn in order to prepare for their coming team-member role. This minor principle helped improve the ability of team-members to take on the roles of others, and to improve one’s own role in the role-matrix of the team. Where the principle of rotation had been tried – and this was in most cases – it had failed because many neither wanted to lead others, nor liked the idea of being a leader. In *SD* (Bombardier’s train-factory), we found a fascinating constitutive principle that seemed able to solve the problem. *SD* had introduced a TPM-concept, meaning that all members of a team would have operational duties *and* managerial responsibilities, the latter being divided into organizing (the team-leader role), maintenance, logistics, quality and safety, and environment. In addition to being part of an operational team, each employee also took part in a cross-team responsible for a managerial task. Thus operational teams were rivalling over performance, yet communicating about, which improvements to imitate. Thus all team-members were located in a nexus, receiving impulses and ideas for continuous improvement and innovation, making it easier for everyone to achieve the feel of actively contributing, making team-members much more egalitarian. *SD* was thought to constitute the upper boundary case, and that other cases would be placed in the continuum between *DSF* and *SD*. *RM* seemed to be a mixture. Here all workers would be part of a permanent team with a hierarchically appointed team-leader; and all workers would simultaneously have a job number two, frequently working in other teams. Thus a primary team would embody a group of people, which knew what was

going on in most places of the factory, and could compare themselves with the rest, receive impulses for continuous improvement and be able to coordinate their internal activities with other teams by using their personal ties to other teams. Workers were very attentive to team-leaders' propensity to sub-optimize, and they would evoke the intervention of a group of shop-stewards to take action, when cross-team initiatives to coordinate were needed. Interventions from shop-stewards, often jointly with upper-managers, would use the formal body of the works council to form ad hoc committees on novel issues for improvement across the firm, and engage members from a variety of teams to take part in these. Finally, U provided a utopian dream of how to organize work. First, all employees were part of each their primary team encircling either a distinct industrial process, administrative function, etc., and would continuously form ad hoc teams, e.g. to serve a new customer by the UM-concept, engage in an R&D project, set up a foreign subsidiary. The variability of ad hoc teams was high, they were typically coordinated by the group of seven people from the R&D-team, and most primary teams were involved in a number of ad hoc projects. This continuous ad hoc recombination of teams would bring challenges and impulses for improvements to the primary teams, and the firm seemed to be run close to top-performance despite no monitoring system would measure individual teams and persons. Because the monitoring system was not measuring individuals, teams or departments, ad hoc teams could be formed with ease and would not have to first overcome sub-optimal concerns of individual fiefdoms. U had a monitoring system, but it worked in a very different way. As more than 85% of employees owned stocks in the company, they were highly interested in its overall performance, and reports would be published every morning covering the year up to yesterday. Outcomes higher than budgeted would lead to bonuses of the same absolute size for all employees, if they had not been absent, calculated on a monthly base. Budgeted performances, on the other hand, were made with an eye to make it possible to pay such dividends to stockowners that they covered the interest rates paid on banking loans, obtained to buy the stocks. Every family entangled into the life of U was dependent on how well it improved on performance, both in the short-term (bonuses and dividends) and in the long-term (the value of stocks). And every morning all employees had a chance to assess the situation.

All but U imagined improvements of their HPWOs, so it was expected that these four firms would make it possible to investigate four very diverse evolutionary logics from which we, through further investigations, could construct a typology of paths. On our return everything had changed. In both SD and RM, pressures from headquarters had overruled the past work

organization and changed it into Americanized lean-systems. In SD it involved replacing a Danish manager by an American, who caused a major breakup in the former highly collaborative pattern between union-representatives and top-managers. Also, the formerly so coherent TPM system had collapsed and the factory had fragmented into a set of fiefdoms within which collaborative ties were tried maintained. American managers were simultaneously increasing production capacity to meet high growth in demand for SD's products, considering which parts to subcontract and introducing lean-principles in a chaotic way. In RM the change had created such a mess that, the union-representatives were primary interested in finding strategies for preserving the managers from their partnerships, to jointly search for a compromise between the former and the new organization. In both RM and SD workers and shop-stewards were struggling to compensate for ongoing mismanagement so that they would not ruin their reputation among customers. DSF had changed to the better. The owner had proclaimed the goal to benchmark subsidiaries in preparation of a set of plant closures. This had changed the feel and everybody was fighting for performing to the limit of the possible. By introducing a second job, as in RM, and by engaging a large amount of people in changing lines and building new ones, the whole plant was on the move making changes and improvements. Thus in each of the three subsidiaries, the situation was chaotic, and yet the participants showed no signs of despair.

The different work organizations showed a general ability to capture, compensate for and yet try to get the best out of the new formulas that HQs had imposed on them. Both RM and SD expected to learn a lot by introducing some elements of the lean principles, but contrary to their American principals, they had no expectations of being implementing a final system. Viewed from experiences of the past 25 years, shifting holistic systems had constituted the template for a new direction, and what had come out of this process was a long experimental search for useful building blocks that could be integrated in their way of operating. Many were curious to see what could come out of experimenting with lean-principles and yet had no expectations of being watching the coming into place of a new organization. After this new experiments would follow.

Given that union representatives are usually expected to defend traditional interests, it was amazing how they used turmoil to find new possible roles for their members, prepared to see how their and the interests of the firm could come to new compromises, and whether this would elevate their members on the general labour market. Turmoil was in many ways

feeding the ongoing narration of their common stories with extraordinary twists, and the ironic narration of events demonstrated a high capacity for reflexive practices and readiness to search for possible improvements. Turmoil brought new openings – and revealed new opportunities. Even, as APV shows, where a foreign owner closes a plant, life continues in a seemingly more promising way than before.

The cases demonstrate a surprising changeability, which was demonstrated once more at our third visit. Now the situation had shifted again. SD had fired the Americans and a new managerial team was eager to repair damage towards the union representatives so that a new partnership could find joint ways of coping with the incredible expansion that was in the making. RM had lost the managers they thought they needed to be able to repair damage, but had got a Polish manager sent from the American HQ, who was eager to learn how to combine lean with Danish job-autonomy. DSF had won the battle and were integrating a former Swedish plant into its activities, introducing whole new lines and making incredible improvements in order to prepare themselves for a new owner. Most of the practices in place at our first visits were still in place and had been recombined in novel ways, new elements had been added, but hardly anyone could tell how a comprehensive view of the current HPWO looked. Only in U the basic principles were still in place in all their beautiful coherence, exactly because they allowed the firm to absorb continuous changes and redefinitions of roles within and without changing the basic constitution of the organization.

Lesson from case-studies:

3. Constitutional and negotiating orders

Looking for elements that provide the firms with continuity across frequently shifting ownerships and managers, turnarounds in managerial templates, constructions of still new benchmarks, etc., and work at turning shifting situations into an evolution of the firm, employee representatives – shop stewards and convenors – constitute at least one such element, maintaining a negotiating ordering.

A “widespread system of worker representation”⁹ at the firm and locality level, high union membership, a peculiar strong and protected position for shop stewards and convenors have

⁹ Andersen 2005 gives an overview of both formal and informal modes of participation in the Danish system.

implied that decentralization of collective bargaining and agreements have strengthened the actual influence at local levels. Globalization has caused them to be very active, and the more agreements they negotiate, the more union education they receive, and the more they can establish themselves as an “office”, the more actual influence they get (Scheuer, 2003). Shop stewards are traditionally responsible for negotiating a wide range of agreements between workers and management, among different groupings, between workers and vocational institutions, and with other shop stewards. By their role in negotiations between managers and workers, sorting out frictions among occupational groupings, etc., they reduce direct confrontations among them, collectively constituting a body of interest representation. This position enables them as a collective to negotiate with management all changes in the organization of work. Not because the law prescribes it, but because all involved assume that negotiation is a human right, necessary for conducting changes and resolving problems. Thus workshop governance is continually evolving through negotiations and agreements among the different groupings, and shop stewards are in this way co-responsible for the continuous improvement of the organization. Not only to protect workers from downgrading working conditions, but also to support changes that lead to skill-upgrading and higher productivity. When a plant faces problems shop stewards are called to negotiate possible solutions. This may, for example, imply sending workers on training-courses, or negotiating layoffs.

In a number of cases the agency of shop stewards and convenors has, under the pressure of globalization, become expanded by fighting in partnership with local managers for the survival of a subsidiary (Kristensen and Zeitlin, 2005; Kristensen 2003; Kristensen and Rocha, 2007). This expansion follows a path, where they start the emerging partnership with local managers by engaging themselves in work place transformations. They continue with mutual negotiation of training policies, start worrying about the potential loss of managerial partners, negotiate themselves into assessment committees when recruiting coming managerial staff, build up their local reputation to a global one by assisting in resolving significant “crises” at corporate levels. This may give access to distant HQs to influence organizational framework conditions (transfer prices, budgetary constraints, benchmarks) in favour of the gradual evolution of the local plant. In this way, union representatives may become co-designers of benchmarking factories, which become transferred to foreign countries through a process in which blue-collar workers act as international consultants. Thus, both the hierarchical structure of the subsidiary, the interests and roles of its agents and mutual relations change in radical ways. Currently, this change is typically into a very

confused state in which schizophrenic divisions prevail between a managerial hierarchy and team-based organizational forms at shop floor and in R&D. In this new confused order, union representatives function as trouble-shooters for, in principle, unsolvable problems to secure the holistic working of a plant. In this position employee representatives seem to be equally powerful as are their partners on the managerial side (Kristensen 2003; Kristensen and Zeitlin, 2005; Lotz and Kristensen, 2005).

One of the strengths of union representatives in this partnership is their knowledge of and relations to the wider welfare institutions of society. In many ways they connect firms and institutions in a dynamic and situational way. Through the network to the wider union organization and in turn this organization's relations to institutions, shop stewards and convenors are able to make the larger society work in tandem with changes in their home firm. Vocational institutions can be addressed to solve problems that enable employees to adapt to new work arrangements and projects through courses – tailored or standard – and to a high degree financed by the state. New employees can be recruited in collaboration with the Job Centre, unemployment funds, technical schools and other training centres. Their network may be used to influence municipal authorities, so that favourable schemes for both the firm and the authorities can be created to the benefit of different groupings of the firm¹⁰. In this way they may assist the firm in turning the institutions of the Danish welfare society into resources that enable the firm to do more far-reaching and risky experiments with its organizational form.

Within this negotiating order shifts in ownership or top-manager, new managerial templates, outsourcing and restructuring of the work organization, new performance benchmarks, etc., become rather impulses for activating the system, reinforcing the partnerships than changes in its constitution.

In two of the four cases, DSF and RM, convenors and the union clubs had so tight relations to some top-managers that they jointly monitored processes of change and prevented experimental processes from de-generating to sub-optimizing and conflicting fiefdoms. With their feel for the entire constituencies of workers, convenors and shop stewards took on the

¹⁰ In this way union representatives at firm level do not only contain but are often activists in introducing the regulations at the workplace that Piore and Safford (2006) see as foundational for the shift in workplace governance.

role of coordinating horizontally, countering the tendency for department managers and team leaders to eventually benchmark themselves at the cost of colleagues, fighting against processes that would lead astray and demoralize employees and trying to establish conditions for mutual commitment so that workers did not leave.

In SD such a negotiating order also prevailed until the Danish manager was replaced by an American, and the convenor lost an election to a new union representative, more focused on traditional union issues. The case shows how volatile are partnerships, but also how important they are in the Danish system. Without this SD lacked the feed-back mechanisms that kept the ongoing ordering in place during processes of experimentation. The elaborated order of the TPM concept, the clear pattern of interaction between operational- and managerial teams and the opportunities to learn across teams quickly dissolved. The introduction of lean happened in a multiplicity of different ways, with teams and managers combating each other while for a time trying to maintain the sense of partnership between employees and lower level managers at team and departmental layers. The ability to monitor the totality had been temporarily lost, generating a vicious circle in collaborative relations. Probably this triggered Danfoss' decision to recapture control over SD and restore industrial relations.

In some cases, the holistic view and capability was in place despite lack of strong convenors. In U the CEO had constituted the system of ownership, the flow of re-numerations and the search for novel tasks in such a way that experimental processes would be selected that both served the interests of workers and the firm, and progress would spring from the activities that most immediately led to the mutual commitment among employees, managers and customers. The constitution of U provides a slope for continuous and myriads of projects and processes of change to integrate into a very coherent evolutionary path. Many probably hold the view that this is because the CEO is able to take into consideration the interests of all and create relations from which spring mutual commitment.

A similar way of handling the constitutional problem was observed at Bombardier. The CEO had compensated for the lack of an active convenor by promoting an employee with a deep feel for the potentiality of peers to managerial position, from where he was exercising a form of leadership similar to U's, and advocated by Chester Barnard (1938). A process evolved in which the constitution of both teams and the firm was gradually altered, so that teams would take over increasing responsibilities for both operations and management. What SD had

achieved by organizational design along the TPM-concept evolved gradually in the Bombardier plant, where operators in similar ways handled managerial tasks by engaging in horizontal collaboration across teams so that both teams and collectives could respond to the benchmarks that flowed from their Canadian owner.

Unions have been slow to support convenors in taking on the new roles in companies, to learn to form partnerships with managers and to take on the task of continually rebuilding the constitutional order (Kristensen 2003; Kristensen and Rocha, 2007). In particular the art of negotiating benchmarks actively, to help guide firms becoming coherent entities is neither trained nor rehearsed. However, in some of our cases, e.g. in SD, the explosion in numbers of benchmarks triggered a revolt that led to procedures for negotiations in which priority was given to the most important issue in a given situation. In this way search may become collectivized, lead to joint experiments that reveal comparative advantages of a subsidiary and make it possible to define how a subsidiary can best contribute both to the performance of its owner and to the collective that inhabits it.

One of the most fascinating things about the emergent constitutional ordering of Danish factories is that, instead of creating staff functions that can monitor benchmarks in tune with lean concepts, responsibilities for looking after benchmarks become decentralized to operators, which then need to coordinate searches for improvements across teams making it possible to aggregate learning through micro-negotiations. Benchmarks get holders and a multiplicity of reflexive actors inhabits and negotiates throughout the factory.

Lessons from case-studies:

4. Repositioning in Global Value Chains

Constituted this way, Danish firms seem to possess a capability to co-evolve with customers and to make moves that increase their importance for the internal working of customer organizations.

A Danish subsidiary of APV, producing customer specified pumps and valves, used its work organization to reduce throughput time, first from three months to three weeks and then to 11 days. Thereby it created tight relations to its customers, design and engineering departments of APV responsible for delivering turn-key dairies and breweries. With short delivery time,

designers and engineers could wait until the last minute to specify the pumps, using them to resolve design errors, without being penalized by customers for late delivery. With this role, the plant developed very close relations to numerous parts of the APV Corporation, being contacted to assist in solving problems. In a similar way DSF treated its owner, V&S, as if it were a customer for which it solved delicate logistic problems by being speedy, highly reliant and very flexible in bottling and distributing spirits and wine of an enormous variety. It managed to provide these services better than any other plant owned by the Swedish multinational, simply by making use of its work organization.

Turning the plant and a product into a major service provision have been cultivated to the extreme by both RM and U. U readily admits that its own tools are very costly, but only makes tools that solve difficult problems for customers and cannot be provided by standard producers. So U gets involved where close interaction is highly needed, for instance when customer firms are introducing a new product. This relation then can be further developed by U taking on the entire responsibility for maintaining and managing the use of tools at a customer firm, promising to reduce tooling costs by e.g. 30% annually. In this way U may take over responsibility for tooling and serves almost as if it were an internal department of the customer firm, processing continuous improvement in the use of tools and inventing tools for new products. Similarly RM acts as an external consultant for continuous improvement of acute sections of hospitals. They enter with their blood-gas measurement equipment, help with additional equipment to fit their apparatuses into the existing system, use their experience across hospitals to improve the milieu around their equipment, but are simultaneously offering consultancy that can improve the whole acute section by additional equipment, procedures, and ways of working.

Both firms become connected to a number of suppliers, which they use to accomplish their own provisions, and they are increasingly occupying the position as spiders connecting large webs. Thus U has become a testing ground for new generations of tool producing machinery and is co-developing these with suppliers. For instance, we observed an operator deeply engaged in writing the technical manual for a new machine on behalf of a supplier. Being part of international webs of firms engaged in continuous innovation and redefinition of roles, as these firms are, means a constant flood of new problems and of novel technological solutions. Given the skills and ingenuity at the factory floors of companies like RM and U this flood can

be captured and integrated into ongoing experimentation, so that they become part of a multi-sourced web of technological change.

From the outset, SD looked more like a traditional supplier of hydraulic equipment. But where it used to deliver components and parts for systems, it has now captured the design and continuous improvement of the entire hydraulic subsystem and how it is connected to the vehicle on which it is installed. Now SD tries enlarging its role by making the DPS communication and computing system part of the hydraulic system instead of the vehicle, whereby SD can solve communicative problems across numerous customers, and combine and recombine many local solutions into more general ones, and thus better help customers doing continuous improvements.

Thus the trick of the trade for all three is that by working across numerous customer firms they encounter a myriad of different problems and partly solutions, which they can accumulate and develop by exchanging them among customers. In this way they all increase their assets by doing business, and gradually change their role and relation to partnering with customers. Thus Danish firms seem not simply to organize for themselves a global value chain, as usually depicted in the literature. Rather they engage in mutual role redefinition of a quite unpredictable nature. In a study of how Danish firms made use of Indian IT-service providers, Voigt (2007) found that the initial subcontracting of routine programming tasks was used to find more comprehensive possibilities for the partnering firms to create complementarities. In some cases, Indian firms used their Danish connection to widen the scope of their own interaction with customers; in other cases, Danish firms used Indians to become more important for their customers. Jointly, the firms discovered possibilities that none of them had imagined previously.

Lessons from the case-studies:

5. The situational creation of institutional complementarities

In general, theories of institutions see these as pillars of stability and structure, creating a path dependent evolution if not reproduction of a society and its agencies. Our field studies reveal a picture in which agents and institutions engage in ongoing processes of mutual change, creating dynamic and situational complementarities that make it possible to co-develop new figurations. A significant example is Industrial Relations and the negotiating order. Up

through the 1980s this was dominated by distributive negotiations both at central and local levels. Profit sharing was thought of in monetary terms, and private life seen as compensating for the job. Today we see a different industrial relation regime.

From the late 1980s profit sharing increasingly took the form of increases in further training, distribution of PCs to employees, etc., making employees better able to expand skills when facing threats of unemployment, new technology, and globalization. As the welfare state co-financed workers' salaries under training and grossly paid for training courses, this way of profit sharing became a very favourable way of labour and capital to join interests and stimulated the formation of firm-level partnerships and a move towards integrative instead of distributive bargaining. Partnerships in turn enabled firms to undertake radical changes of workplaces by heavily committing workers, even in moments when employment prospects of a particular firm looked bleak. One achievement of these partnerships has been to engage even the best workers in transformations at times, when they would - everything else being equal - try finding new jobs in other firms. The secret weapon is further training. The effect has been to engage employees in enduring and stable training programmes codified in local agreements between the partners, and then use this as a means for continuous decentralization of responsibility to those that execute tasks at all levels of the firm. In turn persons gradually cover broader role-sets and factories become more like experimental laboratories than cages of stable routines. In such social spaces traditional divisions in interests get blurred and the negotiating order much more complicated.

Within this general pattern a huge variety emerges both in how firms make use of institutions and in how these have unanticipated repercussions for the internal organization. Investigations show a variety of interactions, co-evolutions and complementarities among firms and institutions, demonstrating a very experimentalist and differentiated way of making use of the same institutions, unanticipated by the political authorities believed to govern them. But it shows how institutions and work organization may co-evolve in a fairly integrated way creating very different local systems. In the 1990s the experimental use of institutions was framed by the Active Labour Market Policy, but many of the innovative schemes went far beyond the scope and imagination of central politicians and bureaucrats. They were formed by corporatist collaboration at firm, institutional and regional levels and testify to a great plasticity of institutions. For workers it meant increasing bargaining power despite high unemployment, and it allowed firms to search for ways of organizing work that were better in

tune with globalization. Together they effected a change in the welfare state from social compensation to enabling the use of institutions for transformative purposes.

DSF stabilizing human resources by vocational training: the coming of the industrial operator

DSF demonstrates that training institutions can be used to process an entire sequence of changes in a company. First, when waiting for being sold to a new owner, the company made use of the local AMU-centre as a consultancy. Seminars were arranged for shop stewards and managers on how to co-manage towards new forms of work organization. Because the AMU-centre was publicly financed, union-representatives could initiate such advice from the outside, which would otherwise be the autonomous decision of managers. The seminar helped create a partnership capable of changing the plant and engaging in a *polyarchy* with vocational schools in the locality. A plan was designed for using the schools' standard and tailor-made courses to prepare workers for coming changes. The transition of the plant and the workforce thus could co-evolve in an integrated way that led to a successful outcome, not least because it offered an attractive reason for staying with the plant for the most capable and ambitious workers despite their future jobs were at risk. The firm and the workers shared the risk of making steps that could make them attractive to a new owner. Institutionalizing training paved the way for a more long-term training program in which e.g. 21 operators (25% of the total) became involved in a 1½-2-year part-time education for industrial operator¹¹. Picking this education for promising employees constituted, at the time, the most advanced form of continuous training for formally unskilled workers.

The training as industrial operator (IO) and the four-year training as process operator (PO) are recent social innovations of significant magnitude, negotiated and designed in corporatist bodies at the national level. The training prepares trainees for taking responsibilities in post-Fordist HPWOs by training abilities in making use of technology to make fast changes, to achieve functional flexibility and communicating skills for teamwork. It is a good illustration of how social partners at the national level try to codify assemblages of skills into new types of "skilled" workers, when incremental changes over time may be summarized.

¹¹ 1½ years for workers with industrial experience and 2 years for new entrants coming directly from primary school.

When such training programs have been codified, their diffusion depends on how local actors use them. In North-Western Zealand, HR managers from plants owned by major Danish firms, vocational training institutions, adult educational institutions and associations, employee representatives, national union officials and university researchers joined forces to upgrade the entire local labour market through the IO and PO training programmes. Collaborative institutions at the level of firms (works councils; employees representatives in boards; ad hoc committees, etc.); corporatist boards of training institutions (with representatives from the mentioned firms) were complemented with resources from the EU to form a network for setting the whole region in motion. A huge number of unskilled was trained as IOs, and by the time when many workers had finished the IO training program, the problem emerged that they began looking elsewhere for greater challenges. To cope with this situation, the firms collaborated on a new curriculum on top of the IO to keep people in the region. Some firms, e.g. NKT-Cables, even engaged in experiments to find deliberate ways of involving employees in innovative processes by collaborating with university researchers. Another novel use of such training programs is in integrative bargaining on restructuring. Recently employee representatives in negotiations over NovoNordic's future globalization strategy accepted zero-job-growth in Denmark in exchange for giving all unskilled the right to IO or PO programs with full salary during the training periods. The agreement helped Novo continuously to change the roles of Danish plants, tie the best workers, and increase its bargaining power on the general labour market.

Despite its novelty, the IO training programme follows the logic of how the specialized workers' union has always tried to create "routes of passage" for their members to contest the position of craft workers. It is a new codified route for "adult apprenticeships", which has for long served as a way for formally unskilled to get access to the institutional support of formally skilled. Becoming IOs or POs make them peers with many craft workers and give them access to longer vocational educations, e.g. in electronics and as technicians. It is also a way of coping with the significant jump in skill-levels that happened to the formally skilled 1990s. To make their own further training visible and recognized by including them into a comprehensive training program, unskilled could par with the skilled. The IO and the PO programmes allow each student to opt for a distinct route within its frame as concessions can be made concerning past courses and practices. Complementing these training programs with personal curricula plans thus enables formally unskilled to achieve certificates competitive to apprenticeship.

APV turning a plant into a vocational training machine

APV illustrates the offensive training strategy of skilled workers in the late 1980s (Kristensen and Zeitlin, 2005; Kristensen 1994; Kristensen and Petersen, 1994). By the early 1980s, the role of the plant, then owned by a Danish company, was reduced from being a full equipment supplier for dairies to specializing in pumps, valves and fittings. Having a highly skilled labour force, the plant opted for producing a limited product range in plenty of variants and to customer specifications. The production manager and convenor partnered in developing the plant into a continuous flow organization, by making extensive use of CNC-machines at then in their early introduction. This offered skilled workers professional challenges and prevented poaching from other firms. No vocational training institutions offered yet courses in CNC and programming, but skilled workers were so keen to secure that programming and other skills associated with the new technology came under their control (and neither that of the technical staff nor the unskilled) that they followed courses at machine suppliers and were actively arranging evening classes on e.g. root programming, making them very proficient in “their” new machines. The plant managed to create an impressive product portfolio, fast throughput and an early form of team organization that proved successful both financially and in terms of customer satisfaction. However, the holding company’s strategy failed and it sold it to the British MNC APV in 1987. As in DSF, the serious challenge was that it might lose the best workers, given that APV would have to stop investing in advanced machinery and that lay offs would be in the air because of low sales. The solution was to send a large proportion of workers on courses in computer-based technologies, or whatever they wanted, the state paying for courses and reimbursing a large proportion of wages. One of the first Danish local training agreements was made, giving workers the right and obligation to engage in at least two weeks of further training a year, fully paid. The convenor and the local union branch of the metal workers invested in a computer system that provided an updated overview of all courses for skilled workers in Denmark, enabling the plant’s workers to plan curricula. With this instrument the union branch was able to stimulate further training in the entire area and the percentage of members participating in courses increased from 15% to 30% between 1985 and 1988 (Kristensen and Petersen, 1994, p 81).

At APV this system spurred those already in command of the new technology to engage in series of advanced courses that combined the use of the new machines with Cad-Cam tools, computer-based construction and design, etc. Later on followed courses qualifying, e.g. as

process repairers, -diagnostics and -re-setters. The less trained embarked on courses providing basic skills in CNC, computing and programming, etc. Within the first year the plant upgraded skills at an incredible pace and gained a wide functional flexibility, which they used to rival other plants of the MNC, to the effect that demand soon outstripped capacity. The abundance of well trained workers allowed for a turn to three shifts instead of one, and by a computerized planning system, just-in-time relations were established to local and national suppliers that had undergone similar skill-upgrading, as the union had used APVs training agreement as a template for other firms in the stainless steel industrial district. Through continuous changes in work organization, the plant reduced delivery time to one month or a third of their German superior and competitor¹². Simultaneously, blue-collar workers had achieved such skill levels that they not only served flexible production but also could take very active part in developing new generations of products and at lower costs than any other plant in the MNC. From the mid-1990s skilled workers took over many jobs that had previously been held by white-collar technicians, while routine forms of programming were handed over to the formally unskilled, who had improved their skill-level. New positions as team leaders, group leaders, etc., had evolved and many had embarked on careers beyond what was believed possible in the past. By the early 1990s it had gained the position of “best practice”, became headquarters of the fluid handling SBU coordinating the 22 plants around the globe. Despite a very small managerial hierarchy it managed these by sending workers as consultants to engineer changes in the work organization of other plants. In this way it transformed organically these plants to HPWOs. Now workers would learn more from doing their job than following training courses, but continued training, too, not least to protect their skill-level at the larger local labour market, should the subsidiary be closed by its multinational owner.

Sauer-Danfoss: Destabilizing institutions in times of internal volatility

But things are not always functioning smoothly. Under its American manager SD put a stop to further training activities, thereby making it impossible for workers to compensate employment uncertainty by upgrading skills. Being originally a part of Danfoss, SD used to work in the shadow of the larger company. Danfoss had been an island of Taylorism in a country dominated by craft culture up to the early 1990s. Craft workers had colonized machine-setting, repair and maintenance each of which used to have its own department,

¹² Later they reduced delivery time for customized pumps to only 11 days.

while un- and semi-skilled male or female workers occupied the factory floor. Many workers would be laid off in the fall, as production was highest in spring and summer. Selected semi-skilled workers would be sent to training courses in the fall, gradually upgrading skills to become included in the core group of workers. In the early 1980s a new management team expressed disrespect for unskilled workers and caused major strikes and conflicts. Managers had signalled that in the future skilled workers were needed for new computer-based, more flexible technologies and a greater variety of more customized products, while mass production would be reallocated to low wage countries. Unions and employer went into negotiations and the solution was the design of a programme for and agreements about extensive training of the existing workforce. Advanced training programmes in collaboration with technical schools, AMU centres, etc., were created on a massive scale. Maintenance workers moved to the floor, unskilled became skilled and took over programming, operation and re-setting in some sections, creating a very heterogeneous work setting.

SD gradually created islands of teamwork, e.g. to solve quality problems or to compete with external suppliers over performance outcomes, thereby increasing the need for new skills among workers. When this emergent system became systematized in the TPM concept around 2000 it implied an explosion in the need for training in maintenance, continuous improvement methods, quality control, team formation, etc. The regional training institutions were able to respond to these needs having prepared themselves for such a quantum jump during the 1990s.

One of the new jobs was the team leader position, responsible for external contacts and for setting the stage for internal and external negotiations on job planning. To help workers transform into team leaders a new training programme was set up. During the programme team leaders would formulate a problem reflecting their experiences in the new job and then be supervised by HR-people from the plant, while teachers from the AMU-centre or other parts of the vocational training system were teaching available knowledge. Combining the two spheres meant that team leaders themselves were “co-designed” by bringing the best available general knowledge from the schools together with accumulated practices and experiences of the firm. Thereby each new team leader would come to embody continually improved knowledge from the two spheres. On the other hand, by working with projects, participants would be solving problems, the solutions to which were of interest to the larger group of team leaders and HR managers. Organizing training in this way made possible continuous improvement on the level of team leaders, work organization and training

curricula. This system improved gradually and helped the plant expanding extensively on the American market.

The resulting explosive demand for new workers, huge investments in new capacity, the confused introduction of American versions of lean, and the constant struggle against deadlines not only undermined the TPM concept, but also made it impossible to follow a stringent training policy. Training evaporated and became again initiated when activities were low – primarily during the fall and SD victimized itself to the high mobility of the labour market.

MicroMatic (MM): Solving problems by continuously rejuvenating the institutional matrix

MM, on other hand, is a master in the art of making innovative and shifting use of institutional contexts, and to affect transformations in the use of welfare institutions. MM produces and sells a whole range of products in many types and variants that make up draft beer dispensing systems. Demand for particular products and systems vary from week to week, and gross-demand shifts radically among seasons. In the 1990s the factory was reorganized towards a line organization, each functioning as a large team, with job rotation and allocation of manpower, dependent on shifting demand. This reorganization, together with various training programmes (CNC-operation, quality control, etc.) radically up-skilled a primarily specialized workforce. Benefitting from flexicurity, MM, like other firms in the region, would fire large proportions of workers in the fall and re-hire them in the spring. Introducing HPWO demanded higher skills that were not easily combinable with seasonal adjustments.

The job placement centre (ArbejdsFormidlingen (AF)) offered a solution. Within the framework of the Active Labor market policy of the 1990s, AF had access to resources for activation and training, but needed firms, where unemployed could be offered practical jobs and job training for a period. What MM saw as a problem, AF perceived as an opportunity. AF could place workers at MM in high seasons, have MM clear the space in low seasons and offer new openings in the next high season. Together MM and AF agreed to set up a job-bank, where people would apply for a job in MM by signing up in the job-bank at AF, which would then make in-depth investigations of each applicant's skills, motivation and readiness. With changes in the MM work organization discrepancies between employee qualifications

and what MM requested were obvious and increasing. To solve this problem MM, AF and the AMU-centre created a collaborative network, jointly designing a 14-week training programme during which unemployed under activation would first follow a number of courses in new technology, use of computers, principles of modern work organization, team-formation and collaboration, etc., and then be guaranteed some weeks of practice at MM. To ensure that the chosen unemployed were motivated for actually filling the jobs available, MM, AF and AMU would frequently interview the participants about their readiness for filling vacancies, attitudes toward modern forms of factory work, etc. Occasionally interviews would reveal that some participants needed extra courses in order gain better skills in reading, writing, and math. Unemployed would be as carefully screened concerning skills and prepared for working in HPWOs. The job-bank worked from 1997 until 2003 and provided an institution that enabled the labour market to transform unemployed into HPWO-workers on a large scale. For unemployed going through this sequence of activities, especially if a seasonal job at MM was included, increased dramatically their bargaining power on the job market as many firms were being transformed along the same principles as MM. Simultaneously the “activated” posed a challenge to the core workers at MM, which wanted similar training, leading to an offensive and systematic training programme and –agreement within MM.

The convenor and the shop stewards developed new advanced visions. Internally, they wanted to educate a number of “flyers” , which were so multi-skilled that they could be used in every sphere of MMs factory. Flyers should explore every job inside the plant in order to detect what kind of training, they would need to always be well-prepared and then use this knowledge to explore which courses should be followed by different teams of workers on a larger scale. Simultaneously, the job-bank had been implemented in a number of other firms in the region, so that a group of firms, all having seasonal fluctuations in employment and experimenting with new forms of work organization, was tied together in a small labour market reform movement. First, they would start jointly to communicate early warnings about layoffs or hiring-campaigns so that they could float a common pool of workers, exchanging practical and acquired skills among each other. Second, some suggested a new system of “flyers”, consisting of the best workers from all involved plants who should be collectively available, for instance through a temporary employment agency. Circulating such flyers would make it possible to explore emergent needs for training on a broad, regional scale and to circulate knowledge on work-practices among many firms. However, both unions and employers’ associations resisted the idea fearing that they could not be properly covered by

industrial relations agreements and that firms would engage in extreme poaching. The idea illustrates, however, how radical agents were ready to change institutions.

By 2003 the entire system evaporated. With declining unemployment, few job-applicants would accept 14 weeks of preparation for getting a job. Simultaneously MM outsourced standardized parts, which reduced its labour force with one third, and transferred seasonal fluctuations to Chinese sub-contractors. Remaining workers were so multi-skilled that they could regroup according to changing demands. But MM had learned that institutions could be used to make internal changes. Instead of introducing lean principles in a top-down process, it arranged for all workers to attend AMU-courses on “lean”, which would wind up in sessions on how to change the work areas of participants. The courses became a search-machine for identifying possible improvements, suggested in immense numbers by the participating workers. Following these MM’s work organization was changed dramatically. Instead of the large lines, teams became small, more like a U-cell, where workers could rotate. Within a short period, productivity improved by 18 % and in 2006 MM was starting to reintegrate some of the jobs outsourced to China in 2003-4.

An unexpected outcome from the more narrow teams was less variable work, causing an increase in potential disabilities. To deal with this, MM created a new institutional innovation. Around an employee facing troubles, the shop steward and a HR manager would gather to search for solutions. If no replacement job could solve problems, the firm would call for a meeting with municipal social workers and a vocational counsellor. Together this polyarchy would plan for a sequence of acts that would effect rehabilitation of the client and bring him or her in a position where the emerging disabilities would be less harmful. Some former factory workers have through training been given new workings careers as e.g. social advisers, schoolteachers, clergymen. Sector transgressing careers may as such be very good for stimulating institutional innovation. Thus the chief designer of the job-bank had held various jobs in private firms, public utilities, been un-employed and activated before he as employment-consult created the masterpiece. High mobility is a resource in itself.

MM was not the only firm in which we found a *deliberative polyarchy* (Dorf and Sabel, 1998) created around employees or unemployed in trouble. Fritz Hansen (FH), one of Denmark’s most famous furniture makers, has experienced a process of factory reform and outsourcing very similar to that of MM. One of the consequences is that each employee has become a very

critical and necessary resource not easily replaceable. At the same time, employees are often working under extreme pressure and tight deadlines, which make them very vulnerable. FH has built an early warning system that can detect if people are severely stressed, are developing an addiction or becoming partly physically or psychologically disabled, etc. Instead of waiting until people are in such a bad shape that they qualify as standard clients in the social or healthcare system, a new procedure has been created. A HR-manager, a shop steward, a spokesperson for the employee in question create a team for discussing a preliminary action plan and which public authorities and services to involve. Then the relevant “partners” (social advisers, doctors, psychologists, family advisers, etc.) are called for to negotiate how the person can best be brought back to normal. The public authorities do not have to comply strictly with the rules as they are not dealing with a person that potentially try cheat but with a whole set of stakeholders. This polyarchy can create a program of say part-time work, additional part time social benefits, a sequence of health-treatment and recreation, additional social services (childcare, home service, advisory counselling), etc.

Plant closings and re-employing skilled masters: The APV-Horsens end story

Above we left APV-Horsens (APV) as a successful machine for upgrading skills and performance. Yet, in 2005 the HQs decided to close APV, outsource to China some parts and move some machinery to a plant in Kolding. The convenor made calculations showing that APV probably would save less than half the wage of a single skilled worker if everything went well, and promised that the workers would jointly work out ways to save this amount within a short period. However, Deutsche Bank, simply wanted to regain some of its capital by selling the high valued site of the plant.

The whole story of the effects of this decision is very complicated. The short version is: The outsourcing experiment failed both because of time schedules and quality levels. The Kolding plant was not prepared to receive the machinery from Horsens and was reconstructed for millions of DKK. The Horsens workers negotiated a very favourable deal that helped the firm make the move to Kolding, but at very high costs in terms of extra pay to the workers, earning over three months an extraordinary 6 months salary. Finally, Kolding failed to organize production as speedily, and at the time of our investigation, delivery time had increased to 3 months instead of 11 days. Before Horsens had run with a large profit, Kolding was now incurring losses.

But the fate of the Horsens workers is not a sad story. First, they were all offered a job in the Kolding plant, but less than a third accepted and left after having assisted in moving equipment and machinery and starting production. Many shared the feeling that: *“We had been fighting for the continuous improvement of this plant and had made small miracles for decades, and yet the executive officers had deceived us. Who cares to work for people like that?”* Second, all except the few heading towards early retirement soon got new jobs, often more challenging and demanding than their previous ones. Some became responsible for large-scale processes in other firms in the region. Their knowledge was not only retained but also made use of to a much higher degree in their new jobs, contributing to make the region more competitive, but through different firms. A CNC-machine worker, so highly trained that he was recruited as a sales consultant by the CNC-machine maker to help machinists in customer firms with initial setting, experimentation and programming of newly sold machines. The former convenor soon got a job as an all-round handyman at a new experimental school, but shop stewards from other firms urged him to become a consultant for them, when going through work reorganization and living under the ownership of foreign MNCs. He was hired by the local union office and could now make use of two decades of struggles, negotiations and strategizing in advising union colleagues, changing the role of the union in the region in a promising way. His wife, who had been a trilingual secretary, became a language teacher at a vocational school. A team-leader and two of the best CNC-machinist bought some of the leftover CNC-machines from the plant, created a small company and started to make parts for their old employer. At the time of interviewing they were very busy and had no excess capacity, though they had already bought more sophisticated machines to engage with new customers. Moreover, as the MNC also had great troubles in running a new plant for supplies in Poland that had been constructed in response to the Chinese failure, APV was engaging the new firm to train Polish workers in Denmark and to run the new plant in Poland. Finally, a second firm was in the making, as another team-leader had used some leftover materials from the former APV plant to construct a new product, which was under patenting. While waiting for the patent application to be processed, he had created a consulting firm to accumulate a starting capital by doing consultancy for APV in Kolding. Though all the people mentioned were radical union representatives in the APV-Horsens plant, they had an easy time transforming into capitalists. Together with the former convenor they had become members of the local chamber of commerce, and through this they became connected to a whole new institutional setting of advisers and business networks that provided support to help them become entrepreneurs. Simultaneously, they could use their skills from

wage- and other negotiations to negotiate supplier contracts. Without the many years of fight for the survival of the subsidiary, the workers would not have captured so attractive skills, yet without the final closure of the plant it is unlikely that these skills had come to so full a use.

Beyond the normal reach of institutions: Unimerco inventing a new high skill route?

Though probably unintended from the outset, U has created an organization that looks so favourable from both the in- and outside that it is easy to recruit or hold on to high calibre people, even in times of low unemployment. This is probably the reason why U has embarked on a radically different way of using education:

“Education and courses comparable to AMU-courses or short-term management courses will never occur in UNIMERCO. We rather believe in more long-term forms of education, in which the student explores the subject in depth and in parallel makes use of the new knowledge in practice.

Education and specialized courses will not be used as remuneration or as ‘depository’ or ‘capacity-adjustment’ during periodic slumps.”

U emphasizes proficiency in a long list of languages and further suggests and supports education

- at universities, business schools and other tertiary educations,
- at business colleges and merkonom-, teknomom- and diplom-management-educations,
- at higher secondary educations (HF) within areas of language, math and IT;
- preparatory adult education,
- a variety of technical positions
- general adult education

The CEO of U has pursued such forms of educations by being very entrepreneurial in creating the combined engineering and business high school HIH that has substantially increased the regional capacity for tertiary, middle-range academic educations. U’s self-narrative is about a gradual transformation of itself and its manpower trying both to reach higher by taking on greater challenges and simultaneously educating people to increasing levels. The policy is that the individual employee pursues an educational project in parallel with the evolution of the job in the firm. Focus is on a long-term engagement that in the end may transform the professional identity of the person. Individuals are asked to consider what education it would

take to get ones current job in competition with an external applicant and/or what education it would take to get the most aspired job in U. This is discussed in recurrent employee interviews with managers, though it is left to the employee to suggest educations, to be followed simultaneously with the normal job. U often arranges specialized courses, full diploma educations, etc., in their own facilities, where teachers come to U to teach classes composed by employees from both U and other firms in the region.

Unresolved problems: New needs for institutional reforms?

By entering a small number of Danish firms, we have been able to reveal an astonishing variety and ability to experimentally create innovative complementarities and form polyarchies between the private and the public sector. These experiments are processed and governed by local corporate bodies at different levels, such as school-boards, regional labour market councils, etc., keeping innovations within reasonable and acceptable boundaries of bending rules, as the multiplicity of interests counteracts abuse. A major problem is that these innovations, e.g. the new team leader education, the job-bank, etc., are not known outside local circles. No official description of their function, no assessment of effects or of future possibilities has been made. Only by case-studies may such institutional innovations become detected and rendered visible to a wider public. The system seems to possess an incredible innovative potential to create situational, temporary, yet un-assessed complementarities at local level, which therefore only randomly becomes used in engineering more national complementarities. Only in the example of DSF making use of the industrial operator education as a framework for its local training agreement do the national and local level act in concert. This raises a number of questions.

The current flow of unconnected courses may lead to a complete disarray of the professional profile of an employee gaining totally unique combinations of skills and knowledge. Is it only if certain course combinations become clustered around a named certification, as in the case of industrial operator or process operator, that it will be possible to combine the short courses with more systematic educational efforts among firms and citizens? This poses a threat to the labour market mobility.

Another point is that while the intensity of continuous training was high and increasing throughout the 1990s it has been less intensive and decreasing after 2000. In this way the

training system has unintended become a device that works as a new form of “automatic stabilizer” more oriented towards output than demand as was the case under Keynesianism. Ideally the further training system could be activated quite heavily during slumps and be reduced under booms so that the slumps were times of exploring and developing new knowledge and booms for exploiting it. For such a system to constantly improve across slumps and booms, it is mandatory that a monitoring system takes care of documenting and assessing practices so that they can be made useful later, given that the organizational memory of schools cannot be expected to rest with teachers.

The institutional context of the labour market seems highly plastic for those engaged in using the system offensively, but it does not cover all groups. The system had difficulties in playing in concert with very small-sized enterprises that could not plan several weeks ahead concerning which workers to send for further training. Second, it was restricted to people eligible for unemployment benefit, that is people who were members of unemployment funds. People under social benefits could only participate if their municipality was prepared to cover additional costs. While the unions some years ago made it a universal right in the general agreement to have at least two weeks free for attending further training in agreement with their employer, they have in the 2007 general agreement created a fund that gradually will make it possible to finance such participation after own choosing. This could lead to a system that to an even higher degree discriminates between the in- and excluded ones.

These and other problems illustrate the consequences of making experiments that are not deliberately used to re-configure and systematize the system so that its future potential can be detected and designed. Piecemeal innovations occur constantly, but as these steps are taken without being recognized at higher corporatist levels, it is very difficult to make institutional innovations that turn the system into a tool for offensive systemic innovation. The danger is that firms simply outgrow the system, as illustrated in U, and then partnerships at firm-level may be less able to create offensive strategies through the creation of polyarchies between the public and the private sector.

Synthesizing the distinct dynamic of the globalizing Danish Business System

Despite being a welfare state, Denmark is a tough place to live. Large numbers of employees end their working careers depend on social welfare provisions; it is difficult for immigrants to be integrated and it takes a lot to make a working career without a higher secondary education. Unions and professional associations cannot defend a space for their members, no basic education is a guarantee for a permanent job, firms and public organizations have abandoned predictability in career progress. Recently, there has been a move away from a society where skills and professional training give access to social space to one in which “competency” in mastering the current situation and performing accordingly gives access to space of a short duration. Increasing numbers burn out, become stressed and see private lives dissolve into working lives.

This does not only reflect globalization and the coming of the projective, networked economy and open innovation systems. The transformation comes as much from internal Danish dynamics. Because craft workers during industrialization managed to hold a strong position on the labour market by creating new institutions for vocational training, they also institutionalized a struggle for space through the means of education. Since unskilled women entered this dynamic in the late 1980s, no group can live unaffected by this “rule of the game”. If nothing else, it has imposed on nearly all groupings a permanent self-doubt concerning whether they are holding the competency that makes them competitive. Unions and local shop stewards channel this self-doubt into active search for training, and the state shares the risk of this search by paying the costs of further training.

But self-doubt also makes large fractions of all groupings constantly wonder, whether a current job opens up for new opportunities and challenges or simply is a dead end. Search for new jobs is an obsession.

First, it means that there will be a tendency for employees to de-select firms that do not offer chances for continuous learning. Whereas in many countries transnational outsourcing is a major mechanism for reducing more simple, Taylorized jobs, in Denmark it is as much the mobility of employees that reduces stable and simple routine jobs. Outsourcing firms on the whole create as many new jobs at home as they farm out. Secondly, there is a high tendency for firms to react by trying to use vocational institutions to “tie” workers to their plants by

offering opportunities for training, shifting challenges and participation in different forms of teams and projects. Risks of losing employees keep firms on their toes to find continuous better ways of tying workers to plants so that they do not suffer from extensive poaching. These mechanisms, rather than high-tech oriented publicly financed R&D programmes, lead to the evolution of new forms of firms.

Such firms offer workers challenges by entering into fairly tight engagement with and try to improve capabilities to service customers with increasingly more sophisticated products, services and consultancies. Thus U first sells tools, then starts repairing and regrinding tools, continues by developing specialized tools where the general market is found lacking, and finally starts to consult customer firms on how to continuously improve management of tooling more generally. In a similar way RM uses its instruments to become deeply involved with customers by adding accessories, services and consultancy to help hospitals improve on running acute units.

Danish firms globalize in a variety of ways. The complicated steps that lead SD to become a favoured supplier for John Deere and other OEMs on the American market differ highly from how U simply follows in the steps of customer to globalization. However, when the step has been taken, the trajectory of sophisticating services is continued so that roles are redefined, dependent on what customers more broadly are asking from them. This mode of pursuing a strategy is, as far as we can assess, very different from firms that pursue a strategy of endogenous R&D, where it is the scientific and technical advances that create options and open opportunities. In Danish firms the logic operates in an opposite way as the discovery of customer possibilities triggers technical search and experimentation, e.g. when U discovers that it can open up an entirely new market segment if it learns how to make and maintain cutting tools after the new Airbus-specifications, or can apply Nano-technologies to the surface of tools. In the case of RM, close relations to areas of acute care in hospitals make them search for new products for these environments beyond existing product portfolio. This way of working makes it indeed difficult to create an R&D department that fits all purposes. Rather the R&D department becomes a device for being able to search and communicate in a proper technical way with both customers and suppliers and to organize - with available in-house resources - projects that serves to solve the problems that make it possible to exploit the identified possibilities.

It is a repeated pattern in our case-studies that employees in production belong not only to a primary production team. Across the firms employees are engaged in ad hoc project teams that serve to develop something new, often coordinated by small R&D teams. Thus firms are, in a very spontaneous way, making use of increasing skills in production also in developing new products and services. Old demarcations become blurred, and often technical staff departments become located in production serving the process of continuous improvements, and this process might easily move towards discrete innovations both in production processes and in services. The general impression is that most often, and in particular in U, this is organized in a very informal way, much dependent on the situation. Danish firms therefore have had difficulties in implementing lean management principles and in making the organization transparent. However, the often strong positions of union clubs, convenor and shop stewards and works council arrangements have been used to prevent departmental opportunism on a grand scale. The presence of a mutuality of “interests” from many parts of the organization in new, temporary teams and ad hoc committees make the organization transparent in ways very different from those achieved by normal lean practices. Communication becomes lateral, informal and yet it is a constant process of renegotiating the roles and rules that make the involved collaborate in efficient ways.

But struggling with the ideas of lean production does seem to have had an effect. Responsibility for a given type of continuous improvement (quality, cost, flow, deadlines, working environment, etc.) is often handed over to a given member of a primary team, who is simultaneously member of a secondary team of people with similar responsibilities. In this way members are constantly engaged in pushing, discussing and developing the complex set of benchmarks that constitute the “balanced scorecards” that it take to evolve firms currently. The negotiating order of the past industrial relations regime both frames and deepens these novel monitoring techniques. In this way they become less rigid than intended, become more difficult to monitor from the top, but provide the factory floor with a joint orientation towards the numerous means and ends that need attention and focus in a given situation.

In many ways it make sense still to characterize Danish enterprises with reference to “skill containers” and “project coordinators”, but whereas these roles were earlier divided among firms, they are now integrated within and constituting a novel relation to each other that has changed the meaning of both types. One may say that primary teams in production are the “skill containers” engaging in secondary project teams, either directed towards internal

benchmark improvements or towards solving for customers increasingly more complex problems. The skill containers are resources making it possible to process projects that are the sources of improving performance, extent and reach of the skill containers. Project coordinating teams are no longer searching primarily for new mass-products, but are rather accumulating ways of changing the role relation to customers.

This search process by and the constitution of Danish firms is underpinned by workers, who share the risk of searching with firms through engaging themselves in education and further training. When the workers do so, they again share the risk with the state that pays most of the expenses related to training. Training activities add extra pressure on both families and firms, already under heavy pressure because of the existing double assignments to skill container jobs and improving project jobs. Public services partly bail out families in Denmark of this pressure by enabling double-income-families to cope with this high pressure, high performance labour market. The welfare state seems to have been wildly innovative in making further training and social services solve problems thus enabling working families to live within this dynamic framework. Probably public sector service organizations in many ways resemble the organization of firms?

But it is also obvious that public sector service organizations seem to lack the capability for continuous and systematic improvements that firms have cultivated. And this might be the major shortcoming of the Danish system. As we said from the outset a number of groups drop out of the system and so does a number of firms.

Some firms enter for various reasons, temporarily (as SD) or more enduring, into a vicious circle where they lose the more offensive of their employees, while recruiting, to a larger extent, workers that have less ambitions for learning and challenges. When this happens, the loss is not only related to the quality of the immediate employees but also reducing the ability to make use of welfare state institutions. Despite Denmark has abandoned the strong dualist labour market associated with Anglo-Saxon countries, there is obviously also a tendency for firms and employees to depart from the institutionalized mainstream. 42% of all firms are neither internally nor externally flexible (Gjerding (1999) and within them, parts of the unskilled workers stand outside the overall dynamic of learning-on-the-job and participating in further training programs (Undervisningsministeriet, 2005: 28 ff).

Currently, the total ability of the system to produce continuous improvement depends on how well the educational and vocational training system is able to respond to firm-level developments by supplying skills that co-evolve with the firms. Perhaps this task has been manageable as long as the firms cultivated skills on top of existing apprenticeships, engineering specialties, etc., or renewed these by diffusing knowledge and mastery of new technologies or organizational forms. With the independent cultivation of products and services for each firm in each their idiosyncratic way, the system as such faces a major challenge. How to renew educations, vocational and further training in such a way that the system delivers, on a broad scale, employees that can be recruited and live up to the new demands? And how to offensively develop new skills that are relevant on a general scale so that employees are able to elevate firms to new aspirations?

Formerly the Danish system had the Technological Institute and a number of branch specific technological service institutes engaged in research and development, of upgrading curricula for vocational training, etc.. Today it is not easy to identify institutions that serve the same purpose. So the question is how the offensive identification of new skills is organized – ahead of the demands as incrementally recognized by firms?

Obviously, a number of Danish firms such as Novo, Danfoss, Lego, Vestas, Bang & Olufsen, etc., are sufficiently large to organize endogenous R&D departments of considerable scale and in doing so setting a quite consistent, self-chosen agenda for learning and search within their organizations. But compared with the large Swedish firms or Nokia in Finland, they are unable to ascribe this logic to and give a common orientation to the larger context of R&D institutions and the educational system. It has been very difficult for Danish firms and universities to develop increasingly intensive collaboration, and the Centres of Excellence (Brenner, 2003) that have been formed since the beginning of the 1990s seem not to have remedied this defect.

As far as we can assess from Gergil's (2006) analysis of innovation systems in the Nordic countries, Finland is the only country that has been making use of centralized corporate bodies to create systematically negotiated and coordinated innovation systems in which distinct firms become involved in a concerted action pattern that even the most important ministries support.

Such “layered” and partly complementary changes have not been discovered in the Danish case-studies. When looking into the small subset of myriads of small incremental changes that we see going on, it is indeed very difficult to anticipate how Danish agents – firms, research institutes, vocational schools, professions and unions of different groupings – could organize lasting unifying innovative programmes out of any corporate body and sanctioned by the highest political levels. As firms are penetrating or get penetrated by out- and inbound globalization, their relations to other firms and research institutions become increasingly “occasional” and situational. They make less and less use of the clusters from which they emerged (Andersen et al. (2006)). This may signal a transformative period, where they are making less and less use of each other for more stable businesses, but are increasingly drawing on each other to help search globally for contacts.

In the firms studied we found, among all employee groups, very heterogeneous careers that have brought people through a myriad of different institutions and firms on their route to their current jobs. By taking these routes they have created a multitude of contacts to many distinct persons in different firms and institutions, and they may draw on these contacts to solve problems. Even among the group of so-called “unskilled” there are people with backgrounds as skilled workers, many with a high-school degree, engineer drop-outs and graduates with humanistic university degrees that could not find a job in their original “trade”. Obviously, groupings of such heterogeneity have a highly varied repertoire of outside contacts and it is obvious that a new multilayered network is in the making in such firms. To identify new institutional devices that may reinforce this evolution is an important research topic as it might eventually compensate for the lack of a traditional innovation system such as in Finland and Sweden.

Obviously research institutions could play the role of tying up and connecting firms when discovering that a number of national firms are working within similar areas. But this would demand a feel for the game of the National Business Systems’ ongoing activities that is not easily detected. Currently Denmark is discovering that through swarms of discrete and coordinated steps, a heap of firms possess jointly a capability to create energy systems based on heterogeneous energy sources and turn them into uniform outputs. On such a topic it might have a major effect to create unifying institutions, meeting places and communities of quasi professionals, as is done in Finnish and Swedish R&D-programmes, but if it is a meeting

place for only engineers or researchers, it might exclude the most vibrant groupings in Denmark.

Chapter 4

Norway: Entrapped by the Refinement of Raw Materials or Saved by a Growing Periphery of Innovative Agents?

Eli Moen

Introduction: Norway – trapped by the resource curse or moving towards a knowledge-based society?

Norway is performing remarkably well. For several years in a row the United Nations has named Norway the best country in the world to live in (Human Development Reports). The population enjoys one of the highest levels of GDP per capita, an egalitarian distribution of wealth, and generous welfare state arrangements. Yet, Norway is trailing the other Nordic countries in terms of economic dynamism. On the World Economic Forum's ranking lists, Norway has been ranked lowest among the Nordic countries and has most recently dropped significantly behind. The country is ranked very low on international innovation scoreboards (cf. EIS), is blamed for investing too little in R&D, less than 1.7 per cent of GDP which is well below the OECD average, and is less integrated into the globalized economy than the other Nordic countries. Are these indicators symptoms of a nation about to be trapped by the paradox of plenty? Has Norway failed to sustain and develop a dynamic and competitive economy for future challenges?

There is no doubt that Norway owes her wealth to oil windfalls. The petroleum sector accounts for more than one fourth of GDP and for more than 60 per cent of the value of commodity exports. Norway's strong dependence on natural resources is unique in the group of advanced industrial economies. Nevertheless, the political awareness of this state of affairs is high, and the notion of being in control of the situation has allowed the unique resource dependency to develop. Within the system of economic governance a framework of institutional constraints has been constructed for preventing the abuse spending of oil money at home. Over all the economic governance regime sticks to a strict national budget policy: oil incomes are recycled into international finance markets, so linking Norway to the increasing flow of petro-dollars. The result is an oil fund that for the time being amounts to almost \$ 300 billion. Furthermore, a positive balance of trade, no state debt, and low levels of

unemployment together with a high level of labour participation is legitimizing Norway's peculiar pathway.

Two sets of factors have helped Norway achieve her unique financial and economic position: in addition to macro-economic regulation, the refinement of core technologies for the exploitation and extension of natural resources. Still, the key issue is whether national strategies have provided the economy with relevant skills and sufficient transformative power? Investigating this issue does not provide any obvious answer. On the one hand, Norway has abandoned developmental policies, and has been alone in experiencing an actual decline in total manufacturing output among advanced industrial economies. The effect is that the competence base has been narrowed down (Andersson et al. 2004:27, OECD 2007a). On the other hand, the economy is for the time being demonstrating surprising elements of renewal in terms of both productivity growth and the emergence of new science and technology based sectors. Recently, Norway presented the highest productivity level in the world in terms of GDP per hour worked (OECD 2007). Technologically, it has become a leader in offshore solutions, and emergent clusters in ICT and biotech are attracting international attention.

The case is that Norway presents a mixed picture of inertia and dynamism, and from the outside it is not obvious what sort of institutional reforms are triggering a renewal of the economy. Since the 1980s the public sector has recurrently been subject to reforms, although less radical than in the other Nordic countries. This chapter will explore different sub-systems and sectors of the national business system in search for institutional change that enable firms and individuals to initiate experimental activities and to redefine themselves. The point of departure for this search is the case study of a selection of innovative firms. These firms demonstrate both high flexibility and a global visibility, and the inferences drawn from the analysis serve as reference points as to what sort of institutional resources innovative driven firms make use of. How and to what extent do public reforms open for supply oriented services? To what extent have public institutions co-evolved with private partners? The degree of match between institutional resources and ongoing transformation in the international economy will be informative as to how far Norway has moved towards an enabling welfare state.

The next section sketches the traditional Norwegian business system for a review of historical structures and institutions supporting a natural resource based economy. The third section points out key reforms within the economic governance system and the public sector; the fourth section gives an account of the case studies; the fifth section compares institutional reforms in Norway with reforms in the other Nordic countries; and the last section summarizes the present state of the Norwegian business system.

The traditional Norwegian business system: the exploitation of natural resources

Through history the Norwegian economy has repeatedly been framed by the exploitation of natural resources: fish; timber; minerals; water power; and most recently oil and gas. For certain reasons business activities have largely been restricted to the export of raw materials and semi-finished products. Within the dual Danish-Norwegian monarchy this role was politically decided: Norway was to generate incomes through the export of natural resources whereas Denmark was given the privilege of developing trade and handicrafts. With the breakthrough of modern industrialization in late 19th century this industrial practice was reproduced. At the time this was not only related to organizational skills and routines, but also a resultant outcome of the then situational context. Since Norway for all practical purposes had been a colony for some hundred years, modern capitalist institutions such as a financial system were under-developed. For example, Hamburg was during the first part of 19th century a financial centre for Norwegian international business.

Lacking an effective finance system, an industrial firm was often constituted as a family owned enterprise, a few large companies except. Therefore, a dominant way of financing industrialization took place through reinvestments and/or inter-firm financing within networks of related families. In the Norwegian context family ownership meant a personalized and strong centralized control. The strong autonomy orientation inherent in this system gave few incentives for risk sharing. Traditional economic practice and the institutional setting for controlling and coordinating economic activities have framed firms' patterns of growth, the scope of business activities, and the nature of cooperative and competitive relations. To put it differently, the combination of bulk business and narrow spans of control has shaped a distinct national understanding of how to earn money: concentration on one single activity, i. e. the processing of raw materials. This practice has been reproduced at critical junctures.

The narrow span of control favours organic growth and discourages diversification since external capital or new skills are to be avoided. In this way of understanding business competitiveness is achieved through cost reduction. Moreover, specialization restricts the development of cross-functional capabilities within firms, necessitating the externalization of complementary activities. This form of specialization debar firms from developing a customer orientation and from information about market trends. Lastly, the internalization of risks rules out risk sharing with suppliers, customers, and bankers. Typically, the majority of Norwegian firms were and still are small and medium-sized enterprises and many of these are life-bread operations.¹³

The way firms are constituted impacts on the nature of intra- and inter-organizational relationships as well. Coordination across organizational boundaries has in particular proven to be challenging when it conflicts with owners' prerogatives. For this reason autonomous firms in Norway have often demonstrated an unwillingness to merge and to integrate vertically and horizontally¹⁴. The bank-based coordination system that evolved in both Sweden and Finland did not take place in Norway, nor the cooperative kind of inter-firm organization of production and distribution typical among small and medium-sized firms in Denmark. However, during the economic crises in the interwar period this governance system was modified to some extent through the construction of sector level coordination. For example in several manufacturing industries cartels were not only allowed but also to some degree encouraged as it was considered 'good governance' (Nordby 1994, Hanisch et al. 1999, Moen 1998). This practice remained unchanged during most of the postwar period.

In the postwar period the national business system was further modified: first by an active state, and secondly through the system of industrial relations. A majority government provided the Labour Party with strong political potential, and its ambition of regulating the economy was equally strong. Under the guidance of leading economists from the renowned Oslo School, leading Labour politicians were convinced that administrative systems for a scientific exploitation of resources could replace the market. As to planning, the Oslo economists took a stronger stance than Keynes. Subsequently, the Norwegian planning economy developed a comparatively high degree of state control, planning, and centralization.

¹³ By international standards Norwegian firms are rather small. In 1995, 80 per cent of all employees were employed in firms with less than five employees (Moen 2002:61).

¹⁴ For example, a strong cost focus and lack of risk sharing has led to industrial decline as was the case of the pulp and paper industry (Moen 1998).

In this way the state not only shared risks with business, but took on major responsibility for developing the economy.

Labour's main tool for framing the economic development was politically governed credit rationing and low interest rates. Credits were allocated to politically prioritized projects that included the generation of hydro-electrical power, metal processing and ship building. Tools for allocating financial resources were private banks and over time an increasing number of different state banks or funds that were to serve specific sectors and aims. In addition to this type of 'selective' industrial policies, the regulation regime developed a wide set of planning tools: ownership or owner stakes in manufacturing companies, the set-up of institutional and corporative arrangements let alone protective measures. Yet, the most prioritized sector in terms of direct financial support was agriculture. This formed part of regional or district policies, a 'sacred' policy area in Norway (Hanisch et al. 1999, Knutsen 1995).

In the aftermath of World War II Labour declared the overarching goal for the economy to be industrial diversification. Due to institutional inconsistencies this goal did not materialize. Labour's Fordist model of industrialization clashed with management's discretion and strong autonomy orientation. The coordination of large-scale operations conflicted with the existing structure of small and medium-sized enterprises. Moreover, Labour's strong ambition of controlling the economy exacerbated latent tensions with a conservative management that feared nationalization. Traditionally, there was weak capacity for strategic cooperation between the state and private business. This state of affairs is linked to a divide in the wider Norwegian society. Through the work of Rokkan (1967) this divide is generally known as the centre-periphery cleavage. This cleavage refers to a dominant centre with access to critical resources and a periphery partly excluded from the same resources.¹⁵

The weak capacity for cross-sectoral cooperation impacted on how industrialization processes unfolded. When Labour failed to develop a shared understanding with Norwegian management as to appropriate type of industrialization, the objective of diversifying the economy in cooperation with the private sector was largely abandoned. The pragmatic

¹⁵ Eckstein (1966:180-1) in his study of Norwegian democracy related the paradox between the salience of segmental cleavages and cultural divergences and an 'overarching attitude of solidarity' to three kinds of behaviour: 'noneconomic (primordial) definitions of human behaviour, non-competitiveness, and great organizability, i. e. the similarity of Norwegian authority patterns because it involves homogeneity in a realm of social experience related closely to political life.

solution found was a strengthening of the exploitation of natural resources, principally in terms of hydro-electrical power. This strategy was realized by extending the supply of hydro-electrical power, and by either establishing state owned companies or by favouring private ones within the energy intensive sectors such as electro-metallurgy and electro-chemistry. Favoured companies were given both cheap loans and subsidies in the form of long-term contracts for the supply of cheap energy. This type of state-led industrialization was successful and was nick-named ‘power socialism’ and had strong support among large groups within Labour. By 1970 Norway had become the largest exporter of ferro alloys and the second largest of magnesium in the world, and the second largest exporter of aluminium in Europe

This kind of production system was simple to manage. Typically, companies within the process industries were run with an emphasis on volume and cost reduction in up-stream operations. Production facilities were located in scattered and peripheral areas that gave rise to a large number of mono-industrial towns, a hallmark of Norwegian postwar industrialization. Since a large part of input factors – raw materials and machinery – were imported, state owned or state supported companies developed few ties to the rest of the economy and they functioned more or less as isolated enclaves. Price fluctuations on raw materials and semi-finished products had few socio-economic ramifications. The energy intensive industry employed only about five per cent of the work force, and economic volatility could easily be handled through stock and import management (Moen 2002).

For these reasons Norway developed less institutional arrangements for cross-sectoral coordination such as the bank based coordination system in Finland and Sweden. Instead Norway developed a strong system of intra-sectoral coordination (Hernes 1978), and links between the state and private business assumed rather a clientistic nature than strategic cooperation.

Yet, different mechanisms within the Norwegian political system function to mediate divides. One such mechanism is the Norwegian election system, which is based on a geographical seat allocation favouring peripheral and rural constituencies. Over time this system has created strong inter-dependencies between elites in the polity and the periphery. However, one effect of such inter-dependencies is a mix of different policy areas. Another effect is that competition between constituencies has triggered power games and horse-trading. Typically,

these types of political games tend to provide sub-optimal performance outcomes. Another mediating mechanism is the system of centralized wage bargaining. In the Norwegian context this system developed an unusual capacity for cross-sectoral coordination and cooperation. The system of wage bargaining emerged after the turn of the last century, and a peak was reached in the mid-1930s when a general agreement was reached between the social partners centrally.

The strong capacity for cross-sectoral cooperation enabled the system of industrial relations to reform managerial practices and work organization in the postwar period. The institutionalization of co-determination and the principle of local union representation in boards have facilitated reforms in work practice and organization. In fact, Norway was a pioneer in work organization experimenting. In the early 1960s a joint project between the Norwegian Federations of Trade Unions, the Norwegian Employers Confederation, the government, and Norwegian and British researchers was launched as one of the first in Europe. The tripartite programme was called the Industrial Democracy Programme and implemented at the shop floor level. The objective of the programme was to develop new ideas for cooperation and work organization (Gustavsen et al. 2001). Through these trail blazing programmes the trade unions adopted a positive attitude to technological change. For increasing efficiency and process optimization these sorts of cooperative relations have been vital. But also for developing the welfare state the system of corporative industrial relations has been a driver.

At critical junctures work organization experimentation was initiated through programmes for technological development. A technology programme had been implemented after World War II, and it became particularly relevant after Norway joined the NATO in 1949. A minor, but influential, group within Labour wanted to use technology strategically in Norway's defence and security policies. When Norway joined NATO, the decision was made to develop a domestic weapon industry and to connect the development of this industry to NATO's military strategy. To achieve this goal several research institutions were set up and government funded technological research programmes established¹⁶. One resultant outcome is that a couple of state companies was upgraded, first and foremost Kongsberg Weapon

¹⁶ These institutions comprised a research council for science and technology, and sector based research institutes like the Norwegian Defence Research Establishment (FFI) and its spin-off the Institute of Nuclear Energy in addition to a large number of sector based research institutes.

Factory. Later the technology programme was extended to comprise telecommunication. Within this field participation in the pan-Nordic research collaboration, that spearheaded the Nordic countries to the frontier of mobile telecommunication, became of particular importance. However, by contrast to the other Nordic countries these investments did not materialize in any commercial success as was the case of Nokia in Finland and Ericsson in Sweden. Due to lack of institutional support – funding, the understanding of long-term industrial strategies – and cross-sectoral cooperation, Norway failed to capitalize on her technological achievements in mobile telecommunication technology.

When the Norwegian oil sector emerged in the 1970s, its structure, routines, and patterns of interaction were largely shaped in line with the planning tradition of the postwar period. There was a strong ambition for controlling the exploitation of oil, and the authorities decided not to confine their roles only to property rights management and tax collection, but to play an active part. Statoil, a Labour Party construction, was to be the state's most important tool. To get political consensus for an active policy, a National Project for developing the North Sea was constructed (Olsen 1989:34). In exchange for developing the North Sea, petroleum incomes were to be used as an instrument for regional development and for diversifying the Norwegian economy. The main objective of the National Project was to develop national competences for exploring and exploiting Norwegian resources. By transferring knowledge to other business sectors, research institutes, and universities, the rest of the economy was to be upgraded and diversified. The strategy was to learn from foreign oil companies, and different incentives schemes were introduced for encouraging oil companies to engage Norwegian suppliers (Hanisch et al 1999). One such incentive is a risk sharing arrangement with the state: costs connected with the searching for oil and related investments are eligible for tax reduction.

Thus, the state took on responsibility for developing the Norwegian shelf and in rhetoric also for diversifying the economy to counter-balance the impact of a petroleum economy. But so far diversification in relation to the exploitation of oil has not materialized, apart from one exception to be dealt with below. The Norwegian oil sector has been and is dominated by the production of crude oil. In a sort of 'taken-for-granted' manner, activities have mainly been restricted to process optimization and to increased recovery of existing oil fields.¹⁷

¹⁷ Vertical integration has taken place to the extent that Statoil has invested in down-stream activities; retailing. Attempts of diversifying into chemical activities were abandoned.

Change and continuity in the national business system: increased centralization and new social spaces

The redefinition of the economic governance regime

Failure to deal with the crises in the 1970s and to stabilize the volatility in the 1980s discredited the postwar planning economy. The fact that all state owned industrial companies for all practical purposes had been a commercial failure likewise destroyed confidence in the regime. Armed with new public management (NPM) templates the governance regime started to reform itself from within. In the first place this concerned the redefinition of the role of the state, and secondly the deregulation of most industrial sectors. The ideological shift underlying the reform processes was radical and was referred to as the ‘from plan to market’ (Løken and Trygstad 2006). Competition was to replace planning for improving quality, efficiency, and effectiveness. The financial system, the public sector, the system of higher education, and industrial sectors such as energy, telecommunication, parts of mass media, which all had been monopolies, were gradually subject to reforms. However, the transformation movement was less internally coherent than the ideological shift signalled.

The redefinition of the role of the state represented the most substantial action. From being the key player in the economy, it relegated itself to the background. First, the state deregulated the financial system; secondly it withdrew as an active player in industrialization. State companies were either closed down or sold. Thirdly, ‘selective’ industrial policies were abandoned. Instead market regulation was to secure a healthy industrial and business development, at least in rhetoric.¹⁸ Lastly, postwar technology programmes were dismantled. For all practical purposes these reforms meant the end of development policies. The economic governance regime to replace planning was solely to be based on macroeconomic regulation. The main regulatory tool was a fixed rate system introduced in 1986. With the dismantling of planning, the central wage bargaining system became of importance for a cross-sectoral coordination at the national level.

The state stepped down as an active player in business, but the fact is that its influence in the economy has not diminished. On the contrary, its economic capacity has grown and is

¹⁸ The primary sectors and related businesses such as the food industry were except from market governance as was the area of district policies.

stronger than ever. This is due to the fact that oil revenues have made the state rich. As a result of deregulation the state's direct and indirect ownership in the domestic stock market has increased. Between 1985 and 1996 public ownership doubled. In this period the share of public ownership at Oslo Stock Exchange increased from 9 to 21 per cent. The state had ownership stakes in 29 out of the 100 largest companies in Norway (Moen 2002). This is partly a result of the part-privatization and listing of state companies, and partly a result of heavy state investments in the biggest banks in the early 1990s to alleviate a domestic bank crisis. Today the state controls as much as 45 per cent of the shares on Oslo Stock Exchange (Grünfeld and Jakobsen 2006). Consequently, the share of private investment is very low. In Norway private investments amount only to 15 per cent of GDP whereas in Sweden they amount to 80 per cent of GDP (OECD 2008a). At the same time Norway has the lowest share of market capitalization of GDP among the Nordic countries (Sinani et al. 2008:30-31).

Thus, in contrast to the postwar period the state is not playing an active role in business, but indirectly its economic position is stronger than ever. At the same time the recycling of oil incomes into global financial markets has de-coupled the state from interaction with the non-petroleum part of the economy. In fact, oil windfalls has made it almost independent vis-à-vis other societal spheres. It is likely to consider the dismantling of developmental policies and the end of a number of risk sharing arrangements in this perspective, likewise the reinforcement of a natural resource based economy. This political economy orientation is stronger than ever entrenched in the political and administrative leadership. The governance mechanisms linked with the centralized wage bargaining is further strengthening this orientation. The Norwegian model, which is based on the Rehn-Meider model of development, is in tune with an economy based on the refinement of natural resources and process optimization.¹⁹ Since there is a shared understanding between the tripartite partners, there is no forceful alternative to contest this type of political economy orientation. The configuration of actors are pulling resources in the same direction rather than constituting a mechanism of balance and check. The resultant outcome is an economic system with a high degree of centralized control and an asymmetrical distribution of power between sectors.

¹⁹ For example, when unemployment increased in the early 1990s, wage moderation was the most important weapon for counteracting the business cycle thus making employees taking on a large part of the responsibility for competitiveness.

New Public Management reforms

The 'autonomy and de-coupled' perspective on the state can help explaining the inconsistent and contradictory nature of the Norwegian reform movement. The overarching goal of managing oil incomes has implication on reforms and policy-making across a wide set of policy areas. Due to political opposition reforms occur in bits and piecemeal. The movement of administrative reforms has been described as being the result of different forces and contingent events rather than a result of a general and comprehensive administrative policy derived from government's modernization programmes. Moreover, Norway has been described as a laggard in adopting NPM reforms and the Norwegian approach has also been described as focussing more on the managerial component than on the marketization component. Inconsistency in reform principles has produced a number of layering implying that reforms are rather complementing previous administrative systems than supplanting them. Currently, the public administrative system is characterized as being highly varied, diverse, and fragmented, and having to manage a more complex task portfolio (Christensen and Læg Reid 2008, Læg Reid et al. 2006, Bleiklie et al. 2003).

Various studies draw the same conclusion: the Norwegian governance system has become more centralized in spite of NPM inspired reforms aiming at increasing devolution, autonomy, and increased flexibility at local and regional levels. Under the guidance of management by objectives and results by introducing activity planning, budget and pay reforms, local government was to become more efficient and ease governmental tasks in an expanded state activity by undertaking different roles and by giving effective responses for local action. Different types of intervention, occasionally referred to as post-NPM reforms, have counteracted processes of devolution. One is the concern for assuring equal and uniform provision of public social services across the country. Another concern is the fear of rivalling interests inherent in the governmental sector principle. New tools and mechanisms such as standardization requirements, targeted allocation of resources, and different audit and assessment measures have over time been introduced to compensate for loss of direct sector control at the local level (Fimreite et al. 2004).

Allegedly, as a result of 'post-NPM' reforms Norway has developed greater central supervision and lower local empowerment than the other Nordic countries (Sellers and Lidström 2007:622). Local government in Norway has become more state dependent, a

development trend that represents a break with the tradition of local government. The municipality act of 1837 secured a relatively strong local government. During the reform movement it appears as the central administration has lost trust in municipalities' capacity for carrying out governmental tasks. At the same time there is less belief in municipalities' capability for managing the nation's wealth. Recent studies also suggest that the state has developed a strong belief in its own capacity for governing vis-à-vis the local level, and that the state has developed governance tools and resources for full control. Such an allegation might be justified since studies also evidence that NPM reforms have triggered power games between different social and professional groups at the local level. Increased professionalization of local administration and unwillingness to take on new roles has released tugs-of-war, tension and conflicts, and reduced local power for problem solving and carrying out tasks. Central actor groups agree that the oil wealth is a driver in centralization (Fimreite et al. 2004:106-7, Lægreid and Christensen 2008).

At the same time as the political and administrative governance system has become more centralized, it has also become more complex and fragmented. This sort of inconsistency has weakened the capacity for problem solving. But occasionally devolution has open up new social spaces which has produced new configuration of actor groups with a problem solving orientation. An illustrative example is the oil sector where a neo-corporatist configuration of actor groups jointly opened up for experimentalist operations.

The Case of the Offshore Sector

Around 1990 the government changed its oil policy: the Norwegian shelf was to be opened for free competition. The national oil company was to be freed from socio-political objectives such as securing regional development. Statoil, the state owned company, was to be operated purely on the basis of profit criteria. At the same time the decision was made to internationalize operations. There were a set of different external and internal factors that trigger the shift in policies: the oil price shock, less activity on the Norwegian shelf, lack of new discoveries, and Norway's negotiations for EU membership. Thus, the oil sector was to be liberated from the political system and instead to be 'governed by the market'.

Over the years operations on the Norwegian shelf had become increasingly marked by heavy bureaucratic routines, organizational ineffectiveness, expensive and rigid technological

solutions. Statoil's administrative and organizational procedures constituted an emulation of the practices of the state administration. This is marked by a sharp division of labour (Olsen 1989:112-13), and bureaucratic procedures applied proved to be particularly costly when used for development projects. Statoil provided the specifications of assigned projects. To control suppliers and to secure transfer of knowledge a system of dual management – in the shape of 'shadow organizations' - was established, since various suppliers had to build their own administration. For a middle-sized project the flow of documents could amount to 30 to 40 000 only in the engineering phase. It is estimated that costs linked to administration and organizational routines were about three times higher than in the Mexico Gulf (Lerøen 2002, Ryggvik 2000:263).

Improving profits also implied a change of technology. The style applied on the Norwegian shelf was characterized by large concrete platforms that over time had assumed monstrous proportions. They were constructed to master extreme weather conditions in the North Sea. By the end of the 1980s the concrete platforms were becoming too expensive. They also proved to be less manageable in smaller oil fields that constituted an increasing part of the activities. But changing the technological style was as much an issue of changing mind-sets. Within the petroleum sector it was taken that 'we were the best in the world'. 'That we did it at a price that was 50 per cent too high or 100 per cent too high did not worry people ...' (Engen 2002:155).

In rhetoric the market was to solve challenges facing the Norwegian oil sector. In reality political initiative was taken to remedy the situation. In 1991, the Minister of Oil and Energy launched a cooperative programme called NORSOK (The competitiveness of the Norwegian shelf). The aim of this coordinated action was to encourage search for technical and organizational solutions that could attain acceptance by all relevant groups, and to develop interactive patterns that could induce efficient and mutually beneficial routines and procedures (Engen 2002:292, 302).

An underlying idea of NORSOK was to render suppliers a more independent role. It was taken that a change in the contractual relationship between oil companies and suppliers would open up for greater risk sharing. Institutionalizing risk sharing would in turn create incentives for more efficient technological solutions. For the oil companies this meant that they would have to pay lower prices for commissioned products. For the suppliers it would involve the

possibility of developing more efficient organizational procedures and cost reductions. Three main areas were targeted: 1) simplifying and standardizing procedures 2) reducing documentation and bureaucratic procedures, and 3) involving the suppliers earlier in the development projects. A more liberate contractual relation was to lead to a win-win situation for both parties (Engen 2002:182-3, 187).

NORSOK did not proceed as planned. Developing technical standards that everybody could agree on proved to be futile, among other things because it conflicted with emerging internationalization. Later reports also criticized the programme for having created a win-loser situation for the supplier industry in the race-to-the-bottom initiated by oil companies. Reports maintained that suppliers had insufficient organizational capability and experience to be network entrepreneurs with the responsibility of maintaining national and regional competence. However, the situation following ‘the liberalization’ was less homogenous as depicted. Capacity suppliers for example, that produce standardised components and that possess few technical and organizational capabilities, were more negatively affected than system suppliers (Engen 2002).

Over all, the NORSOK initiative failed to provide practical solutions such as technical standardization. But the coming together of various actor groups opened up for new solutions. These actor groups consisted of oil companies, supplier and services firms, industrial federations, employers’ and employees’ organizations, and Norwegian oil authorities, in fact a typical neo-corporatist arrangement. Within the framework of NORSOK, these formally organized groupings developed a more open culture to the extent that actors’ mind-set changed. Realizing that they had common interests, and that they were all part of a ‘we’, paved the way for a new kind of interaction between oil companies and suppliers.

An outcome of new relational ties was a new contract form called EPI (Engineering, Procurement, Construction). This type of contract is characterized as efficient incentive contracts: open specifications open up for innovation. They are also known as relational contracts because they contain elements, so-called functional requirements, which are difficult to treat legally. For a third party it is difficult to assess an engineering service. Its nature is therefore seen to be self-enforcing, and reputational motivation an integral part. Mutual trust facilitates these kinds of contracts and partnerships, and they will consequently

contain a high degree of 'soft governance'. Another decisive outcome was a shared understanding that development projects should be delegated to only four large system suppliers instead of oil companies controlling and coordinating the activities of a large bundle of suppliers. The Norwegian shelf is supposed to be unique in this sort of decentralized coordination.

New contractual forms and new, decentralized ways of organizing and coordinating activities opened social spaces for entrepreneurial players. The following narrative gives one example of how a representative of the supplier industry made use of this institutional change in this contingent situation to co-create new rules of the game in the Norwegian oil sector.

The player in question used to be a division of Kongsberg Weapon Factory, Kongsberg Offshore (KOS), specialized in systems and equipment to subsea operations. In the early 1990s, then a subsidiary of a US based multinational, it was a comparatively small organization, employing less than 100 people. Due to its small size a problem arose when it was offered two projects simultaneously, one for Statoil and one for Shell. Typically, both oil companies required quite different technology for their subsea operations (KOS Annual Report 1991). KOS' first thought was 'we have to choose one of them'. The next was, 'why don't we develop a common technology base that both can use?' KOS went for the latter option, and managed to persuade both companies to accept their technical solution without either of them knowing about the other.

The option chosen had two important implications. First, KOS as a supplier took on full responsibility for designing the project. Secondly, their design involved a standardized solution based on a modular approach. Standardization was a controversial issue in the oil industry since oil companies' identity and reputation was based on discrete technology. However, an accidental situation made Statoil change their mind about a standardized solution. On 23rd of August 1991 one of its platforms, Sleipner, disintegrated and sank. Statoil got a dilemma since they already had sold the gas from Sleipner. The need to solve the problem instantly was imperative. Normally it would have taken two years to replace the installations, two subsea templates. KOS delivered both within nine months after being assigned the job. 'That gave Statoil a good taste of the advantages of standardization' was the observation made (KOS Annual Report 1992).

For the oil industry this sort of flexible specialization proved to be ideal for meeting new requirements in terms of cost reduction and flexibility in relation to variation in the nature of oil fields. Standardization or modularization allowed increased flexibility, reduced costs, and shorter installation and project cycle time. Standardization in subsea systems implies modules that can be re-configured to suit every application in use on subsea oil fields. It also implies the redeployment of tools, technical, and management resources. The effects were visible right from the start. The learning curve of the dual project surpassed expectations. One of the offers the subsidiary submitted was estimated to cost around NOK 480 million. This figure was some 300 million lower than the second lowest offer. It was considered craziness. However, between 1991 and 1997 KOS managed to half costs twice. KOS' stroke of genius can be described as tailored solutions for standard prices. Generally, project-based operations tend to be idiosyncratic and cross-project learning consequently low (cf. Whitley 2006). Modularization made it possible to capitalize on learning from one project to the next.

The Sleipner project represented the start of a technology development that revolutionized the subsea business. Moreover, risk sharing between customer and supplier in solving increasingly complicated tasks lifted Norwegian offshore technology to the forefront. The cooperative mode that evolved allowed the Norwegian shelf to become a sort of experimental laboratory. Not least was experimentation sustained by the fact that customer-supplier interaction was extended to also include to R&D projects. This kind of collaborative projects is in the offshore sector referred to as framework contracts. It started with the introduction of the first Technology Development Agreement between KOS and Statoil in 1994. A year later Mobil, Elf, and Shell joined the agreement. The aim of such joint projects is not to produce a specific product or delivery, but to further develop inventions and technological solutions for perceived future challenges. In this respect, companies and suppliers have benefitted from interaction with the wider business and innovation system in Norway. The competitive aspect involved in the informal rule of using four different system suppliers in projects is considered to add extra dynamism in the sector.

Changing relationship between customer and supplier has at the same time changed the power balance within the supply chain. System suppliers have taken over the driver's seat as to the technological development. This role shift has several implications. Complex projects require knowledge and competence from a variety of internal and external sources at the same time as complexity has triggered the outsourcing of tasks and manufacturing operation. To the extent

that cooperation takes place across organizational boundaries, more players have been drawn into experimentation and are benefitting from knowledge transfer and sharing within the supply chain.

Over the years several types of institutions have co-evolved with players within this sector: research funding (targeted research programmes within the Research Council of Norway), counselling, educational services, internationalization support (Intsok) and so forth. In 1999 the temporary NORSOK organization was replaced by a permanent one. A forum consisting of representatives of oil companies, suppliers, the public research system, employers and employees, and Norwegian ministries and authorities presides over the new organization. The forum is headed by the Minister of Oil and Energy and has 37 participants.

The result of this co-evolutionary process is that Norwegian players have become leaders in offshore technology. Three of the four largest subsea companies in the world are Norwegian or Norway based. For players that have become global the Norwegian shelf has served as a platform. In 2005 Norwegian players had a market share of 48 per cent in subsea systems (Quest Offshore Resources, Inc. Jan 2006). In the national economy the offshore sector has become the third largest export sector after petroleum products and metals. Between 2003 and 2005 foreign sales accounted for 75 per cent of its growth, and from 2005 to 2008 foreign sales almost doubled. Depending on how the boundaries of this sector are defined, whether firms are entirely or partly offshore suppliers, the number of entities varies between 1500 and 2800. It is a complex sector and it is not classified as a sector in its own right, key areas comprise seismic, reservoir analyses, drilling, well services, engineering, subsea installations etc. In several regions of southern Norway offshore has become an engine of growth. The so-called subsea-corridor in the wider capital area of Oslo is even about to become a global hub within subsea technologies (Heum et al. 2006:12, Vatne 2007).

An assumption one can draw from the offshore experience, is firms have to adapt to the experimental orientation for benefitting from the cooperative mode of operation. The case study of the Kongsberg companies is in this respect revealing about organizational changes within Norwegian business.

Creating global competitiveness: the case of the Kongsberg companies

The state owned company Kongsberg Weapon Factory (KV) was split and divested in 1987. Some of the successors are strong examples of Norwegian business that have achieved global visibility. In the Norwegian context they stand out as to integration with the global economy. About 80 per cent of their production is exported and they have operations/or are owned by enterprises that operate globally. This state of affairs together with the fact that they have a relative peripheral location made them appropriate as case studies for the Translearn project. The following gives a presentation of five of the successor units and an account of how these units have reinvented themselves after the state divested the company. Information is based on interviews, annual reports, and different types of literature.²⁰

KV used to be a traditional manufacturing enterprise based on mechanical engineering, but through the postwar technology programme its business model changed. In the technology programme KV was designated to be a national locomotive for the development of high tech industries: to develop new civilian products based on new defence technology. For this reason KV evolved into a conglomerate of partly related and partly unrelated production lines. The technological capabilities underlying its diversification were accumulated skills in cybernetics, computing and electronics. The diverse production lines included: missiles; components for satellites; maritime steering systems; CNC tool machines; gas turbines; jet engine components; subsea systems; and components for the car industry to mention some of the most important products.

Failure to produce profits for years concurrently with the change in the economic policy regime prompted the state to either sell or close down parts of the traditional state company, which had been established in 1814.²¹ However, the decision reached in 1987 was to split and sell KV into eight major and 14 minor separate units. Five of these have grown to become large by Norwegian standards and/or have achieved global visibility. The enterprises Kongsberg and Kongsberg Automotive have become multinational companies in their own right. The former subsea, gas turbine and jet engine component divisions are subsidiaries of

²⁰ The sketchy presentation of these units is far from providing justice to the richness of these stories.

²¹ As a state owned company KV was highly irregularly governed. Whereas it formally was registered as a corporation with limited liability, in practice the board run it as a research and development institution. This inconsistency impacted on its commercial results. With the change in the economic governance regime, this state of affairs was found unsatisfactory. The employees fought hard to avoid the closure of units.

foreign multinational companies. These are the USA based FMC Technologies, the USA based Dresser-Rand, and the Sweden based Volvo Aero respectively. These units are still co-located in the small town of Kongsberg situated in the interior of southern Norway. But since they target different markets and customers, co-location implies that they only share a common geographic space. These firms do not constitute a local production system or cluster in the sense that they are cooperating in business activities. But it is a common feature that they have performed remarkably well after privatization.

First and foremost their achievement is linked with their integration with the global economy. By tapping into global value and supply chains these units have been able to expand their business, to improve their position in value constellations and markets, and to increase returns substantially. For the five units in question the current situation²² is as follows: Kongsberg employs about 4400 people, which is a doubling since its start in the late 1980s, and it has operations in some 25 countries. The concern targets the offshore, merchant marine and defence markets, and it is organized in two business areas, Kongsberg Maritime and Kongsberg Defence and Aerospace.²³ In some niches within these markets Kongsberg is global leader. Among its customers are leading organizations and institutions world-wide such as the US Armed Forces, NATO, and the European Space Agency and the Ariane project. It has had a long-term partnership with world-class companies such as Raytheon and Lockheed Martin in the United States, Aerospatiale and Thomson in France, and Hyundai in South Korea. The company has earned a good reputation, and has, for example, been named Raytheon's Four Star Quality Supplier and the Australian Defence best supplier ever (Annual Reports).

The second multinational company, Kongsberg Automotive (KA), has more than 50 facilities in 20 countries and over 11 000 employees.²⁴ The company presents itself as a global provider

²² That is before the financial crisis broke out.

²³ 1.1.2009 Kongsberg Defence and Aerospace was split into two units: Kongsberg Defence and Kongsberg Protector System.

²⁴ The acquisition of the US-based Global Motion Systems (GMS), a diversified industrial company listed on the New York Stock Exchange, was completed at the beginning 2008. As a result of this acquisition KA has made its most significant expansion. GMS has a global presence with about 8000 employees working in 16 production facilities in North and South America, 13 factories in Europe and 5 factories in Asia, and is a long-term supplier to blue chip customers like Mercedes Benz, Toyota, Ford, GM, Renault, Peugeot, Lear Corporation, Caterpillar and Scania.

of systems solutions to vehicle makers world-wide.²⁵ When the new company was incorporated in 1987 it started with 315 employees mainly producing components for Volvo. At the time of incorporation its goal was to become world leader within its market segment. After completing a major acquisition in early 2008, KA became part of the top 100 automotive suppliers in the world. For some time it has been a market leader within some of its core areas, gear and clutch actuation. It is a supplier to all the major car makers world-wide, and has been able to cope with constantly decreasing costs in the automotive industry at the same time as it has managed to increase returns (Annual Reports).

KV's former subsea division (KOS) is today owned by the US-based FMC Technologies. In total, FMC Technologies employs approximately 13 000 people and operates 33 manufacturing facilities in 19 countries. KOS makes up the largest part of its business area Energy Systems and Services which accounts for about $\frac{3}{4}$ of FMC's total revenues.²⁶ Today FMC is the world leading supplier of subsea systems to the oil and gas industry with a market share of 40 per cent. FMC has met the expectations of the finance markets. In the five years period since incorporation in 2001 the company doubled its total turnover, and in 2006 its return on investment was some 20 per cent. Since 2000/01 the energy business and in particular the subsea part, which is largely operated from Norway, has been the main driver of growth of the entire MNC. In this development KOS has played a key role. Fortune Magazine has named FMC three times (2005, 2006, 2008) America's most admired oil and gas equipment and service company ahead of renown companies like Schlumberger and Smith International. The evaluations are based on factors like innovation, management, and financial strength (Annual Report 2007, www.dn.no 17.3.2008).

The former gas turbine division belongs to the US based multinational company Dresser-Rand. Dresser-Rand is one of the largest suppliers of rotating equipment solutions to the energy industry in the world. The former gas turbine division employs about 100 people on a permanent basis, manufacturing is outsourced, but this unit has an annual turnover of more than one billion NOK (Annual Reports). Its gas turbines packages are delivered world-wide and after internal competition the Kongsberg division is the only unit within the multinational company that are delivering gas turbine packages. The Kongsberg unit proved not only to be

²⁵ A more detailed description is a global provider of engineering, design and manufacturing for seat comfort, driver and motion control systems, fluid assemblies, and industrial driver interface products (www.kongsbergautomotive.no)

²⁶ The other two business areas comprise Foodtech and Airport Systems

more cost efficient than the English, French and American units within Dresser-Rand, but it had also developed a better industrial concept based on a systemic approach. Although the North Sea has constituted an important market, in which the Kongsberg unit is the dominant supplier of gas turbine packages, it has delivered and is increasingly delivering packages world-wide (Annual Reports, interview evidence).

The Jet Engine Component Division (JET) is an independent company jointly owned by the Sweden-based Volvo Aero Corporation, a wholly owned subsidiary of AB Volvo, and the US-based Pratt & Whitney and it is named Volvo Aero Norway (VAN). VAN was started on the basis of offset work within the framework of the F-16 programme in 1976 and employs about 400 people. Due to the nature of business virtually all of its production is exported. Within this sector competitiveness is highly reputational and based on technological excellence. Within shaft design VAN has achieved world class reputation. Internationally it is known as a proven supplier for both military and commercial players, and is the main supplier of turbine shafts for Pratt & Whitney and General Electrics (Company accounts, interview evidence, US Department of Defense 2003).

Internationalization

For all these business units internationalization has been a pro-active strategy for benefitting from new opportunities. After a consolidation period the intensity of internationalization has increased markedly in the past 10 years: from being the state's technology developer they have reinvented themselves to becoming global players. However, their way of internationalization varies.

Today Kongsberg has operations in more than 20 countries. Access to markets and following-the-customer orientation has been an important driver in its foreign direct investments (FDI) implying that most of these facilities are to support local marketing and service activities. The customer orientation has largely determined the geographical distribution of FDI, and main operations abroad are located in the UK (oil and gas), South Korea, Singapore, and China (maritime), the United States, and Canada (defence and maritime). Assembly departments are established in China, India, South-Korea, and Singapore. But also local conditions have impacted on the mode of internationalization. For example, nationalistic industrial policies in countries like South Korea and China prompted Kongsberg to enter on joint ventures with

local partners. In 1999 Kongsberg together with Hyundai Information Technology founded Hyundai Kongsberg Maritime (HMK) in South Korea, the leading country in ship-building. In 2003 HMK merged with a South-Korean service company and the name was shifted to Kongsberg Maritime Korea (KMK). Its goal of becoming the preferred supplier of maritime electronics in South Korea has been reached. KMK is by far the largest supplier of maritime automation. Currently it has a market share of about 50 per cent. Representatives of Kongsberg point to the company's reputation for explaining its achievement. The company is known for delivering and for being highly reliable. The same strategy is pursued in China and Singapore. In China, Kongsberg has established a new company, Kongsberg Maritime China, together with a local player, Hoi Tung Marine Equipment. Also in these countries the aim is to become the preferred local supplier (Annual Report 2003 and 2004). More recently, the search for complementary knowledge and competence has impacted on FDI strategies. The acquisition of Gallium in Canada and GlobalSim in the USA are cases in point (Annual Report 2006). Kongsberg has only a few manufacturing facilities outside Norway. These are located in Scotland, Canada, and the USA close to customers. But due to recruitment problems Kongsberg's international activities have been stepped up. To ease recruitment Kongsberg has established engineering companies in Poland and India, and extended service operations in St. Petersburg, Singapore, China and South Korea to also include engineering.

For KA it was clear early on that growth had to take place abroad. Internationalization is perceived as a strategy for securing and improving its market position. As a start this concerned particularly the position KA had achieved with clutch and gear actuation. Acquisitions abroad were judged imperative to consolidate its position. However, this strategy has been guided by a meticulous assessment of appropriate acquisition targets. It took almost ten years before KA made its first acquisitions abroad. In 1996 KA acquired two companies in Sweden and one in England to strengthen the market position of its core products. These acquisitions also involved a new production line, seat comfort. But instead of selling this line, KA further developed it to the extent that the company has a strong position globally also within this market niche. The following year it acquired a company in the USA. By 2000 the company was a world leader in clutch actuation. But realizing that customers' requirements and expectations were constantly changing, KA saw the need of global presence, and picked up on a follow-the-customer strategy. From 1999 it has pursued an aggressive internationalization strategy by establishing new production facilities in Mexico, Poland, and South Korea. Further FDI include activities in China, the acquisition of a factory in Norway

and another one in England. In addition sales offices have been established in Germany and France. But being part of the highly competitive automotive component market means that cost pressure is increasingly influencing localization issues. As a representative of company phrased it: ‘the rule of thumb is set by the cost structure’. ‘If wage costs surpass 10 per cent of the sales price, off-shoring is considered.’

The fact that KA is a commercial success has facilitated the financing of its expansion. From 2001 to 2005 its EBITA increased from 5 to 12 per cent. KA’s long-term relation with a Norway based Private Equity fund, which ended in 2008, has been instrumental for its growth. Early 2008 a preliminary peak in its globalization strategies was attained when KA could conclude the buy of the automotive activities, named Global Motion Systems (GMS), of the US based Teleflex. GMS had been on KA’s target list for ten years. GMS was more than twice as large as KA in terms of production facilities and three times as large as to the number of employees. An exceptionally strong industrial fit between KA and GSM was the reason given. The two units complement each other in terms of product platforms and customer base, i. e. gear shift, seat comfort and fluid systems.

Like KA, KOS early on developed a vision of becoming a global player²⁷, but it chose a different internationalization strategy. Rather than constituting itself as an independent unit, the division preferred to achieve this goal by becoming part of a multinational company. Facing the situation of getting new owners, both management and employees engaged themselves actively in finding one. The US-based FMC, head-quartered in Houston, was preferred since it had complementary technologies and product portfolios. Jointly FMC and KOS would be able to deliver total subsea system solutions. As important was the fact that the American company possessed a global marketing organization that KOS needed in order to become a global player. However, during contract preparations it turned out that the head quarter wanted to restrict KOS’ market access to the North Sea. This was in direct opposite with KOS’ aspiration of becoming a global player. The clash over KOS’ mandate took place at several levels, and was spearheaded by the employees’ representatives. The Kongsberg people won through, and the head quarter accepted that subsea engineering and production should take place in Norway and that the subsidiary should keep its intellectual property

²⁷ After successfully finishing a breakthrough project in the North Sea in the mid-1980s, the employees then knew ‘what they would be when growing up: a leading subsea supplier globally’. ‘What was dim was then clarified’.

rights, expertise and patents. KOS was given the responsibility for supplying subsea systems world-wide apart from North America, which was awarded to the mother company. Moreover, the head quarter made the obligation to develop KOS internationally: its marketing organization should assist the subsidiary in internationalization. Lastly, KOS was denominated a Centre of Excellence (Dahling and Erlandsen 1999).

Why KOS won trough must be understood in terms of a reflexive learning process. FMC used to be a traditional manufacturing company. In its inherent logic assets were tangible. By visiting Kongsberg the head quarter's executive officers had the opportunity to observe a different world and a different logic. Instead of tools they saw that 'the main value went out of the door at four o'clock in the afternoon'. As the representative of the parent company expressed it 'KOS has helped us to see the big picture in subsea systems, with the emphasis on *systems*'. In the make-over process from a low-tech product-oriented enterprise to a high-tech systems supplier the head quarter recognized the fact that knowledge and competences are locally embedded and accepted the decentralization of technological excellence. Like Kongsberg other local sites were given the status of Centre of Excellence (Dahling and Erlandsen 1999). Recently the local manager was appointed senior vice president of the parent company, and most recently strategic responsibility for the subsea systems area for the eastern hemisphere was transferred to its Kongsberg premises.

The internationalization of the gas turbine division took place in a similar way as KOS, but pre-dates the privatization of KV in 1987. Lacking both competence and resources to develop a global marketing organization for gas turbines, which was considered too costly for only one production line, KV started actively looking for a partner in order to penetrate the US market. Dresser Industries expressed interests and purchased first 50 per cent of KV's shares in the Division in 1985. Dresser for its part wanted access to the North Sea oil and gas market. The remaining shares were purchased after KV was split in 1987. The organizational resources Dresser provided thus enabled the marketing of the Kongsberg gas turbine internationally. Since Dresser produced gas turbines of different sizes than Kongsberg, the company had the advantage of providing a wide range of products within this market segment. Dresser merged with Ingersoll Rand in 1987 and with the new name Dresser-Rand Company it was listed on the New York Stock Exchange in 1990.

VAN, which started on the basis of offset work within the framework of the F-16 programme, got a head start access as a component producer to the most exclusive part of the jet engine market. VAN made use of this opportunity by persuading Pratt and Whitney to adapt to VAN's production system solution as to shafts, vanes, and cases. By targeting the civilian market it was able to further develop expand business. Since the design of jet engines are extremely costly and technologically extremely demanding, development processes take place as a partnerships between jet engine manufacturers and component suppliers. Due to world class reputation VAN has managed to conclude development contracts and deliveries to the foremost customers in this market. These connections have been crucial for this unit's existence since Norwegian authorities have failed to share risks in its technological development. Although risk sharing between customer and supplier is fundamental, the supplier's competitiveness is based on technological excellence in strategic areas. Today deliveries to the civilian market make up about 80 per cent of its sales.

Customer Orientation

The five Kongsberg units have pursued different modes of internationalization, but they share one common strategy: a strong customer orientation. In a recent survey enterprises at Kongsberg indicate that foreign customers constitute the most important group with whom they cooperate in innovative activities (Oxford Research 2006). They also indicated that this kind of relations had resulted in increased sales of products and services, and enabled them to enter new markets and gain new customers. This approach is consciously cultivated. Kongsberg maintains that it cooperates with customers more than most firms in their business areas. KOS states that close relationships with customers constitutes a cornerstone in their business strategy and it assumes that it has been able to form more types of cooperative arrangements than any other player in its sector (FMC Annual Report 2004).²⁸ KOS began working in integrated teams with customers in 1994.

For the Kongsberg units a pro-active customer approach implies working closely together with the customer. Their orientation is experienced based and is found to be indispensable in

²⁸ This is how the business units present themselves: Dresser-Rand: Delivering systems and business practices that provide value to all participants (www.dresser-rand.com). VAN: To innovate customized partnership solutions and being the best partner. (www.volvo.com). Kongsberg: the best partner, the preferred supplier or the best alternative; FMC: customers most valued supplier; KA: the best alternative for our customers; Dresser-Rand: value for all participants.

improving competitiveness. Through assigned projects the workforce learned that knowledge sharing and exchange in team was instrumental for practical problem solving. Moreover, accumulated skills and knowledge in one project upgraded the organizational competence and prepared it for solving increasingly complex problems. The method developed implied new ways of involving the customer. When assigned a project the people in charge may not have any idea of what the result is going to look like, but ‘technological solutions are found in the intimate cooperation with customers (Kongsberg Annual Report 2006). The point is to get an in-depth understanding of the customer’s most critical needs. In their own words the Kongsberg people say that the first step is to get to know the customer as well as possible and at the end to have a deeper understanding of the customer’s situation than the customer itself.

Cooperation with customers started way back in the KV period and has over time changed its nature. In the first stage it took place as licence production. In the 1950s KV started licence production for automotive components for the Swedish company Volvo that needed to expand its production capacity. KV’s experience of repetitive production facilitated the establishment of this sort of scale production. KA’s present leadership in clutch servo and hydraulic gearshift started as a licence production for Volvo in the 1970s. In the 1950s KV started production of air defence cannons for the Swedish Bofors company that introduced KV to number technique in manufacturing. Later on this competence formed the basis of KV’s development of computers.

A next stage started around 1960 when KV was assigned a project that entailed the development of a ‘tailor-made system’ for the Norwegian Defence. The project, Terne, concerned an anti-submarine weapon system and KV was to develop and adapt the system for production and installation. Terne was a highly complex system and required the combination of knowledge from different disciplines that went far beyond in-house resources. Until that point of time KV had basically been a mechanical workshop. For transforming and upgrading activities KV started to recruit engineers from the USA and UK and to support relevant research projects. The Terne project impacted strongly on KV’s future role, identity and on the organization of work both internally and externally. It induced processes of cooperative interaction with customers, both also with other types of partners due to the need of complementary technology (interview evidence). Thus, from being instructed by customers what to do, KV changed its role to take on responsibility for developing customized products and services.

To develop Terne, KV's project team collaborated with research teams at key technological institutes in Norway such as Sintef and Christian Michelsen's Institute in addition to the Norwegian Defence Research Establishment (FFI). Two companies, Simrad, a small Norwegian company and an American one, both with expertise on subsea acoustics, were also engaged. In the production process the developers interacted with skilled workers thus pioneering a type of simultaneous engineering. Installation work was sub-contracted to suppliers of sub-systems. Sub-systems were partly acquired abroad, from the USA, the UK and the Netherlands. Activities within the framework of NATO facilitated the search for complementary cutting-edge technology. The transnational community related to NATO provided Norwegian research and industrial communities with a good overview of where to find relevant expertise internationally. The NATO framework was also important for gaining new customers and markets and providing a search-network. For example large projects such as the F-16 necessitated interaction with about one hundred different US based companies. Equally important was the fact that this framework also made it possible to be connected with 'world class' customers and partners. It became a rule of the game in the Kongsberg community of practice²⁹ not to cooperate with the next best only the best (interview evidence). For example, through the Norwegian Defence KV was able to establish links with leading defence contractors in the USA like Hughes and Raytheon. These relationships have persisted for decades and have facilitated access to new customers and markets.

The customer orientation has not taken place as a sequential process, but has over time been repeated from business area to business area. For example the subsea division started as a licence producer of well heads for Cameron Iron Works. Gradually this cooperation expanded to include first sales and in the next stage product development. On the basis of this cooperative interaction, the assignment of pre-projects and engineering tasks for oil companies the subsea division systematically assembled knowledge of subsea oil and gas production systems. This systematic search period lasted for about ten years. The work for Shell and Statoil in the North Sea in 1984-87 represented a breakthrough for the division's role as a system supplier, particularly the Gullfaks project. The project comprised the first diverless subsea solution that covered even unforeseen underwater difficulties. To solve the assigned project KV formed a joint venture with the UK based TRW Ferranti and the two companies established a subsidiary, Kongsberg Subsea Controls. Thus, through active

²⁹ Community of practice refers to socio-cultural practices that emerge and evolve when people who have common goals interact as they strive towards those goals.

interaction with customers and business partners KOS developed from being a licence producer to becoming a system supplier i. e. having the responsibility for designing and delivering subsea control systems.³⁰

By deliberately seeking more demanding customers, the Kongsberg units have been able to upgrade skills and knowledge. Today the customer approach is a strategy for continuous improvements and innovation.³¹ Products or systems produced are not restricted to the value of themselves, but products and services developed for one customer can be used in such a way ‘that (it) leads to innovations that are applicable throughout the industry’. This can be secured in the contractual agreement where the supplier retains the right to commercialize new technology against paying a royalty to the customer that has paid for the development (Kongsberg Annual Report 2005). In this way distinct projects form part of a long-term process of technological development in which competence is accumulated at the organizational level. Through close interaction with customers the Kongsberg units have been able to change their roles, identities and tasks. From being a licence producer they are today capable of solving problems ‘the customer does not know of himself, and to present the customer with a vision of future change’. Based on excellence in some core technologies the units can deliver a wide set of customized products and services. The flexibility linked with this type of production system has proven capable of taking advantage of new possibilities – ‘to be prepared for the unknown’.

System Suppliers

To a large extent the Kongsberg units also share the same business model: the supply of integrated systems. The system approach implies creating unique products by combining different knowledge and providing services related to unique products. The understanding of systems originates in KV’s work on developing weapon steering systems, but the system

³⁰ Subsea systems comprise subsea wells for the production of oil (the extraction) and the further processing of it, including oil, gas and water separation. This takes place in so-called subsea trees and manifolds. The inner part of the physical outfit is filled with complicated electronic control systems.

³¹ Co-creating products and services with customers can be fraught with challenges and a central theme in collaborative activities is ambiguity and their provisional nature (cf. Sabel et al. 2000). Collaboration can be hampered by struggles for influence, provisions relating to property games. Large companies might pass on innovation costs to their suppliers, but firms may also appropriate innovative concepts or product ideas. One solution found among the Kongsberg units is to secure further use in the contractual agreement. The supplier can retain the right to commercialize new technology against paying a royalty to the customer that has paid for the development (Kongsberg Annual Report 2005).

template also evolved from practice. For example, KOS lost an important contract due to opposing interests and strained relations with a partner. This experience taught employees a lesson about the importance of owning and controlling the technology. In their own words they started methodically to amassing knowledge about ‘how things work’, product group after product group. In this perspective system engineering is also a method for reducing risks in inter-firm relationships that are becoming increasingly fluid in global supply chains. Being able to control the design and construction of integrated systems has reduced uncertainty in the relationship with customers and partners. In highly costly projects such as the production of subsea projects, or gas turbine packages, costs may amount to billions. The Kongsberg units themselves maintain that system engineering has been instrumental for reducing risk substantially in innovation.

Yet, system engineering does not preclude fluidity in the division of labour in inter-firm relationships. In searching for new opportunities and for reducing costs, the Kongsberg players are continuously changing their business concept. As the CEO of Kongsberg phrased it ‘the more complex packages we can deliver, the more our share of value added will increase’. ‘It was a truism in the 90s that it paid to move as high up in the value chain as possible. But since ‘everybody’ now is engaged in system integration the margins have fallen, and we are instead focusing on ‘in-sourcing’, i.e. creating products with high competence.’ KA is also emphasizing in-sourcing in describing the nature of their system solutions, and pointing to the general trend from producing components to designing and manufacturing systems. Changing points of reference are prompting the adaptation and re-composition of relational interaction whether to be collaborative, arms-length, in-house activities or the subcontracting of volume of standard components. However, there seems to be a general trend that intensified collaboration in global value chains increases the need of in-house R&D activities.

Investments in R&D

All the Kongsberg units invest above the national average in R&D. Moreover, survey data indicate that in-house sources of ideas are almost as important as ideas from customers (Oxford Research 2006). On top is VAN that has invested some 20 per cent of its turnover in recent years. This high share reflects the buy of partnerships shares in the development of jet engines. Kongsberg invests about 10 per cent operating revenues for the development of new

products. This amount is considered necessary for sustaining a sufficient, modern and cost effective product portfolio (Annual Report 2006). For KA long-term in-house development is considered a vital part of its business strategy. In-house product development has been a key strategy for accessing new customers and markets and for meeting customers' changing demands. By systematically developing unique products the company has been able to produce products, as they say, that 'impress our customers through innovative solutions that create customer value'. Today 90 per cent of what the company is manufacturing are own products. One such unique product is the use of a highly flexible hydraulic technology in gear change systems. KA is the only supplier of this system in the world. Typically, investment in in-house R&D is mainly done by the business units themselves. Public R&D makes up only a minor part of the R&D work carried out. However, the public research system has been of importance for the supply of competent workforce and research institutes as partners in commissioned projects.

External Partners

Collaboration with R&D institutions dates back to the seminal Terne project. The Norwegian Defence Research Establishment (FFI) designed the Terne prototype in the late 1950s. Particularly FFI has been important for KV and its successor companies, but early on other research institutions such as Sintef and Norway's Institute of Technology (today Norwegian University of Science and Technology) were also of importance for the transfer of technological knowledge. Cooperation and knowledge sharing between KV and these institutions have been crucial for technological achievements. For example, in 1967 KV was among the first companies in the world to launch a CNC tool machine for the mechanical workshop industry. Successively, KV's core competence in control systems has been adapted to several markets and customers: in navigation, in systems for dynamic positioning; and in maritime control systems and so forth. Based on the same core competence KV managed to develop a gas turbine, which later enabled KV to produce components to jet engines components for the F-16 programme. The CNC tool machine project was linked to a large technology programme, the Numerical Control System Project, that involved the most important technology and science communities in Norway (Sødahl og Brataas 2005). Thus, despite the dismantling of the technology programme in the 1980s these network contacts have been maintained. For example VAN states that its cooperation with Norway's Institute of Technology and Sintef has been crucial for the development of the jet engine components.

Cooperative R&D activities have not taken place exclusively with research institutions. In fact, a substantial part of R&D work is carried out as partnership projects with customers and other business partners. As indicated above, on the Norwegian shelf the pro-active interaction with customers was expanded to also include development projects. This form of cooperation was institutionalized as framework contracts, an institutional arrangement and risk sharing system that has helped Norwegian offshore technology to its current leadership. It started with the introduction of the first Technology Development Agreement between KOS and Statoil in 1994. A year later Mobil, Elf, and Shell joined the agreement. In 1996 Dresser-Rand concluded a framework contract with Statoil. The aim of such joint projects is to further develop inventions and technological solutions for perceived future challenges. Much of Kongsberg development work occurs in this form, and roughly about a half of investments is customer-funded. One example is the development of the autonomous underwater vehicle Hugin. This started as a collaborative project with the Norwegian Defence Research Establishment (FFI), Norwegian Underwater Intervention, and Statoil in 1995. The project represented a continuation of a small underwater vehicle developed in the mid-eighties. Today the Hugin concept is a leader within this market niche (Kongsberg Annual Reports).

Over time KV's number of collaborative partners increased and comprised a growing number of partners abroad. For example the cooperation with Germany and Siemens in the mid-1970s introduced KV to the micro-processing technology which resulted in the Supervisory Control System. Foreign collaboration included also the funding of projects. The jet engine division benefitted greatly from two US Air Force funded projects in the late 1970s: ICAMIC (Integrated Computer Aided Machining in Cells), and RAMIGO (Robotics and Measurement in Grinding Operations). Both projects targeted work practices and organization in the manufacturing of components. Today the Kongsberg units cooperate with research institutions world wide; they form part of transnational consortia participating in the EU's research programmes; Kongsberg has established a centre of expertise in software in Bulgaria and is about to establish a similar one in India.

The American connection has been crucial for the development of the defence business, but it has been helpful also for accessing civilian markets. 1979 the Norwegian Armed Forces (NF) commissioned Hughes Aircraft Corporations to develop the specifications for a new command and control weapon system. The implication of KV's participation in this project was continuous cooperation with Hughes and other key contractors in the American defence

industry like the Raytheon corporation with whom KV/Kongsberg have cooperated since 1984. In 2005 this cooperation was renewed with the signing of a 10-years contract. Since Kongsberg itself is having insufficient marketing and sales resources these relations have been crucial for increasing its market shares and obtaining information about opportunities of changing markets and technologies. One recent opportunity, following 9-11, is to develop a system of defence of civilian airports in the United States (Kongsberg Annual Report 2006). The fact that 25 per cent of Kongsberg's export incomes derive from the US market indicate the importance of these relations (Kongsberg Annual Report 2005).

Cooperative interaction is also taking place at the local level. Project-based operations imply the outsourcing of a number of activities, for example Kongsberg's manufacturing workforce has been reduced by one half in the past decade, and standard products and components are increasingly sourced externally. Kongsberg is purchasing all sorts of different items and devices from more than 2000 local firms: machines, automation systems, computers, cables, software and so forth. But there is no definite answer to the 'make-and-buy' dilemma (Kongsberg Annual Report 2006), and most purchases occur as arms length type of transactions.

Whether assignments involve collaborative interaction depends both on the type of delivery and the sub-supplier. Many supplier firms are small and medium-sized and spin-offs of former industrial enterprises, including Kongsberg itself. Some are willing and able to take part in processes of co-design, others are not. The nature of customer-supplier relations can be an issue of resources, but can also be an issue of small- and medium sized firms' orientation. In general it is taken that sub-suppliers' early stage participation in projects can have a positive impact on both quality and costs. But the fact that sub-suppliers lack relevant competence hampers the effectiveness of disintegrated supply chains. To some extent such bottle-necks are sought resolved in inter-firm relationships. VAN, for example, has provided both financial resources and competence to sub-suppliers (Fraas 1999). KOS has made some of their contract manufacturers partners to spur upgrading, and is encouraging sub-suppliers to take part in processes of co-design. KOS has about 185 qualified sub-suppliers in Norway. Examples of firms benefitting from close cooperation can be found. At least one of KOS' partners has become system supplier and a global player in its own right. There are also examples indicating that local interaction can be highly beneficial for both partners. The idea

for Kongsberg's most recent success, Protector³², derived from a local partner, a small company specializing in defence equipment. The extent and quality of such inter-firm activities is unknown.

Decentralization and flexible work organization

The system of disintegration global supply chains rewards quick responses and the capability to adapt to varying situations. When explaining achievements, representatives of the Kongsberg units themselves point to organizational effectiveness: 'we are quicker, more flexible, faster in making decisions, and we communicate fast in an informal way. It is the way we communicate'. Such statements reflect key managerial and organizational challenges in global supply chains: the capability of coordinating decentralized activities world-wide. The globalized economy's exigencies of constant innovation and cost reduction, competitiveness depends utterly on co-workers' creativity and dedication to solve problems.

KV used to be a hierarchical industrial company, and all the successor units have a hierarchical organization, although a relatively flat one. Work practices and organizations have been and are subject to recurrent reforms and improvement. A common trend has been the decentralization of resources and responsibility, the team level constituting the most decentralized entity. Project operations imply that work is organized in teams, and the team level constitutes a key organizational principle: the interface between all sort of activities and levels internal as well as external. During the KV period multi-tasking operations made centralized decision-making ineffective, and teams and individuals were delegated a high degree of decision-making. Until recently, all the CEOs used to belong to the same community of practice linked with KV. This sensitized them to the importance of responsibility, openness and trust, and it appears as decentralization processes have been taken for granted as it is indispensable for creativity and problem solving.

³² Protector is a remote weapon station developed to protect troops in armoured personnel carriers. The idea developed by the small firm intrigued a couple of 'front-liners' within the Kongsberg company. They got the CEO's permission to try to sell it to the US Army. When they returned with the prospect of contracts worth billions, everybody was surprised. The idea was then further developed and in 2007 Kongsberg concluded a NOK 8 billion framework agreement with the US Army for the Protector. The weapon station proved to be highly advantageous in the US' warfare in Iraq. The weapon station is now sold worldwide and the growth of this product has prompted the division of the Defence and Aerospace business area. The small firm that developed the idea has become rich thanks to royalties.

The composition and size of teams vary within and across firms depending on markets and tasks. In Kongsberg, KOS, and Dresser-Rand most operations are project-based and teams are continuously recomposed. In Kongsberg, KA and VAN, that are also running manufacturing facilities, teams are mainly divided either in production teams or development teams, but can also be formed ad hoc. The size of teams can vary depending on complexity and size, ranging from NOK 10 000 to one billion. In Kongsberg it is the task of the team manager to pick people with relevant expertise. This has been possible in a situation where ‘everybody knows everybody’. Kongsberg has a reputation for successfully combining teams, and management has dedicated attention and resources to secure their functioning. The company has initiated its own education in project organization. KA, on the other hand, tends to maintain teams on a more permanent basis. This is also the case with Dresser-Rand, but it has started experimenting with rotating people in order to provide employees with a better overview of the totality of tasks. This is taken to enable the organization with a more flexible use of its people.

All the Kongsberg units are stressing the importance of collaboration within teams. In Kongsberg project work starts with team building in which people as a start get to know each other, and although the team manager has a key role, the principle of shared responsibility and collectivistic behaviour is considered fundamental. As a project co-worker put it: ‘we are supposed to enrich and upgrade one another and to pull one another forward’. In Dresser-Rand it is stated that everybody is to participate, to give one another collegial support and pull together. ‘Together we achieve things, and there is very little of this is not my job.’ VAN is also pursuing a policy of involving everybody and refers to the ‘spirit of dagnad’ (teaming-up) in teams. In KOS the sense of all-for-one and one-for-all is deliberately cherished. Teams are made collectively responsible for their work, meaning that nobody is hanged in case of failure.³³

The collectivistic orientation is understood as fundamental for processes of problem solving: the practice of knowledge sharing has formed an essential part in the development of technologies and new products. Knowledge sharing takes place both formally and informally.

³³ Norwegian workers discovered the advantages of risk sharing when encountering American work culture in the North Sea. ‘The Americans, and particularly the Texans, were obviously prisoners of their own system’. The personal consequences involved with failure in American corporations induced a behaviour that was basically preoccupied with protecting themselves and their jobs, in other words defending established practices. The resultant outcome was, in the eyes of the Norwegians, an archconservative approach to innovation.

In 1997 Kongsberg established a new organizational principle: the decentralization of decision-making and functions. The different business units and product groups were given responsibility for various tasks. However, decentralization was given on one condition: the units were to allow 'technology to flow freely' (Hattestad 1998:42). Two factors have been crucial for the Kongsberg units' capacity for knowledge sharing: experimenting in work organization and systematic training and education of employees.

The Kongsberg units can draw on a protracted tradition in work organization experimenting. For example, production cells were pioneered in Norway in the jet engine division in the late 1970s. New organizational principles were to improve efficiency. But as important were the norms and values that informally evolved within the community of practice. The implication of this culture together with project operations represented a break with a rigid understanding of roles and routines. Projects normally involved the cooperation across professional divides, across divisions and with extra-firm expertise. 'At the time there were open doors throughout the whole company, so we could simply walk into any workshop and get a problem solved. The foreigners couldn't believe their eyes' (Dahling and Erlandsen 1999). Simultaneous engineering was practiced already in the Terne project in the early 1960s (interview evidence), and today operators and engineers are encouraged to cooperate. All sorts of employee groups are invited to participate in improvement work and particularly in pilot projects. Most employees find such challenges rewarding and only a small minority prefer to stick to routine tasks. The principle of 'broad participation' has also been facilitated through formal organization changes by removing the social division of the work force. For example Kongsberg has institutionalized the same working hours and the same sort of employment contract all sorts of employees.

Thus, a forceful factor underlying the Kongsberg units' achievements is the set of informal norms and values that evolved within the community of practice linked with KV. This culture has been instrumental in several respects. A key principle has been/is 'there isn't anything was cannot solve'. Today representatives of this community will tell that 'we solve anything from the seabed to the moon'. This sort of adventurous spirit – well embedded in the national tradition of explorers - has been cherished in KV's managerial practice. Employees were pushed to develop new projects and business opportunities, and 'people went to the task with a pioneering spirit and enthusiasm'. Management's response to challenging projects and even 'wild' ideas was 'go ahead'. Given responsibility of projects provided employees' with self-

confidence. In the words of one of the CEOs: ‘No one can become a world champion without feeling secure’. Such orientations helped creating a work organization that offered unique challenges and opportunities for talented young engineers world wide before the era of globalization. In the 1970s KV was the most internationalized company in Norway. The resultant outcome of the community of practice that evolved was a work culture and organization that in itself is driving improvements and innovation. For the successor units’ achievement this legacy has been essential. A driver underlying employees’ effort is their pride in solving problems and working in a positive and encouraging atmosphere.

Sustaining this type of work organization in an ‘everybody knows everybody’ situation is one thing. With increased interaction together with the creation of virtual work organizations world wide, the issue of team building and communicating has intensified. When most activities were co-located, the socialization of employees into the existing culture and work practices could function. Transmitting tacit knowledge and informal rules in spatially dispersed locations represent a different challenge. Typically, all the units are continuously experimenting with organizational principles and work methods to cope with exigencies of the globalized economy. Practices in project work are subject to alteration and new tools are introduced to improve efficiency and quality such as bench-marking and ‘best practice’. KA has over time been consistent in adopting lean principles such as Kanban, Kaizen Events, and Six Sigma. To ease information and interaction across divisional divides for increasing efficiency, different types of data systems are used, one being to increase the visibility of co-workers knowledge and experience across the entire organization. To improve software development Kongsberg has introduced the Capability Maturity Model (CMM), the world most used tool for process improvements. Through the cooperation with Raytheon Kongsberg has been introduced to lean methods. In project work iterative development is employed which allow the teams in a pragmatic way to monitor and assess each phase of a project as well as its totality (Annual Reports, interviews).

Kongsberg is also experimenting with creating improvements with ‘agile’ methods. This experimentation is linked to a national project, and is tested in Kongsberg Spacetec to improve software development. The method is based on employees working in 30-days cycles with 15 minutes project meeting every day, and a four-hour meeting every month that is also attended by the customer. The system allows swift responding to any changes ordered and to deliver accordingly rather than in accordance with contract specifications. This method is

used in two pilot projects, one being the modernization of NASA's ground stations, and the other an in-house product development project. The method increases the visibility of participants and facilitates communication. It focuses more on results rather than methods, and is based on individuals' action and the interaction between them. Another important dimension is the principle that change are normal and that participants can make changes into a useful process (Kongsberg Annul Report 2006).

Education and Training

To sustain a learning organization all the Kongsberg units are making considerable investments in the further training and education of employees. Education and training include all sort of employees in a 'lifelong learning' perspective. Constant role shifts require the upgrading of employees' skills and knowledge, but internal training also represents an institutional arrangement for transmitting 'the Kongsberg way' of operating. Furthermore, in a highly competitive labour market at the national level, company level education is a strategy for retaining the work force. To a varying degree the units have been facing increased turnover. The units' educational systems have over time evolved as responses to situational challenges.

In 1998 Kongsberg established the Kongsberg School to manage all education and training activities. The School's mission is to organize and coordinate training and educational courses for employees. All new employees receive at the start a six months training programme. Engineers are trained at Kongsberg whereas operators receive on-the-job training. The company has a programme for active searching management talents and run tailor-made management development programmes.

KA introduced a trainee programme in 1994 targeted at tertiary educated engineers. This programme was institutionalized in such a way that all trainees receive two years' education and training in all functional areas as well as international practice. In 1995 management started systematically to map all employees' competence. At the same time they started compiling expertise requirements for different positions and comparing them with the employees' profile. In case of disparities, these are rectified with training measures. Employees' competence profile is also used for evaluating future need of competence. On the basis on such evaluations the company construct development programmes, which are partly

obligatory partly facultative. Training is also linked with remuneration in order to encourage employees to develop their skills and creativity. This is a measurement to support KA's belief in principles of delegation and personal responsibility. KA sets individual targets and standards for all employees and in return provides support for employees to master their job and for reaching personal career goals.

FMC/KOS is operating an Annual Performance Appraisal which is used both to evaluate and map the company's competence and to develop career development plans for the employees. Employees are offered further education support and scholarship schemes. To promote competence upgrading the company is practicing job rotation, trainee schemes and buddy/mentor schemes. Dresser-Rand is also encouraging employees to use the firm's fully paid tuition reimbursement programme for continuing formal education. It offers internal training provided by external experts as well as the attendance of professional development programmes world-wide.

Typically, company level education systems have evolved unilaterally. This development pattern deviates from what is the case in the other Nordic countries and particularly in Denmark where local organizations and institutions jointly reform curricula and educational courses. To the extent that the units are using external providers, international providers appear to be favoured to Norwegian ones suggesting a gap between the public educational system in Norway and the needs of knowledge-intensive globalized companies. However, this gap appears to be valid for different types of professions. As KA puts it 'knowledge acquired at school is considered to have a 'shelf life'. It is indicative that VAN has to train operators themselves. As will be explicated below, there are some signs that this situation may change.

The construction of social structures

The Kongsberg units are integrated into different global value chains and processes of business renewal have taken place unilaterally. Yet, a pre-requisite for achieving global visibility from a peripheral location is the existence of decentralized social structures. The existence of social networks and a critical mass of firms have been crucial for creating a local labour market (cf. Casper 2008). Today more than 100 firms are co-located at Kongsberg. The educational level of the local labour market is unique. More than sixty per cent of employed people have an education above the bachelor level which is exceptionally high for a

small town of approximately 23 000 inhabitants situated in the ‘middle of nowhere’. Kongsberg can not benefit from proximity to a university (Kongsberg Chamber of Commerce and Industry Project 2006). But the critical mass of firms provides a variation in job opportunities that facilitates the recruitment of competent labour, at the same time as fluctuations in the need of labour can be offset between companies.

The existence of social networks has an important function as to informal information sharing across firms. The inherited social ties from KV have been vital for the creation of social networks, and these ties have formed the basis for action taken to engineer social structures and orchestrate the development of the Technology Town. After KV was dismantled the different successor units co-created Kongsberg Chamber of Commerce and Industry. One of its first tasks was to support business activities internationally. Over the years this institution functions as a sort of organizational framework for joint action to solve common problems locally: to improve and extend social services and to improve the attractiveness of the town by supporting infrastructural and cultural arrangements. Understanding the needs of globalized businesses appears to be a challenge for players at the municipality level. Social services initiated within this framework are to support people working in globalized businesses: an international school for the children of foreign employees, a day-and-night kinder garden, and tailor-made programmes for expatriates and their families to make the transition to Norway as smooth as possible. The expatriate programme includes all sorts of practical counselling such as dual career support and language classes. Activities for developing the Technology Town also include initiatives for creating an attractive and innovative business environment in order to attract new firms and support start-ups. The Chamber of Commerce organize networking between large and small firms and provides cross-sectoral meeting place, organize annual conferences, courses and study trips.

Recently, the major Kongsberg units together with the Chamber of Commerce and the local college were designated one of six National Centres of Expertise. Within the framework of this programme the units and the college has jointly developed a Master Programme in system engineering with the aim of developing it into a doctoral programme. To quality assure the education the local college is cooperating with Stevens Institute in the USA. The business units’ cooperation with the local college represents a new development trend. This action appears to be part of a trend taking place across the country. Until the late 1990s the recruitment of labour locally could be done without problems. Recruiting and retaining labour

has become increasingly challenging, and has prompted various initiatives such as cooperating with and supporting activities within the public educational system. However, pro-active local or regional support of globalized businesses is hard to detect, and reforms in the multilevel governance structure have partly impeded a shared understanding of the situation to the extent that potential public-private partnership projects have failed.

Comparing Institutional Reforms in Norway with Reforms in the other Nordic Countries

The account of the Kongsberg units indicates that business renewal is largely taking place without strong links to the economic governance regime apart from some activities linked with the extraction of oil in the North Sea. This suggests that public and private resources are not pulled in the same direction and that innovative firms in Norway to a lesser degree than innovative firms in the other Nordic countries can share risks with the public. The way research, education, and active labour market policies are managed and organized, supports such a view.

The public research system

When Sweden and Finland stepped up their investments in R&D in the 1990s, Norway's research policy went in the opposite direction. Government even cut back investments in industrial R&D. As mentioned 'the market' was to govern economic development. This reorientation was the result of an ideological clash between neo-liberal inspired groups within the administrative and political elite and the group of 'technologists'. The latter lost with the consequence that economic policies narrowed down. Despite recurrent policy statements of increasing investments in R&D, Norway's investment rate is less than 1.7 per cent of GDP, the rate has remained low in spite of Norway's unique financial situation.

Low spending on R&D is often explained by low investments in the private sector. It is true that R&D spending in the private sector is lower than can be explained by Norway's peculiar industrial structure (OECD 2008). In comparison with the other Nordic countries, the private sector's share is low in Norway, it accounts for about half of total spending in contrast to for

example the one in Finland that rose to more than 70 per cent already by the end of the 1990s. Nevertheless, it remains a fact that Norway spends less on total R & D per capita than the other Nordic countries although government spending is almost levelling the other Nordic countries in terms of amounts invested.

Moreover, both international and national reports point to low efficiency in the management of public R&D spending: too low coordination and too detailed control by the central administration. But OECD also criticizes the public research system for having developed symbiotic ties between the public research agencies and the large state owned companies, thus locking research into established trajectory. Moreover, recent reports conclude that less than half of money allocated through a governmental body went to innovation projects. OECD also finds that R&D carried out by the large companies is too less integrated into international networks (OECD 2008). In Norwegian research communities there is fear that key business players may off-shore research tasks, which also has happened.

Norway also prioritizes her R&D investments differently than the other Nordic countries. Norway spends far more on university research, mainly social sciences, and on welfare research than on science and industrial research. Since the early 1990s the system of higher education has increased its share of public spending at the expense of industrial research (OECD 2007:129, Kallerud 2006:15). Yet, only exceptionally are Norwegian research communities ranked among excellent communities internationally. In a recent European scoreboard only biology at the University of Oslo obtained the status of excellence (www.che.de).

As to prioritization the public research system in Norway plays a different role than in particular Finland and Sweden. In both these countries, research policies have made up an essential part of national innovation policies. Particularly in Finland was the research policy instrumental in transforming the economy in the 1990s.

The educational system

Norway's prioritizing of education has made it one of the top spenders among the OECD-countries. Norway invested 6.2 per cent of GDP in 2006 against the OECD average of 5.7 per

cent (OECD 2007). Spending is particularly high as to primary and secondary education.³⁴ Although spending relatively less on tertiary education, Norway has a higher share of the population with tertiary education than almost all the other OECD-countries (Salvenes et al. 2008:8). The public education system has provided the Norwegian economy with a workforce with a high level of basic education enabling people to navigate in a changing world. By international standards this highly educated workforce is also ‘cheap’, thus constituting a competitive advantage for knowledge-intensive enterprises. It is likely to argue that a highly qualified workforce is a driver in ongoing transformation of business in Norway.

Nevertheless, there are reasons to question the appropriateness of the public educational system. An increasing number of studies indicate that the Norwegian education system is not as fit as has long been assumed. The PISA comparative studies have served as an eye opener as to primary and secondary education. The first study, published in 2002, showed that the achievements of Norwegian students were below average. The second PISA study showed that the performance of Norwegian students had even deteriorated since the first one. Nor has the education system fulfilled objectives as to social equalization as there still is a correlation between school performance and family background (www.udir.no/skoleporten).

Thus, despite generous spending on education, and despite recurrent reforms to improve the system, only during the 1990s as much as three major reform programmes were implemented, Norway has failed to secure the quality of education of all social groups, just like many other western industrialized countries. An important challenge is an increasing number of drop-outs from the secondary level. Most of these are boys later found to receive disability benefits at a young age. Young people, and in particularly young men with low education, fail to be integrated into the labour market. Instead they are becoming members of an increasing group receiving social benefits. In 2001 this group numbered 700 000 and by 2006 it had grown to 800 000 despite attempts to stop it from growing.³⁵ The problem can also be related to the organizing of the vocational education and training system (VET).

³⁴ Particularly, primary and secondary education has been prioritized in Norwegian politics. It has been instrumental both in the processes of nation formation and in the process of constructing a social-democratic society. For this reason the Norwegian educational system has had a special focus on equalization, social solidarity, democracy, and personal development (Teige 2007:104).

³⁵ To secure a better coordination between health, social and labour market services in order to provide better and more ‘taylorized’ services for the people, the parliament decided in 2006 to merge the states bodies managing these activities. This major institutional reform is to be implemented within a three years period from 2007 to 2009.

The Norwegian VET system is considered to have low efficiency. Vocational schools and apprenticeships were regulated by different sets of legislation until 1980, but as a general principle skill training used to be the employers' responsibility. This state of affairs was understood to make the system unstable, to be subject to market fluctuations and employers' discretion. Trade union officials claimed that skill training was for the few and not for the many: since employers decided who should receive skills training or not, 'it was the face-factor that counted'. For example, in 1953 only 30 workers in the metal industry were receiving formal vocational training. But despite the fact that workers got a legal right to vocational training in the 1950s, not many workers were formally educated at the level of VET in the succeeding decades. Still in the early 1990s the majority of Norwegian workers were not holding formal trade certificates. At that time it was stated that especially young people had difficulties in gaining appropriate education and training that was attractive at the labour market.

In the early 1990s the VET system was radically reformed. Reform 94 was to transform VET from being a recruitment system to becoming an education system. The strategy was to forge tighter links between the apprenticeship system and upper secondary education. The structure was adapted to the new school system in which 16-19 years olds were given a statutory right to three years of upper secondary education. Although the number of apprenticeship contracts increased from less than 300 at the beginning of the 1970s to 13500 in 2007, an investigation of the system could not identify any positive link between Reform 94 and the growth in contracts. The current situation is that approximately 30 per cent of yearly cohorts complete an apprenticeship as a part of their upper secondary education. Moreover, only half enter into apprenticeship contracts at the normal age (Høst ed. 2008, OECD 2008). This situation forms a sharp contrast to the situation in Denmark where 60 per cent of young people between 17 and 19 years of age are enrolled in VET programmes.

Why Norway has failed to develop an efficient VET system is a complicated issue. But a comparison with the organization of the VET system in Denmark gives some clues as to the failure of the Norwegian system. In Denmark the trade unions have traditionally a strong voice in vocational in education and training. Representatives of employers and employees have majority seating on the boards of local secondary schools that provide vocational

training programmes. In Norway the social partners were entrusted with a high level of authority for the administration and control of the system until 1980 when a new act transferred the responsibility of VET to the level of county municipalities. In 1990 the new Local Government Act released conflicts between the county municipality education administration and the VET administration. Subsequently, the secretariat for the national VET board was formally integrated into the Ministry of Education in 1992. This transfer of authority has provided the state full control of VET. The argument for centralizing the VET system was the need for the educational authorities to evaluate more flexibly the ability of the trade structure to meet the labour market's demands. Critics of the centralization link it to the hegemony of school interests in the Norwegian educational administration (Høst ed. 2008). Whatever the reason, it remains a fact that the VET system has become de-coupled from the labour market and real-time work practices. This de-coupling has made employers losing their interest in the public VET system. Instead the social partners prefer an experienced based Trade Certification as a system of certification.

Active labour market policies

Educational reforms affected the system of further education and training as well. As pointed to in the Introduction, Norway curtailed the proportion of occupational training in active labour market policies from 1990 onwards. In the other Nordic countries, particularly in Denmark, the opposite happened. As indicated in Table 1 in the Introduction, Norway still spends far less on vocational training and unemployment than the other Nordic countries. This outcome is yet an example of inconsistencies and paradoxes characterizing Norwegian policies. Throughout the 1990s the Confederation of Trade Unions campaigned for Lifelong Learning. For almost a decade Lifelong Learning topped the political agenda. In 1999 a pact on further education and training, the Competence Reform Programme, between the state and the social partners was eventually achieved³⁶. This pact secured employees a statutory right to further training. However, the funding of the reform remains unsolved. The money the government allocated was mostly spent on bureaucratic arrangement, and consequently the whole initiative disintegrated in the early 2000s³⁷.

³⁶ When the Competence Reform Programme was evaluated, it turned out that among the 80 000 employees that had participated, most of these had a tertiary education and was employed in the public sector (Døving et al. 2006).

³⁷ This initiative earned Norway the reputation of being a frontrunner in educational policies, particularly in vocational education and training (Teige 2007, OECD 2002, 2000).

The claim is made that Lifelong Learning only was used as an 'exchange commodity' for controlling wage formation. It is a fact that none of the tripartite members showed any genuine interest in developing the programme. It has been a strong point of view among the polity and the bureaucracy that further training and education is firms' responsibility. But also the Trade Union centrally failed to gain support for Lifelong Learning. One reason was that Lifelong Learning was not embedded among the rank and file. When asked, trade unions locally would rather have money than skill training. It is also claimed that the Trade Union centrally was afraid that workers should gain so much competence that they would migrate to other and rivalling unions. It remains a fact that none of the social partners were genuinely committed to an active labour market policy similar to 'learnfare' in Denmark beyond its symbolic significance (Teige 2007, Døving et al. 2006, Nyen and Skule 2005).

Still, Norway scores high on international scoreboards of further education and training, particularly as to learning 'on the job'. Employees' participation rate is about the same level as in the other Nordic countries, but scores lower when the total population is counted. The reason for Norway's high scores is that adult training and education is largely paid for by employers. In fact, Norwegian employers' share of further training and education is the highest within the OECD area, but Denmark, Finland and the UK come close to the Norwegian level (Nyen and Skule 2005, OECD 2004). Typically, further training and education takes mostly place within companies, and rather than making use of public providers other companies, customers and suppliers constitute the most important external providers (Nyen and Skule 2005). When provided for by the public, training and educational activities are mostly restricted to employees with higher education in the public sector. This means that important social services are restricted to a small and privileged part of the labour market.

Thus, in comparison with Denmark, Norway constitutes a direct opposite as to active labour market policies (ALMP). The role ALMP plays in sustaining dynamism in the Danish economy is informative as to the importance of a system of further education and training in the new economy.

Emergent local initiatives

There is an increasing criticism of the different parts of the public education system in Norway. As many other western industrialized countries the Norwegian education system has problems in recruiting students to science and technology. But this challenge is greater for Norway since its share of students in these areas is lower than in comparable countries. The relative low return to education, related to the system of central wage bargaining, is seen as a challenge to develop and sustain a competitive knowledge economy. Another emergent issue is that students' basic qualifications match badly the need of companies. Claims are made that too few Norwegian students graduate with qualities that are relevant to innovative methods in companies (Andersson et al. 2004:37). To a large extent the higher education system in Norway is structured to provide a workforce for the public sector. Sixty per cent of academics are employed in the public sector.

Several sectors – engineering, ICT, biotech, pharmaceutical – have for a long time had problems in recruiting a qualified work force, and despite increasing unemployment, companies are struggling with recruiting people with adequate qualifications. Against this background several interest organizations are claiming the existence of a gap between the Norwegian educational system and the labour market's need of basic competence. Recently, the Confederation of Norwegian enterprises identified the competence gap as the biggest future challenge. This challenge does not only affect basic education but involves also the upgrading of employees' skills (NHO 2008)³⁸.

To recruit needed competent workers Norwegian companies are launching different strategies. One is to recruit workers abroad.³⁹ However, in certain labour markets, such as ICT, Norway does not appear to be an attractive location. Alternatively, some companies have established centre of expertise abroad and have tasks carried out in countries where workers come from such as Poland and India.

³⁸ This point of view represents a radical break in the strategic thinking of the Federation. Traditionally, cost cuts, mostly with reference to wages, has been considered the appropriate competitive strategy.

³⁹ To attract people to come to Norway some companies are offering extra money, and some companies have established own recruitment offices in India and some are actively calling on educational institutions to recruit students (TU 24/07, www.nrk.no 9.8.07).

A third strategy is to cooperate with a local education provider. For example to secure a competent work force, the Kongsberg companies have started a master programme in system engineering in cooperation with the regional college. The aim is to expand this master programme to also include a doctor programme. To assure the quality of the educational programme the local college is cooperating with Stevens Institute in the USA. Typically, until recently the Kongsberg companies considered the local education provider incapable of providing the students with a relevant and qualitative acceptable education. This sort of local interaction can increasingly be witnessed across the country. For example, in Rogaland local interest groups – politicians, business, academics - have cooperated for a long time on a more general level in order to boost business and to create new jobs. The regional interest groups rallied around the objective of establishing a university in the region (Gammelsæter 2002).

This sort of actions can be termed rebellion from the periphery. Local initiatives are seen as counter-action to central authorities' failure to adapt key macro-institutions to exigencies of the globalized economy (Sellers and Lindstrøm 2007). Such initiatives can also be witnessed at the sectoral level. Within the maritime cluster several firms have joined forces with the intent of funding ten professorships within or related to maritime disciplines. This is the biggest private investment ever made in basic research.

To sum up, this review of relevant social services supports the view that there is less risk sharing between the private and the public sector in Norway. In several areas there appears to be a mismatch between institutional resources and ongoing transformation internationally. One impediment for creating more experimental processes seems to be increased centralization in the system of governance. Within the framework of Norwegian authority pattern centralization can imply less capacity for cross-sectoral coordination and delegation. When this is the case, there is risk of developing lock-in situations.

A silent revolution in routines complementing business renewal

A contrary trend to centralization is found within the national system of industrial relations. As part of a broader movement within the Nordic countries, the trade unions have for a long time been engaged in workplace reforms. Within the broader movement it is taken that the decentralization of industrial relations and the emphasis on the articulation of local interests within the centralized structure of decision-making will impact on the advance of a new

production concept. Increased reflexivity in working life is seen to have an internal restructuring effect. The ability to monitor one's work from the perspective of the competitiveness of the company or the business unit have generated a new concept of production, in which the workers themselves are supposed to be able to reflect the needs of the customer. In this new concept new roles and identities, new working careers and professional identities are seen to have the potential of creating new possibilities of development (Kettunen 1998).

In Norway the tripartite programmes that were initiated within the framework of this movement were designed to include areas of productivity and adaptability, and to encourage the participation of all sorts of employees. Recent programmes explicitly stressed the participatory principle for innovation: to make cooperation instrumental for development, change, and innovation (Gustavsen et al. 2001). However, the effect of these experimental programmes on organizational change in Norway has been unclear, whether new forms of work organization had disseminated beyond the number of firms involved or not. National and Nordic level studies carried out in the mid- and late 1990s indicated low effect, that Norway was even trailing the other Nordic countries as to organizational flexibility (NUTEK 1999, Gustavsen et al. 2001). However, the last European Working Conditions Survey (2007) indicates that this state of affairs has changed (cf. Introduction). Norwegian employees, as the other Nordic ones, have the highest scores as to learning and work autonomy. These figures imply that Norwegian working life has been transformed in the past decade. This change process has occurred simultaneously with an intensified globalization. But paradoxically, this reform process has taken place with decreasing activity of trade unions locally particularly in knowledge-intensive companies.

Yet, it is likely to argue that the trade union's focus on broad participation – making cooperation instrumental for development, change and innovation - have facilitated new management templates and internalizing the interests of employees in how they are managed and organized when exposed to new challenges. The Trade Union centrally has a positive attitude to change and can in this way facilitate innovation at the firm level. This pertains particularly to the redefinition of work tasks in which representatives locally have a high degree of co-determination. The pro-innovation attitude counter-balances possible negative effects of employee co-determination. Instead of blocking change and the redefinition of tasks, trade unions can have a positive influence on firms' capacity for innovation. For

example when Terotech, a small engineering service company at Kongsberg, wanted to introduce an incentive based wage system this was accepted by the Union centrally. The incitement for changing the remuneration system stemmed from the firm's changing role vis-à-vis customers. Solving customers' problems in interaction with customers themselves required new and different competences from employees beyond standardized routines and technical tasks. Moreover, problem solving for customers involved the participation of all employee groups. To further cooperation between groups – to transfer the shop floor collective to also include engineers – the company wanted to introduce one single tariff system for all sorts of employee groups. This was accepted by the Union centrally. This orientation from the employees' side has undoubtedly facilitated firms' need for responsibility and functional flexibility.

A Summary: Can Dynamic Complementarities replace Contradictory Institutional Orders?

As a country to live in, Norway offers her population a good life: a high degree of social security and social services in terms of free education, maternity leave, child care, and high gender equality⁴⁰. As to institutional adaptation to ongoing transformation in the international economy, Norway demonstrates less malleability. To a lesser degree than the other Nordic countries has Norway evolved a welfare state that enables localities, firms, and citizens to master the exigencies of the new economy.

Yet, given the strength of the natural resource based economy, this study has revealed surprising ongoing dynamism in parts of the Norwegian economy. Norway's economic success relates to skills in the refinement of natural resources. By refining core technologies, Norwegian companies and public research institutions have jointly developed increasingly efficient manufacturing processes and at the same time extended the supply of resources. Well-known examples are fish farming and increased exploitation of oil resources in the North Sea. More recently, new application of a traditional product has emerged: the refinement of silicium wafers for use in solar cells. To what extent this new industry will be devoted to explorative activities as well as exploitation remains to be seen. The remarkable

⁴⁰ The statutory requirement of 40 per cent representation of women in corporate boards led to Norway being ranked as number one (www.weforum.org).

growth this industry has experienced is politically induced, and future growth is uncertain since the industry is still struggling with unresolved problems as to commercial viability.⁴¹

More surprising is the dynamism that marks the offshore sector. The emergence of an open and decentralized innovation system in which customers and subcontractors collaborate closely has turned the Norwegian shelf into an experimental laboratory. The concurrent restructuring of institutional arrangements – by turning lobby coalitions into a sort of communicative corporatist body – has facilitated transformation. Through joint efforts the offshore sector has redefined itself to the extent that it has become a global leader. The fact that growth has taken place mainly on international markets is clearly signalling that the sector has passed the ‘market test’. Leading players have reinvented themselves from being local suppliers to becoming global players.

The emergence of this competitive sector is triggered by public policies’ concern of extending the supply of raw materials. An unexpected outcome is that a number of firms have changed from process optimization to experimenting and continuous adaptation. Peripheral players have been the frontrunners in the creation of this new pathway. Our case studies have disclosed that experimentation is not restricted to players within the offshore sector, but players within the automotive industry and jet engine component industry have demonstrated remarkable achievements. Across the country there are occasionally similar surprising outcomes. One example is the emergent biotech cluster in Oslo. In 2008 this cluster was denominated one of the twenty most emergent dynamic biotech clusters in the world, and the only one in Europe by the international journal *Genome Technology*. Given generally weak university-business links in Norway and biotech businesses’ dependence on academic research, this cluster represents a novelty in the national business system.

⁴¹ In the early 1990s a small industrial community close to the polar circle was searching for new industrial activities to replace operations at one of the local plants. By chance the community formed an alliance with a researcher entrepreneur looking for a production site and the financing of the production of a new product: silicium wafers to the solar energy industry. The project got started through financing from the district development fund and local banks. In addition public money was granted for further training of the local workforce in order to support the survival of the community (Hansson 2008). This was the start of a company that today is world leader in this business and of a new industry sector in Norway. By profiting on a highly qualified work force and new forms of work organization the newly established company REC managed to achieve top quality wafers.

These achievements are the resultant outcome of players' capability of integrating into global value chains and constellations, and by their capability to construct social networks locally. Network building locally and transnationally has compensated for lack of risk sharing arrangements at the national level, and it has helped avoiding narrow role definitions and strong functional boundaries characteristics typical of the traditional Norwegian business system. There was a weak tradition of inter-firm interaction let alone cross-sectoral interaction. Beside the horizontal collaboration that evolved in relation to the technology programme in the postwar period, a few exceptions like the maritime cluster in the north-western part of the country, Møre (Andersen 1997), and the automation/robot cluster in the south-western part, Jæren, can be counted.

A key issue is to what extent experimental businesses can sustain and expand without the help of public social services. The situation is for the time being that public policies are mainly geared towards sustaining a natural resource based economy and to balance activities and spending, not developing. Institutions are aligned to support ground rent seeking activities and process optimization. To a large extent there is a mismatch between institutional arrangements and the exigencies of the globalized economy, let alone the fact that resources spent for social services in Norway rather push individuals into passivity than enabling them to master challenges. In fact, social services are creating social problems instead of solving them.

For future competitiveness and welfare much depends on to what extent institutional change can co-evolve with the needs of and share risks with localities, firms and citizens. Local initiatives for bridging gaps in research and education are strong signals of needed reforms. But reforms need to be decentralized for the tailoring of policies to local needs: for stimulating and sustaining local dynamism. To give weight to an open and decentralized innovation system, incentives must include broad participation and stimulate cross-sectoral experimentation and collaboration. A flexible labour market is now considered to provide better conditions for experimenting than mere technology programmes, and although labour turnover in Norway is high - over half a million workers change jobs each year out of a total workforce of 2.5 million – the extent of cross-sectoral crossings have been limited (OECD 2007:73). Recent reforms such as the system of national centres of expertise and regional research funds represent steps towards decentralization. The question is whether these activities suffice to counteract post-NPM centralization trends.

Chapter 5

The Demise of the Swedish Model and the Coming of Innovative Localities?

Christer Peterson

Introduction to the Swedish case study

The Swedish economy internationalised relatively early, developing a multitude of sectoral variety, experience of global competitiveness and a long history of industrial competence accumulation, which today provides potential platforms for renewal.

Some characteristics and development paths on the national level

The exploitation of natural resources and a number of brilliant innovations became platforms around which national champions and world class engineering enterprises were to be built in the future. Processes started in 1932 that would provide the business system with new characteristics that remain fundamental. The Social Democrats won the election that year, and subsequently developed a corporatist regime resulting in a universal welfare system financed through a high level of taxation. By the beginning of the 1970s, Sweden was positioned as the third richest country in the world, ranked according to GNP per capita, with 15 percent over the OECD average.⁴² The 1970's, however, became "the decade of industrial crises" in Sweden, and followed in the early 1990s by an economic crisis which was the most severe of the whole post-war period. Sweden now dropped to 18th position, six percent below the OECD average. In 1995, Sweden became a member of EU, although voting against the adoption of the Euro. Ericsson and other big companies moved their HQs abroad, which led the competitiveness of the Swedish business system to be questioned. Nevertheless, Sweden recovered and rose to the forefront in a number of industries. Today, however, with an economy highly dependent on exports, Sweden, like most countries, is struggling with the global financial crisis and a severe recession.

⁴² Purchasing power adjusted (Nilsson 1998: 28).

Research design, empirical field and research questions

The task of this particular chapter is to report on the search process through which we have tried to identify distinctive aspects of the dynamics of change in the Swedish case, where we chose to study the eco-system of Örnsköldsvik. What makes the community interesting is that it was dominated by the European forest industrial giant Mo&Domsjö AB (MoDo), which first represented a case of negative development but subsequently succeeded in turning itself around to a positive spiral. What makes the company interesting is that it is an example of being a pawn in the globalisation process. We have chosen as the starting point for the analysis its renowned R&D concentration. The motivation for this type of focus is that this interdisciplinary competence concentration has been restructured due to the global drivers. Furthermore, and perhaps most importantly, Sweden is at the top of world rankings in terms of percentage of R&D investments of GNP. The question related to this context is: *What is the leverage of high R&D intensity concerning new business development, and through what kind of organisational, institutional and social mechanisms are the R&D input turned into business relevance?*

Secondly, we have chosen an eco-system where new knowledge intensive entrepreneurial initiatives are *not* obvious under the present stage of globalisation. Örnsköldsvik is a town of about 60 000 inhabitants in northern Sweden, located 600 km north of Stockholm, yet positioned along the relatively dynamic Bothnia coastal strip. The question related to this context is: *What kinds of internal and external competence and resources have contributed to the community revival, and what can it tell us about the Swedish business system concerning the institutional resources available for local actors in a peripheral industrial town?*

According to the overall purpose of the Translearn project, the analyses should provide empirical data for cross-national comparisons between the Nordic countries and Slovenia, concerning the following types of research questions: *Are there differences as to the types of institutional resources that regional and local actors could use when promoting their eco-system? What do the analysed decentralised experiments imply for the study of national business systems and especially for their dynamics of change under globalisation?*

This type of methodological approach means that the explanatory mechanisms are based on several causal effects that are highly embedded in the local and national contexts and in the history of the Swedish national business system. Also, the methodological approach implies that the explicated explanatory mechanisms cannot be generalised to other contexts. On the other hand, the uniqueness and richness of the explanatory mechanisms provide inspiration and intellectual tools for institutional innovations in other contexts.

Disposition

In the next section we will present distinct features of the Swedish national business system. The third section is firstly devoted to the historical background of MoDo's renowned research laboratory and its transformation into three R&D intensive service business organisations, described as two mini-cases. Secondly, we will describe Örnköldsvik community, which was struck by the stagnation of the mature pulp and paper industry. In the fourth section we provide a synthesis of the dynamics in the mini-cases. Finally, in section five we discuss to what extent the new business formations we have revealed can be seen to be representative of the emerging new Swedish national business system.

Characteristics of the Swedish business system

In this section we describe in short terms the Swedish development from the emergence of 'Industry Land Sweden' over to a modern industrial nation, and by that the establishment of the Swedish national business system.

Innovations as platforms for building the 'Industrial Sweden'

During the 90 year period up to 1910, Sweden was an example of an exceptional economic development, having undergone dramatic transformation. The break-through of the engineering industry at the turn of the 20th century is important evidence that Sweden had reached industrial maturity. A number of these engineering enterprises were built on innovations made in the 1870s and 1880s. Today they represent competence concentrations and provide rich platforms with intrinsic potentials for renewal; for example, the clusters surrounding ABB's Swedish part (former ASEA, transmission), Ericsson and other ICT

businesses, Astra and Pharmacia (medicine), Volvo, Saab and Scania (vehicles), and the forest and ore and mining operations. These clusters are not only positioned in metropolitan areas, but are spread all over the country, thereby introducing a regional economy dimension. At the outbreak of WWI, the standard of living in Sweden equalled those countries having the highest in the world, and Sweden had arguably the fastest economic growth in the world (Olsson 1993: 529).

The outbreak of WWI had a stimulating effect on Sweden's economy due to the increased demand on raw materials. However, the 1920s were characterised by bankruptcies, and financial and structural crises; Sweden had been hit by the 'the second industrial revolution'. The Great Depression reached Sweden by the end of 1930. 1932 would later be seen to be a turning point in Swedish economic history. The crash of the financial genius Ivar Kreuger's empire, together with his death, and accompanied by a wave of bankruptcies, was dramatic, and had a tremendous impact on the institutional context in the country. The crash resulted in 'a grab-and-scramble meal' among many of the Swedish core businesses, which were 'transferred' over into different bank spheres. This event restructured ownership and stakeholder relations into a new tight grip. Also, new bank laws and currency regulation followed (Glete 1987). However, out of these crises, something new arose; 'development blocks' were formed and foundations laid to many of the Swedish multi-national manufacturing companies of today (Dahmén 1950).

Sweden - the Middle Way

With the Social Democrats winning the election in 1932, the new Government with Prime Minister Per Albin Hansson started building what was to be known as "the People's home" (*sw. folkhemmet*). He formed a crisis policy built on progressive income and wealth tax for equalizing purpose and social reforms. By the end of the decade the country's policy was renowned. The concept *Sweden: the Middle Way*, a sufficient combination of capitalism and socialism, had been established by Marquis Childs in 1936. The constitutional core of this system comprised the class compromise that was struck at the end of the 1930s. Based on compromises, a distinctive centralised system of industrial relations emerged and became linked with macro-economic planning of the state, much due to the links between the social democratic party and the trade union movement. As part of centralised collective bargaining, a universalistic welfare state was constructed early on, financed by high levels of taxation.

Encouraged by and in cooperation with the capitalistic sphere, the Social Democratic party developed this concept into a governing model, with centralised collective wage bargaining, sharpened with the Rehn-Meidner model from which the so called solidaristic wage policy was deduced. This neo-corporatist part of the national business system has been termed ‘the Swedish Model’. This policy, a reformed capitalism, also supported by the non-socialist parties, was the result of consensus between Stockholm School economists,⁴³ who carried out Keynesian ideas before Keynes, and politicians; they all agreed on the benefits of a stable economy. Thus, the business system acquired elements that would later classify it as a coordinated market economy (CME).

Sweden was established as an industrial nation during the interwar period. And as in WW1, world rearmament was advantageous for Swedish export. The Swedish welfare model was emerging, and the development of the industrial systems and investments in mass production was a basic condition for that. In 1949 the Swedish currency was depreciated by 30 percent, meaning that Sweden could now hang on to what would become the second period of the world’s trade expansion, and in earnest benefit by having escaped the ravages of war, and the following 1950s and 1960s became extremely prosperous for Sweden.

End of the Swedish Model?

The 1970s became the decade of industrial crises, measured by bridging policies and devaluations. The Swedish Model was questioned for the first time, and the election in the mid 1970’s became “an SME election”, which the Social Democrats lost after having been in power for 44 years. The existing collection of enterprises consisted of some hundred public companies (“the backbone firms”) and some 500 000 SMEs and micro firms. We know that the small companies did not expand due to either lack of financial options or simply did not finding incentives to grow. IKEA and H&M are examples of the few family-owned firms that have grown out of its “family suit” during the post-war period.

In the beginning of 80s, the Social Democrats returned to power and immediately devaluated the currency, which, in combination with an international boom, resulted in a seven year period of economic success. This conserved old industrial structures, which meant that

⁴³ The most prominent were Bertil Ohlin, Gunnar Myrdal, Erik Lundberg and Erik Lindahl.

Sweden was therefore badly prepared for the crisis to come in the 1990s. Also, the new left-wing government imposed so called 'employees' funds' (wage earner funds), which was considered a huge confiscation of shareholders' assets and would result in a so called 'fund socialism' within some decades. This single event was seen to be the firing a broadside at the specific mentality of the 'compromise thinking' component of the Swedish Model, and the employers' federation started withdrawing from cooperations such as centralised agreements and representation in different societal organisations. The Nordic wonder had come to an end and the Social Democrats lost the cabinet in 1991. Olle Krantz (2003, 2004) argues that the Swedish Model had a negative growth contribution as early as around 1950. His comparison with Finland, a country that followed Sweden's institutional arrangements, shows that Finland did not experience negative development throughout most of the post WWII period to the same extent as Sweden. Krantz argues that this is due to the fact that the Finnish institutional design had more leverage on business prerequisites, combined with less leverage on political and union influence.

By the beginning of the 1990s, Sweden had full employment. Suddenly Sweden was thrown into a real estate crisis which developed into a severe banking crisis. In combination with a general international recession, the whole of Sweden was pushed into a severe economic and political crisis; unemployment reached 14 percent. Again, these crises brought up shortcomings of the Swedish Model; industrial Sweden was dominated by a 'big company perspective', while labour and financing reforms for SME's had been neglected. Swedish institutions were regarded as being uncompetitive, exemplified by the fact that 47 HQs belonging to the Swedish national champions and well-known brands were moved abroad during the period 1997-2001. Moreover, Swedish companies were implementing huge outward flows of FDI's in Europe, for instance our case, MoDo, developed into a European giant through acquisitions (Peterson 2001). Regulations surrounding the financial markets had long-term negative consequences, and a financial deregulation and market liberalisation were implemented too late (Jonung 2008). In the beginning of the 1990s, the Social Democratic prime minister applied for membership in the EU in order to start restoring Swedish institutions. In 1995 Sweden became an EU member (although it subsequently voted against the common European currency in 2003). A right-wing government was installed in 1991 and immediately dismantled the 'employees' funds', transferring the money to 'R&D and Knowledge foundations' in order to make Sweden more competitive.

Towards a decentralised knowledge-driven growth promoted by a new spirit of mutual understanding?

From the 1970s and onwards, the Social Democratic governments started a decentralization of the university system, resulting in a number of new university colleges being established. This deliberate policy was criticized for spreading thin the research and education resources. On the other hand, this decentralisation has resulted in a university or a regional college being established in more or less all 21 Swedish counties. These new centres of education and research became important instruments in absorbing unemployment among (young) people and contributed to a rapid economic transformation when Sweden during the 1990s lost one third of industrial job options during a few years. Also, these universities and colleges were suitable receivers of the employees' funds' money when it was transferred into the R&D system in the mid 1990s. Such a decentralisation and major restructuring of the innovation context had considerable implications for the whole national business system. The new universities and colleges play a new and important regional role by firstly developing a profile which fits the industrial and cultural characteristics of the region, and by secondly, constituting a natural link for strategic interaction with regionally operations; put simply, they constitute the ingredients of a local innovation system. Swedish universities now work with a 'third task' besides teaching and researching, namely, cooperating with the surrounding milieu (and many of them have, in fact, a 'fourth task', acting as an 'innovative university').

By the turn of the millennium, the policy to set up local innovation systems had been put into practise through a variety of tools: programs for growth and increased international competition are formulated on the national level, whereas actors in local or regional innovation systems are invited to compete for funding (whereby the public sector shares technical and commercial risks). Also, in every county there is a state-owned organisation, ALMI, with the mission to finance and develop the process from an idea to a profitable business, as a complementary to the market. Furthermore, each county's administration has special financial tools for supporting employment and training activities. In other words, the supply of 'hands on services' and of initial financial support are quite good. However, Sweden lacks competent managers of venture capital companies and funds that can recognize entrepreneurs and finance larger innovation projects.

Today, all Swedish political parties in the Parliament are SME friendly. A recent study shows that the SMEs create a lot of new jobs while big companies and the public sector are decreasing their employment.⁴⁴ However, Swedes are self-employed to a smaller portion (10 percent) compared to the EU average (15 percent), and the frequency of start-ups is severely low. In spite of state promotions through foundations, science parks, and municipality support on more or less every campus, spin-offs from Swedish universities are relatively low.

Thus, the Swedish Model with its labour market perspective can arguably be declared dead. However, a new spirit of mutual understanding might be emerging, as formulated in the Swedish Government's Globalisation Council's first report, *Knowledge-driven growth* (Ds 2007:38).⁴⁵ This document depicts firstly a very optimistic future of the Swedish economy and secondly, which makes the document remarkable, describes a mutual understanding and concordance among MPs and corporatist actors from left to right in the council about the nation's possibilities and threats. The council states further that the welfare state perspective, linked with the Swedish Model, and the specific mentality of compromise thinking, are fundamental elements for Sweden to continue to be competitive. The long tradition of basic agreements in Swedish society, the strive for equality, a common social insurance, and consensus in the labour markets, make it easier to develop institutions that are internationally competitive. Further, when deciding to enter the EU, the traditional goal of full employment was abandoned, and instead the mastering of inflation became prioritised; resulting in the Swedish central bank becoming independent. Consequently, during the 1990s, Swedish capital markets developed to becoming relatively comprehensive (from a European perspective) due to Swedish over-representation of hosting MNCs. The capital city Stockholm has its own "City" with a strong finance cluster and a stock exchange, which in turn has developed into a central gateway to the Nordic and Baltic financial markets. Further, the OMX Nordic Exchange has been acquired by NASDAQ and has thus become part of the world's largest exchange company with operations spanning six continents. Examples of threatening clouds are the industry and trade's too low investments in the country. Also, the growth of the service sector is weak in international comparison, which holds especially for the whole SME sector. It is obvious that the Swedish milieu for entrepreneurship is less favourable and has to be stimulated. Moreover, Sweden's global companies will remain very

⁴⁴ http://www.foretagarna.se/templates/NewsPage_106023.aspx 2008-05-14

⁴⁵ The Swedish Government has set up a Globalisation Council. It consists of experienced people from a number of sectors of society. Its role is to analyze how best to equip Sweden to address the challenges of the future. <http://www.regeringen.se/sb/d/9420/a/89862>

important but their gradually weaker attachment to Sweden makes it even more necessary to create dynamic milieus for entrepreneurship and conditions for small firms to grow bigger.

From the national to the local

In this section we will give examples of the efforts to create dynamic milieus by describing the renewal of an old mill site; MoDo's in Örnsköldsvik. We will also describe the hosting town's renewal. Örnsköldsvik is located in a peripheral part of the north of Sweden. The company MoDo and its site have survived two industrial revolutions; it has, through mergers and acquisitions and the following restructuring processes, been a pawn in the globalisation game, and its former subsidiaries and the site are now struggling to survive the third revolution.

MoDo as an early representative of the Swedish business system

MoDo was founded by J.C. Kempe, who became the founding person for one of Sweden's financial dynasties, the Kempe family. His enterprising developed from trading in wood, acquiring many hundreds of acres of forest land, putting up wharfs for constructing wooden sailing ships, plants for manufacturing sail cloths, building and managing iron and saw mills into one of the biggest forest industrial companies in Europe in the 1980s. Saw milling became the principal root of this forest industry company, which took the next refining steps in the forest value chain by developing, through further refining chips and other saw milling waste, into a pulp, and later on, a paper company. In 1903, the company built a sulphite pulp mill in Domsjö. Some 15 years later, a sulphate mill was built in Husum, 30 km to the north. Like all companies in Sweden and the western hemisphere, this family-controlled firm experienced crises-stricken years during the forthcoming decades. However, on the whole, the company developed successfully with investments financed over the bond market and by reinvested earnings (Wichman 1943: 242-245).

Around 1930 the board of MoDo started discussing the possibility of going public, in order to make the financing of future investments easier. The older family members were doubtful to that suggestion, and started worrying that the family would lose the control over their company in the near future. A daughter of the original family head had become the dominant

shareholder of the company; at the time she was a widow in her mid 70s, and had lost her only child. The key tool to keeping control over a company when going public was to establish foundations. So, this principal owner was persuaded to establish two foundations in memory of her father and her brother, respectively, with the purpose that the income of the capital would be reinvested in the areas where the wealth once had been created. Thus, the introduction of the MoDo share in 1936 on the Stockholm stock exchange, and the establishment of the first Kempe foundation “were done parallel, and were partly each others prerequisite” (Kempe 2006: 222-229).⁴⁶

The main purpose of the foundations is to promote scientific research, and scientific and other teaching and education, also religious, charitable, social, artistic, and other with that comparable cultural purpose, as well as to promote agricultural operations in three counties in the North where the original plants were established.⁴⁷ The Kempe foundations yearly distribute an amount corresponding to some 8 million €.

Shake-ups at MoDo creating entrepreneurial initiatives

Through acquisitions from 1980 and onwards, MoDo developed into ‘the third forest industrial block’ in Sweden, and became a European giant. Consequently, during the 1980s and 1990s, MoDo went through several structural changes. In the late 1990s MoDo and SCA (another Swedish forest industrial giant) amalgamated their fine paper segments into a 50/50-joint company called ModoPaper AB,⁴⁸ and prepared it for going public on the Stockholm stock exchange. Therefore, MoDo (with partly the same name) changed its name to Holmen AB. The intention to go public was not fulfilled, however, and ModoPaper AB was acquired in 2000 by Metsä-Serla, a Finnish-based European level paper industry company that changed its name to M-real to signal the dramatic change of its identity.

The focus of the first part of this section is in the organisational changes of the MoDo Group, and especially in its R&D organisation. We will study the changes (1) that were implemented in the mid 1990s as a result of decentralisation ambitions, and (2) in connection with the post-acquisition integration measures generated within M-real. This latter phase will be described through two mini-cases. In particular, we will explore how local managers have used their

⁴⁶ The foundations are: Stiftelsen JC Kempes Minne respectively Stiftelsen Seth M Kempes Minne, usually called ‘Kempestiftelserna’, that is ‘The Kempe Foundations’.

⁴⁷ Translated extracts from the Foundations regulations: http://www.kempe.com/index_start.html; 2008-03-15

⁴⁸ Observe the small “d” (Modo) of the subsidiary compared to the big “D” (MoDo) indicating the Group.

local, national and international networks and institutional resources in a post-acquisition integration phase. This phase became more dramatic than could be perceived through the acquisition in the year 2000. It turned out that M-real took a too ambitious approach to expand its company, and solidity suffered a lot. Thus, the post-acquisition phase of operations in Örnsköldsvik has occurred during a deepening financial crisis for the new owner.

A Chandlerian firm and its breeding into a cooperative cluster

In the 1950s, Sweden was a global leader in the development of technology for the forest industry. At that time, the major Swedish forest industrial companies were running centralized and large R&D organisations (150-200 people) of their own. The MoDo Group's research laboratory had already been established in 1941 on the Domsjö site, close to Örnsköldsvik.

The 1940s with WWII and its blockades became an extremely dynamic époque in Sweden's chemical milieus; this positive development was continued up the mid 60s. On this particular MoDo site, a considerable amount of chemical products were produced and exported, also as substitutes for what could not be imported. The company concentrated all its competence and capabilities to a centralised laboratory, which gradually developed into a renowned R&D department with some 150 people. This research laboratory has for decades been path-breaking in the chemical forest industry. For example, the first industrial application for chlorine dioxide bleaching was implemented in 1946 at Husum. Another technological revolution was that short fibre raw materials could also be bleached, and later the first oxygen bleaching production line was built at the same plant and is today applied all over the world. This is one of the most important technical innovations within the forest industry concerning environmental improvements (Hultman and Persson 2004: 33). Another radical innovation was a software product called "The Kappa-batch" (Carlberg and Scholander 1989: 41). Such radical innovations were complemented with environmental investments, like the bleaching plant "close up" in Domsjö 1991 and in Husum 1994 (Peterson 2004). The two last innovations are to a large extent developed by one technical genius at the company; he became world famous in his field and as such plays a central role in this Swedish case, and we denote him simply "the world famous engineer".

All these breakthroughs resulted in a number of spin-offs. To capture the market for the new bleaching technology of pulp, MoDo Chemetics was established in 1974 as a joint venture by

MoDo and a Canadian partner specialised in digesting and bleaching processes. It was one of the first knowledge-based firms within the global forest cluster.⁴⁹ Later on, Eurocon, specialising in optimising production processes and systems, became a spin-off from MoDo Chemetics. Today Eurocon is a parent company of 15 subsidiaries, with around 90 employees in Örnsköldsvik, in Norway, and in Canada. There is a saying that the Lab of '41 is the cradle of the Swedish chemical industry.⁵⁰ And indeed today, when the chemical industry is flourishing again, Sekab and Akzo Nobel (other spin-offs on the site) are currently bringing the heritage of the site forward (see Appendix 1).⁵¹ “So, from this company some kind of a cooperating cluster has been bred during the decades”, is a statement of the former head of MoDo’s R&D unit. Also this person plays a central role in this Swedish case, and we denote him “the (strategic) visionary”.

In the mid 1990s, the group technical director was assigned to investigate how the R&D function should be adjusted to the company’s widespread structure. The trend in the industry’s R&D behaviour world wide had now developed into “searching for knowledge where it was to be found and to do a puzzle rather than start from the beginning”. MoDo therefore started building up competence centres in cooperation with universities, and commenced buying basic research services; “Chandlerian firm” type of behaviour had come to an end also in the MoDo Group. The result of the reorganisation was that relevant R&D competencies were decentralised to corresponding business areas. However, people and equipment for the pulp and paper research still remained on the site close to Örnsköldsvik. Although the research force had been halved to some 75 persons, some executives were still questioning if this number was optimal for operations? Therefore, discussions were started with other forest industrial companies in Sweden concerning how to make use of the R&D potential a potential which now had been strengthened by the Digital Printing Center (DPC), designed as an academic programme with industrial PhD students at Örnsköldsvik University

⁴⁹ MoDo Chemetics is from 2004 a part of the Örnsköldsvik-based consulting company Kværner Power. Kværner has been acquired by Metso Power, belonging to the global Finnish-based Metso Corporation serving customers in the pulp and paper industry among others.

⁵⁰ However, initiated (see footnote 14) claim that Skoghall (belonging to Uddeholm) was a rival to this appraisal epithet as long as their sulphite mill was in operation.

⁵¹ Sekab is “MoDo’s old ethanol factory”. Akzo Nobel is developed from the ‘MoDocoll’, a cellulose derivate (ethyl-hydroxyl ethyl cellulose - EHEC), which is soluble in water, and therefore can be used as thickening means.

campus.⁵² With such an arrangement, a critical mass was achieved and the education in the discipline secured.

M-real's Technology Center in Örnsköldsvik

When M-real acquired ModoPaper AB, technology centres (TC) were organised covering competences in the four European countries where M-real had R&D operations. After decentralising and outsourcing from the original MoDo Group's R&D unit, M-real's TC now only consisted of paper technology, with a focus to refine office papers. The TC was under charge of 'the visionary' mentioned above and contained some 20 experts. The core business of this TC was R&D support to mills and sales, and to do so, the cooperation between M-real's different TCs focused on a few research areas. One core topic is the mentioned DPC, the academic programme at the local university campus, which was originated and financed primarily by MoDo Paper AB, SCA, the Kempe Foundations, and EU/County administration, but also to a smaller extent by the Mid University and a number of local SMEs in the printing industry. Thus, this part of the former Lab of '41 also started building alliances with related companies, research centres and relevant financiers. That meant that M-real could offer the most skilled seniors a research milieu that was the best in its field in Sweden.

MoRe Research – developing into a global technology know-how supplier

Due to all the re-organisations, considerable thinking had been invested concerning the future of MoDo's R&D capabilities. The key actors in this process were the two, highly skilled technology managers, one with world wide fame in the industry, and the other a visionary and strategic change agent. They realised that the Finnish owner, with its own R&D capabilities concentrated in Finland and with no pulp production of its own, would not be interested in retaining a heavy R&D volume of some 75 people in pulp research in Örnsköldsvik. In contrast, MoDo had had a strong focus in the pulp production part of the value chain, and especially in its R&D. These two key actors also knew that the site's pulp competence including the production milieu was unique. It had a critical mass, synergy potentials and proximity to perhaps the biggest sulphate and paper integrate in Europe (Husum) and to one modern sulphite mill (Domsjö). Thus, in order to secure the survival of these renowned skills,

⁵² Mid University started as Mid College and received its university status 2006. It has campus in Sundsvall, Östersund, Härnösand and Örnsköldsvik.

all pulp-related research was outsourced from M-real to a new company, MoRe Research Örnsköldsvik AB. Although implemented after several brainstorming sessions, it was a very logical business step derived from the competence of the original MoDo laboratory.

One important criterion was that the firm should be neutral in terms of ownership structure and objective when managing research findings. The first draft of the ownership structure of the new company was that M-real was to hold 49 percent, in combination of a majority of local shareholders. However, Holmen (the former MoDo Group) withdrew from the possibility to be an owner. This bias with M-real as a dominant owner was regarded to be a dilemma when marketing the company as an independent consulting firm. Moreover, the firm's own capital was too scarce for an emerging research organisation. Therefore, the two main actors contacted another important local person; he was the head of the Kempe Foundations, and still a local resident. As a result, the Kempe Foundations entered into the business initiative with a stake for a 20 percent ownership share, and, with two other owners on the site covering 40 percent, MoRe was established in 2001 under charge of 'the world famous R&D engineer'. Thus M-real's portion was reduced to 40 percent. Further, the head of the Kempe Foundations was appointed chairman of the board. This strengthened the independence of MoRe in the market place with respect to its dominant owner, M-real, also because the chairperson was also the deputy chairman of Holmen's board.

MoRe started operating by taking over some 50 people from the Lab of '41 while the rest, some 30 people, remained at M-real's TC. However, M-real's financial situation continued to be negative and to save costs, M-real closed down the TC. Consequently, MoRe took over TC's people and pilot equipment in the paper and printing niche. "This was very logical as you have to produce paper to assess the quality of the underlying pulp". That means that MoRe covers competence and has equipment for the whole pulp and paper value chain, that is "the whole way". In Swedish this is expressed *Hela vägen*TM, which is registered as a trade mark, and has become the firm's business idea for consulting. Further, MoRe has established strategic alliances with Eurocon Consulting (one of its owners) and Swedish Optimization (with links to a technical university in the region) under the registered trade mark *Euromore*TM. This, in turn, has registered the trade mark *Processakuten*TM, which operates in acute process failures. MoRe has been profitable from the start, is serving some eighty external customers, and is today a global technology consultancy with R&D commissions, for example, in Western Europe, Chile, and China. "We believed in this but the result exceeds all

expectations; it is obvious that there is a market for R&D-based consultancy companies, and we are probably the first player in our know-how niche”, according the CEO.

M-real’s withdrawal from its stake in MoRe

During the spring of 2007, M-real’s HQ in Espoo, Finland decided to decrease its stake in MoRe. This meant that Sekab, another of the companies on the MoDo site, took over most of M-real’s 40 percent ownership in MoRe. ‘The visionary’ (and head of M-real’s TC) quit the company but remained on the site as a new head of research at Sekab. Of the initial 30 people from the Lab of ‘41, who had joined the TC in 2001, almost all found new employment in various organisations. The largest number of them, connected to the paper research had been transferred to MoRe and some had been transferred to the paper mill in Husum, while a few found employment in other companies on the old MoDo site. Three people had accepted special pension contracts, and just a handful of younger people left the TC for elsewhere.

What happened with the employees when the close down decision was taken at M-real’s TC, is a good illustration of the dynamics of professional labour markets and employment practices in the Swedish and Finnish ways of functioning. M-real to some extent supported financially the transfers to MoRe. “The great majority got new jobs without losing money or without any contribution from the social security system”. This was partly due to the fact that there was an industrial receiver competence present locally to recycle the released competences: It is obvious that if the TC not had been established when M-real acquired ModoPaper, probably some 30 people had gone their separate ways and the accumulated cross-professional competences would have been lost forever. However, the TC had existed during some six-seven years and during these years, MoRe and other companies on the site had breathing space to further develop receiver competence and be able to absorb the released people’s skills and laboratory equipment. To conclude, the MoDo Lab of ‘41 had been a springboard for knowledge intensive activities that have energized the local academic environment in Örnsköldsvik by taking on board PhD projects that have business relevance nationally and beyond. Part of this competence pool is continuing in MoRe Research, part of it has been and will be located in the near future to M-real’s business areas and production site.

Processum - a Technology Park developing into a bio refinery and an R&D organisation related to the Swedish Innovation System

By the beginning of 2000 it was obvious for executives at MoDo that the characteristics of its site and by that the whole eco-system in the community had changed dramatically. Moreover, the university campus in the locality did not develop very well. The concern of these executives started processes that are now transforming the old sulphite mill site into a modern bio fuel plant.

Convergence at a coffee machine

‘The visionary’, (and head of M-real’s TC), and two other actors “happened one day to converge at a coffee machine”; they established the fact that not only was the MoDo name gone but also its Husum plant with its big pulp and paper integrate was now governed from Finland; the “intellectual force and the technical drive that earlier had been the engine in the eco-system and ‘putty’ in networking, had been reduced significantly”. The only comfort was “that the chimneys in the area were still smoking!” ‘The visionary’ called people together for brainstorming. One idea to counteract the negative consequences of all the shake-ups was to establish some kind of a technology park on the site that could communicate with the local university campus where MoDo had launched some R&D projects. The point of departure was the unique milieu of *process technology* that had been built up during the last hundred years. Present at some of the biggest university sites in Sweden, there is a foundation called *Innovation Bridge*⁵³, whose function is to commercialise research and innovations together with relevant partners in industry and trade. Consequently, the idea of a technology park on the MoDo site was presented to the CEO of the foundation.

A spider in the R&D net and the struggle for financing

By coincidence, the new chairman of the Innovation Bridge was a former sales director of MoDo. A former vice head of the Lab of ‘41, was also a member of the board; as a female born in Örnsköldsvik, she had made an extra ordinary career. Holding a research degree in chemistry she was in 2001 appointed as the ‘Research director’ at the *Swedish Forest*

⁵³ Approximately corresponding to the American OTT (Office of Technology Transfer); the Innovation Bridge in Umeå is a subsidiary to a national parent company with the same name.

Industries Federation.⁵⁴ Due to this position, she was also appointed chairperson of the board of VINNOVA, (*the Swedish Governmental Agency for Innovation Systems*). Thus, the former vice head of the MoDo R&D laboratory chaired this board for six years from 2001. Having also for years cooperating in many projects with the chemistry department at the Umeå university, and she was therefore awarded an Honorary Doctorate at the university; we denote her simply ‘the Dr. hc.’ in the following. Among other things she was involved in a project called “Green material”. This actually turned the Processum perspective *from* process technology *into* bio refinery. The domino effect continues further with the characteristics of the mill site, where the sulphite mill still functions. The point is that the sulphite technology is regarded as much more fruitful for a “bio refinery plant” compared to a sulphate mill.⁵⁵ Thus, three people with a strong MoDo commitment were involved in the work to establish Processum and give it a distinct mission.

Finally, in 2003, twelve local SMEs, two bigger companies on the MoDo site, the municipality, and the County Administration together with the Innovation Bridge, established the Processum Technology Park AB. The Kempe Foundations “wanted to support and strengthen ‘the local initiative’, and entered therefore as a co-financier of special projects”. Processum could now afford to hire a CEO; ‘the visionary’ was appointed chairman, and the third person converging at the coffee machine was appointed as a board member of the Park. Usually, science parks are developed from deep science-based inventions and organised by universities in which the research has been flourishing. Processum is established in the opposite manner; the initiative originated from the industry-based competence concentration, and it was not established to fill up a closed-down factory. However, the funding described above was just an initial solution; along with the chiselling out of the Processum strategy, its CEO, now acting more as an institutional entrepreneur, constantly pieced together financing from different sources. For instance, NUTEK - *the Swedish Agency for Economic and Regional Growth*, with mission to strengthen business throughout Sweden, financed a project and a second funding round was implemented during late 2005 with contributions from the bigger companies on the MoDo site. However, “the final funding solution was still missing”.

⁵⁴ The Swedish Forest Industries Federation is the trade and employers' organisation for the pulp, paper and wood mechanical industries in the country.

⁵⁵ Professors Nils Hartler and Börje Steenberg, interview at the Royal Institute of Technology (KTH) 2007-02-20

Processum Bio Refinery Initiative and VINNVÄXT campaign

At the end of 2006, the Park changed its name to *Processum Bio Refinery Initiative AB*. The old name "had refined itself in a logical strategic way into what was happening on the site". The name 'Bio Refinery' is simply the 'smallest denominator' for all involved companies on the site, and indicates further growth of the bio-industrial cluster.⁵⁶ Moreover, VINNOVA, the State authority that aims to promote growth and prosperity throughout Sweden, ran a programme (VINNVÄXT) that has taken the form of a competition among regions. The aim has been to promote sustainable growth by developing internationally competitive research and innovation milieus.⁵⁷ In the spring of 2006, 85 local innovation systems were competing to receive financing during mid 2006-08. VINNOVA selected five proposals, and one of them was the Processum Bio Refinery Initiative. The Örnsköldsvik case is looked upon as a potential bio refinery of the future. The intention is to develop cellulose into different new product areas such as chemicals, fuel and composites/plastics. After the second year, an assessment was to take place, and the two most promising suggestions for potential innovations would receive additional money during the next eight years. However, VINNOVA selected *four* of the five proposals, and Processum was one of these now receiving some 400 000 €/y for the eight year period up to 2016.

To conclude, the old MoDo site is today a biochemical cluster or a mega milieu, which for instance refines cellulose into high tech dissolving pulp and thickening means for paint; there is a pilot plant for producing ethanol, a pulp technology consultancy, and a combined heat and power plant under construction. Moreover, *Swedish Energy Agency*,⁵⁸ subordinated to the Ministry of Industry and Trade, has invested a number of tens million €. in the site. Also, in cooperation with Umeå University, this research infrastructure has been complemented by certain applied research areas and education programmes to stimulate cooperation with the chemistry competence on the site.⁵⁹

⁵⁶ Bio refinery is simply an analogical concept to oil refinery. In the 19th century paraffin oil was the main product extracted from oil. Today, 2000 products are extracted from oil.

⁵⁷ <http://www.vinnova.se/In-English/Activities/Strong-research-and-innovation-environments/VINNVAXT/>
2007-04-24

⁵⁸ In Swedish: Energimyndigheten

⁵⁹ Kemivärlden Biotech med Kemisk Tidskrift; No 7/8, Aug. 2006.

Explaining underlying factors in the transformation process of the sold MoDo site

MoRe – a spin-off from a Chandlerian type of a firm and a player in the New Economy

The MoDo site represents old excellence in economies of scale in a mature, natural resource-based industry; from today's point of view, the most important element is its local broad-based R&D capabilities. Through innovations, this competence had resulted in several spin-offs, and in the formation of other company actors in a block that are functioning both as co-operators and customers; that is, there is an industrial 'receiver competence' locally present to recycle the resources released (Appendix 1). This is also the key explanation as to why skilled people did not go their separate ways immediately. More or less all ingredients needed for the revival of an old competence block were present: first of all, there were outstanding intrapreneurs who could commercialize existing innovations due to profound understanding of customers' need. These intrapreneurs could organise 'development coalitions' locally. The missing part in the puzzle was equity capital, provided by competent venture capitalists; fortunately, that could be compensated to some extent by the existence of a private research foundation. Therefore, we claim that MoRe is a typical example of "an experimentally organized economy" (EOE), and in Gunnar Eliasson's terms (2007: 225), an archetypical contribution to an on-going reconfiguration of the Swedish business system. The term EOE is deducted from Schumpeter's concept of creative destruction with its negative and positive consequences of shake-ups. EOE's emphasise that reallocation and growth has to be based on a particular organisation of the economy that also embodies the right type of institutions that define entrepreneurial incentives, that orient competition and that breed the right attitudes in the economy.

To go beyond economies of scale towards a knowledge-based economy requires openness and capacity to change; the characteristics of local competence concentrations and institutions are therefore decisive for the resource allocation dynamics needed to transform an old industrial milieu into a New Economy. It is a matter of course that a local community has limited resources available. To explore this constraint further, we describe MoRe's and especially Processum's (and in the next subsection the hosting municipality's) toil for strengthening the cooperation between public and private institutions, for improving educational performance and for building infrastructure. All this is needed in order to cope with the globalisation process.

Richard Lester (2007) focuses on how local communities can prosper in the rapidly changing and increasingly open economy, and he claims that the activities mentioned above often are better undertaken at the local level than by centralized directive. In Lester's study, local universities are looked upon as 'engines of innovation'; he identifies four different idealised industrial transformation processes: *Ingenious creation*, *Transplantation from elsewhere*, *Diversification into technologically-related industries*, and *Upgrading of existing industries*. In the MoDo lab case, the local university is not primarily an engine for industrial transformation; rather, it is a partner for cooperation and building networks, thereby sharing information and assessing risks in the transformation process. MoRe has moved along the industrial value chain and therefore fits partly with Lester's 'Diversification' category. However, it has also moved from mostly firm internal service supply over to not only external but global markets, and done that with a new set of analysis tools, in alliances and in a wider industrial context; the involved people are now operating with a completely new business model. We therefore characterise MoRe to be in the 'Upgrading of existing industry' category.

To conclude, the emergence of MoRe as an independent, globally operating, company is a remarkable bottom-up intrapreneurial initiative by two key employees. A strong will among a few key local actors made it possible to keep this pulp and paper research group of some 75 people as a coherent whole; this has created a lot of path-breaking initiatives on the site and in customer assignments. We hypothesise that MoRe incorporates one of the ideal type activity patterns with which Sweden contributes to the new knowledge-based economy. Such type of firms, and mobilisations linked with them, are needed to transform old industrial milieus into the New Economy.

Processum – networking initiatives for recycling a mill's released competence

Bottom-up initiatives and exploitation of professional links to relevant organisations have been important ingredients in the Processum case. The consequences of globalisation and shake-ups were fended off by recombining existing local resources into a network-based initiative. This networking has been possible because of the goodwill MoDo had accumulated over decades, not least with Umeå University as a cooperating partner, but also through individuals' ability to make use of their social capital. It is obvious that 'the Dr. hc.' has been a central person for Processum's development in her different institutional roles in Sweden's

research and innovation system: “I am a networker. You are not ‘awarded’ networks; you participate and you have to give something back as well”. Also, ‘the visionary’ (former M-real TC head, and initiator to MoRe and Processum) has played different roles in the process. As already mentioned, from 2006 onwards he is positioned as the head of research at Sekab, situated on the MoDo site, and additionally was appointed in 2007 as the new chairman of Innovation Bridge at Umeå University.

There is also a need to establish an identity for new business initiatives. This is done by key individuals generally acting as ‘industry evangelists’. In the Processum case there are two strong ‘evangelists’. The first is the vice-chancellor of Umeå University, who regards this site as being “Umeå University’s chemical wet laboratory”. It is, of course, an extraordinary event for identity-building when a key individual makes such a statement. It has materialised on the site through the establishment of professorships, academic research programmes designed for company operations, and industry relevant education. So, one characteristic feature of this old site is that ‘collaboration implies innovative learning’. The other ‘evangelist’ is the CEO at Sekab, who draws attention to the existence of the local bio fuel competence concentration and paints a picture of its future impact and growth potential. Thus, under Processum’s modelling, this site’s core technologies have been redeployed, and now provide the basis for the progress of a new related industry. In terms of Lester’s transformation types, we categorise Processum as ‘Diversification’. In its seventh operating year, Processum has become a well-established node in the Swedish innovation and university system.

‘Old, social, private money’ compensating the lack of venture capital

We have described the Kempe Foundations (3.1) as having the objective “that the income of the capital would be reinvested in the areas where the wealth once had been created”. The Foundations’ importance has developed to become a resource of national class, when taking into account investments especially in the north (Kempe 2006: 13-14). “It is obvious that a regional private research foundation, like the Kempe Foundations, is invaluable for the universities in the north and for a place like Örnsköldsvik”. However, it is not in the jurisdiction of a foundation to act as a venture capitalist. Even to allow the ownership stake in MoRe required adjustments in its charter. If the lack of venture capital is a severe problem in the Stockholm area, what about peripheral areas like Örnsköldsvik in the north? That means that co-financing from private foundations, municipalities, and county administrations,

although functioning only as “lubricants”, are of great important to start-up and to survival of entry phase, and by that being exposed to state authorities.

The head of the Foundations and founder family of MoDo takes on two different roles on the site: one as a representative for the old patriarchal type of responsibility, and the other as an internationally experienced forest industrialist. He also plays additional roles in other organisations, for instance, acting as chairperson. He has a research background and holds three honorary doctoral degrees, and has been a board member of Umeå University for a period of ten years and its deputy chairman for some years. Moreover, he is deputy chairman of Holmen, the remainder of the former MoDo Group. As a representative of a successful company, he also now plays the role of “regional statesman”. He and his family have returned home to Örnsköldsvik three times after international commissions, and now in their 70s, he and his wife take an active interest in what happens in the region as a result of their love of their home town and of a sense of social repayment. One can wonder, like a Financial Times journalist (Nov., 12, 2007) did in an interview with the scion and chairman of the number one Swedish financial dynasty, Jacob Wallenberg, what drives them? “Why didn’t he go off the rails, as some heirs do? Why did he think that was?” Mr. Wallenberg answered: “I think it’s a matter of values: family values, pride in the family, understanding your history and asking yourself: are you proud of this? Is this something you’d like to try to further, or not?” We hypothesise that this answer is common and valid for more or less all foundations established by financial dynasties.

The Örnsköldsvik eco-system: a combination of a dominant forest industrial company and a flora of family-owned businesses

In the forest industry, industrialisation often happened by creating communities around a single company, and for long periods, Örnsköldsvik was heavily dependent on the successful development of MoDo. In this section, we will make a well-presented depiction of “the state of health” in the municipality, described as a third mini-case.

The rise and decline of a prosperous municipality

Örnsköldsvik was historically the last outpost in the north of the real Sweden and was therefore developed as a market place from early 18th century. Craftsmen, farmers, hunters,

and Lapps from the entire northern wilderness produced goods, furs, linen and other necessities, which were introduced on the market place. These commodities were purchased by local farmers, who started profiling themselves as merchants, and transported them every springtime by horse and sleighs south to be traded in Uppsala and Stockholm. Through such “southern drives” to Sweden’s most dynamic areas lasting several weeks, people were able to return back with money, fine fabrics, silver articles, salt and other items that were needed at home. They captured new ideas, developed their business feelings, and by that vitalised their home ground. This developed a trade tradition in the locality, which became a melting pot, hosting different personalities with dynamic capabilities (Wichman, 1943). At this time, saw milling operations were also established, and were further developed along with the emerging steam technology. Thus, this entrepreneurial characteristic and the resultant creative atmosphere is assumed to be hereditary and the main explanation to why the region has always hosted a number of family businesses and been the most association-dense municipality in Sweden. According to Robert D. Putnam (1993, 2000), this is evidence for the abundance of social capital; in Putnam’s words: “The Örnköldsvik citizen does not bowl alone!”

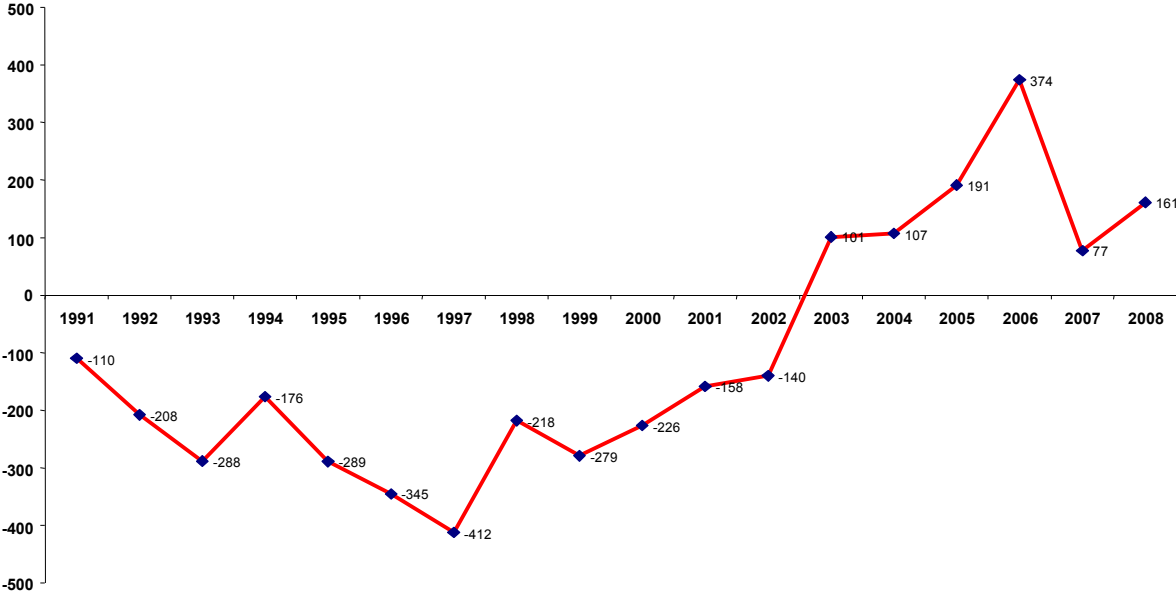
For long periods, Örnköldsvik was heavily dependent on the successful development of MoDo. However, the locality was complemented with another family-owned company, Hägglund & Sons. The founder and his eight sons developed the firm from joinery in 1899 to be the largest furniture producer in northern Sweden. Later on the firm specialised in the mechanical engineering sector, and developed to be the largest mechanical engineering company in the north of Sweden by the late 1950s. The company grew considerably, yet met a financial crisis in 1967, when it was partly acquired by Swedish ASEA, the dominant root of ABB. The family business epoch finally came to an end when ASEA took over completely five years later (Hultman and Persson 2004: 119).

Along with the growth and development of the MoDo Group and Hägglund’s, several family-owned enterprises were founded, functioning as sub contractors to the big companies. Today, the community hosts some 2500 companies, mainly in the forest-based and engineering businesses. Consequently, the Örnköldsvik eco-system has been flourishing since the early 20th century, and was continuously doing so up to the mid 1960s, due to the dynamics related to the two big companies; the atmosphere is said to have been characterised by “a belief in the future and in progress” by the time of establishing and expanding the MoDo plants in

Örnsköldsvik and Husum (Croon 2005: 49). However, this prosperous development of two companies had also turned the municipality’s political and governance system into a Sleeping Beauty, resulting in neglects of, for instance, the development of the community’s range of education in order to service its industry, trade and citizens.

The 1970s started with the oil crisis years and became “the decade of industrial crises” in Sweden, and MoDo, the principal driving force of the locality, was hit by a severe financial crisis. A devaluation of the Swedish currency, however, and a seven year global boom resulted in a prosperous 1980s for the entire forest industry. In spite of the forest industry performing well, the decade was otherwise characterised by contracting employment, a negative ‘net migration’, and decreasing community welfare (fig. 1). Moreover, the MoDo Group HQ was in practice transferred to Stockholm by 1985, which was taken as evidence that the locality was a pawn in the globalisation game. Further, the 1990s began with a severe crisis in the whole industrial Sweden. The Örnsköldsvik locality lost 3500 jobs, and had also turned out to be an extremely closed system; only Gotland, an island in the south, was closer concerning torrents of moving in and out. Left- and right-wing politicians in the municipality showed up bad cooperation, and “some were even bloody-minded with each other, and were sitting back waiting for the two big companies to fix everything”. The boundary between trade and industry and the political parties was too strict, and there were no trade and industry organisations covering the entrepreneurial interest in the community.

Figure 1. Number of ‘net migration’ to Örnsköldsvik; 59.434 inhabitants in 1990



Stagnating employment, combined with a significant increase in production, that is “jobless growth”, is a phenomenon that characterises the end of the second industrial revolution. The decreasing employment in Örnsköldsvik during the 1980s was evidence of increased global competition in an over-matured industry, and an indication of a new division of labour in the world. In other words, in the 1980s we experienced the death of one techno-economic regime, which no longer was able to create new jobs even in a high growth. This is in line with authors such as Chris Freeman and Francisco Louçã (2001), who claim that the mass production paradigm was taken over by a new techno-economic paradigm that had its breakthrough during the 1970s-1980s.

This stagnation revealed some shortcomings in the municipality; big companies had problems to recruit key people because the accompanying partner could not get a relevant job. Also, it was obvious that the locality was situated far away from universities or higher education options and lacking supply of culture and amusement events, not least for the young people. The name ‘Örnsköldsvik’ (hard to pronounce even for a Swede) is typically abbreviated as Övik;⁶⁰ young people renamed their dreary and boring home town as “Dö-vik” (Dead bay). The only positive thing in the area was the success of the local ice-hockey team in the country’s premier league.

From ‘Dead bay’ to ‘Red-hot-spicy bay’

However, the young people’s pun “Dead bay” in the second half of the 1980s made a deep impression on the then leading politician (a male social democrat) in the municipality. It was *the* signal that changed the attitudes of local politicians and started the renewal of the local eco-system, becoming a social force that hit politicians even more than the loss of job options. In the following we will describe how the Sleeping Beauty was awakened.

The leading politician understood that the locality needed a new industry, “a third leg”, preferably private service job openings for women, as an addition to the forest and mechanical industries, and therefore commissioned an architect bureau to outline a visionary plan. The result of this was the Arc building complex, with glass walls facing the seaside,

⁶⁰ Per Abraham Örnsköld worked as county governor in the year 1762-69. He had introduced the ‘linen wowing’, which had become the most important industry in the parish and was therefore honoured by giving name to the locality (Wichman 1943). The last syllable in the city name ‘vik’ means ‘bay’.

providing premises for service producing companies, a campus for universities, and a sky walk connecting the complex to the city centre. The block was named The Arc,⁶¹ symbolising the metaphor of the myth of the rebirth of life after Noah's stranding on Mount Ararat. From 1991 and through expansions later on, this block hosted the municipality's Conference, IT and Service Centre, a library and a museum, and also a regional campus for two universities. Through premises letting, it was soon filled with Scandinavian Airlines' booking centre, consulting companies and restaurants.

Coming home to a depressed business climate of the late 1980s, two former Örnsköldsvik citizens returned after international sojourns. One was some 30 years old and returned home to take care of the family firm. He had been working in large Swedish and American companies abroad. The second was the 50 year old scion of the grounder family of MoDo (3.2.6). These two Örnsköldsvik citizens, with international experiences and references, and both striving for renewal of the whole home region, started considering "new platforms" to act from. A regional Chamber of Commerce was one, and it was natural that the older home-returnee became chairman of this organisation. Further, he encouraged the University's vice-chancellor to summon "a group of independent people" to discuss the Bothnia region's future, and how to communicate its importance to the Swedish Parliament. The group, named 'the Bothnia Academy', put forward proposals on different themes, the first being a request to the government to promptly start projecting the Bothnia railway. This idea was not new; in fact it was (only) a lengthening of the east costal railway built 1923-27. Discussed for decades, a special 'Bothnia group', financed by the municipality and complemented with politicians representing concerned municipalities along the coast, had already been established.

At that time, 1991-1994, Sweden had a right-wing Government, and a northern MP had been appointed Minister of Labour Market. "He put the project on the agenda to which the Social Democrats also agreed, and when the municipality's leading politician (a female social democrat) in 1994 returned home after her MP session as a municipal commissioner, she started lobbying energetically in Stockholm to put this huge infrastructure investment into effect.⁶² Different delegations, with the afore-mentioned Minister of Labour Markets now appointed governor in the county under a new Social Democratic government, and with the

⁶¹ In Swedish: Arken

⁶² This lady is Örnsköldsvik's municipal commissioner and also a member of the Social Democratic Party's executive committee since 1997. She has been a member of the Swedish Parliament (Riksdagen) during 1991-1994.

municipal commissioner, petitioned the Social Democratic Minister of Industry and Trade. They not only managed to get the proposal sanctioned, but also to get the whole project started in Örnsköldsvik. The main purpose of the project was to connect the region's labour market closer to Umeå, a centre of education, medicine, finance and administration situated 120 km north, and the capital of northern Sweden. The lengthening of the 190 km railway is calculated to cost some 1,5 billion €, which is a huge amount in northern Sweden standards, and the biggest railway investment in Sweden in modern time.

The establishment of the Arc complex and above all the lobbying and decision for the new railway, the new political leadership and a visible capitalistic structure and its leadership changed the cooperative climate completely and started other processes. MoDo and Hägglund's, for instance, started discussions with Umeå University and Luleå University how to organise further education of upper secondary technical engineers to succeed the older management. To support this initiative, the municipality established an Education Centre to cooperate with industry and trade in their efforts to organise relevant education. So, relevant education for the area from both Mid University⁶³ and Umeå University was gradually delivered onto campus. Therefore, the Minister of Education was petitioned by a delegation led by the leading politician, which resulted in that Örnsköldsvik finally became the fourth campus of the Mid University.⁶⁴

Moreover, three organisations for private companies and the municipality's departments for 'Industry and Trade' and 'Higher Education' are located together in the same corridor in the Arc complex; this fact has been decisive for a successful industrial policy work. The sharing of lunch time and coffee breaks results in spontaneous meetings, which give unique possibilities to exchange information and to "process common issues", which results in un-bureaucratic solutions, and by that short decision channels. Through this constellation of 'Industry and Trade and Municipality in Cooperation' politicians and company representatives can experiment informally and anchor the right solution before taking the formal decision.

⁶³ The name 'Mid University' indicates its situation in the middle of Sweden though belonging to, and being considered as a part of northern Sweden.

⁶⁴ The author of this chapter was lecturing on this campus in the spring of 1994 when also the Umeå University part was formally inaugurated by its vice-chancellor.

In 1995, the daughter of a building contractor and owner of a real estate company, and her family, returned home to Örnsköldsvik to organise a generational transfer of the business. At that time, the tradesmen had registered a 25 year period of decreasing businesses; people were simply shopping in neighbouring cities. This returning couple, well-educated with experience in international companies as change agents, started communicating with the leading politicians about the negative indicators. The work resulted in a project to improve the city's image⁶⁵; 100 tradesmen (40 %), 40 real estate owners (40 %), and the municipality (20 %) financed a company, which is managing activities trying to turn the negative trends. The board is chaired by one of the home returnees, and its steering committee is chaired by the head of the municipality's technical department. This dualistic governance, one chairperson from the municipality side and one from trade and industry, is argued to have made the processing and decision-making easier. Further, the home-returning couple acquired a worn-out block in the centre and restored it to become an excellent mall. It is common opinion that this couple took a qualified commercial risk, but also that their investment was a decisive contribution to the needed make-over of the centre. The shopping trends in the community have turned around; 40 nationwide business chains have established in the community, and the municipality won awards for having the best city centre in Sweden in both 2001 and 2008.

Thus, both the trade and industry and municipality spheres had been working to rejuvenate the eco-system for a number of years, when in 1997 *the Center for Business and Policy Studies* (SNS)⁶⁶ in Stockholm, a politically independent organisation professing itself to market capitalism, was commissioned to operate a campaign called "*Shedding light - Local cooperation for growth and renewal*". The SNS organisation, with 'local groups' in a number of communities around Sweden, encouraged "a national action for strong measures" in a handful of communities, the background being that "Sweden had changed...in 25 years falling from 3rd to 17th ranging in the welfare league...unemployment was troublesome...people felt uncertain about their future". Some 40 other nationwide organisations such as employers' federations and trade unions, took part in this national project, which was coordinated by *the Royal Swedish Academy of Engineering Sciences* (IVA),⁶⁷ and partly financed by *the Ministry of Trade and Industry*. The executive of the Chamber of Commerce in Örnsköldsvik "threw him into this option" and succeeded in getting

⁶⁵ The Cesam-project; the name is short for the project's Swedish name.

⁶⁶ In Swedish: Studieförbundet Näringsliv och Samhälle - SNS

⁶⁷ In Swedish: Kungl. Ingenjörsvetenskapsakademien – IVA

his community as a case in the campaign.⁶⁸ To implement this ‘Shedding light campaign’ locally, some 20 decision-makers in renowned companies and the leading politician, together with the principal opposition politician, were called to a series of seminars discussing cooperation for growth and renewal in the eco-system. These persons represented themselves, not their companies, and constituted themselves as “a group of fiery spirits”. They concluded that swift measures had to be taken to improve the region’s attractiveness, and therefore they decided to order an investigation of the McKinsey type. This work resulted in a joint strategy of cooperation between the industry and trade and the municipality. A package of measures was organised in a number of ”developing themes” with a fiery spirit responsible for the outcome: one for ‘bio fuel’, ‘digital printing’, ‘employment and entrepreneurship’ etc. These enthusiasts recruited more people and soon some 130 people were involved; during its first year, 400 meetings had been registered. This work became an important part of the County Administration’s ‘EU Growth program’. So, in 1998, a joint strategy between representatives of trade and industry and municipality spheres was launched as a *Vision 2008 document*, covering a great number of activities with specific objectives to be achieved during the next ten years.

In 2004, the Örnköldsvik region was rewarded (together with Gothenburg and Malmö) with a special distinction for being the fastest-growing regions in Sweden, and during more recent years, the municipality has been ranked among the four best municipalities in terms of citizen’s salary growth, with one year being ranked number one in Sweden.⁶⁹ By the beginning of the 1990s, there were only a handful of electronic engineers employed at the former Hägglund’s. While this ABB subsidiary has been split up and changed owners, its constituent parts remain top players in the world within their respective industries. Along with the success of the company’s war vehicles, some 100 university engineers have been employed yearly. “A war vehicle is as electronically intensive as ever a war fighter”; the Örnköldsvik citizen is no longer bending sheet metal but is approaching real knowledge intensive businesses. Also, a spectacular seaside arena for sports, amusements and convention centre has been inaugurated and a local world famous hockey star has set up a golf centre. And young people’s popular name for Örnköldsvik is not “Dead bay” (Dö-vik) any longer; they are now talking of ”Red-hot-spicy bay” (Glö-vik). In fact, the objectives outlined for 2008 were already reached during 2005. Therefore a retake was implemented with a lot of

⁶⁸ The Swedish name of this campaign was *Ljusåret 1997, Lokal samverkan för tillväxt, utveckling och förnyelse*.

⁶⁹ *Affärsvärlden* (2005); *Trenden pekar norrut*. (Translation: The trend points to the North)

new fiery spirits, activities and objectives resulting in launching the cocky *Project World Class 2015*. Like Vision 2008, which early became a trade mark, World Class 2015 has also become a concept for rallying in support of the locality's policies and attitude in general. Processing the vision creates space for penetrating attitudes and long-term issues; it makes people talk about a community of world class in which to live, work, and visit. And from 2003 and onwards, the municipality has registered a positive net migration (fig. 1). Thus, the atmosphere in the eco-system is quite different compared to the one 10-20 years ago.

Explaining revival or “What woke Sleeping Beauty?”

The underlying, principal driving force of the revival has been the Bothnia Coastal Railway; “the decision to build gave a kick, and we said to ourselves that now we must start rebuilding the town so it's ready for when the train comes”. However, without the “Shedding light campaign”, the Vision of 2008 would have been something different. The participating organisations from right to left legitimated the firm executives to be engaged:

We realised that the future was a common affair, and that the vision concept had to be put into effect in the interface between the trade and industry and municipality spheres. If we don't do anything now, it's better to leave the town. We were all sitting in the same boat, Örnsköldsvik is our children's home town, it was a common affair, and no one should sit on the sidelines. That's the way *Vision 2008* emerged and became the inspiration in everybody's daily round. We simply became motivated to be a part of its context.

Also, projects and activities were simultaneously processing in the same closer eco-system. The Shedding light campaign, with an underlying corporatist model supported by organisations from left to right, made it legitimate for a number of managers to take part in the discussions. Also, its timing was perfect; decision-makers from trade and industry and the municipality had common interests in managing the huge railway investment optimally, and were getting together to sharpen arguments and get to grips with the construction. All this work created a critical mass, which generated and maintained the driving force for the renewal of the community; *a magic symbiosis* emerged and created the breeding ground for the World Class 2015 project with an ‘after the oil’ perspective.

However, to uncover the metaphorical expression of magic symbiosis on a more explicit conceptual level, four components need to be distinguished and used for explaining the revival of a torn-down eco-system. The first one is the (simultaneous) accumulation of extremely competent people: On both the trade and industry side and on the side of the political parties, there are people that have acquired experience from exclusive assignments in multinational companies and having acted as CEOs of subsidiaries of foreign companies, in listed companies in Sweden, in SMEs, and from the national level politics. The scope of experience covers various industries and functional specialities. The home-returnees provided international experience and networks; and perhaps most importantly of all, they returned home with benchmarks and visions from other countries, from both small and large cities. There was a social, intellectual and experience-based capital available in Örnköldsvik for mobilisation to take place.

The second component is the creative and engaging atmosphere facilitated by the municipality's leading politicians; this has not always been the case. There were times when, firstly, the boundary line was very sharp between politics and the representatives of trade and industry, and secondly, the municipal commissioner and the leading opposition politician were earlier far from cooperating. There were tensions due to conflicts of interest and different social outlooks on "the boundary line". Fortunately, these politicians were followed by 'a real horse of a pair', which turned the climate towards collaborating across various dividing lines. The politician in power has been able to institutionalise cooperation even across the public and private spheres of the community; "she is looking upon cooperation with companies in the community as an aim as such".

The third component is the situational formation of much-needed coalitions, the input and usage of existing national institutions, and the creation and usage of new institutions on regional and local levels. This is commanded by new regional and local actors, who are making use of their own personal networks and professional links. The fourth component of the magic symbiosis is the widely-shared sense of crisis and urgency, relating to the period when the real take-off happened. The process of arguing in favour of building the Arc complex started in the second half of the 1980s. However, the real take-off is registered from the mid 1990s and onwards, due to shifts in generations and the accumulation of extraordinarily competent and committed people in both trade and industry, and in the municipality. With objectives outlined for 2008 reached in 2005, the time period from action

to “retake” for World Class 2015 is more than 15 years. Restructuring processes and changes take time...

We have depicted the work with the Bothnia railway to stress its importance in joining two supplementary labour markets and, by that, capturing expected dynamic effects for the regional eco-system. All the petitioning to government ministries functioned as a form of invocation to a higher power, and summoning meetings to discuss what to do, created collective excitement for commitment and action. The development of Processum and especially its renaming to Bio Refinery, and the building of a new knowledge infrastructure were also strategies to capture future business opportunities. These two projects, aiming at making over the old industrial town, have much in common with the proactive collective and imaginative aspects of the strategic change in “The Making of the Øresund Region” and the “faith in the bridge” between Malmö and Copenhagen (Berg and Löfgren 2000: 21).

Innovative localities in an experimentally organized economy

The purpose of this section is to clarify the emerging Swedish business system; the decentralisation of the university system resulted in regional centres of knowledge, which, together with the industrial competence concentrations, constitute principal ingredients in emerging local innovation systems. This concept had become a policy tool by the turn of the century. Public agencies now support knowledge clusters with special policy tools, for instance governmental growth programs and campaigns for dynamic areas, whereas local or regional innovation systems are invited to compete for funding. Entrepreneurial initiatives and new forms of social capital are other elements for the Swedish business system to participate in the global economy.

Transformative dynamics, new types of actors and institutional experiments

Due to constantly increasing international competition, most of the competence concentrations and MNCs are meeting severe shake-ups. Related to these occurrences, thousands of individuals are being laid off. These individuals, with competences accumulated over their careers, are potential entrepreneurs with human and social capital and the power of identities, which could be bridged to new businesses. The recycling of the human capital of

Lab of '41 into MoRe and Processum, and the revival of a stagnating mill town, are illustrative cases of such a phenomenon. New types of actors have emerged, sometimes as home-returnees, and are in command. They are recombining experiences, resources and institutions, and by that starting co-creating processes so dynamic that new modes for globalisation have been developed. Their personal networks and professional links to national institutions and innovation systems have been significant. Further, these activities have been implemented by actors who are extremely skilled and powerful in their contexts and therefore capable of being proactive in acquiring institutional support. Consequently, it is very important to create an abundant supply of highly educated and productive people; human skills and competences are more important than clusters of companies. Florida (2001) goes a step further and argues that there is a special segment of human capital, a creative class, which is a driver of regional growth. One of our four explanations of the revival of Örnsköldsvik's community concerns the simultaneous accumulation of extremely competent people. We argue that abundant social and human capital, sharpened with home returnees, a creative class, has been an excellent rejuvenating force in a stagnating eco-system stuck in culture and attitudes of bygone prosperous times.

Concerning local and global networks, AnnaLee Saxenian (2002) has noticed that foreign-born entrepreneurs in Silicon Valley are becoming agents of global economic change. They too have maintained extensive professional ties to their native countries. Thus, the author establishes the fact that nations' loss of skilled people ("brain drain") actually can be followed by "brain circulation" and "brain regain" if the immigrants return home. Further, these protagonists' importance "to economic development lies not in the direct contribution of assets, but in the role of these networks in the design and construction of new institutions in the home countries" (Saxenian and Sabel 2008: 383). We have noticed this brain circulation phenomenon in this Swedish case.

Also, in this case, decentralised (and sometimes also national) bodies of firm federations, trade unions, individual firm executives and politicians have together formed different campaigns and coalitions; there are a lot of situations when there have been "negotiations" between different stakeholders. It is obvious that the roles and interaction of every day work is very open and more ambiguous. Dualistic governance and mini-corporatist settings have become a standard for collaborating across interest boundaries in the locality; and through all these collaborations, complementarities of organisational roles were institutionalised.

The power of identity and the role of social and human capital

The new types of actors' engagement in social movement initiatives are an interesting phenomenon, due to their national and international reputation. As initiators, there are private citizens in multiple roles and spaces driven by an identity constituted by their work experience and cosmopolitan way of life, but still tailoring their initiative to the needs of the local heritage and context. Through this stakeholder participation, in a neo-corporatist tradition, they wiped out the boundaries between trade and industry, and the political parties, which resulted in a force for renewal. Within this local community there is a shared cultural context based on industry-specific practices and values. This concerns even sparsely populated areas, due to long established mill society traditions. These people stress the value of free public service for caring and education, and "soft factors" like an equal society, a stimulating working life, competence development at firms, technological front-line, easily available recreational milieus, and a clean environment. Manuel Castells (1997) argues that in the constantly changeable global world of today, the definition of 'identity' has obviously become more sophisticated and an important element in a person's character. And the most important element of our identities in the New Economy era is not where we work; it is rather a combination of where we live and what we do. Illustrations of this are the loyalty and commitment of the key creators of MoRe and Processum that were so strong that they started working to preserve the values and competence of this mill site. And when in 1999 a decision was taken to close down the sulphite mill, some directors took it over privately and prevented its closure. Also, people have told us that it was impossible to start using the new name, M-real, after the acquisition of ModoPaper, when presenting themselves in a phone call. These types of symbolic likes and dislikes joined people together and created "a bloody force to survive". These examples are expressing a social attitude containing elements like links between individuals, fellowship, norms for reciprocity and reliability.

Counter productive and missing institutional elements limiting the progress towards innovative localities

One can wonder, however, if Swedish institutions are sufficient enough to encourage the potential entrepreneurs brought up in MNCs to catch start-up options related to shake-ups and other crises? Why did the key persons in the MoRe case not stake money of their own in a project they so obviously believed in? The principal explanation is that the Swedish tax

system does not encourage high-salaried (well-educated) individuals to start up firms. Simply, the alternative cost for a well-educated person to give up a secure life as an employee is too high due to progressive taxation. The return on invested capital is therefore too low. On the contrary, for individuals with a weaker position on the labour market, self-employment can be a way to get a 'livelihood job'.⁷⁰ Thus, the focus of industrial policy in Sweden has changed from big companies to improving the entrepreneurial milieu. In this context the most significant deficiencies are the lack of venture capital and the counter productiveness in the tax system; both of these factors concern the issue of risk-sharing in the society, but reforms and improving measures are still missing.

Experimenting, interacting and knowledge-based initiative in an enabling welfare state

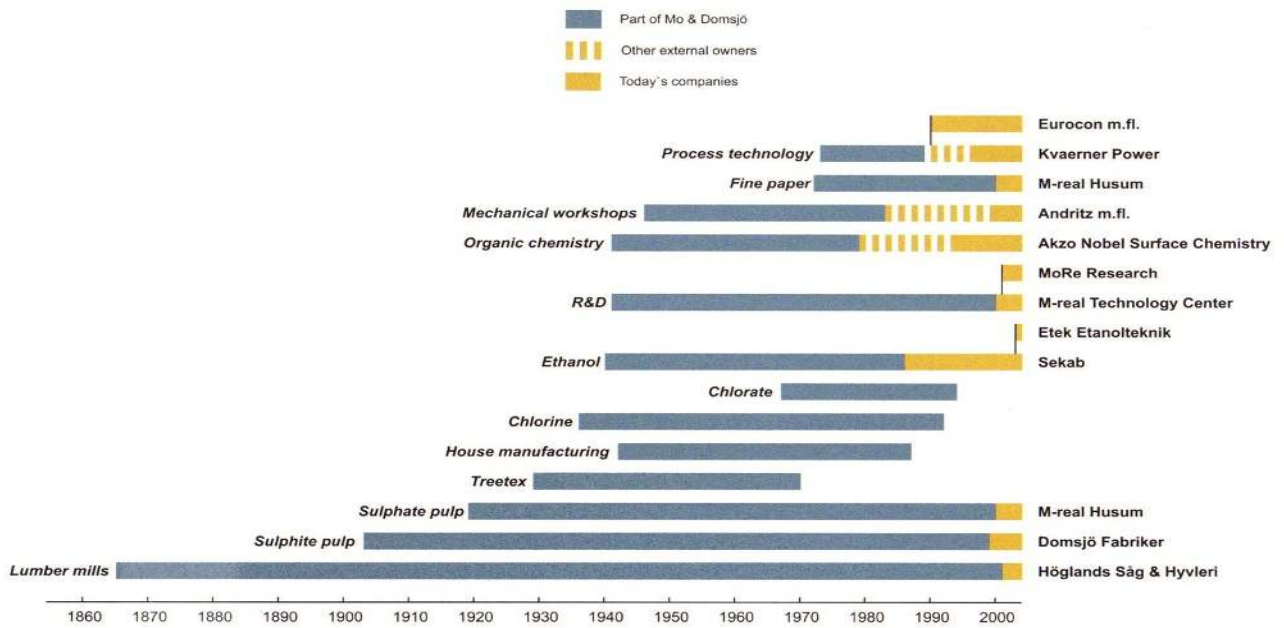
In the Swedish case, we have described a stagnating town and its mill site's transformation into a competitive eco-system in the global economy. Other parallel Swedish regions, in stronger institutional environments, are Lake Mälaren (ITC concentration), Uppsala (medicine), and Malmö (Øresund Bridge). They all have revived after shake-ups in core MNCs. At the time of writing, characterised by severe financial and industrial crises, brainstorming on governmental and other levels is going on how to secure the competence concentrations around the well-known Swedish car brands Volvo and Saab. If Sweden loses the production of vehicles, what are the methods to develop this concentration into a global value constellation and still having their business operations anchored in the country? We claim that all clusters and sub-contracting systems of the Swedish MNCs are the humus from which new firms can sprout, giving Sweden great opportunities to let these competence concentrations breed into a new knowledge-based economy. Thus, continued experimenting and interaction with a decentralized innovation system constitute the dynamics of endogenous growth in the future in Sweden. The wide variety of all flagship companies operating and having centres of excellence globally, has brought up generations of internationally experienced management, which could be spilled over and recycled. This competence continues to be the back bone in the Swedish economy.

⁷⁰ The Swedish Globalisation Council, report no 12, 2008.

In contrast to the centralised mode of coordinated capitalism that characterised the old Swedish business system, the described shake-ups have resulted in new experimental modes of governance and participatory organisational practices at a decentralised level, even in sparsely populated areas. Consequently, it has opened up new social spaces, as shown both in the municipality context and on the old mill site. Like in the Finnish case, these changes concern the national innovation system including the higher education system, the system of regional (and local) governance, and with that the regional and local welfare service system and the industrial relations system. The new social spaces have enabled actors to reconfigure their roles and identities and coalition bases, to make use of existing institutions, create new ones, and exploit resources granted by public actors at the local, national, and sometimes transnational level in order to reach their objectives.

We hypothesise that such a constant negotiation, or rather interaction, between interest groups across different sectors, even on local levels of the society is simply a new form of stakeholderism in Sweden. These mechanisms create open innovation environments with short links to nationwide and sometimes international competence concentrations. The “local and more available context” results in pragmatic approaches to policy-making and facilitates actors’ learning and socialisation into new identities and roles. Using terms from the old Swedish Model, this can be interpreted as a new type of mutual understanding. Mutual understanding concerns the common life style values, the strive for equality, the specific mentality of compromise thinking and the consensus on labour markets, which still are fundamentals in the business system.

Appendix 1



Chapter 6

Slovenian Evolutionary Business System Dynamics

Marko Jaklič, Hugo Zagoršek and Aljaž Hribernik

Introduction: Dynamics of the Slovenian business system

The following chapter delves into the dynamics of the Slovenian socio-economic development. It first presents the functioning and evolution of the traditional business system that has been around for the last 150 years and been based on the subsistence paradigm. The review concludes that the system's subsistence-oriented developmental drive has become exhausted and cannot support Slovenia's inclusion among the world's most developed economies and societies.

The second part of the chapter thus investigates Slovenia's ability to advance towards internationally competitive and knowledge-driven socio-economic development. This is done by mapping the current dynamics of the Slovenian business system on the basis of field research. We identify several successful Slovenian companies and then study how they and the individuals within them compete and strive to be successful. Our focus is not on the selected companies as lone riders but on their interdependence with the national business system at large so as to give us an idea of how the business system enables companies and individuals to succeed. As the companies and their case studies are integrated into the text and appear throughout the whole chapter, we briefly present them to facilitate a smooth reading and better understanding of the following chapter.

- **Kolektor:** Established in 1963 in a remote valley of Idrija to offer employment for local people as the world's second largest mercury mine in town was ceasing its operations. The company started commutator production and in 1968 entered into a joint venture with Europe's then leading producer of commutators – German Kautt&Bux. Investing heavily in its own R&D Kolektor technologically overtook its German partner in the late 1980s and, after a wave of M&As, emerged as the strongest global brand, global market and technological leader with subsidiaries in China, Korea, Brazil, the USA and Bosnia.

- **Danfoss Trata and Lek Sandoz** are included in our research as they are previously independent Slovenian industrial gems that are now successful parts of larger foreign multinationals. While Trata, a specialist in district heating technologies, was rescued by Danfoss in the early 1990s as it lost its key Yugoslav market, Lek, a generic drug producer was sold in 1998 in top shape to Sandoz so as to leverage Lek's further development. Today both companies have established themselves as centres of excellence within their respective multinationals and both are recognised for their flexibility.
- **Gorenje** is a Slovenian home appliances manufacturer and a blue chip with a long tradition in having a global market reach.
- **Parsek** is an IT company that today operates in the field of Internet applications and was founded in 1999 by four young students at the Faculty of Economics in Ljubljana. The founding of the company is an excellent example of how various institutions within the Slovenian business system can be used to facilitate student entrepreneurship. Parsek developed a sister company Httpool which deals with Internet advertising. While Parsek itself has remained a predominantly local-regional player, Httpool has developed into a global operation. Recently, Parsek's founders have become engaged in another global joint-venture (Noovo) and Parsek, with its stable business and renowned brand, can be seen as their basis and a source of risk-hedging.
- The companies **Goap, Systec and Instrumentation Technologies** were all founded after 1990 and soon achieved a global reach. **Goap and Systec** are sister engineering companies established by the same founder. Both have achieved fast growth due to engineering excellence, flexibility and their strategy of following their clients. Established in 1998, **Instrumentation Technologies** is a global leader in the field of laser beam technologies for particle accelerators. Its founder quit his international career as a researcher to return home and set up his own company in Slovenia as he believed that, as an entrepreneur in Slovenia, he could have better strategic control over his company's business than would be the case in Silicon Valley where he had previously worked.

Both founders have been co-operating as promoters of the regional development programme for the Goriška region in which their companies are located. They have managed to attract to it much larger and older companies like Kolektor which were previously relatively closed to the

outside world. They are good examples of the strong dynamics that new global companies are generating within the Slovenian business system.

Finally, the last part considers a handful of institutions we believe to be crucial for propelling Slovenia to further develop along the lines of the enabling welfare-state concept. The section gives an account of where Slovenia stands in comparison to its Nordic peers and what can be learned from them with respect to Slovenia's institutional differences.

Slovenia's traditional subsistence-oriented risk-sharing business system

The following section presents the roots, functioning and evolution of the country's traditional business system. A case study of Kolektor is used as an illustration of the business system's logic and development.

Historical roots and development

Kristensen and Jaklič (1997) describe Slovenia as consisting of localities with internal social co-operation between native social groups and local enterprises. Localities featuring strong internal social cohesion are rooted in the distant past because Slovenia's ongoing geo-political situation is structured primarily by the Alps. In such societies, locality is more than an administrative abstraction as it gives a social space a physical place. The Slovenian valley community can be understood as a Slovenian equivalent of a Jutland railway town, albeit functioning in line with a substantially different logic.

The Slovenian traditional business system started to take on its current shape in the second half of the 19th century when feudalism was abolished in the Austro-Hungarian Empire. At that time Slovenian farmers were stuck with small farms, which they had bought from previous landowners. They were heavily taxed by the Empire and, in addition, the hereditary rule stated that the heir had to pay a fair share of the inheritance to his brothers and sisters in money, or the farm would be divided into equal parts. Because of that and due to the rough farming conditions of the mountainous terrain, small farmers were prevented from accumulating wealth and discouraged from embarking on any entrepreneurial activity that would enable them to improve their farming

conditions (Kristensen, Jaklič, 1998). Apart from hard work as peasants or early industrial workers people started to develop local mutualism, i.e. a shadow economy and family help as means of improving their standard of living through the untaxed exchange of services. Finally a passive, subsistence-oriented business system was created where unofficial institutions, i.e. moonlighting and family assistance, were subsidising official institutions, i.e. a system of small farms, primarily foreign- or church-owned forests, mining, saw mills and an emerging manufacturing industry.

The Slovenian traditional business system has thus been fundamentally defensively or subsistence-oriented. It has been based on four tightly interwoven institutions: a) work within the formal economy, e.g. in a factory; b) locality, which provided the social space for moonlighting; c) the family which assisted the individual with different services e.g. care for the elderly; and d) the state. The latter played a highly important role as a key economic player, controller and generator of institutional dynamics. After WW II the state extended and upgraded its central role as it started to provide universal social security and welfare. Thus, apart from subsistence a general feature of the system was elaborated risk-sharing since all the mentioned institutions – companies, state, the family and locality – were used by an individual to share and hedge risks.

An interesting portrait of the development of the Slovenian traditional business system emerges with the example of the Idrija valley, a locality we will draw on extensively in the following chapter. On one hand, it is a highly characteristic yet at the same time also untypical valley community, a narrow, gorge-like locality in western Slovenia today is home to some 12,000 people and two key Slovenian multinationals, Kolektor and Hidria, with the former featuring here as a central case study for our research. The economic history of the community began in 1490 when organic mercury was found in the local river. Within 20 years a mine had opened in Idrija and from then and until the 1970s the local economy was based on the mine, the world's second biggest of its kind throughout its period of operation (Groff Ferjančič, 2000).

What made Idrija a characteristic valley community was its remoteness and closeness, resulting in strong ties of interdependence between the people and the mine (later the two companies). The fact is that for centuries the whole valley had depended on the mine as the only significant business in town which gave workers everything from money to food, wine, clothes, schooling and medical treatment. Thus there was no market left for the development of private initiative. The miners were

well aware of their dependence and developed a strong working culture in exchange for the social security the mine was giving them (Groff Ferjančič, 2000).

Although importantly different, Idrija also displayed local mutualism and risk-sharing that was so typical of the Slovenian business system, except that it took on some special form there. In order to top-up their incomes, miners, with their whole families usually helping, were allowed to work in the mine during non-working days for their own account, meaning that they could sell the ore they had mined to the mine (Groff Ferjančič, 2000). Interestingly, this pattern has continued within Idrija's modern multinationals whereby some workers and their families can use their free-time to additionally work for the company for their own account.

Yet, on the other hand, its economy was far from typically Slovenian. First, unlike in other parts of the country Idrija's key businesses have always competed in the international market. This has been so since the 15th century as the price of mercury was set on the international market and the Idrija mine had to adjust to it. While most other industries in Slovenia had been locally oriented or had not exported outside of the Habsburg Empire, Idrija had always functioned and lived in synchronisation with the international market. The same story continued during the socialist era. While the majority of other businesses were oriented to the Yugoslav market and enjoyed protectionist measures, Idrija's fortunes continued to be earned on the international market (Groff Ferjančič, 2000), first by the mine and then through the successful export activity of its companies. Thus, it is not surprising that today both companies from the Idrija valley are multinationals. Knowledge of doing business on an international scale has a long tradition in Idrija.

Second, for centuries the people of Idrija have been workers rather than peasants as was the case in other parts of Slovenia. The local inhabitants have based their living on industrial work instead of agriculture for which their valley with its steep walls and cold climate was in any case ill-suited.

Third, a considerable pool of engineering knowledge has been created and a culture of engineering achievements has become established. In 1728 a technical and geodetic school was opened to train miners and engineers. Such a strong linkage between education and industry has continued until today as both multinationals have been actively investing in their employees.

The traditional business system and its development

In a similar way to how the locality of Idrija is a miniature picture of Slovenia, Idrija's prime multinational Kolektor is at the same time a characteristic yet also in a way an untypical example of the Slovenian traditional business system's functioning at the corporate level.

Kolektor's founding in 1963 was, in line with the socialist practice of the time and in line with an activist government approach typical of the Slovenian traditional business system, a political decision made by the central Slovenian government seeking to provide jobs in the town where the mine was closing. Yet, in a few years it became clear that domestic technology in the field of commutators was out of date and that a foreign strategic partner was needed to bring in more advanced technological knowledge. Thus in 1968 German Kautt&Bux (K&B), the then European market leader, became a strategic partner and 51% owner of Kolektor. Although there were only a few examples of foreign strategic partnerships at that time, Kolektor demonstrated a general feature of the traditional Slovenian business system: its openness and strong ties to Western-Central Europe stemming from centuries of development within the Habsburg Empire. These Western ties were never severed and can be seen as a crucial contributor to Slovenian socio-economic development.

Similarly, the development of Kolektor, albeit in collaboration with the German K&B, was in many ways characteristic of Slovenian industry between the 1960s and 1980s. Like many other Slovenian companies Kolektor built upon foreign technology and set upon a path of incremental innovation which was well-suited to the concept of stable life-long employment and the Fordist work organisation followed by the majority of (large) Slovenian industrial players.

In line with their work organisation, Slovenian companies have generally followed the German innovation pattern (Soskice, 2004), focusing on known technological trajectories and specialising in incremental innovation. The innovation process has been cumulative and employees have consequently developed firm-specific knowledge and skills. In such circumstances innovations are best implemented by long-term employment and in-house training rather than hiring and training new workers (OECD, 2006). Kolektor has been and partially remains an almost perfect example of the Chandlerian approach to innovation characteristic of the "old", i.e. ex-socialist large, Slovenian companies.

As we show later on, this closed approach to innovation has inhibited the ability of large old players to adapt to a modern open innovation approach as needed in the globalised environment. Further, the closed Chandlerian approach to R&D and ensuing firm-specific knowledge have inhibited the employees' labour market mobility.

At the same time, the majority of Slovenian companies could be described as diversified niche players. While each company has covered its own core business niche it has hedged the risk of being dependent on one product or sector by venturing into a handful of other businesses. Thus companies developed a technological focus on the level of departments or business units, while being diversified on the corporate level. To this extent, Kolektor, at least up until the last decade, was an exception. Being strategically controlled by K&B until the 1990s it was forced to remain entirely focused on commutators.

Overall, old Slovenian manufacturers present an interesting contrast with Danish firms. While both environments seem to have been better suited to support incremental innovation rather than a radical one, Danish firms have implemented it with a dynamic workforce and by championing product networks of small, specialised firms. Conversely, Slovenian companies have opted for stable workforces and, instead of building alliances with other firms, they have diversified internally. It is easy to see that the traditional Danish model can easily be adapted to the network and open-innovation reality of the modern global economy while old Slovenian companies have struggled to grasp it, as we show later on. Further, traditional Danish labour force mobility coupled with strong lifelong learning have turned out to be a welcome tool for knowledge transfers and boosting innovations. Slovenian lifelong employment and highly firm-specific knowledge on the other hand have deprived workers of greater mobility and companies of innovative and networking potential.

Another area where Kolektor has differed importantly from the majority of Slovenian companies has been its business philosophy. In line with Idrija's heritage of technological excellence, Kolektor invested heavily in its own R&D. It was so persistent in learning from K&B and developing its own solutions and committed to excellence that, by the early 1980s, its technological level surpassed the level of its German "mother". In this way Kolektor established itself as strategically capable

company that could compete with any global producer in its industry. This strategic capability that was gained primarily through its own R&D later launched Kolektor as a global market leader.

While they did invest in R&D and technological development, most Slovenian companies did not go as far as Kolektor, i.e. establishing themselves as international technological leaders and instead focused on the cosy Yugoslav market and competed internationally on a low-cost, low-price basis.

This is logical if we know the background story. After WW II the victorious partisans who took over ruling the country acted in line with the Slovenian valley community reality and took on an entrepreneurial role. “Partisan managers”, i.e. people who were trusted members of the Communist Party often due to their role in WW II guerrilla fighting, started establishing industry i.e. factories that would give people work and an income that, together with the proceeds from small farms, could enable people to live a decent life. Partisan managers were assessed by two sides, i.e. by their locality and by the Party, with the former being the key constituency. Namely, with himself being a local the partisan manager was the *primus inter pares* and was assessed by his fellow locals by the level of economic prosperity his factory was creating for the valley community. The Party, at the top, was primarily interested in the public sentiment since it considered that its legitimacy came from its ability to provide public prosperity (Jaklič, 1998).

Partisan managers formed a tightly-knit network that functioned on the basis of mutualism and reciprocity, meaning that they helped each other develop their businesses and overcome difficulties. At the same time, they were closely connected to their localities which expected them to provide jobs and income. Local companies in fact became the economic engine of the valley communities providing jobs and wages to the employees, scholarships to the employees’ children and cheap loans to the employees who built their own houses. Overall, industry was designed and functioned to support the traditional Slovenian business system and not to change it (Ibid, 1998).

Although companies were organised in a mass-production, Fordist way they employed many skilled craftsmen. They were willing to accept the relatively dull repetitive work in exchange for the social security the company gave them. Further, they could more than express their abilities in the afternoon when, as moonlighters, they helped their fellow locals build their houses. At the same time, companies were also strongly linked to moonlighting. In particular, middle managers were in

charge of covert transactions that benefitted the community rather than the company itself and companies were seen as a means of accessing resources that otherwise lay beyond the locality's reach.

Another peculiarity concerning the functioning of these companies was the lack of hard budget constraints, a feature that was all-encompassing and the result of lax monetary policy used as the ultimate risk-sharing tool since it prevented companies from going bankrupt. As a consequence, the Yugoslav dinar was not convertible and the country was chronically in need of foreign exchange. Companies were therefore stimulated to export and generate hard currency inflows even if that meant selling abroad at a loss. That eventual loss could be compensated for by selling at a profit in the well-protected home market.

Although Kolektor was no different from other Slovenian companies in terms of its importance as a local economic engine, due to its joint-venture status it did avoid these dubious business practices, focusing instead on core competencies which later enabled the company to emerge as a global market leader.

Slovenian business system logic: risk-sharing, cautious incremental experimentation and evolutionary socio-economic development

In order to understand the development and functioning of the Slovenian traditional business system it is necessary to address its core logic i.e. risk-sharing that has facilitated cautious incremental experimentation which has, in turn, led to steady or "gradualist" evolutionary socio-economic development.

The fact that social, economic and political development in Slovenia is relatively gradual and evolutionary was best seen during the transition in the 1990s. As Slovenia started and advanced through the transition period it was regularly described and criticised for being a standard-bearer of the gradualist approach to socio-economic change (Mencinger, Jauregui 2004). While Slovenia did in fact take a very gradualist approach to its economic transition, this was not imposed on the country by the governments of the time or their economic advisers but was more the continuation of a long legacy. In addition, gradualism did not mean standing still but cautious progress.

Since the 1848 March Revolution Slovenia has survived a number of deep-impact political and economic changes as well as challenging times. Yet such changes and challenges, ranging from the abolition of feudalism in 1848, the communist revolution in 1945 and finally the restoration of a market economy in 1991, left the fundamental logic of the traditional Slovenian business system intact. No revolution dismantled the system, rather each ruling elite adopted and employed it to achieve its own goals. The 19th century capitalists used the established elements of the Slovenian subsistence-oriented peasant business system to effectively subsidise production. After their takeover in 1945, the communists also did not challenge the essence of the traditional business system. They conversely legitimised their rule by leaving the valley communities and tailoring industrialisation to their needs, in stark contrast to certain other communist countries where economic policy dictated the fate of localities.

While the building blocks of the traditional business system remained in place despite these changes, their actual functioning was always adapted to the altering circumstances. During the socialist period the shadow economy, for example, adapted to the fact that factories were socially owned and part of local society. Soon the ties between the official and shadow sectors were strengthened as the socialist soft budget environment allowed localities to extract extra benefits from companies. At the end of the 1980s the way the traditional business system function again changed, this time by moving into “transition mode”. Now it was localities that helped their companies by accepting wage freezes and longer working hours. A job in the official economy remains the cornerstone of the risk-sharing system but at the same time it has ceased to be guaranteed, while other risk-sharing institutions have been assigned different tasks to help individuals offset their falling real incomes from the official sector that was caught in the transition crisis, e.g. family assistance increased in relative terms or individuals stepped-up their moonlighting activity.

Thus the traditional Slovenian business system has allowed significant flexibility in terms of the dynamic complementarities it has been able to support. Changes in the functioning of the business system have been facilitated by its risk-sharing nature which provided backup in case an experiment failed. Yet as the system’s core has remained fundamentally stable, changes in the dynamic complementarities have been the result of incremental experimentation rather than revolutionary breaks.

Incremental experimentation has been the driver of the evolutionary changes seen in the functioning of the business system and has been a permanent feature of all building blocks of that system. Due to its past position as the central economic player, the most visible and important experiments were undertaken by the state: from the socialist introduction of workers' self-management and recurring oscillations between the market and planning to modern activist industrial policies in order to first save the Slovenian economy at the outset of the transition to influencing its faster development later on. Perhaps the best example of Slovenian incremental experimentation is the evolution of the welfare system in the past two decades when its predominantly continental features have become supplemented by Anglo-Saxon and Nordic approaches in order to save money and boost its efficiency.

Yet firms have also been experimenting. During the socialist era they spread their bets between foreign and domestic markets to earn profits in the latter and hard currency in the former. Several companies have established strategic partnerships with foreign corporations or established businesses in developing non-aligned countries. The transition forced companies to experiment to cut costs and increase their flexibility by measures ranging from early retirement schemes and social pacts to agree to unpaid overtime and the use of a student workforce. Today, the best companies are trying to jump on the innovation-driven-competitiveness bandwagon by experimenting with open innovation systems, investing in venture capital funds, building networks and the like.

Individuals have also had their own ways of experimenting. This has primarily always meant combining a formal job with afternoon moonlighting. In the 1960s and 1970s people took advantage of the possibility to work abroad as guest workers for a few years so as to come back later and build houses for their families from their savings. Others saw their opportunity in the free education system or in establishing their own business since the beginning of the 1990s.

Modern dynamics of the Slovenian business system

The challenge Slovenia has been facing in the new millennium involves the need to progress from investment-driven to innovation-driven competitiveness. The following section investigates the modern dynamics of the Slovenian business system. In order to best understand them, we first

present a brief overview of developments during the transition period. We then shift our focus to the present moment and present the dynamics through a typological analysis of Slovenian firms.

Transition

The combination of Yugoslav socialism and the Slovenian traditional business system distracted companies from true market competition and efficiency. However, this became a priority with the break-up of Yugoslavia in 1991 when the Yugoslav market was largely lost for Slovenian companies due to the war in Croatia and Bosnia and economic sanctions imposed on Serbia. As the Slovenian market alone was too small to ensure their survival companies were forced to pursue exports to Western markets. Yet this time there was no room for selling at a loss.

As the majority of companies were not in a position to compete on the basis of brand or technological leadership, their only hope was price competition. In order to survive, those Fordist-like manufacturing companies that were at the time an economic engine of Slovenia had to cut costs and improve their productivity within the existing work organisation paradigm. There was simply no time to build their competitiveness on improved or new products of a higher value-added level. What is more, in order to cut costs many companies cannibalised their R&D departments.

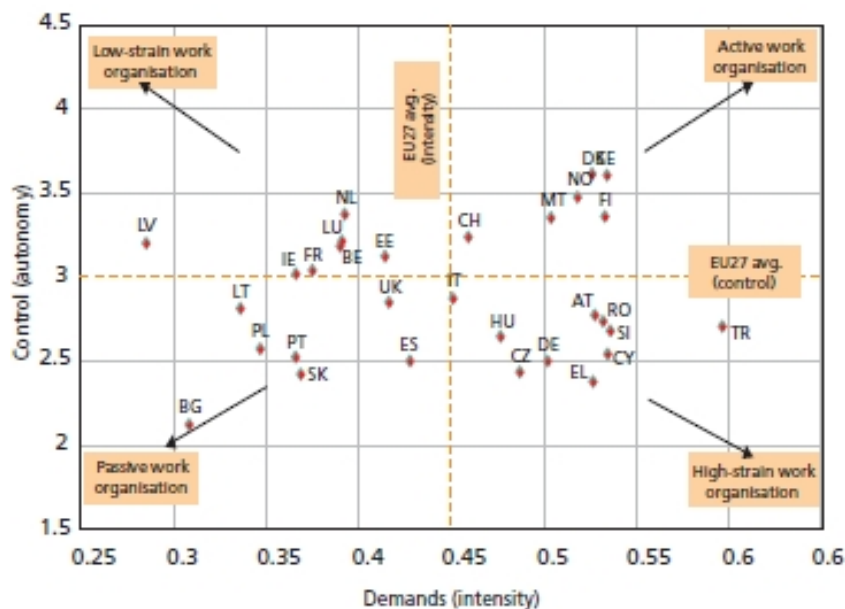
In order to improve productivity and reduce costs two general solutions were found at the corporate level within the traditional business system framework: the intensification of work and the alternative use of institutions.

Transitional intensification and flexibilisation of the traditional business system

The practice of building competitiveness on Fordist effectiveness rather than innovation was legitimised early on and supported by an agreement between trade unions and employers. In exchange for safe and stable jobs trade unions acceded to the intensification of work and wage moderation (Stanojević, 2004). This risk-sharing agreement, forged in a need to survive, continues to function today and has particularly been the case in companies that are old local or regional players. European-wide research shows that in 2005 Slovenian employees reported the highest perceived work intensity in the EU (ECwcs, 2007, p. 58). This combination of high work intensity and Fordist work organisation has led Slovenia in the direction opposite to the much admired

Scandinavians where effort may be just as high but workplace autonomy is far greater (Figure 1). This lack of autonomy in turn radically changes the nature of the workplace strain, leading to high dissatisfaction at work as we show later on.

Figure 1: Work intensity and autonomy



Source: ECwcs, 2007, p. 60

Along with the intensification of work another measure was added: flexibilisation. This implied the development of a dualistic labour market (Stanojević, 2004) where one part of the workforce is highly flexible and low-cost, employed either as student workers, “borrowed” workers from employment agencies or employees on short-term contracts, while the second part features a higher-cost core workforce employed under more rigid and better protected permanent contracts. Young people entering the workforce generally make up the flexible group of employees, working under temporary contracts, enjoying fewer benefits and being under the constant threat of being fired if orders drop. The stable, permanently employed core workforce takes care of the core business, with the young employees from the unprivileged group being allowed into the core group only after some years of having proved themselves and on the condition that economic factors, i.e. business, allow it. The share of temporary contracts rose continuously throughout the transition and has continued even afterwards. In the 2000-2005 period the share of temporary contracts increased from 13.7% to 17.4% of all contracts, ranking Slovenia among the EU countries with the highest share of temporary workers (Pajnkihar, 2007; Eurostat 2005 Yearbook), with only Spain, Portugal and

Poland being ahead. At the same time, Sweden and Finland hardly fare better than Slovenia (approximately 16.0% and 16.5%, respectively), while Denmark differs radically with a very low figure of just 10%. The reason for the difference seems to lie in the level of hire and fire regulations, which is very light in Denmark and much stricter in Slovenia, Sweden and Finland.

The flexibilisation and cost-cutting imperative led to the appearance of an extreme phenomenon: costless output flexibility in the form of unpaid overtime. Overtime was needed to boost output flexibility but, since alternative jobs were scarce, employees lacked the bargaining power to demand fair and complete payment. European Commission panel research estimated that in 2001 more than 58% of all Slovenian workers who worked extra hours received no payment (EC, 2004, p. 157).

The alternative use of institutions: a subsistence-oriented or a productive tool?

The rise in cost cutting and flexibility seen in transition and post-transition Slovenia has also been achieved via the alternative use of institutions. Here we are talking about the use of existing institutions in ways not originally planned by their creators. Yet our research shows that institutions can be alternatively used well beyond the purpose of ensuring mere subsistence, as entrepreneurial or business development facilitators.

The best example of the alternative use of institutions is student work, a facility originally created as a social corrective. Employers like it since it is free of obstacles regarding hiring and firing and since it is only taxed lightly. Students can be hired quickly through the widespread network of student work agencies and fired at the very moment they are not needed anymore, without any financial consequences for the employer. The cost of student work for an employer is a mere 112% of the student's actual net salary whereas in the case of a permanent or temporary contract the corresponding figure is close to 200%⁷¹.

The 2007 Eurostudent research project showed that 65% of all Slovenian students work an average of 17 hours per week. This amounts to an equivalent of almost 49,000 full-time jobs or approximately 6% of all Slovenian full-time jobs. The youngest students who work dedicate on

⁷¹ Calculation by the authors

average 9 hours a week to their job and earn €150 per month while the oldest students work an average of 39 hours per week and earn over €800 per month (Eurostudent 2007). Among first-year students only 41% are working, while 92% of their oldest student colleagues have a student job (Eurostudent 2005). Further, of working students some 50% find jobs linked to their field of studies and future profession while the other half does not. This clearly shows that while for younger students student work represents a means of earning some extra money, final-year and older students are basically employed full-time except they do not have a normal permanent or temporary contract.

The student workforce has brought lots of flexibility into the system not only because the terms of their contracting are so flexible but also due to their abundance. Before the transition, e.g. in 1990, there were 34,000 university-level students in Slovenia. Ten years later there were already 81,000 students and in 2006 the number had reached 100,000 (Slovenian Statistical Yearbook 2007).

Beyond the simple subsistence-oriented cost cutting and flexibilisation achieved by employing workers under student work contracts instead of regular contracts, student work has proved to be an enabling institution beneficial to both employers and students. This is best demonstrated in our field research case study of a small IT company named Parsek.

Parsek was founded in 1999 by four final-year student colleagues who met while working on a project in a student research lab under the auspices of the head of Entrepreneurship Department at the Faculty of Economics in Ljubljana. The research lab was on one hand in fact just a tiny room equipped with modern and powerful IT equipment but, on the other, it served a much larger purpose. Its true yet hidden mission was to function as an entrepreneurial incubator. It officially had to be a research unit in order to be given a room and funding at the Faculty that had little understanding of any “entrepreneurial incubator” attempts.

In line with the lab’s mission the young team enjoyed great freedom of activity beyond being obliged to finish their research project work. As they discovered a mutual entrepreneurial interest they used the lab and its equipment to pursue their first venture – the compilation of a student yearbook. The revenues were used as the start-up capital needed to operate for real. They founded Parsek.

The company started business in three areas: advertising, publishing and web development. Soon after starting business they decided to focus entirely on the opportunities the Internet was offering as a media. With the modest help of a business angel, they started a web development service for blue-chip clients. After one year of operating they realised € 100,000 in revenue and a small net profit.

At that early stage the company needed flexibility and low overheads. It succeeded by heavily relying on student work. Everyone including the founders worked with the student work status which implied low taxation and great flexibility to hire and fire.

While low costs were one of the prerequisites to succeed, this was not enough. What really made the difference was the technological level. Parsek managed to develop unique client web content management software which saw the firm become an industry leader in the country and region. All of this together led to the company signing contracts with some key Slovenian blue chips.

As the four founders state today, they always wanted to be their own bosses, yet they were also able to find institutional support for their student entrepreneurial ventures. They combined all the institutional facilitators within their reach: they allowed experimenting with the venture as they enjoyed full social security as students. Further, as students they had an ample amount of free time, student work status as a source of earning the start-up capital, gaining in flexibility and cost-cutting measures. At the same time, the Slovenian market was hungry for hi-quality web-related IT services.

After a little more than a year of functioning Parsek was spotted by a British venture capital fund and the founders agreed to sell 75% in exchange for funds for growth. Indeed, the company expanded to Japan and the entire ex-Yugoslavia, hired experienced staff, grew its business and strengthened its brand. However, in 2005 Parsek agreed an MBO with which it became independent again as the venture capital fund and the company realised their strategic priorities and started to divert.

Parsek's growth in that period was, although rapid, primarily cautious. The company continued to function on the basis of student work, thus retaining output flexibility and minimising costs. If

needed, work was additionally outsourced to external freelancers or even to its own employees in order to avoid expensive overtime. Yet Parsek established itself as one of the hottest employers in the web-related IT industry despite the demanding work, quite long hours and wages that were not the highest in the industry. Parsek hired recruits mostly right from the university, employing final-year students and it managed to attract the best brains. This was possible as the company had created a strong brand with a reputation for innovativeness, technological excellence and dynamic work with intensive learning. In fact, Parsek succeeded in establishing a virtuous circle. Through its initial drive and high technological standards it first created a strong product brand and innovative working environment which in turn attracted the top minds, creating the conditions for a further strengthening of the initial business model.

Parsek has continued to be the leader in the Slovenian and an important player in the regional market and has done so by being a local technological leader. This has not involved blue sky research but being the best in implementing relevant global technological developments on the local level. To achieve this Parsek has taken a very open-minded approach, with a focus on hiring on the basis of knowledge and interests rather than formal diplomas, while its employees have been encouraged to build and maintain a strong intra-industry network in order to foster innovativeness and technological excellence. Consequently, Parsek's employees are highly valued by other firms in the sector and have no difficulty finding jobs elsewhere.

Yet since 2005 Parsek has changed from being a very "student" company to a much more mature organisation. Although the student workforce continues to be the main measure for achieving output flexibility and testing new employees, the core employees now work under permanent contracts. The need to provide continuity and service reliability to established clients has become stronger than full-fledged flexibility.

The example of Parsek shows that, although student labour was used to achieve lower costs and higher output flexibility, the effects did not stop there. The alternative use of a welfare-state institution was, in the case of Parsek, an enabler of entrepreneurship on one hand while the students working for the entrepreneurs gained abundant work experience and skills which made them highly employable.

From this point of view, the student work facility could be a good lever for the development of (student) entrepreneurship, particularly since in the case of students there are other risk-sharing mechanisms in place that enable them to take on an entrepreneurial gamble. Students as entrepreneurs incur little risk since their social security is covered by the state, their costs are subsidised by the state and they usually live with their parents and the alternative income they have to forgo is relatively low. On the other hand, students as employees need work experience to increase their competitiveness in the job market when they finish their studies.

Another important point arises from the Parsek case study. It shows that the alternative use of student work was not employed so as to protect and prolong the subsistence orientation of the firm but was rather a tool that enabled the firm to grow beyond a subsistence orientation.

The same productive or “offensive” approach has been detected in other companies like Danfoss Trata, Kolektor or Lek-Sandoz. All of these companies can only make limited use of student work to help with their output flexibility since their production processes are generally too complex to be mastered in the time of summer holidays. Instead, they employ students in order to get to know them and introduce them to the business before considering employing them full-time.

Traditional role and transition dynamics of the family and locality

The Slovenian family has always been an important supporting institution in the context of the traditional subsistence-oriented business system. It enters into various risk-sharing arrangements with other institutions or sometimes functions as a shock absorber on its own. Yet it has never been a generator of entrepreneurial or economic activity in general has occurred in Italy or Greece. Rather, it has always supported the official and shadow sectors in different ways.

First, the family has been an important mechanism for improving the quality of living through different transfers in kind. One example is childcare: although Slovenia has an effective childcare system (as described later on), approximately 25% of all babies are looked after by their grandparents and 45% are taken to and picked up from kindergarten by their grandparents (Černigoj-Sadar, 2004). Here, the family on its own or in combination with the welfare state enables parents to keep up with the double burden of having a family and a long working week.

Second, the family has helped lower living costs which have been an important element of the subsistence-oriented business environment. For example, during the socialist period it was common that larger houses with two flats were built. In that way parents and one of the children with their own family could live in the same house, which was also financed by both parties, thus reducing the financial burden on each of them.

Sometimes the institutions of the family and work in a (shadow) economy merged together and the family took on the role of a top-up income earner. We have mentioned one example – families from Idrija that helped their fathers work in the mine for their own account on weekends. This practice can still be found in Slovenia: especially in the mid-1990s plenty of Kolektor's workers and their families used their free time to work for the company which helped the family increase its disposable income while providing welcome output flexibility to the company.

The strong involvement of the family in risk-sharing between the subsistence-oriented official economy, welfare state and shadow sector is not surprising given that it continues as a central Slovenian value (Inglehart, 2001; Toš, 2005) with 89% of the population considering it as very important. Further, the fact that 60% of people spend their whole life within the same community they were born in (Filipovič, 2004) helps us understand why the family and the intergenerational ties within it can be so strong and important in Slovenia – put simply, family members stay geographically very close to each other.

The importance of the family increased throughout the transition, a fact that in line with the relatively traditional/Catholic cultural background of Slovenia is largely explained as a consequence of the increased insecurity of the transitional times (Filipovič, 2004) and which can be understood if we take into account just the increased demands of companies for increased efficiency and a longer working week.

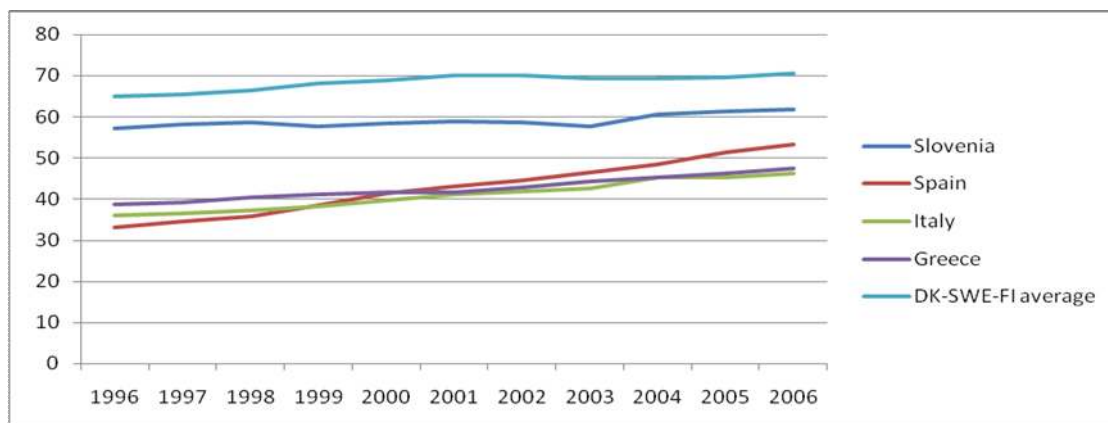
The increased role of the family is best seen in the case of young people gaining economic independence. As jobs became much harder to come by at the beginning of the economic transition many young people prolonged their studies and enrolled in university. Although university education is financed by the government and is thus free and although the government provides subsidised meals and transportation to students, as well as housing and student work facility, students continue to partially depend economically on their parents. Even beyond their studies, over

60% of young people expect their parents to help them find a job, 90% expect parental assistance in resolving housing problems and in the field of childcare (where 50% expect their parents to be highly helpful in both cases), while 75% of students expect their parents to help them financially (Filipovič, 2004).

The family's assistance in the housing field is another important aspect whose importance grew during the transition. Recent research by Cirman (2006) shows that among those people who either had a house built or renovated a flat 24% received some financial assistance from their family while 44% received either a plot of housing land or an existing building/flat to renovate or upgrade. The latter type of assistance was most common in the countryside where it applied to approximately 50% of cases. Cirman (2006) further stresses that since 1991, due to rapidly rising housing prices and lack of favourable institutional financing options, the relative importance of family financial and in-kind assistance has risen sharply. Thus, 36.5% of all purchases of housing between 1998 and 2005 were financially backed by families and in 54.6% of cases there was assistance in terms of building land or an existing building/flat that was renovated. This is, respectively, some 50% and 25% more than seen between 1972 and 1990.

Although the Slovenian family plays an important role in the life of its members, it cannot be labelled a "Mediterranean" type family. The strongest evidence is the consistently high rate of women's inclusion in economic activity which has consistently surpassed the levels seen in Spain, Italy or Greece. Although data before 1996 are unavailable, the patterns are clear: the economic activity of women in Slovenia has resembled the Nordic pattern, while the Mediterranean countries have been catching up.

Figure 2: Economic activity of women: employed women as % of women aged 15-64



Source: Eurostat (w.e.), 2008

Apart from the higher rate of women's involvement in economic activity, the Slovenian family functions quite distinctly from e.g. the Italian one. Intra-family help and assistance primarily concerns the relationship between the nuclear family and its grandparents rather than an extended family in the sense of aunts, uncles, cousins etc. Further, family entrepreneurship is relatively rare in Slovenia. Family enterprises after 2000 represent between 40% and 50% of all Slovenian enterprises, while the corresponding figures for Italy, Spain and Greece are 93%, 75% and 80%, respectively (Duh, Tominc, Rebernik, 2007; IFERA 2003).

Localities, i.e. tightly-knit valley communities, performed a double role during the bumpy transition period. On one hand they helped the official economy, i.e. their factories to survive. On the other, they hosted an increase in shadow economic activity which helped people share the increased economic risk and burden of the period.

Since local companies were the engines of valley community economies and central to an individual's economic well-being, it was crucial for any locality that its factory overcame any transitional recession. Localities' economic dependence on their factories and the fact there was no time and no money to change from the established Fordist work organisation in fact facilitated an intensification of the working process. We will again regard Kolektor as a highly characteristic yet atypical example.

What is not typical about Kolektor is the fact that the company did not suffer a large-scale business crisis during the transition, primarily due to its international competitive position which made it practically independent of the Slovenian or ex-Yugoslav market. When other Slovenian companies were fighting for their survival, Kolektor was in top shape, acquiring its long-time German mother K&B, the US Kirkwood and the Korean Sinyung. Around 1995 Kolektor was an undisputed global market leader in cost and technology terms.

However, a few years later Kolektor faced a challenge that pushed the company to substantially intensify its production process. At the end of the 1990s Kolektor realised that its Far East competitors were closing in fast regarding price and, even worse, quality. The management feared that its competitive position would soon be irreparably eroded. The company decided to respond by strengthening its technology development, improving the quality of its products, i.e. radically decreasing the number of mistakes per million of produced pieces and cutting production costs.

The management communicated the delicate competitive position to the employees and presented the solutions, a move that was far from typical of Slovenian companies during the transition. The response of the employees, i.e. of the Idrija locality, was highly characteristic of a Slovenian locality helping its factory to overcome difficulties. They acceded to an important increase in productivity, longer working hours and greater flexibility. They also co-operated intensively in efforts to improve quality levels. In a few years Kolektor managed to significantly cut its costs and improve quality. It thus asserted its position as a global technology leader while cost leadership, accompanied by significantly lower quality levels, went to China. Nowadays management admits that the dedication and responsiveness of the employees were crucial for the company to be able to successfully overcome its difficulties.

Moonlighting was the other phenomenon facilitated by valley communities that helped people share the burden of the transitional economic crisis. As an important risk-sharing institution within the traditional business system the shadow economy in Slovenia expanded quickly at the beginning of the transition crisis but even after the worst was over the Slovenian shadow sector remained quite extensive: in 1992 Schneider (2000) estimated the size of the shadow economy in Slovenia at 28.6% of GDP while in 2002 his estimate was even higher at 29.4% of GDP (Schneider, 2000; Schneider, 2004).

These dynamics can be understood as a subsidy effect of the shadow sector vis-à-vis the formal sector within the traditional business system mode of functioning. Just like in the late 19th century the Slovenian shadow economy subsidised the official sector by topping-up workers' incomes and allowing companies to pay quite meagre wages which were necessary for the companies to stay internationally price competitive.

Considering the shadow economy from a broader perspective of the traditional business system, it fits perfectly with the underlying paradigm of "hard work being the true work", which continues to be very central and present in Slovenian society (Toš, 2005). This "hard work" paradigm is primarily about working "more" rather than "smarter". And moonlighting is definitely about working more rather than smarter. In order to stay below the tax authority's radar the shadow economy is largely limited to one-man undertakings providing traditional, low value-added services and products.

In relation to the shadow economy Idrija again proves to be an atypical Slovenian locality since the shadow economy seems not to be particularly developed there, although the "work more" paradigm is very present. As mentioned, Kolektor initially outsourced part of its simple manual production to the local people. Consequently, they could top up their income by "working more", i.e. in the afternoons without moving into the shadow economy. On the other hand, Kolektor benefited from lower costs as it paid contractors per piece and improved its output flexibility.

The state: an active player in the traditional Slovenian business system

Throughout the period of the traditional business system, i.e. between the mid-19th century and the end of economic transition in about 2000, the state acted as the single most important player from the viewpoint of economic and welfare policy-making.

On the side of economic policy, during the Austro-Hungarian period it developed bureaucracy, taxes, a judicial system and built railways. After WW II socialism gave the state a no less important position although Slovenian partisan-managers were quite successful in creating shortcuts and redirecting power from the hands of the state to the local level. Throughout the socialist era the (Slovenian) government practiced a lot of incremental experimentation, e.g. self-management, a number of market-oriented economic reforms and strengthening economic ties with the West.

At the beginning of the transition the Slovenian government was forced to continue in the central position, this time as an economic lifeguard. Apart from implementing macroeconomic stabilisation it had to bail out major banks, take into its custody almost all major companies and start the privatisation and de-nationalisation processes.

When the first transitional shock was over the state took on an active developmental role as it initiated different microeconomic stimulus programmes aimed at increasing innovation and entrepreneurship. Such incremental experimentation continued as the government introduced and sponsored concepts like clusters, technology networks and platforms, entrepreneurship agency, entrepreneurial incubators and technology parks. Here the state mimicked the Finnish approach and tried to “transplant” several of its crucial institutions.

The results of the government’s intervention have been mixed. While macroeconomic stabilisation was a success best confirmed by Slovenia’s early adoption of the euro in 2006, microeconomic stimulation has not produced significant results. Clusters, networks, platforms and agencies have been there, but in terms of innovativeness and entrepreneurship, Slovenia continues to lag behind the EU-15.

On the welfare side, Slovenia developed an extensive continental-type social welfare system encompassing employment policy, social transfers, healthcare, education and pension system during its socialist period. At the beginning of the transition period, in about 1990, the state as a guardian of the social welfare system faced rising difficulties in running the system. At the same time, public sentiment demanded that economic restructuring must not mean destruction of the welfare system (Toš, 2004).

Since 1990, that system has been stretched between unfavourable demographic trends, rising costs and tight public finances. In order to keep the system sustainable several reforms have been introduced, particularly in the pension and healthcare fields that mostly went towards shrinking rights and introducing additional payments. However, the reforms were largely incremental and aimed at preserving social equality that has been highly regarded in Slovenian society (Toš, 2004). Regarding its attitude to equality Slovenia is close to the Nordic countries.

Table 1: GINI coefficient country value and rankings in 2005

Denmark	Sweden	Norway	Finland	Slovenia
24.7 (1st)	25.0 (3rd)	25.8 (6th)	26.9 (10th)	28.4 (15th)

Source: UNDP, 2005

Although reformed in several aspects the welfare system has been preserved. Social researchers agree that it managed to survive the transition without significant cuts (Črnak-Meglič, 2005; Filipović, Mandič, Boškić, 2005). This is supported by a comparison of overall social protection expenditure as a percentage of GDP, which has been largely stable and trailing Germany and Nordic countries.

Table 2: Social protection expenditure as % of GDP

	1999	2000	2001	2002	2003	2004
Slovenia	25.0	25.2	25.5	25.3	24.6	24.3
EU-25	-	-	-	27.0	27.4	27.3
Sweden	32.9	32.3	31.3	32.3	33.3	32.9
Denmark	29.4	28.8	29.5	29.7	30.7	30.7
Finland	26.7	25.2	25.8	25.6	26.5	26.7
Germany	29.6	29.5	29.8	29.9	30.2	29.5
Czech Rep.	-	-	-	20.2	20.2	19.6

Source: STAT.SI, 2007

Similarly, Slovenia has maintained a favourable position regarding its education system expenditure. Expenditure on education in 2006 accounted for 12.8% of total public expenditure, while Sweden, Denmark and Finland spent 13.0%, 15.2% and 12.8%, respectively. Czech Republic, as another post-transition economy, spent considerably less, only 9.6% (SORSeu, 2008).

The education system has in fact been an important institution that in the past few decades has continuously functioned as a social corrective and enabled upward mobility in Slovenia. As such, this institution has held the closest resemblance to the Scandinavian universalistic welfare model. While the first two educational levels are fairly all-inclusive, the tertiary education requires some individual top-up effort in order to be fully accessible or made use of. Studies themselves are free of cost and students have to cover their expenses for housing and meals. Even here the government provides some 17% of students with a place in a subsidised dorm (SORSSTD, 2007), gives out subsidies for students that have to rent a private flat, subsidises student meals and covers their healthcare insurance. Apart from that, students are entitled to student work status with which they can relatively easily find a student job and thus help fund their studies. In addition, parents step in with some financial support that usually comes from their current earnings and not lifetime savings as is common in the Anglo-American business system.

The Slovenian welfare state also boasts a relatively developed childcare system. The state provides kindergarten places for some 60% of all eligible children, which in practice means there are relatively few kids who cannot get a place in kindergarten. However, although heavily subsidised, childcare is not free and some parents with long working hours may have trouble bringing their children to and picking them up from kindergarten. Here the family's assistance steps in with 25% of all children being cared for by their grandparents and 45% of kindergarten children being brought to and picked up by their grandparents (Kanjuo, Černigoj, 2004).

During the transition period the active labour market policy (ALMP) developed considerably, evolving from a largely passive unemployment-registry service into an active system that helps the unemployed find work and equips them with the necessary skills and knowledge in order to improve their position in the labour market and prevent long-term unemployment. In this sense, ALMP has developed a range of schemes that follow the Nordic approach of combining active job-searching and continuous education (MDDSZ, 2007).

However, at the same time the Slovenian ALMP falls well short of Scandinavian standards, e.g. Danish, and features strong elements of the Anglo-American approach to the labour market.

First, the duration of unemployment benefits is relatively short, ranging from three to nine months, depending on the length of previous employment (MDDSZmin, 2008). In Denmark the maximum benefit period is four years (OECDdk, 2004). Next, under the provisions of Slovenian employment policy an individual is not entitled to any unemployment benefit or any money whatsoever if they terminated their employment voluntarily. There is also no option of (a paid) “sabbatical”. Consequently, the labour market features less inter-job mobility as the system not only bars voluntary moves that would result in temporary unemployment but also gives limited support in the cases of involuntary unemployment. Employees thus prefer to opt for uncomfortable obedience at work or resort to sickness leave.

In contrast to the highly decentralised Scandinavian approach, e.g. the Danish approach, the Slovenian welfare system is largely centralised in the sense that the same measures apply to all of the country with a few exceptions applying to special cases of exceptionally high local unemployment where the state becomes more actively involved and special welfare programmes are tailor-made.

Finally, social assistance in the case of long-term unemployment only provides for minimal subsistence as it hands out social benefits equal to just 25% of the average monthly wage and is means-tested. This amount of social assistance is purposefully defined to provide for mere subsistence and is conditional on that individual being actively involved in job-search schemes (MDDSZmin, 2008).

Towards productive risk-sharing

Slovenia’s efficiency-based competitiveness seems to be running out of steam and the economy needs to change its subsistence-oriented risk-sharing into a more productive one. The following subsection investigates the modern dynamics of the Slovenian economy with regard to the changes that are needed.

Limits of intensifying the traditional business system

Throughout the socialist period and transition Slovenian economic development was investment-driven and its international competitiveness depended on efficiency. Yet by the end of the transition various indicators started to show that the Slovenian economy had largely come to the end of investment-driven growth and that the focus has to be changed from mere efficiency to innovativeness if economic growth were to continue.

First, due to its relatively high developmental level Slovenia faces much reduced price competitiveness. Considering hourly labour costs in 2005 Slovenia was placed 11th among 25 EU countries with 51% of the EU-15 average (Eurostat-LC, 2006). Slightly worse, in a productivity comparison Slovenia ended up in 17th place among 22 countries with 67% of the EU-15 2004 average (Eurostat-PROD, 2006). In both cases Slovenia outperformed other new ex-socialist EU entrants, yet the gap is closing. This is especially true as regards productivity where the Slovenian improvement was 9% in the 2001-2004 period, whereas other ex-socialist EU members recorded growth averaging above 10%. Also in relation to the EU-15 average, Slovenia lost some competitiveness in the mentioned period as its labour costs grew faster than its productivity (Eurostat-LC, Eurostat-PROD, 2006).

Therefore Slovenia has been losing the low-cost basis needed for price competitiveness while it has not turned actively enough towards innovativeness. Rebernik et al. (2005) found very unfavourable figures concerning the comparison of value added per employee between Slovenian and EU-15 companies. While in the EU-15 the level of value added per employee up to 2004 was positively correlated with a firm's size, in Slovenia this was only true in absolute terms. In relative terms, Slovenian micro companies with up to 9 employees achieved 50% of their EU-15 counterparts' average and large firms fell 75% behind their EU-15 counterparts (Rebernik et al., 2005).

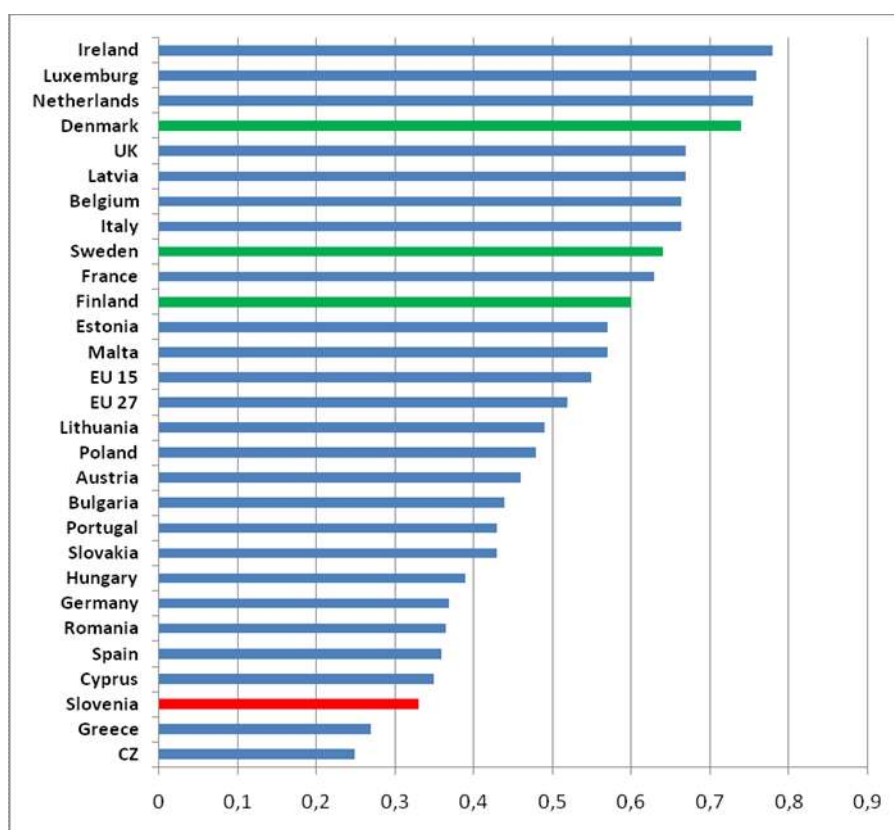
It might occur to some that Slovenia could stay on its traditional business system "hard work" path and still improve its relative competitiveness by working even harder, i.e. further extending its working hours and improving its efficiency. Data show that this would hardly be possible since the Slovenian working week is already longer than the EU-15 and EU-25 averages and in 2005 Slovenians found themselves in 5th place in the EU with regard to the length of the working week

(Eurostat WH, 2006). Further, it seems that Slovenian employees are already stretched to their limits as they express the strongest perception of a sharp increase in the intensity of their work during the 200-2005 period among all new EU member states. As we have already shown in the subsection explaining the transitional intensification of work, Slovenian employees have already reached the highest levels of work intensity (Figure 1). Finally, Slovenian employees appear to be among the most dissatisfied workers in the EU. European-wide panels in 2004 and 2007 showed that a respective 37% and 29% of employees feel predominantly negative about their work. However, the 2004 research showed that Slovenian workers' workplace dissatisfaction does not come from their long working hours but rather from their high-strain working environment. Finally, Slovenian employees also have some of the highest sickness leave figures as research reports from both 2004 and 2007 showed (EC, 2004; EFILWC, 2007) along with high perceptions of a negative impact of work on health (EFILWC, 2007).

Leschke and Watt (2008) devised an aggregate indicator of working conditions and job security that combines work intensity, work autonomy, physical work factors and the perceived likelihood of a job loss within the next six months (Figure 3). Slovenia fares poorly⁷², which is not surprising given its weak performance regarding individual measures.

⁷² Leschke and Watt (2008, p. 17) acknowledge that results (e.g. the poor performance of Germany and Austria) may be related to the subjective nature of indicators making up the job security sub-index.

Figure 3: Working conditions and job security, 2005



Source: Leschke, Watt; 2008, p. 17

It is thus obvious that Slovenian companies and employees encounter limits when it comes to working the old way. There is no more room left for continued competition on the basis of price, i.e. the kind of competition companies have been used to and been previously organised for.

European comparisons show that Scandinavian countries and their companies are among the most competitive globally. At the same time, their employees are among the most satisfied or least dissatisfied (EC, 2004; EFILWC, 2007). While their official working weeks are not shorter than the Slovenian one and their employees' perceived work intensity is about the same, their employees find their workplaces to be much more autonomous, customer-oriented and creative. While almost 80% of Nordic employees' work is determined by an interaction with customers and only 10% of work is dictated by a machine, the Slovenian work organisation profile fits firmly within the transition countries group: customers' demands account for approximately 63% of all work determinants and the speed of a machine for about 23% (EFILWC, 2007). The picture with regard to the importance of direct control by a superior is similar. In Slovenia the demands of a superior

determine employees' work in over 33% of cases, while Nordic countries exhibit a figure of around 20% (EFILWC, 2007).

The need for the Slovenian economy to move beyond efficiency-driven development is clear. The following subsection illustrates the dynamics that can be found in the most successful parts of the Slovenian economy and which are moving towards innovation-driven development.

Dynamics and Typology of the Slovenian Business System

To facilitate a better understanding of the dynamics of the Slovenian economy we divided the companies into four groups regarding their market reach (regional and global) and age (founded during the socialist period or thereafter, i.e. after 1990). The logic of this grouping is relatively straightforward. Old companies, particularly global ones, have been the key engines of the Slovenian economy up until today. New companies have sprung up since 1990 when all obstacles to entrepreneurship have been lifted. They are especially active in new sectors such as IT and finance and have a high public profile due to their dynamism. Within both groups there is a division between those companies that have focused primarily on the domestic or regional market and the few others that have become global players. Table 5 presents a more detailed description of the features of each typological group.

Table 3: Typology of Slovenian firms

	REGIONAL	GLOBAL
OLD (ex-socialist)	<ul style="list-style-type: none"> • Large companies in manufacturing and services • Technological followers • Slovenia's economic engine during transition • Developed into (strong) regional players • Slowest in abandoning subsistence-oriented approach • Political and managerial alliances 	<ul style="list-style-type: none"> • Large companies in manufacturing sector • Top technology, strong R&D • Gradually abandoning subsistence approach due to innovation-based market competition • Re-focusing on product/technological innovation • Either global players or parts of MNCs • Experimenting to move from Chandlerian innovation to implement open innovation approach
<i>EXAMPLES</i>	<i>Merkur, Mercator</i>	<i>Kolektor, Gorenje, Danfoss Trata, Lek-Sandoz</i>
NEW (post-socialist)	<ul style="list-style-type: none"> • Small-to-medium size firms • Strong dynamism, lots of new firms (IT, finance) • Quickly developed strong regional presence • Importing global technological development, tailoring to local needs • Abandoned subsistence-oriented approach • High public profile – developing entrepreneurial environment 	<ul style="list-style-type: none"> • Most dynamic sector • SMEs • Success based on world-level technological innovation in technological niches • Abandoned subsistence-oriented approach • High public profile – developing entrepreneurial environment • Searching for alliances to place their products and further boost R&D
<i>EXAMPLES</i>	<i>Parsek</i>	<i>Instrumentation Technologies, Noovo, Systec</i>

Source: own analysis

The following is a description of the dynamics found within the different typological groups. It is presented through company cases and based on field research within the respective companies.

Old local-regional players

Before and at the beginning of the transition this group was the economic engine of Slovenia. These were large socialist companies, with the majority of them in the manufacturing sector, but it also included players from other sectors like retailers and Slovenia's two largest banks. These companies each employed several hundred to a few thousand people. The manufacturing companies were mostly based on imported technology and a Fordist work organisation. Their approach to development and innovation was Chandlerian and focused on incremental innovation in technology and processes. Many of them were active exporters to Western markets although, as we have explained, not always following the profit motive. Service firms like retailers and banks were limited to the domestic market and, since they faced no real, i.e. foreign, competition, their

performance was quite uncompetitive by Western standards. What is more, especially the banks were run more in line with political than business rules.

Due to their dependence on the Yugoslav market or the markets of other non-aligned countries, a large chunk of the group ended up in bankruptcy as Yugoslavia disintegrated while others were seriously downsized. The two major banks were found to be insolvent. Only a handful of companies managed without slashing their workforces.

To protect the economic foundations of the country, the government quickly moved in to help the wounded giants. After it became clear that simple financial assistance would not be enough, the government introduced several initiatives. It established the Slovenian Development Corporation which took control of the companies that were worst hit and helped them to either restructure or at least save the sound parts of their businesses. Next, the government allowed companies to offload workers via early retirement schemes, thus taking the burden off them and socialising it. At the same time it bailed the banking sector out.

The firms that survived did so by successfully diverting their sales to the West, competing essentially on price. Technological competitiveness was at least temporarily cast aside and many companies cannibalised their R&D departments to cut costs. Later on as the Yugoslav market was partly re-established in the mid-1990s companies started to aggressively re-establish themselves as regional market leaders, building upon their brand names that had enjoyed a high standing with the people since they days of Yugoslavia. However, the best of these were aware that while their locally known brand names were beneficial this was not enough for successful competition. Therefore companies started to look beyond cost-cutting to keep or increase their competitiveness regionally and on the European scale.

Today, the leading old companies have established themselves as strong regional players and brand names. Such examples are Mercator and Merkur, a supermarket and home appliances retailer, respectively. Both companies have managed to expand to the ex-Yugoslav market not just on the basis of their old brand names but primarily since they have been competitive in comparison with relevant local and foreign competitors.

Less successful group members have developed into primarily Slovenian local players and transformed into conglomerates involved in fields as diverse as the chemical industry, food processing, media, finance and tourism. Expanding abroad they were either outcompeted or never really tried to expand, yet they all managed to obtain a strong Slovenian market share due to the lack of domestic or foreign competition – they bought out the former, while the latter never came to Slovenia due to its small market size.

Finally, there are a few companies that largely failed to secure a strong market share even in the domestic market due to the combination of their lagging behind in competitiveness and the strong competition. The prime example is the textile industry which has largely failed to move to higher value-added products and become stuck between stagnant prices and rising labour costs, rendering its future highly uncertain.

Overall, the old local-regional players have as a rule resorted heavily to an intensification of the production process and took advantage of the dualist labour market throughout the transition and continue to do so. Yet the examples described above show that the majority of these companies have also started to prioritise innovation and technological development so as to find ways to enable them to exit their pure price-taker position. By successfully expanding to the SE Europe region at least some of them have proved that they can compete successfully on an international scale.

Old global players

Old global players are, in numerical terms, the smallest company group in Slovenia. Apart from Lek-Sandoz, Danfoss Trata and Kolektor which we describe in our case studies, there is another pharmaceutical company called Krka as well as Kolektor's local neighbour Hidria and the household appliances maker Gorenje.

Today, these companies are either strong independent players – multinationals on their own (Krka, Kolektor, Hidria and Gorenje) or strong subsidiaries of foreign MNCs (Lek, Trata). They never fully employed the subsistence-oriented mechanisms of the Slovenian traditional business system and are further reducing their use after recognising they can only survive and advance through technological leadership rather than on the basis of a low price.

These global players have also been very active in searching for new ways to keep and sharpen their international competitiveness.

Let us first consider Kolektor. After initially meeting the challenge of Far East competitors in the mid-1990s via the intensification of production, quality improvements and increased flexibility as described earlier, i.e. the traditional “work harder” way, Kolektor embarked on a more demanding restructuring of its business so as to give the company long-term sustainability beyond exclusive dependence on commutators – a product that is expected to become obsolete by 2020. Its restructuring can be divided into two parts. First, Kolektor took steps to ensure the long-run sustainability of its commutator business. Second, Kolektor started to diversify away from commutators.

In order to make the commutator business sustainable and profitable in the long-term Kolektor optimised it from the cost side and developed it from the work organisation side. Simple production requiring lots of manual work was moved out of Idrija to Bosnia, Brazil and China in order to cut costs. The production that was left in Idrija is either technologically advanced to the extent that it needs a qualified workforce or can be highly automated. In recent years Kolektor has started intensive management training for divisional managers and middle managers on sub-divisional levels.

In order to diversify away from commutators Kolektor has been experimenting in several ways. On the global level it is preparing to establish a global network of R&D centres linked to their existing foreign operations. On the local level it launched an internal incubator focused on developing new products based on the company’s core technological competencies. It founded an external entrepreneurship incubator where entrepreneurial ideas from the outside are welcome and are given money and company know-how to develop. Further, the company has, in alliance with other players and academia, set-up a research institute covering the fields of nanomaterials and composites. Through acquisitions it has diversified into complementary fields like ferrites, electromagnets, process automation and polymer processing. The company has also established a joint marketing and R&D institute aimed at pursuing the strategy of following the customer by meeting its demands, a strategy similar to that seen in the case of Danish companies.

Kolektor has acknowledged the need to move from the closed innovation paradigm it has hitherto perfected towards open innovation. In line with that, the company has started to co-operate with different small, innovative companies, including Instrumentation Technologies which we describe later, on different projects and has become an active partner in a venture capital fund, primarily in order to get in touch with fresh ideas and technologies.

The mentioned venture capital fund is an excellent example of combining the strengths of old and new Slovenian companies in the search for innovation and technology-driven business development. The fund was established by a former State Secretary for the Economy who later served as Vice President of the Slovenian Chamber of Commerce and Industry. It is run by a team of young financial and business administration experts, while the funding comes predominantly from Slovenia's oldest and largest companies that wish to connect to new entrepreneurial talent and business opportunities. Apart from Kolektor, some other Slovenian old global corporations and even some old regional players have invested in the fund.

Kolektor and Idrija display another important dynamic feature of the Slovenian business system: increased worker mobility and weakening interdependence between the company and the locality. On one hand, Kolektor's growing business forced the company to expand beyond Idrija and search for cadre from outside the Idrija valley. On the other hand, the increased mobility and higher number of young people going off to pursue studies in Ljubljana means that a large and growing percentage of young locals find employment outside Idrija. The need to attract high quality people from the outside has primarily been beneficial for Kolektor as it has forced the firm to become a better employer. Other companies located outside of major urban centres, e.g. Gorenje, have experienced similar pressures.

Gorenje is another old global company that makes home appliances and reveals similar dynamics leading toward higher value-added and innovation-driven competitiveness. In an effort to reposition its brand away from pure price-based competition in the last years Gorenje has focused heavily on design, the integration of new technologies and holistic approaches to the design of integrated systems like kitchens. In so doing they have teamed up with names like Pininfarina, Ora Ito and Swarovski. It has also acquired some local producers in Eastern and Central Europe, allowing it room for market expansion. However, just like Kolektor, Gorenje essentially remains a local

company that is particularly attached to its valley community, living with it in a similar symbiosis to Kolektor. This has given Gorenje the benefit of dedicated, hard-working employees who are ready to invest not only their physical and mental but also emotional energy into the business, a prerequisite for innovation-driven development.

Two other stories are Danfoss Trata and Lek Sandoz, Slovenian industrial gems and former independent companies that are today subsidiaries of much larger foreign MNCs.

Before being acquired Trata was a highly successful engineering firm specialised in district heating controls and air conditioning. Lek, on the other hand, was perhaps the premier Slovenian blue chip and one of the most successful regional generic drug makers. Both companies were acquired by top MNCs in their respective industries: Danfoss as one of the leading engineering firms in mechanics and electrics and electronics and Novartis-Sandoz as one of the world's largest pharmaceutical and generic-pharmaceuticals makers.

Both companies ended up as MNC subsidiaries because they were promising due to their accumulated knowledge, product portfolio and future growth prospects. While Trata was in fact rescued by Danfoss in the face of a threatening collapse after the loss of the Yugoslav market in the early 1990s, Lek was sold to Novartis-Sandoz in top shape in 1998. Trata was bought to strengthen Danfoss' product portfolio in the district heating business and to assist with its entrance into new ex-socialist markets. Conversely, Lek was sold to Sandoz as a top regional generic drug maker. Sandoz saw it as a welcome expansion of its product base and R&D force, while Lek saw in Sandoz a guarantee of its long-term survival in conditions of a consolidating generic pharmaceutical industry.

Since their acquisition both Slovenian subsidiaries have managed to achieve a successful strategic position within their respective MNCs. They have become excellence and experimental centres – Trata within Danfoss' District Heating Business Area and Lek within Sandoz's generics business. Both companies have successfully integrated and positioned their employees within the respective MNCs' hierarchies. They have proved that a Slovenian company employing people raised and trained in Slovenia can be on a par with any other foreign business entity.

Apart from their strong engineering/technological knowledge, quality and innovativeness, the two companies excel within their MNCs due to their flexibility. Lek, for example, has become an excellence and experimental centre for Sandoz, being the only subsidiary to have retained all its business functions and at the same time being small enough to be flexible. Trata has similarly achieved a great level of flexibility and become able to respond to changing demand by organising its production, HR and supply chain in a flexible way.

Lek Sandoz and Danfoss Trata provide efficient reminders that the traditional subsistence-oriented approach is no real solution to achieve true competitiveness. In contrast to some of the researched case studies and unlike the majority of the Slovenian economy both Lek and Danfoss Trata have consistently shown a business model and approach to work organisation that have been relatively distanced from how the Slovenian traditional business system functions. Yet both companies have been consistent outperformers with regard to the rest of the Slovenian economy, be it in the “best employer” category, profitability, innovativeness, average wage etc.

This is not to say that traditional business system institutions cannot be reformed in a way that supports true competitiveness, nor that Trata and Lek avoid their use completely. Trata does use labour agency workforce to meet surges in demand; however, this is used as a pure top-up of existing capacities and it hires from that pool as new needs arise. Similarly, Lek has spun-off all its supporting services which now compete in the market, allowing them to develop beyond the usual subsistence orientation of in-house supporting services.

Not only do Lek and Trata not need to resort to subsistence-oriented approaches to help them cut their costs, but in fact any such attempt would have adverse effects on their productivity and innovativeness. What makes the two researched companies differ most from the majority is their strong innovativeness and satisfied employees. With regard to this, Danfoss Trata and Lek are similar to a handful of Slovenian new global players that excel globally due to their ingenious products and can boast motivated, proud and well-paid employees. Yet there is an important difference between these two groups of companies. Trata and Lek are 1,000+ employee companies, corporations with a strong track record and established systems that help re-generate the virtuous circle process. The small new global players are still young and crucially propelled by their innovative founders.

New (local)-regional players

While the majority of new local players are companies that die soon after they are born or only have very modest missions, we want to focus on those new local players that reach higher yet which cannot however qualify as global due to their focus on the domestic or at best regional market. Parsek, the IT company we have already presented, is an example of such a company. However, there are many other similar companies in Slovenia, particularly in financial services – brokerage and asset management, i.e. services that could not exist under the socialist social ownership concept.

These companies import, follow and implement locally or regionally what gets invented or innovated within their respective industry's global cluster spots. What is common to these companies is that they have tended to overcome their narrow local presence and expanded regionally, particularly in the Balkans where they compete successfully with larger and older foreign (particularly Austrian and Italian) competitors.

Yet they are not global players and most likely will never be as they operate in industries where barriers to entry are low, the competition is fierce and players are either global (e.g. big investment banks, IT support service providers) or small to medium local/regional players.

Considering the new Slovenian regional players in financial services we should first realise that it was not even necessary for them to develop in the first place and then develop to their current regional player status. Instead, there might only be the established foreign regional players. Yet some entrepreneurial spirits have made good use of domestic institutional opportunities, particularly the privatisation model that was chosen in Slovenia. Namely, the dispersed ownership model that was opted for in Slovenia virtually made all Slovenians into shareholders. That was undoubtedly fertile ground allowing the establishment of brokerage and asset-management companies. However, if Slovenia completely lacked the right knowledge such companies would either have not been established or would have soon failed.

Next, these companies have grown well while generally steering clear from the traditional Slovenian subsistence approach if not from the very beginning, then later on when they overcame their fight for survival and became established in the market. There are at least two reasons for not

taking the subsistence approach. The first is foreign best-practice that establishes the tested business model standards. Since these are knowledge-intensive industries, companies realise they can only grow by attracting the top minds and such people must be rewarded accordingly. Appropriate remuneration is necessary since such employees are highly mobile due to common global technological and product platforms. Therefore subsistence attempts would undermine the companies' performance by driving away their best minds.

Parsek is a clear example of a company that changed its *modus operandi* from subsistence-oriented to one driven by long-term innovation-based competitiveness. As we have described, Parsek initially built itself up on student work which helped it cut costs and achieve high flexibility. Yet after the starting period, i.e. around 2004 when Parsek's business stabilised, the firm became a more normal employer with the majority of its workforce employed under permanent contracts. Further, after establishing itself as a recognised player in the Balkans and tapping into Western markets by collaborating with local partner companies, its management now seeks to reach the global level. Teaming up with international partners and investors, Parsek is in the process of establishing an international venture based in Silicon Valley.

As far as the position of their technology and product followers is concerned, the new local-regional players are similar to today's old local players, i.e. ex-socialist manufacturing giants. Yet the crucial difference is that the new regional players do not base their competitive advantage on low costs, secured through subsistence-oriented production policies like the old local players do. Instead, the new Slovenian regional players follow global industry standards and make knowledge the basis of their business model.

New global players

New global players represent the most active and innovative section of the Slovenian economy. What is particularly inspiring about them is that they build from the outset on technological innovation, i.e. they employ a radically different pattern than either old regional players or new regional players – two groups that have both been technology followers.

New global players are small firms specialising in specific technological niches and are often global technology leaders. We visited two entrepreneurs/CEOs and their three companies: Systec, Goap and Instrumentation Technologies.

Goap was established in 1990 and focused on building controllers and controller systems for complex heating, ventilation and air conditioning systems (HVAC). Soon after establishing Goap, its founder established another company, Systec that specialised in process automation. In the search for business, Systec started to co-operate with Danieli, a large Italian MNC specialising in steel-processing machinery. With Systec gaining in international experience and reputation by working for Danieli, in 1996 Goap was offered the challenge of equipping the largest passenger cruise ship at that time, The Grand Princess, with a system for controlling the HVAC system. Although lacking experience in such large-scale engineering, Goap won the international tender beating GE, Siemens and Honeywell by promising a much shorter delivery time. The project was successfully completed and further orders followed. In 2001 Goap, then a company of 18 engineers, signed a strategic partnership agreement with the Finnish company Halton. Later on Goap's ship equipment business was spun-off as a company founded in Denmark and was sold to the Japanese. Systec has in the meantime grown to over 200 engineers and is headquartered in Slovenia and Croatia. It continues to work with Danieli. Its engineering teams work around the globe, on networking principles teaming up with other companies, following their clients and feeling part of the global engineering community.

The founder of Systec and Goap believes that flexibility was their crucial advantage. He and his employee engineers shared knowledge levels equivalent to any Western counterpart; however, they were used to learning quickly and improvising, which is impossible if you work for a large company where decision-making is necessarily more bureaucratic.

Instrumentational Technology (IT) was established in 1998 when its founder, also an engineer, returned to Slovenia after having worked abroad for several years at the Trieste Linear Accelerator in Italy and the Stanford Linear Accelerator in the USA. Back home he founded a venture that started developing technological solutions for the stabilisation of laser beams in linear accelerators. Soon the venture was at the forefront of global technological development in that tiny niche. Already in 2003 it launched its star product that has subsequently been employed by all major users. As of late 2007 Instrumentation Technologies had 36 employees, all of them highly educated and coming from all over Slovenia. The company has a global network of industry partners and buyers and plans for different joint ventures are being drafted with some of them. The company has been developing bold plans of establishing an international expert nucleus community in Nova Gorica.

Recently IT has started to attract top foreign scientists to join its ranks and to facilitate this it has employed a recognised Italian-English scientist to work as a scientific liaison director, bringing top minds from around the world together to develop solutions. It is a fact that not all of the world's »smart« guys can be hired and brought to Slovenia, nor can IT use all of them all the time. Virtual collaboration is therefore preferable. The idea is an alliance-based organisation, i.e. an interaction between the producer and buyers who are at the same time actively involved in the development of a solution that best suits them. IT does not see innovations as being limited to technology, but believes they can be found everywhere, especially in an organisation.

Instrumentation Technology's founder returned to Slovenia to start his own company despite having worked in a much more entrepreneurially developed environment, especially during his time at Stanford. What he sees as an important advantage of Slovenia with regard to entrepreneurial start-ups is the extent of control an entrepreneur can have over their company. In the USA where hi-tech companies are started big, financed with large chunks of risk capital, supervised by risk-capital managers and with quite a large number of employees right from the start, the entrepreneur is not only put under much larger pressure but they also has less say in how their company should develop. Slovenia, on the contrary, gives an entrepreneur the possibility to move step by step and retain exclusive control over their start-up strategy.

These two entrepreneurs and their companies, as well as other Slovenian innovative new global companies, have always steered absolutely clear of any subsistence-like management approaches. It is not that they do not need to keep their costs down, but they clearly recognise that as technology leaders their competitive advantage lies in innovation rather than low prices. Further, their key employees are absolutely internationally mobile experts.

Due to their technological leadership these companies went global soon after it was clear that their technology actually works. At the very outset these companies relied completely on their genius founder-innovators. While growing they have also been expanding their R&D, thus becoming a little less dependent on one crucial person. However, almost without exception it is still the case that their founders continue to be the driving forces and their companies are still far from the point of becoming true corporations, i.e. business entities not directly and absolutely dependent on any single person.

All of the mentioned companies were established in Nova Gorica and their outspoken founders have since then importantly dynamised the surrounding Goriška region by launching an initiative for a regional development programme. Old and new companies of the region like Kolektor, Hidria, Instrumentation Technologies and Systec have found numerous fields where their co-operation would be mutually beneficial. The key importance of this co-operation between old and new companies lies in the fact that such co-operation would be the first serious attempt of the old, Chandlerian-oriented companies to embrace a modern open innovation system. At the same time, the risk that comes with this experiment is shared through the regional development programme financed by the state and the EU.

Another important feature of the new global players is their high public profile. The majority of these young, successful entrepreneurs are actively engaged in economic policy-making as either members of work groups or public opinion-makers. They all share the belief that entrepreneurship should be popularised in Slovenia and feel they have a duty to contribute to this.

The case studies show that successful Slovenian companies which make up a large part of the Slovenian economy have started to move beyond the subsistence-oriented approach and are now well down the path to innovation- and knowledge-driven competitiveness. Some companies have already arrived there. Yet, on the macro level, the Slovenian economy and society are still in the midst of a transformation towards innovation-driven economic development. To facilitate this transformation Slovenia has to undergo broader institutional changes. The paradigm of the enabling welfare state as championed by the Nordic countries can be seen as a highly relevant concept in the case of Slovenia, particularly in light of the many similarities it shares with its Nordic peers.

Slovenia: Towards an enabling welfare state?

It is difficult to single out any definite building blocks of an enabling welfare state. However, combining economic theory regarding innovation-driven development and Nordic, particularly Danish, examples of the enabling welfare state approach we can point to several key areas such as the labour market, lifelong learning, the role of trade unions and general welfare services. We are focusing on enablers for individuals and there are two reasons for that. First, individuals living in an enabling environment will in turn facilitate competitive companies and thus the economy. Second,

as we have shown Slovenian economic policy has so far primarily been targeted at companies yet there are clear signals, e.g. job dissatisfaction rate etc., that on the level of individuals things need to be improved.

In order to advance towards a highly developed society and economy Slovenia has to enable individuals and their families to lead more productive lives. This would cause a break from the traditional subsistence-oriented business system where individuals work hard rather than smarter and depend on their families as providers of different services.

We believe that enabling the individual is about changing how the Slovenian labour market functions. The levers for achieving this are an active labour market policy, lifelong learning and the role of trade unions. Enabling the families or “freeing” them is primarily about the availability of active and flexible social services.

The following section delves into the question of how far along the road to an enabling welfare state Slovenia has come so far and what can be done to propel it further. To answer this, we look at Slovenia’s performance and compare it with EU and especially Nordic countries.

Enabling employees

We believe Slovenian employees should be assisted in ways that would improve their position in the labour market, primarily their mobility. We argue that lifelong learning plays the crucial role here.

The labour market and active labour market policy

The economic activity of the population shows that Slovenia fares relatively well in terms of the overall economic activity of the population, employment of women and its relatively low figures for youth unemployment. However, it scores low on the economic activity of people over the age of 55 and the long-term unemployed, who comprise more than half of all unemployed people.

Table 4: Selected indicators of the population's economic activity (2006)

Country	Economic activity: employment rate (%)			Unemployment (%)	
	<i>Total</i>	<i>55-64 years of age</i>	<i>Women of</i>	<i>Under unemployment</i>	<i>-25 Long-term unemployed</i>
Slo	66.6	33.6	61.8	14.5	53.1
Denmark	77.4	60.9	73.4	7.6	20.4
Sweden	73.1	69.5	70.7	26.8	14.2
Finland	69.3	54.2	67.3	26.0	21.4
Czech Republic	65.3	45.4	56.8	17.0	56.2

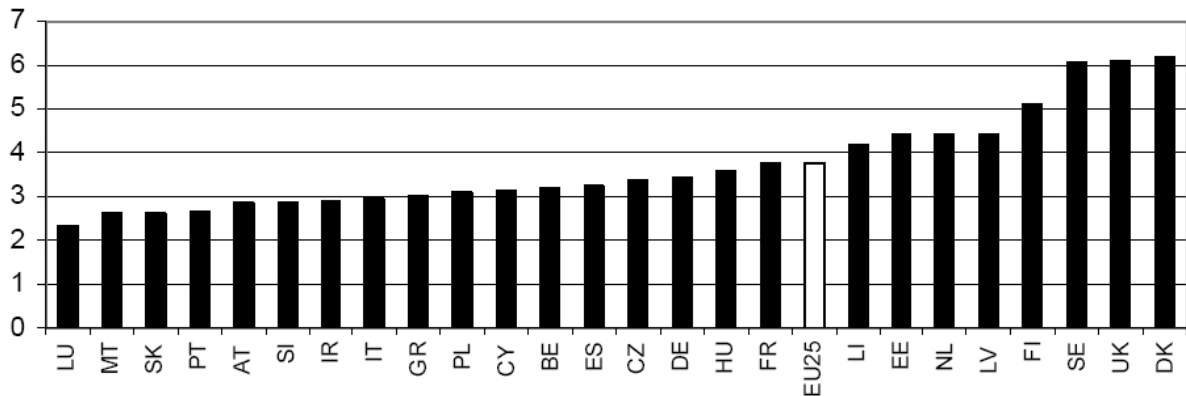
Source: SORSeu, 2008; Eurostat 2008

Yet how the labour market functions most likely reveals the biggest difference between Slovenia and the Nordic countries. While the latter are ranked as having the highest labour mobility in the EU, Slovenia is on the opposite side, with one of the least mobile labour forces. The EU Mobility profile (Coppin, Vandenbrande, 2006) allows several interesting comparisons:

First, Slovenia is one of the countries with the highest current job tenure (i.e. for how long have employees been holding their current job). Its 12-year score is only surpassed by Belgium (12.1 years). The EU-25 average is 10 years, while Denmark has an average tenure of 8.4 years. Sweden and Finland score 9.8 and 11 years, respectively.

In line with that is a comparison of the number of jobs currently retired people changed in their working careers. Denmark, Sweden and Finland take the lead with five or more different jobs while Slovenia has an average of less than three different jobs per retired employee.

Figure 4: Number of jobs in one's entire career (50+, no longer active) by country:



Source: Coppin, Vandenbrande, 2006, p. 12

Another comparison shows that, together with Belgium and Poland, Slovenia has the highest percentage (48%) of workers with a job tenure of 10 years or more, while the percentage of employees with a job tenure of up to 2 years is exactly 50% less, i.e. 24%. On the other hand, Denmark reveals a completely different picture: only 33% of all current employees have a job tenure of over 10 years and 35% of all current employees have a job tenure of less than 2 years (Ibid, p. 6).

Denmark appears to be the country with the highest labour mobility in the whole EU. 70% of Danish employees expect not to work for the same employer in five years' time. Sweden is second with 64%, the EU average is about 42% and Slovenia scores 38% (Ibid, p. 9).

The Nordic countries also have relatively low sector homogeneity of employees' careers, meaning that their currently retired employees stayed the least in the same occupational sector. This means that Nordic countries display not only the greatest job mobility within sectors, but also between them. On average, currently retired Slovenian employees show some 40% higher homogeneity than is the case of Denmark or Sweden (Ibid, p. 18).

There are several reasons for these differences. As we have previously shown, Slovenia has featured an incremental innovation system where an employee gains value by having a longer job tenure. At the same time, an active labour market policy has only been established in Slovenia for a decade. There is still a lack of an official safety net, i.e. unemployment benefits are meagre and unemployment insurance does not exist. Finally, there is the issue of the family and locality which

both help an individual live better but at the same time hamper geographical mobility. Consequently, employees are willing to cling to their jobs even though they may not particularly like them.

The transition and the ensuing dualisation of the labour market have undoubtedly improved the mobility of Slovenian employees. However, this forced increase has meant a step further away from the enabling welfare state concept rather than towards it. Due to the lack of an effective labour market policy and social safety net people with temporary or student jobs are becoming even more dependent on the traditional business system institutions, i.e. the family and shadow economy, to offset the uncertainties they face.

Lifelong learning

Different statistics place Slovenia above the EU-25 average regarding lifelong learning and employee training. However, Slovenia lags behind the Nordic countries.

Table 5: Percentage of the population aged between 25 and 64 participating in an education process

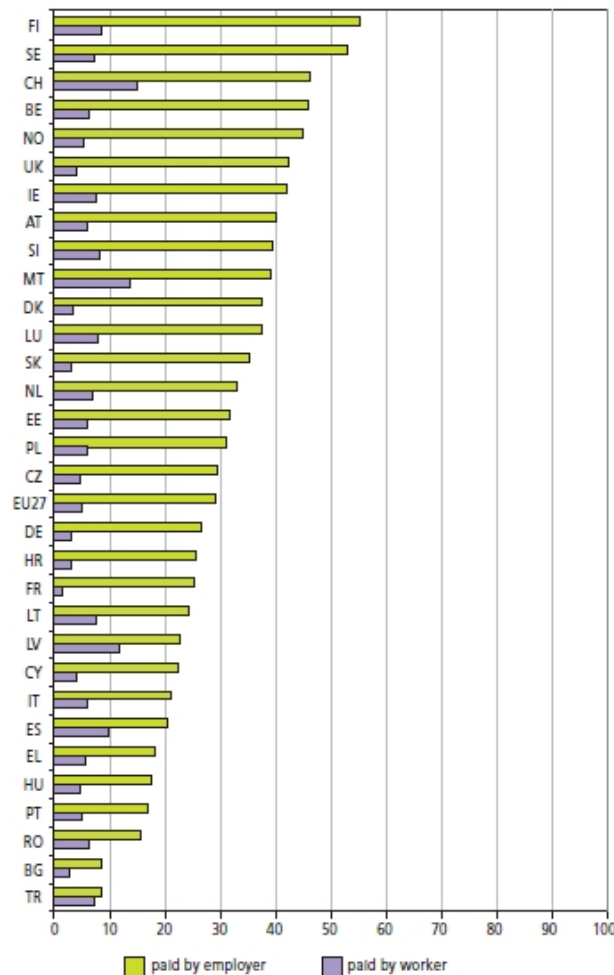
	2000	2001	2002	2003 ⁷³	2004	2005	2006
Slovenia	7.2	7.6	9.1	15.1	15.3	15.1	15.0
EU-25	-	7.9	8.0	9.0	9.9	10.2	10.1
DK	20.8	17.8	18.4	18.9	25.6	27.4	29.2
S	21.6	17.5	18.4	34.2	32.1	32.1	-
FIN	19.6	19.3	18.9	17.6	22.8	22.5	23.1
CZ	-	-	5.9	5.4	5.8	5.6	5.6
D	5.2	5.2	5.8	6.0	7.4	7.7	7.5

Source: STAT.SI

⁷³ Methodology change

In the last half decade Slovenia has also been ranked within the top quarter of the EU-25 in terms of employee training provided by the employer. The same ranking also applies to employee training paid by workers themselves.

Figure 5: Employee training (2005-2006):



Source: EC, 2007, p. 49

Leschke and Watt (2008, p. 19-20) also position Slovenia favourably with regard to skills and career development⁷⁴, i.e. approximately 10% above the EU-15 average and 10th within the EU-27. However, some statistics show that Slovenia should meagre develop its lifelong learning. The 1998 International Adult Literacy Survey showed that up to 77% of the Slovenian adult population was according to their literacy achievements below the standards considered as necessary for successful

⁷⁴ Their indicator consists of two sub-indices. The first encompasses the percentage of adults over the age of 25 who participated in education or training in the four weeks prior to the survey. The second measures the average share of people who state that their job offers good prospects for career advancement.

functioning in everyday activities (Možina, IB, 2000). Further, Mohorčič and Mirčeva (2005) stress that the primary users of lifelong learning in Slovenia are social groups that are already privileged, i.e. people with a higher education, while people who need it the most are the least active and that differential has been persistent (Mirčeva et al., pp. 9-10).

Danish Flexicurity is the best example of the importance of lifelong learning for the labour market competitiveness of individual employees and for the competitiveness of the national economy as a whole. We believe lifelong learning and training can and should play a central role in dynamising the Slovenian labour market characterised by employees developing long-term careers within their companies. In the context of less mobile employees, learning and training serve different important purposes.

First, it improves the skills of employees, in turn enabling an increase in the overall competitiveness of firms. Second, by enabling employees to perform different operations training improves the internal mobility of the employees within their firms, thus improving the ability of the company to adjust to shifts in demand.

Further, employee training would facilitate an increase in the inter-firm mobility of Slovenian employees by helping them expand their social networks and gain skills that extend beyond the narrow skill-sets of their existing workplaces. Such higher inter-firm mobility would be beneficial for both employees and employers. The former could find better and more suitable jobs, thereby reducing Slovenia's high job dissatisfaction figures and likely increasing their productivity. The latter would be forced to compete for the best employees, leading to improvements in terms of workplace quality and the use of employees' talent, in turn leading to the increased competitiveness of firms.

Trade unions

The Nordic countries clearly show how important and beneficial the proactive role of trade unions can be in terms of supporting socio-economic development. As we already mentioned, Slovenian trade unions facilitated a soft transition by agreeing to wage moderation and productivity increases in exchange for stable employment. However, the end of the transition marks a time when

Slovenian trade unions should reconsider and change their role within Slovenia's socio-economic system.

It could be argued that Slovenian trade unions have become stuck in a vicious circle of continued action under the Fordist industrial system paradigm. Namely, since the start of the transition the policy and mission of Slovenian trade unions have not changed significantly. Because like during the transition period today trade unions can primarily be found in large old firms and the public sector, their membership is declining as is the unionisation rate which is estimated at slightly below 40% (Stanojević, 2004). Union membership is increasingly limited to unskilled workers and their mission has not changed: the fight for workers' rights and wages.

Research into a trade union covering the Slovenian chemical, rubber and non-metal industry showed that members primarily expect their trade union to fight for better wages and working conditions (71.5%) and for lifelong employment (43.3%). Assistance with education was considered relatively unimportant as only 4.5% opted for it (Soklič, 2004). This shows that Slovenian trade unions have perhaps adopted a position whereby they do not need to modernise since their members belong to a very static group of employees who chiefly want better wages and job security, rather than thinking in terms of career development and employability.

These dynamics are quite contrary to Nordic developments. Swedish trade unions, for example, had a unionisation rate of 80% in 2000, with white collar workers being the main membership group. On the contrary, in Slovenia unionisation rates of high and middle management in 1998 were 11% and 37%, respectively, while over 50% of non-management employees were trade union members (Table 11).

Table 6: Trade union membership structure by workplace

Employment category	Unionisation level (%)		
	<i>1989</i>	<i>1995</i>	<i>1998</i>
<i>High management</i>	77.0	17.1	10.8
<i>Middle management</i>	84.6	54.2	37.0
<i>Non management</i>	/	68.6	50.8
<i>Supervisors</i>	74.1	59.1	53.0

Source: (Toš, 1989, 1995, 1998)

Similarly, employee groups having only completed primary or vocational school have the highest unionisation rates, while employees with a high school or tertiary education have a lower unionisation rate (Table 12).

Table 17: Trade union membership structure by education

Education	Unionisation level (%)		
	<i>1989</i>	<i>1995</i>	<i>1998</i>
<i>Primary school</i>	72.7	68.3	51.9
<i>Vocational school</i>	70.6	58.6	51.0
<i>High school</i>	76.5	47.4	27.8
<i>University</i>	81.3	46.6	42.1

Source: (Toš, 1989, 1995, 1998)

Stanojević (2000) stresses that Slovenian trade unions have become blue-collar trade unions or even trade unions of subordinates. With regard to the opposite Swedish trends, we believe this is due to the fact that Swedish trade unions are most valuable for their activities that extend beyond the classic role of trade unions that is most relevant to blue-collar workers.

Thus in comparison to their Nordic counterparts Slovenian trade unions are more opponents than protagonists of institutional change and this status seems to be hurting both themselves and their members. The trade unions' policy only supports a continuation of the Fordist approach to production in two ways. First, it does nothing to improve workers' lack of skills and to make them

more employable and productive since trade unions only offer education on “the big” themes like profit-sharing, workers’ co-management, privatisation, collective bargaining (Kumar, 2007), but nothing that would be useful for the common shop-floor worker. Slovenian trade unions also offer no unemployment insurance to facilitate labour market mobility. Second, trade unions’ policy focus on workers’ rights and wages, i.e. the partition of value added between workers and capitalists only feeds the illusion held by (unskilled) workers that it is primarily the system that is to blame for their misery. It can easily be seen that such a policy is counter-productive for both employees and trade unions.

General enablers

For Slovenia to move beyond the traditional subsistence-oriented business system the family has to be “freed” from its traditional role of an important provider of services (e.g. childcare, care for the elderly) so that its members can become more mobile and fully engage in the globalised economy. To achieve this, a strong, active and flexible welfare system has to be in place. To assess whether this is so we will look at welfare expenditure in general and particularly expenditure on services that often lie in the domain of Slovenian families.

General welfare system expenditure

Slovenian expenditure on social protection as a share of GDP fell from 24.6% in 2000 to 23.4% in 2005 (Eurostat, 2008, p. 3). This shrinkage can be explained by the falling unemployment rate which dropped from 7.2% in 2000 to 5.8% in 2005 (SURS, 2006 and 2007) and brought a decline in unemployment benefits.

Table 2 shows that Finland, Norway, Greece, Italy and the UK spend a similar share of GDP on social protection as Slovenia. However, apart from Italy, Slovenia has the lowest share of social protection expenditure in the form of other in-kind benefits. The latter include non-healthcare services to individuals and households such as childcare, vocational training, care for the elderly...

Table 8: Social protection as a share of GDP and the share of other in-kind benefits within it

Country	Social protection as % of GDP (2000-2005)	Share of other in-kind benefits
Slovenia	24.6 – 23.4	4
Italy	24.7 – 26.4	3
Greece	23.5 – 24.2	11
UK	26.9 – 26.8	12
Denmark	28.9 – 30.1	21
Sweden	30.7 – 32.0	23
Norway	24.4 – 23.9	18
Finland	25.1 – 26.7	16
EU-15	27.0 – 27.8	9

Source: Eurostat, 2008, pp. 3 and 6

When comparing the structure of social benefits in Table 3 two things can be noticed. First, the Nordic countries generally spend a smaller share on pensions and healthcare but spend more on other cash benefits (unemployment benefits, maternity leave benefit) and other in-kind benefits. Second, when focusing on in-kind benefits only an interesting pattern emerges: the Nordic countries tend to spend a lower share on healthcare and a bigger share on other in-kind services. Other countries go the opposite way round.

This second pattern could mean two mutually exclusive things. One explanation could simply be a different treatment of certain expenses in Nordic countries which underestimates healthcare expenditure and overestimates other in-kind benefits. Another and possibly more plausible explanation would be that the Nordic countries have in fact taken an “enabling” approach to social protection resulting in replacing hospital care with domestic care and assistance. The data in Table 3 support this reasoning. While expenditure on in- and out-patient care in the Nordic countries is respectively 22% and 2% below the EU-15 average, the Nordic countries spend 74% more on accommodation and 458% more on home help for disabled persons, 239% more on accommodation and 529% more on assistance with daily tasks for old people than the EU-15 average.

Table 9: Structure of social benefits for selected countries (%)

Country	In cash: pensions	In cash: others	In kind: Healthcare	In kind: Others
Slovenia	47	21	28	4
Italy	59	13	25	3
Greece	50	13	26	11
UK	42	17	29	12
Denmark	38	23	18	21
Sweden	41	18	18	23
Norway	34	25	23	18
Finland	43	20	21	16
EU-15	47	20	24	9

Source: Eurostat, 2008, p. 6

A comparison of the statistical indicators of social protection shows that the Nordic countries have developed a more “enabling” mix of social protection benefits for their citizens than other EU countries. The Nordic countries give out a lower share of social benefits in the form of pensions and healthcare while giving more in terms of other cash benefits (unemployment benefit, maternity leave benefit...) and other in-kind benefits (vocational training, accommodation and daily assistance for disabled and old people...). In comparison to the EU-15 average, Slovenia spends a higher share on healthcare while it is short on other in-kind benefits, i.e. the group of benefits – services that serve as strong enablers since they “free” families and individuals from the need to produce them.

Enabling social services

Table 3 shows that the Nordic countries are clearly superior to the EU-15 average regarding other in-kind social benefits. Denmark, Sweden, Norway and Finland spend 2.7 times more per inhabitant in terms of other in-kind social benefits than the EU-15 average and over 7 times more than the case of Slovenia.

As far as the sum of in-cash social benefits and health-care expenditure is concerned, the Nordic countries spend 6% more than the EU-15 average while Slovenia reaches 62% of the Nordic and 66% of the EU-15 levels.

Table 10: Expenditure on chosen benefits in PPS per inhabitant, 2005

Category / Country	SI	DK	SE	FI	NOR	A	EU-15	EU-27	SI vs. NORDIC	SI vs. EU 15	NORDIC vs. EU-15
Paid sick leave	194	265	485	302	940	301	227	197	55%	85%	154%
In-patient care	444	990	610	592	1301	900	937	810	61%	47%	78%
Out-patient care	729	449	873	806	689	775	725	631	103%	101%	98%
Disability pension	177	503	700	523	1020	410	287	255	31%	62%	200%
Accommodation for disabl.	32	169	154	27	15	49	67	57	27%	48%	174%
Home help	0	101	217	50	69	5	22	19	0%	0%	558%
Old age pension	1255	2055	2256	1787	1991	2318	2404	2096	62%	52%	85%
Anticipated old age pension	496	529	198	147	52	262	100	98	170%	496%	291%
Accommodation	9	34	473	103	380	84	60	51	4%	15%	339%
Assistance with daily tasks	0	455	191	71	261	21	38	32	0%	0%	629%
Survivors pension	69	0	179	233	109	103	287	245	50%	24%	48%
Maternity allowance	41	152	181	113	195	29	40	35	28%	103%	372%
Parental leave benefit	68	-	-	58	60	1	17	16	117%	400%	341%
Family or child allowance	163	273	214	232	294	627	306	263	68%	53%	78%
Child day care	106	440	241	240	309	105	73	63	35%	145%	421%
Accommodation	4	139	83	52	60	33	18	15	4%	22%	507%
Unemployment benefit	52	371	330	393	205	217	254	215	14%	20%	144%
Early retirement for labour market reasons	38	-	0	112	8	17	25	22	68%	152%	224%
Vocational training	7	-	36	39	6	34	19	16	19%	37%	197%
Rent benefits	3	199	147	69	15	28	147	127	2%	2%	94%
Income support	99	178	86	71	114	14	41	37	89%	241%	272%
TOTAL	3986	7302	7654	6020	8093	6333	6094	5300	55%	65%	119%
TOTAL other benefits in kind	158	1338	1395	582	1100	331	297	253	14%	53%	372%
TOTAL in-cash benefits + health care	3828	5964	6259	5438	6993	6002	5797	5047	62%	66%	106%

Source: Eurostat, 2008; own calculations

Legend: -other benefits in kind

The review clearly shows that Slovenia should further develop enabling services, particularly vocational training for the unemployed, childcare and assistance with accommodation for young families, and services for the elderly. Better social services for the elderly and children and assistance with housing for young families would relieve the burden families have borne traditionally while more and better vocational training for the unemployed would make them more employable and more mobile in the long run.

Conclusion

Slovenia has had a distinct traditional business system based on subsistence and dispersed risk-sharing in which an individual has spread their bets between a formal job, their family, the shadow economy and the welfare system. This risk-sharing has in turn facilitated the incremental experimentation and evolutionary development of the Slovenian economy and society. The evolutionary nature of the business system also contributed to the gradualist approach taken to the economic transition in the 1990s. The flexibility of the traditional business system then allowed companies to compete globally in terms of efficiency and costs. Slovenia weathered the transition relatively well in terms of both economic activity and growth as well preservation of its welfare system.

However, the traditional subsistence-oriented business system and efficiency-based competitiveness of the Slovenian economy became exhausted by the end of the transition since cost competitiveness could no longer be maintained and work intensity had reached its high point. Slovenia needs to advance to socio-economic development that is driven not by efficiency but innovation.

Our research shows that the best Slovenian companies of all sizes and sectors have already embarked on the road to innovation-driven competitiveness. However, on the national scale the transformation is still far from over. To facilitate this development Slovenia could and should learn from the enabling welfare state concept championed by the Nordic countries. The concept is particularly relevant to Slovenia due to its many similarities with the Nordic socio-economic system.

Looking from the enabling welfare state point of view, Slovenia has to change how its labour market functions and offer more and better social services to its citizens. The functioning of the labour market should primarily be tackled by strengthening the role of lifelong learning which would make people more employable, more mobile and would improve knowledge transfers. This would in turn benefit the nation's companies. Trade unions could play an important role in establishing such a system.

Active labour market policy should be reformed in the sense of eliminating the dualism of the labour market. Apart from stronger vocational training, income policy in the case of unemployment should be redesigned so that offers more security. More, better and more flexible social services, particularly for the very young (kindergartens) and elderly (assistance, accommodation), would relieve the burden borne by families and in turn enable the higher mobility of people.

All of the changes suggested here would fit well with the traditional Slovenian evolutionary way of development and could be implemented. Without such changes, particularly in the labour market, the country's future development may well be slower and structurally less sound.

Chapter 7

Conclusion: Developing Comprehensive, Enabling Welfare States for Offensive Experimentalist Business

Peer Hull Kristensen

Deriving the Core Lesson from the Nordic Welfare states

While the emergence of the new economy – the global, networked, projective economy – has been problematic for a number of countries belonging both to the liberal market economies/welfare states and to coordinated market economies/conservative welfare states, its merger with the Nordic welfare states/coordinated market economies has been surprisingly successful – at least for a period.

While the US and France have seen the coming of the new economy as associated with a widening gap between the included and the excluded, between the mobile elite of the financial-, managerial-, research- and cultural communities and the immobile unskilled and traditional sectors and occupations, the Nordic countries have managed to carve out spaces for and transform the identities of a much broader spectre of the population within this new economy. In effect differences between the situation of the lowest and the highest strata of the population are small, unemployment is low, activity is high, trade balances positive, public- and private debt negligible and investments in infrastructures, on which the shaping of the future depends, offensive.

There seems to be a covariance between these outcomes and the proportion of the population that gets a higher secondary education. Free education in most continental countries makes it possible to achieve levels around 80% of new cohorts, seemingly equipped with the basic abilities that it takes to live with the new economy, shift or renew occupation, move among jobs and shifting project assignments. Many conservative welfare states share these characteristics, but the difference is that in the Nordic welfare states, high levels of education covary with social services (child- and eldercare, care for disabled, etc.) in ways that enable families to engage adult members of households in the unpredictable working life of the new economy and yet overcome reproductive duties, while simultaneously – though to a highly varying extent among the Nordic countries - also

including young and elderly in the labour market. In e.g. Slovenia – as we have seen – the family is, on the contrary, an important source, providing the social services so that some family members may become active in the new economy. For instance early retirement schemes make it possible for some to retire early so that they can be part of the support that enables e.g. university students to be active on a low paid but probably highly dynamic section of the labour market that introduces them to the new economy – as we shall see below.

Public services enable both males and females to be active in the new economy. As employees they must be able to make swift role shifts, engage in learning while performing jobs, be away from home for weeks to attend further training or participating in projects in different locations or even abroad. The family must be able to live with members that engage in an unpredictable working life both in terms of content, place, and timing. The working life may involve periods of great transitions, such as change from an already achieved profession to a new quasi-profession or navigate from jobs in low to high-esteemed and -demanding projects and networks. Today working careers seldom follow the hierarchical path of a bureaucracy; they are often horizontal, crossing many organizational boundaries, social strata, professional divides, etc. Persons moving in such ways are often insecure, feeling disabled and stressful. Obviously, other things being equal, such a job market is much easier to handle for rich families that can hire a number of private servants to compensate for the reduced time adults may allocate to children, parents and partners. For that reason primarily rich families in countries such as France and the US are able to participate to the fullest in the new economy, often serviced by immigrant labour, paid substantially less than the families they serve. In the Nordic countries families may engage in working life in a similar way, thanks to public services. Esping-Andersen (2000, p 16) therefore sees the provision of social services for families to be

.... the single most effective policy for combating poverty and welfare dependency, while it is also an investment in human resources. In short, family services should be regarded not only as mere “passive consumption”, but also as investments that yield return in the long run.

He argues that social services increase women’s participation rate on the labour market which has proven to be one of the best ways of combating child poverty, which again is playing a major role in determining the educational level of a country. Thus public services, the participation rate of the population on the labour market, educational level and the ability to master the new economy seem to generate a virtuous circle, which the Nordic Welfare states seem to have engineered more or less

unintended. Compared to most Southern- or Eastern European countries, the participation rate of women is high in Slovenia despite social services being low and close to Italian levels (where the female participation rate is low). This indicates that the extended family in Slovenia seems to have played an important role in transitional processes, while the opposite goes for Italy.

The covariance between types of welfare states and forms of organization (as demonstrated in Chapter 1) suggests that social services have consistently provided the ground for creating business- and public organizations in the Nordic countries of a significantly different type than in most other countries. These organizational forms, heuristically labelled “learning organizations”, are characterized by combining high labour autonomy with high efficiency, the exploration of employees’ own ideas and learning at work, networking among organizations directly by employee-levels, measures that are probably explaining the performance of the Nordic countries in terms of innovativeness. The Nordic countries all score high in terms of worker satisfaction. The contrast to Slovenia is quite systematic. Here increases in work intensity have been extensive, and carried out to make Slovenia low on costs and managerially controlled organizations. The Slovenian population seems dissatisfied with their jobs, but the ties among family, house, factory, and region make it difficult to change the social contract between employee and employer at the micro-level in the traditional sectors of the economy. Both Slovenia and the Nordic countries have made use of basic institutions to find novel comparative advantages in tandem with globalization – and these comparative advantages are very different at the moment.

In the Nordic countries, the experimental development of so-called “learning organizations” has made it possible for firms and public institutions to gain a substantial degree of manoeuvrability, as our case-studies show. Firms may pursue a “service-the-sophisticated-costumer-strategy” (sesoco-strategy), the customer often being other firms or public institutions making customer-driven innovations a general feature in many of the cases we have studied. Perhaps the most surprising finding is that in all the Nordic countries, firms or organizations may take departure in a product, but then they will move this product very close to customers and start to increase the importance of it, either by solving more and more complicated problems for existing customers and/or move in such a way that they come to work for increasingly sophisticated and demanding customers. In most of our cases, Nordic firms seem ready to accept the risks involved in moving with the tides of customers with whom they are involved, and the internal flexibility makes it possible to re-arrange

roles and routines internally as customer relations change. In this way they create a dense network with other firms and suppliers, which enables them to play the role of spider in a web combining a set of suppliers with a set of customers. This network does not constitute a stable and well-defined global value chain, but is rather an open innovative system, where impulses and capabilities for development are abundant – provided that the firms accept the risks involved. Our cases show that firms and organizations can move in these directions both from being R&D organizations (in Sweden), from being artisan or manufacturing firms (in Denmark and Finland) and from being state-owned (Norway). Many of the firms we studied did not simply supply customers with goods, but used goods as components in a larger set of services that aimed at continuous improvement of core-processes in the customer organization. Where formerly internal staffs had taken care of improvements, Nordic firms now provided these. And by doing this across a number of customer organizations they accumulate an extensive knowledge of practises that can be combined into new approaches. They so to speak increase their assets by bringing them into play. To us this is a break away from strategies of either scale or scope that characterize past corporate strategies and that currently is used to explain the global organization of value chains. But it is also a system in which the best way to learn comes from participating in the continuous response to new challenges emerging in networks, both at the level of firms and of employees. Therefore it causes employees troubles to maintain their working competence and professionalism if they are absent for longer periods, e.g. on parental leave, and it may be very important that the young generation very early, in parallel with their education, enters the job market and learn to participate. In this respect the Nordic countries reveal a number of differences that may be important to assess in detail.

By tying up in this way internationally, firms and employees gain access to the very *root causes* of reflexivity and become entangled in the world of Reflexive Modernization (Beck, Giddens and Lash (1994). As Lash states (Ibid, p 120):

What indeed underpins reflexivity is ... an articulated web of global and local networks of *information and communication structures*. One might best understand this new context in contrast to industrial capitalism, in which 'life chances' and class inequality depend on an agent's place in and access to the mode of production. In reflexive modernity, life chances – the outcome of who are to be the reflexivity winners and who the reflexivity losers – depend instead on place in the 'mode of information'. Life chances in reflexive modernity are a question of access not to productive capital or production structures but instead of access to and place in the new information and communication structures.

The cases we have studied have consistently elevated firms and employees in the Nordic countries to strengthened places in such information and communication structures. No wonder then that popular support for globalization has been high. Pursuing sesoco-strategies by the mentioned forms of learning organizations constitutes in itself a dynamic complementarity for a novel template of business development, where firms become deeply enmeshed in global processes and by being there, the world reveals an abundance of new opportunities and challenges. However, such opportunities are only exploitable if employees, owners, firms and organizations dare step into unknown and uncertain territory, where they gradually will succeed and/or fail depending on how they create capabilities that meet opportunities and challenges. Put in another way, firms and employees are continually engaging in projects that are beyond their professional boundaries, transcending existing routines that are uncertain and fundamentally unpredictable. They can only move in such ways by taking incalculable risks and accepting to be temporarily disabled. In our view, firms and employees dare take these shaky moves, where institutions share risks with them and/or compensate for being disabled.

When institutional risk sharing takes place and institutions enable disabled that is, in our view, where and how learning organizations and sesoco-strategies evolve in the first place and where and how they continuously evolve in the Nordic countries. Thus the emergence and extension of the Nordic business template is dependent on firms taking the risks associated with these steps into the unknown, and this again is dependent on where and how firms and employees share risks with the larger society and the welfare state. Thus the evolutionary dynamic of each of the Nordic business systems is distinct, because risk sharing and enabling institutions are working in different ways and are socially constructed to meet situational challenges in each their distinct way in each of these countries.

Varieties of Risk Sharing in Nordic Welfare states and Slovenia

Most traditional views of the welfare state see its central obligation as provider of social insurance (Esping-Andersen, Ibid; Iversen and Cusack, 1998), a risk sharing system directed towards accidents, unemployment, diseases; and often to have evolved from the self-help movements of a multiplicity of occupational groups, each creating their distinct set of risk sharing institutions (Marsden, 1063) directed towards damage repair for predictable situations of misfortune. Thus

some have seen the expansion of the welfare state to be connected with the international trade liberalization (Cameron, 1978; Katzenstein, 1985) or with the abrupt change to a service economy through a period of sudden de-industrialization (Iversen and Cusack, 1998), which both implied radical changes that increased the vulnerability of traditional – agricultural and industrial – occupational groups, and the need for elaborate social security systems. In this view, the welfare state simply, in a *defensive* way, shares the risk of misfortune with its population, typically by providing unemployment benefits, social security and early retirement schemes, etc. The state compensates the citizens for the evils of capitalism.

But growth in welfare expenses may have, and should perhaps be seen as having *offensive* outcomes co-evolving with a distinct form of capitalism. In our case-studies, thus, we have observed a set of different risk sharing systems that offensively stimulate individuals, firms and regions to explore new opportunities beyond the boundaries of current practises, where both uncertainties and opportunities are unknown, and where risks are incalculable. In a global and open innovation system, firms collaborate on projects where the outcome is unknown, individual firms make investments, the return on which is incalculable and employees cultivate and acquire skills, the usefulness of which are unproven. Entrepreneurial activity so to speak penetrates the system at all levels.

Generally, it has been argued that welfare states, by lessening the exposure to and reducing the entrepreneurial gains from the market, make firms and citizens risk averse, thereby slowing down growth in the long run. Recent research, however, has found theoretical ground for arguing to the contrary, that redistribution leads to real benefits by stimulating risk taking (Sinn, 1995, 1996) and empirical tests made on scattered data “is consistent with (but does not prove) the argument that the welfare state, by insuring incomes, induces risk taking” (Bird, 2001).

In our view, these risk taking characteristics are not so much attributable to the traditional core characteristics of welfare states (income redistribution, social insurance, pensions, etc.) as they are to some co-evolving institutions or some of the reforms that have been made to make the risk sharing institutions translate into enabling risk taking and compensating for disabilities among firms, citizens and regions. In our case-studies we have found such systems in each of the studied

Nordic countries, but they differ among cases and hence the dynamic of exploration and search for new opportunities differ among the countries.

Rodrik (2004) has argued that in order for developing countries to discover new dynamic comparative advantages, the state should experimentally subsidize entrepreneurs in new and hitherto untried business areas so that they can explore whether the country in question holds comparative advantages in new specific, emerging areas. In his view this was why and how e.g. Taiwan discovered its advantages in consumer electronics and other branches.

Diversification of the productive structure requires “discovery” of an economy’s cost structure – i.e. discovery of which new activities can be produced at low enough cost to be profitable. Entrepreneurs must experiment with new product lines. They must tinker with technologies from established producers abroad and adapt them to local conditions. This is the process ... called “self-discovery” (ibid p 9).

The process of self-discovery for a national economy cannot alone be dependent on the functioning of normal market processes:

When we put ourselves in the shoes of an entrepreneur in cost discovery, we immediately see the key problem: this is an activity that has great social value and yet is very poorly remunerated. If the entrepreneur fails in his venture, he bears the full cost of his failure. If he is successful, he has to share the value of his discovery with other producers who can follow his example and flock into the new activity. In the limit, with free entry, entrepreneurship of this kind produces private costs and social gains. It is no great surprise that low-income countries are not teeming with entrepreneurs engaged in self-discovery (Ibid).

Active and timely self-discovery, making it possible to continuously redefine roles, positions and opportunities for firms in the new global economy on a national scale is a complicated aim that involves a new synthesis between politics and business, but also a change in how the national and international relates. For Unger (2007) the important thing for a country is to have businesses that are tied up internationally with other firms that are engaged in pursuing “revolutionary routines” (Sabel,2005) that leads to continuous improvement by employing managerial techniques such as root-cause analysis, appreciative enquiry, simultaneous engineering, heuristic design. But to achieve such a position, national firms must themselves break up from current routines and move beyond the boundaries of normal businesses. To make such a move – and break out of the catch22 situation - on an extended scale, firms and their employees need to take risks continuously and the probability of that happening increase if the state through institutions shares the risks with business

firms and employees. As our case-studies reveal, the Nordic countries show a whole palette of different ways of meeting this challenge.

Risk sharing in the Finnish innovation system and welfare state

Finland used to have one of the most elaborated forms of offensive risk sharing systems of any Western country in the aftermath of WWII, enabling paper and pulp mills to move continuously beyond existing best practises. When paper and pulp industries were preparing for the enormous investments in new generations of mills, banks would, in coordination with state-level initiatives and local communities, provide patient financial capital, created by “forced” private savings, so that the population shared risks with banks, banks with mill-companies, while the state would moderate the risks of all by managing the currency value in accordance with global supply and demand for pulp and paper on the world market (Lilja et al. 1996). This way of organizing risk sharing in many ways served to make Finland the most technologically elaborate producer of high-quality paper, which again triggered a need for engineers and carved out a privileged social space for technological professions in the Finnish society. Moen and Lilja (2005) have shown how this risk sharing system was remodelled to put Nokia on the track towards consumer electronics, simultaneously creating new and updating old R&D institutions and expanding the education of engineers to enable the rapid growth of clusters of electronic firms. As Ornston (undated) has documented, this change was a deliberate attempt by the Finns to copy the Swedish innovation system by a radical investment in more R&D, by making new institutions and by setting up new corporatist bodies. By making a Science and Technology Council, headed by the prime minister, they went beyond the Swedes and made it possible to co-ordinate and strategize at a comprehensive national level. In many ways this effort was simultaneously undermining some of the elements of the old risk sharing and coordinating systems as it allowed Nokia, and a number of other successful firms, to engage directly with the risk sharing that takes place in advanced financial systems, primarily orchestrated by Wall Street and the City of London.

In Sabel and Saxean’s (2008) detailed longitudinal study of Finland’s industrial heritage it becomes very clear that the co-evolution of Nokia with a competitive telecommunication system, public regulatory bodies, R&D institutions and standard-setting collaboration among Nordic countries created a unique adventure making it possible for Finland to gain an extraordinary role in cell-

phones globally. It is indeed a simultaneous co-creation process that takes place among actors, bringing a new generation of a technology into life. The “enablers” outside Nokia itself were numerous in terms of complementary technology, the creation of infrastructures that could simultaneously underpin a coming market and create demand for cell-phones, etc., R&D and an elaborate national innovation system was only the last element in creating enabling conditions for Nokia to become a strong player. The history of Nokia resembles aspects of the emergence of the windmill industry in Denmark, but in Denmark this new industry came out of a craft based industry of agricultural machinery, and became only much later – after it had gained high market shares internationally - based on systematic efforts in science and engineering technology. In Denmark, the creation of a market and prices for wind-based electricity, the mode of creating cooperatively owned “windmill guilds”, tax rules, etc., created a similar interplay between the public and the private sectors in which self-discovery could take place without leaving entrepreneurs with all the risk taking. Other similar examples in Denmark are hearing aid devices, medical measurement systems, medicaments, etc., that is, products which serve advanced demands in the public sector. In all the Nordic countries it is indeed possible to study how the welfare state constitutes a market that is able to appreciate and interact with producers of elaborate technology and engage in co-creation of new products and businesses. Perhaps the best example is the weapons industry in Sweden.

But in Finland, this evolution took a new turn by the coordinated effort to create a large national innovation system focally organized around Nokia, and often financing a large proportion of Nokia’s R&D costs in the 1980s and 1990s. This innovation system plays a major role, too, in the cases that we have studied. The groupings within the studied Finnish subsidiaries that dare take offensive actions are neither workers and sales-people, nor the managerial staff. Engineers from the R&D- and production staff are holding offensive agency and take risky steps, partly by connecting with engineering staff in customer firms, in such a way that they redefine mandates of subsidiaries and their roles within acquiring multinationals. Seemingly it is no longer risk sharing by a system of patient financial capital that is in focus, but rather the existence of a distinct human capital that is at the core of the way in which risk taking takes place. Firms and employees agglomerate around the engineering profession to be part of this risk sharing system. Thus we observe that the subsidiary in Varkaus decides to relocate to a neighbouring city, which embed institutions and other firms that employ and educate engineers, rather than engaging in rejuvenating its host locality.

Together research institutions, educational institutions and engineering intensive firms constitute a risk sharing system that makes it attractive for youths to be educated in engineering, for engineers to move to places where engineers agglomerate, and for firms to allocate their facilities. Risk sharing takes place at many levels. Co-allocation create a labour market, where it is easy for engineers to be re-employed if fired, for firms to search for solutions to engineering problems that are beyond their own capability and for the public to trust that investments in R&D and education will pay off in terms of innovation and increasing employment. More direct tight connections among engineers in firms and public institutions create the strings by which R&D applications can be made to look attractive to the financing bodies (Academy of Finland, Tekes, Sitra, etc.) of the state.

Effects have been non-negligible. The transformation to a high-tech industry in Finland has been fast, but more noticeable – as in Sweden – a much higher proportion of the youth finalize university education within technical areas and natural science (close to 30%), whereas the OECD average is less than 20% (Økonomi- og Erhvervsministeriet, 2006: 88). Both Norway and Denmark are in these areas below the OECD average.

Focused in this way the normal pattern of welfare provisions may seem of secondary importance, and yet they allow firms to be organized in accordance with the templates of high performance work organization, making it possible for employees to adapt to a rapidly changing context, spouses to move with their family risking temporary unemployment before becoming equally active, and to cultivate a culture of living in accordance with a professional life in an innovative business environment.

However, the Finish system of risk sharing only work to the extent that this engineering risk sharing system is able to generate exploration to the extent that it creates employment for other groupings, too. High unemployment figures, the most unequal regional distribution of economic opportunities of the Nordic countries, and an overrepresentation of the ICT-sector as proportion of the Finish economy are signals of the limitation of the Finish system of risk sharing. In many ways Finland could be said to be too dependent on this risk sharing dynamic and leaving many social groupings and regions without institutions enabling them to act if they do not happen to be dragged into the core dynamic. In this way many of the institutions of the welfare state are left to their traditional

role of passive social insurance and passive risk sharing. General entrepreneurship outside the pockets of engineering and higher education may be low. Finland has to a lesser extent compensated for loss in agricultural and manufacturing occupations by expanding public and private services than have the rest of the Nordic countries (Iversen and Cusack, 1998). Entrance into the labour market happens later for young people in Finland than in the other Nordic countries, and retirement takes place at an earlier date. Women are absent from the labour market for a longer period after having given birth to children than in the other Nordic countries. In an experimentalist, projective economy organized around “learning organizations” this could lead to a system, where the engineering profession is pulling with them a core of polyvalent employees, which are given opportunities to enter the brave new world of “revolutionary routines” helped by firm financed continuous training, whereas many young, women and elderly workers with low education become increasingly peripheral and only temporarily engaged in the new learning dynamism. Yet, it is obvious from the cases studied that Finish firms by becoming subsidiaries are dragged into the new dynamic, and that this is present in the Finish economy also outside such core firms as Nokia, but it is indeed difficult to assess whether this dynamic may be diffused to the larger system, which in many ways may suffer from being a centrally, rather than locally coordinated market economy. Outside the dynamic core it seems difficult to create novel actors and strategies, which the Varkaus case demonstrates.

Sabel and Saxeian (2008) see another risk emerging from the way in which the Finnish system enables self-discovery and risk sharing. Firms and institutions may become so focused on the attractiveness of forming national R&D-partnerships that they neglect to develop search-relations to the wider international landscape of R&D frontiers. In a world of open and decentralized innovation system, they argue that R&D frontiers are exploding and numerous, and for that reason nobody can foresee exactly from where new innovations will emerge. In such a global system a large, yet bounded and limited national innovation system that stimulates different actors to create primarily national ties, may undermine the possibility of creating the multiplicity of international ties that capture new promising research and innovation frontiers of the future.

Risk sharing in the Danish flexicurity and welfare state

Comparing the Finnish and Danish routes to reforms, Ornston (undated) did not identify a deliberate master plan guiding action and transformations in Denmark in the 1990s, as in the case of Finland. Rather swarms of seemingly unconnected tiny changes in existing institutions and novel use of existing schemes were re-combined to respond to novel situations. Focus was on bringing down the level of structural unemployment without causing inflationary pressures, and attempts to rejuvenate the innovation system were scattered if not absent. What in particular came into play was a reformed use of continuous training and life-long learning by activating and extending the use of the Technical Schools and the “Specialized Workers Schools”. In the 1960s both institutions were seen as instrumental in preparing the population for the Fordist mode of production, but both groupings used these institutions in a rivalry over skills, creating high-discretion jobs and class-transcending working careers.

By local experiments in the 1980s, elevated by granting workers universal rights to yearly periods of further training negotiated among unions and employer’ association in the early 1990s and by using the training system extensively from the mid-1990s to activate unemployed, the vocational training system extended its reach during the 1990s. By 1990 24% of the resources devoted to active labour market policies were used for occupational training, by 1999 the proportion had reached 56%⁷⁵ of a rapidly expanding budget. First, workers and unemployed would flock to schools to get highly elaborated courses in ICT and CNC technologies. They would also attend courses in novel ways of organizing factories and work and, as we saw in the Danish case-studies, a new symbiosis between work organization reforms and local labour market situations would be mediated by creating social innovations in the local use of vocational training institutions in an unrecognized abundance.

By compensating firms for both the costs of courses and most of the salary of the participants, the Danish state shared the risk of exploring new competencies and experimentally developing novel work roles. In turn, employees with identities under continuous redefinition shared the risks with

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http://www.cesifo-group.de/portal/page/portal/DICE_Content/LABOUR_MARKET_AND_MIGRATION/LABOUR_MARKET/LM100_ACTIVE_LABOUR_MARKET_POLICIES/ACTIVE-LM-SPOTL-REP.PDF

employers that experimentally searched for novel ways to organize high performance work systems, creating a distinct mode of self-discovery. And when these searches resulted in increasing demand for novel types of skills, the vocational training system up-scaled, codified new professional identities, such as industrial- and process operators, team-leaders, coaches, etc. Our case-studies show that the experimental search for novel forms of work organization and novel professional identities may engage employees, firms and vocational training institutions in close interaction, during which their mutual tasks become identified through a very intensive learning process. However, by focusing state intervention on the training of employees instead of redefining firms from the outset, employees often triggered the introducing novel technologies or novel forms of organization. In this way the risk of exploration that leads to self-discovery are not left to a few entrepreneurs that share it with the state. Rather the general population is participating in this exploration sharing the risk in a way mediated by the state. The high mobility on the labour market tends to allocate the most competent and skilled workers in dynamic firms, while firms sticking to traditional ways of operating will be left with workers that are much less engaged in the risk taking of carving out for themselves a continuously changing role.

While in the Finnish system we would expect engineers to link up a firm with the global web of innovative interaction among firms, if they are not orienting themselves to the abundance of resources in the Finnish innovation system, and by doing so involve a polyvalent core of workers in experimental search for novel forms of organizing work; in Denmark the mobilizing agents are much more widespread and operate through the general labour market, to a certain extent also involving the unemployed, creating a pressure on firms for reforms. In this way firms meet an employee driven pressure to search for challenges that may meet the aspirations that the most skilled and risk taking on the labour market develop. In other words risk taking employees pressurize firms to take risks by searching for customers that offer challenges beyond the current state-of-the-art, and where customers will eventually share the risks involved in co-creating novel products or services.

Compared to the Finnish model, the Danish is much less science driven, and ties to university labs, etc., seem modest. The Danish system seems much less capable of creating radical innovations, and is rather geared towards a constant redefinition of roles, gradually moving firms in the direction of sophistication and toward becoming consultancies for customer firms, even when their legacy is in

manufacturing. In our assessment, Danish firms, for the reasons mentioned above, are quite quick in applying novel technologies and combining them with their existing skill-base, but they seem to lack the risk sharing systems that break the ground for entirely new types of businesses. Though, as mentioned above, it was possible to develop the Danish windmill industry in a way similar to that by which the Finns developed Nokia, Denmark did not make a jump from traditional to high technology. Technological quantum leaps seem alien to the Danish mode, that rather opts for responsive co-evolution with international customers, suppliers and frequent use of global sources of technology.

In this way the dynamic of the entire system could be highly dependent on and restricted by the ability of the further training system to constantly renew itself and carve out novel skills and competencies that set in motion the labour markets and firm clusters. For that reason it may prove highly destructive that since 2000 the state has tried reduce budgets for vocational training. And yet, it is interesting to see that the latest general labour market agreement - to reduce potential wage increases – has given rise to new schemes in which funds will be accumulated for employees to finance participation in continuous training after their own choice. In a similar way the conservative-liberal government has made an agreement with unions about modernization and innovation in public services, which emphasises skill-upgrading among public employees. Together these two reforms could bring about a novel quantum leap in competencies, comparable to the 1990s, enabling firms to take on even more demanding roles in international value chains. But at the moment the situation is dubious as it could move in two, very opposite directions.

Denmark is also experimenting with ways to strengthen interaction between research- and educational institutions and private firms, primarily SMEs. Currently this is organized through 13 regional technology centres and 12 high-technology networks, which work along a mixture of measures: stimulating bridge-building, identifying new needs for competencies, and regular collaborative innovation projects. These attempts are very scattered, and the economy of each initiative is limited in terms of public subsidies, probably reflecting the difficult conditions for making such initiatives in a highly diversified economy as the Danish. In 2007 a total of 2,415 firms participated in such activities of which 1,570 were SMEs with less than 50 employees. Many of these networks are not only directed towards Danish firms, but are also involving foreign firms and institutions (Forsknings- og Innovationsstyrelsen 2007). Probably these innovation networks are

important for extending the search-networks through which individual firms operate, but less so for producing distinct new products and processes. They could be seen as providing new meeting places for emerging quasi professions, where novel skills can be contested to assess Danish comparative advantages.

Compared to the Finnish system, where neo-corporatist bodies are formed centrally and coordinate in a hierarchical way, corporatist bodies in Denmark seem rather to be formed locally, regionally, and occasionally. For instance the Regionale Arbejdsmarkeds Råd (RAR) (Regional Labour Market Councils) played an important role in activation policies of the 1990s in enabling corporatist bodies at vocational training centres, to collaborate regionally within the RARs in search of novel institutional innovations that could solve situational problems locally (as reported in Chapter 3)). Central allocations to activation policy could locally be translated into schemes for developing local labour markets to fit local aspirations and revolve problems among involved partners. In a similar way, bodies of participants from public institutions, municipalities and firms typically constitute the regional innovation centres thus facilitating the processing of new initiatives directly among the involved stakeholders. The variety of stakeholders represented in these bodies is large and membership seems to be dependent on who wants to hold a stake and commit to developing the institution in question. Corporatism thus is becoming a system of fluctuating membership, with less representation by formal interest groups and more involvement from shifting groups with a distinct interest, representing in many ways the heterodox interests that evolve in a diversified society where demarcations among employees, employers, and different professions become blurred. And yet it makes it possible to get together and collaborate about setting up collaborative projects that make possible concrete forms of risk sharing.

Risk sharing in the Norwegian oil- and welfare State

After WW II the Norwegian state was not only sharing but taking on the major risks in industrialization. Huge plants for processing raw materials were set up jointly with electrical power plants, often owned by the state, to produce iron, steel, aluminium, fertilizers, etc. Tied to raw materials and energy sources, as they were, the development took place in many small communities, close to energy and raw material resources as the general infrastructure, basically dependent on shipping, did not allow for a more centralized development, distributing enterprises

and institutions regionally. In these mill communities life-long employment focussed on highly specialized production processes and specialized skills were cultivated to high levels. After WWII the state installed public financed R&D and technology transfer institutions to facilitate a technology-led industrialization. Whereas Norway in this way created institutions that benefitted from collaborative ties within Nato, Sweden compensated for its neutrality by setting up national large scale technology programs that copied many of the traits of the military industrial complex of the US. When oil was discovered around 1970 the Norwegian state was able to coordinate in a similar way the evolution of a highly advanced off-shore oil industry in collaboration with Norwegian shipyards and machine industries.

The Norwegian system was governed by macro economic planning of a Keynesian type, but in many respects went further by optimizing on technical coefficients of input-output matrices, as did Commissariat du Plan in France. Within this framework, the Norwegian state constructed company towns in rural areas, given the vast and difficult geographic setting of the Norwegian landscape. Whereas private businesses in Southern Norway could flourish on private initiative in connection with a large shipping industry, the interdependencies of infrastructure and plants in Northern Norway demanded a much more interventionist state, able to coordinate investments and carrying the burden of risk taking. Obviously, highly specialized towns, dominated by a single enterprise, are much more difficult to restructure in face of dramatic global change than are the more heterodox, industrial district types of regions in Denmark.

The Norwegian case-studies analyse a number of firms and a town struggling for survival during a period, when the traditional Norwegian system is being dismantled, partly inspired by the neo-liberal turn in macro economic ideologies and under the guise of de-regulation within the EU, which Norway basically follows, though it is not a member country. Compared to Finland, Norway has, rather than developing an offensive innovation system, rolled it back. Compared to Denmark it has basically tied vocational further training to existing businesses and core employees missing the opportunity to create a dynamic, diverse and skill based labour market more broadly. The proportion of occupational training in active labour market policies went down from 36% in 1990 to only 6% by 1999 (see note 1). Norway in this way seems to replicate the Continental and Southern European pattern of employment protection for core workers gaining polyvalent skills, while an increasing grouping works as unskilled on temporary contracts.

On the surface it seems as if Norway has simply dismantled former risk sharing schemes and triggered firms to invest in rationalizing existing production, based primarily on processing of raw materials. Running close to full employment and with earnings from oil, which are making Norway extremely rich, such a strategy seems rational in the short to middle term perspective, but could be dangerous in the longer run. It could mean that Norway simply closes off to the experimentalist dynamic of global ties of innovation.

Ironically, however, the firms and town that we studied seem to compensate for these potential dangers. We see this happening within the core, oil business of the Norwegian economy and within the privatized weapons industry, and in the attempts of regions to modernize when old plants are closed and the locality is looking for new opportunities.

The shift away from a system within the oil sector in which the oil company in great detail designed and ordered parts for off-shore oil rigs to a system, where this is done through co-designing processes with suppliers, has carved out a space for privatized, former publicly financed companies as well as a large number of start-ups to design, standardize and coordinate production of rigs, subsea production systems and subsea equipment that simultaneously make them powerful players in the global off-shore business, able to influence even multinational owners to run business after their newly found templates. Obviously, the state through Statoil plays an important role in this risk taking system, but by doing as described and by suppliers being able to use these options to make ties with the global industry, important nodes for learning are being established, enabling Norwegian players to engage with a much more open, decentralized and dynamic innovation system. Unfortunately, our cases only cover firms at the upper echelon of the value chain, but the new dynamic might be able to pull a larger proportion of mechanical engineering suppliers into the practises and dynamics of the global experimentalist economy (there are examples of this happening).

In a similar way a former, publicly owned weapons producer designated to develop new products based on research in the state's research institutes, has after being privatized and sold out in bits and pieces been able to survive by carving out new roles. No doubt these roles were highly dependent on the reputation gained during the period in which it was state financed. On the other hand, the successor companies and business units would probably never have been able to make use of

established links in the increasing dynamic of the international weapons industry and other industrial sectors when it was top-down run by the state. The lesson could be that in R&D and innovation policy, states should follow a stop and go cycle by first creating publicly financed R&D institutions and forge links with companies, and then, when their performance and international reputation is high, draw back support to make them reveal whether or not they have uncovered novel comparative advantages.

Finally, we see that the traditional regional policies with public risk sharing can still be activated in cases where a locality loses a major plant and face dramatic unemployment. In the case we studied, the locality is mobilizing an abundance of schemes, partly assisted by the corporation that plan the plant-closure, and gradually a whole consortium of risk sharing institutions and actors – both at local and national levels - are brought to bear in the construction of novel institutions that ease the road for private entrepreneurs to step in with ideas and plans for a new product (in this case solar energy panels and silicium-refining). In this way the locality ties up with a highly promising, global and innovative industry that carries very high current and future dynamics. Whether this means that the locality ties into the dynamic of global experimentation is difficult to assess. Focus seems to be on protecting and perfecting existing manufacturing processes by holding exclusive rights to certain forms of equipment and by upgrading the process and its automation. This could indicate an inward orientation towards rationalizing existing production rather than engaging in the more broad exploration of novel possibilities and options connected to the solar energy industry. And yet the case is dubious. The extraction and processing knowledge accumulated for ages in this and other communities processing raw material create entrances for and enable other, more networking Norwegian firms, to play roles in the global experimentalist economy, exactly because they provide access to raw material processing capabilities of an extraordinary quality and cost efficiency able to make raw materials with new and specific properties. Whereas Norway used to make use of its comparative advantage of low cost electricity to refine raw materials for the bulk market, it may now make use of its processing skills in raw materials to gain new comparative advantages?

In this light, Norway is a very confusing case. On the surface it seems heading in a wrong direction focussing on oil and raw material refining, and yet it uses these elements to enter into central positions and engage in the new principles of the experimental economy. To us it seems as if that re-orientation to a high extent is made by people, who have been liberated from state governance.

The new entrepreneurs, in other words, seem to originate from a risk sharing and –taking system that has either been abolished, or where new initiatives seem to have been brought to a halt. A major question thus is whether Norway will gradually, in this way, diminish its ability to explore new comparative advantages in the future?

Against this view, it could be argued that Norway apparently possesses the ability to rig up - whenever a situation arises - a neo-corporatist set of ad hoc bodies capable of producing risk sharing consortia, which are then in a position to redirect or structure re-structuring. Compared to Finland these corporatist assemblies are much less pre-given and working on a continuous basis-- they may emerge (or they may not). Compared to Denmark, where the corporatist bodies seem to process ongoing processes of continuous restructuring at local levels, the bodies in Norway emerge, intervene and disappear in such a way that they create a development that rather resembles a pattern of local punctuated equilibriums, where the process is more ongoing, non-discrete and continuous in Denmark, while in Finland the apparatus constructs a punctuated equilibrium on a national scale. These are very different ways of searching for comparative advantages.

Simultaneously search seems to be reserved for the *included*, while risks are carried by the *excluded*. As said earlier Norway shows a combination of employment protection for core workers and combines this with a quite high and increasing proportion of workers on temporary contracts. This is again combined with very restrictive practises in duration and qualifications for unemployment benefits and as spending on training during unemployment benefits seems low, people are unable to use such periods to actively search for new skills. Instead this system seems to pacify increasing numbers. Norway spends nearly three times as much as the other Nordic countries on paid sick leave, and close to the double on disability pensions (see Chapter 1). It is as if the state seems to have withdrawn from sharing risks at any agency level.

The Swedish enigma: Re-distributing risk sharing

Sweden used to have all the attributes of an attractive system. An elaborate form of the welfare state, carrying the romantic name of “Folkhemmet”; a labour market governed by corporatist, central negotiations of wages that, in the long run, would deselect firms with less than average productivity increases (the Rehn-Meidner model); schemes to help re-locate the working population

from rural areas in decline to cities in growth; or schemes to compensate certain regions for declining industries by helping create new ones; an elaborate financial system centred around a few major banks with strong ties to international financial centres that could engage in risk sharing, when firms upgraded mass production plants from one generation to the next; a highly elaborate innovation system that from the 1930s took hold in a number of collaborative programs between the state and large corporations to furnish the Swedish state with modern weapons, air-fighters, etc., but later elaborated and diffused into a number of systemic technology fields, furnishing the state and global markets with electrical power, nuclear plants and telecommunication equipment. The Swedish welfare state was not only a coordinated market economy designed to sustain the type of productivity gains that came with Fordism, it was a set of risk sharing systems that could guarantee that the Swedish economy from a small base could accomplish nearly all what its ideal, the American economy, could achieve as a much larger liberal market economy in combination with a military industrial complex, providing the US with an innovation pump. Even today it is unclear whether the Swedish model simply failed or outgrew itself because of its incredible achievements. The model surely fostered large scale enterprises that outgrew national boundaries much earlier than in the other Nordic countries, and Sweden was leading the way to globalization by becoming the home of a large group of big multinationals, often seen as models to imitate. In retrospect this outcome came at a price, as it had been achieved by undermining the formation of viable small firms in many industries. In this way Sweden reduced the number of potential risk takers, while at the same time giving the remaining risk takers a much less national focus.

In the 1970s the Social Democratic government tried to compensate for this by creating “developmental blocks” around very large scale plants in steel production, shipyards, etc., but failed due to poor timing. The new generation of mass producers was ready to serve the national economy exactly at the time when the mass production model faced a global crisis and encountered international competition from low wage NICs. Working after the golden rule of the Rehn-Meidner model would now simultaneously harm emerging SMEs and stimulate Swedish MNCs to invest in foreign countries to escape high costs at home. Since then the comparative indexes on international benchmarks have been confusing concerning the performance of Sweden. The elements of the former model seem difficult to re-assemble into a new version of the much more flexible, experimentalist and difficult to coordinate, knowledge economy of the future. Much of the former corporatist structure, centred on central wage negotiations, has been abandoned. Many large

enterprises have been taken over by foreign multinationals – like in the case studied here – and confusion seems to reign.

In this light, the Swedish case-study in Chapter 5 is highly illuminating. On the one hand, we have a municipality suffering from first stagnating employment in its core enterprise, a paper and pulp mill, and then from down-sizing after being bought by a Finnish multinational. But within the community a coalition of significant partners emerges and initiates a number of projects that together aims at rejuvenating the locality by creating an attractive city space, developing novel forms of higher education, new R&D institutions, etc. This coalition in itself is a risk sharing club across the private public divide, but it simultaneously possesses such capabilities that it can evoke a multiplicity of quasi-corporatist ties to state bodies and thus activate the state to engage in and become part of the risk sharing consortium. Interestingly, the case-study reveals how the local coalition of partners becomes organized in such a way that both local initiatives and the use of state bodies and -financial resources can be locally coordinated over long time during which the community transforms a set of institutions into an infrastructure that can serve the evolution of private services. Within this framework, parts of the R&D department of the paper mill draw on accumulated experience to serve paper and pulp mills globally with business consulting, helping them to make continuous improvement along every step of their value chains. Had it not been for the simultaneous change of the locality, it is difficult to see why this new R&D based service firm would still be located in the mill town. But as things have indeed changed, it is obvious that the locality in many ways shares the risks involved in developing a modern business service firm, and potentially the locality could evolve a cluster of advanced business services despite being located far from Stockholm.

The case-study raises the question, whether Sweden is so confusing because the former system is no longer being re-combined and composed in a coordinated way at the state level, but is rather recycled in a multiplicity of different ways in different localities? Is the consequence that we will witness a rich ecology of very different risk taking agents/partnerships embedded in highly differing risk sharing systems designed according to local circumstances? No doubt, the legacy of the Swedish system is very rich institutional environments, where recombinant evolution is potentially richer than in any other Nordic country, but the survival capacity of the recombinants is unclear, also when it comes to the case studied here. Gunnar Eliasson (2007) is very positive in his

interpretation of the Swedish system. He sees the break-down of numerous large Swedish firm as a “spilling” of technology and competences, which simultaneously sets the carriers of these resources free so that they can be recombined into new, regional “competency blocks” (e.g. in biotechnology, life sciences, ICT, mechanical engineering) and like us he is speaking of experimentalist forms of organizations, where the new competencies are not working within the boundaries of large firm’s R&D labs. This pattern is, in many ways, rehearsed in Glimstedt and Zander’s (2003) study of *Sweden’s Wireless Wonders*, where they show how the new ICT technologies and the Internet create new pockets of entrepreneurial competition within a larger frame of the traditional telecommunication industry and providers of services. Their case show how new synergies evolve between new entrants and old players, who together stir up and re-configure into a new, much more debundled network of enterprises that takes part in transforming Stockholm into a high-tech, ICT based locality.

Thus the studied case in this book may not only be indicative of a distinct municipality in transition, but also reflecting a more general transformation taking place, which will not only create an entirely new foundation for Sweden in the future, but make the steps taken, in the case we studied, exemplary for the general development.

Seen in isolation, the scope of transforming a corporate town as radically as our Swedish case demonstrates seems very costly and risky, indeed. It is easy to read into this case-study that it is about a set of local actors that form a coalition and then make use of its numerous ties to the larger national political system to generate an abundance of resources, making it possible to take advantage of tax-payers’ money to carve out a new place for themselves in which they – as a grouping – regain the dominating position over the locality, which earlier belonged to corporate owners in corporate towns. If numerous such local coalitions were mutually competing for directing resources to an unlimited number of localities, this whole process could be very costly and would perhaps undermine the Swedish economy? In this light it is easy to see the advantage of a centrally coordinated system like the Finnish one. But the experimentalist scale and scope of this Swedish creative destruction and reconstruction might, in the longer run, carry great benefits.

Slovenia: Risk sharing between family, workplace, shadow economy and the welfare state

Our study has attributed a strong role for families in the Slovenian risk sharing system, making it seemingly natural to compare it to Italy and Greece, which are widely associated with a strong emphasis on familiarism:

This means that the family have the principal responsibility for their members' welfare, be it in terms of sharing incomes or providing care to those in need. Hence, these countries are: uniquely committed to protecting the male breadwinner via insurance and job protection; highly reliant on social contributions for financing; and, compared with the rest of Europe, very underdeveloped with regard to social services. (Esping-Andersen, 2000, p 5).

Slovenia only partially shares this orientation, though the Greek and Italian experiences have been increasingly shared by an increasing number of countries throughout Europe, giving the family a strong role in economic redistribution:

The economic well-being of today's elderly is the result of a unique combination of factors that have produced high retirement income and lifetime asset accumulation. OECD figures show that the average household at age 65 possesses wealth equalling 4-5 times its annual income. And though there are only scattered data for specific countries, there are indications of pension "overprovision" in some of them. My own analyses of data on Italian family expenditures indicate that income exceeds expenditures by more than thirty percent in the average pensioner household. A recent study by Kohli (1998) on internal flows of money within families indicates a huge volume of transfers from the aged (70+) to their children and grandchildren: 24 percent of income is transferred to their children, and nearly 15 percent to their grandchildren. (Ibid p 8-9).

Slovenia could be seen to replicate this trend as it uses a significantly higher share (47% in 2005) of a smaller expenditure on social protection on "old age" than do the Nordic countries, while Slovenia's expenditure on unemployment benefits and labour market activities is only a third of the percentage spent in the Nordic countries. Simultaneously the integration of Slovenia into the EU has created a booming real estate market creating rich, elderly homeowners and poor young generations finding it difficult to establish themselves in independent accommodations.

As mentioned in the introduction, calculations show that the Swedish welfare state primarily redistribute incomes/services over a life span, and the above figures indicate that the redistribution of incomes then goes in an opposite direction within the family, effecting a perverse total system, according to Esping-Andersen (Ibid, p 9):

... the redistributive effect must be considered perverse if the welfare of youth is becoming dependent of the retired parents' and grandparents' wealth. It is doubly perverse, in the sense that pay-as-you-go pensions are financed by the working age population. The welfare state was presumably constructed in order to level the playing field; but this is a case where it is helping to re-establish inherited privilege.

There are many signs in Italy that the extended family by placing in this way an overabundance of wealth in the hands of male breadwinners creates a self-conserving structure. Male breadwinners are protecting their employment in particular and extending their privileges into the age of retirement, simultaneously creating difficulties for youth – especially young women - to enter the legally regulated labour market, making it difficult to obtain loans to finance the first home, to create a family and afford to have children – if not approved by the family head. This does indeed make it very difficult to live lives that break with previous patterns and to set up novel types of families that adjust to the life pattern of an experimentalist economy. The long term effect of this in Italy, in particular, is that females are much less represented in the labour market and if they are, suffer much more from unemployment.

Slovenia seems – despite the strong role of the family – to have a surprising even participation of men and women, and no particular high unemployment for women. In terms of equality, Slovenia is only second to Denmark (European Commission, 2004). Thus it seems as if the family here allows for, instead of hindering, members to be active economically. On the other hand, the family is not coming close to be the root-cause for entrepreneurial activity, as it is in the industrial districts of SMEs in Italy. The metamorphosis between family and economy is apparently of a different sort.

The Slovenian system under Socialism was consolidated in a way different from in Italy. Kristensen and Jaklic (1997) have shown how Socialism in Slovenia took departure from extended families living on small farms (growing hey, grapes, olives, etc.), directed towards self-sufficiency. By setting up local factories, Tito's partisans, with local roots and feeling mutually obligated to 'their' localities, offered jobs and incomes that made it possible to modernize the rural life form and build houses with modern facilities. Thus the workplace or factory became de facto a way of sharing risk with and among families on the route to modernization. The partisan directors became the local risk takers searching through their international networks for products and new technologies that could guarantee incomes that in turn made it possible to upgrade the living of local families, being oriented very much towards making a pleasant life in big houses, preferably on

the old family lot. During Socialism, one could say that large scale risk sharing took place among the old network of partisans, which would collectively search for new business opportunities and would bail out unsuccessful members and in this way bring the part of the country that were covered by this network into a fairly prosperous dynamic. Living by a combination of self-sufficient farming and factory incomes became a mode of life, which further elaborated the evolution of a grey economy in which families mutually exchanged “services”. In many ways employment in socially owned factories was *the* system for social protection because parents could create job for their children or have the factory offer stipends for training or education and the young students would typically later return to a job in the factory. In this way we see an almost organic joint growth of factories and communities of family houses, much more oriented towards cultivating the house and lot than pushing for their factories to become challenging providers of new skill and career options. Firms and factories had the role of providing families with opportunities for cultivating the “good life” on small lots. Today no visitor can doubt that it created the foundation for exactly a “good life”. Whereas in the Nordic countries welfare state provisions compensated for failing companies, the company created the welfare provisions beyond subsistence needs in Slovenia, while the grey economy made it possible to become rich.

As a constitutional order, the Yugoslav system fascinated observers already when it existed, and for good reasons. In our perspective one could say that the offensive risk takers, the collective of former partisans, could only retain power by taking risks that favoured the communities in which they were present. Unsatisfied communities could – as factory employees – deselect partisan managers and thereby erode gradually the powerbase of the collective of former partisans. On the other hand, defensive risk sharing was carried jointly by households and local factories, creating a bond for stable growth and prosperity, not least in Slovenia, where this stable bond tapped into ties with Western Europe, where such firms as e.g. Adria (caravans) and Gorenje (white goods) were fairly well-known brands for standardized goods.

Transition away from the former Socialist system by way of privatisation has been slow and gradual in Slovenia and at the surface, the system seems to have been very robust. Kolektor, as an example of old, global players, in the Slovenian case-studies of this book, in many ways demonstrates the predominant pattern of what has taken place in the metamorphosis of enterprises and communities of families. By concentrating on already gained comparative advantages and specializing on these,

firms have been able to take advantage of a stock of employees with specialized skills and bounded by ties to a particular company. Increases in work intensity have been significant, work satisfaction has declined but overall development has been stable contrary to many of the other transitory economies. But as the Kolektor-case also demonstrates this process of consolidation seems to happen by specializing to an almost extreme extent – and the question is whether this specialization leads into a blind alley? In the Kolektor-case it is obvious that the firm until recently was not using its business to business ties to sophisticate and expand its role towards customers, and R&D was for some time unconnected to current business, intended for diversification, undertaken in-house and protected by secrecy, making it very difficult to actively explore potential future comparative advantages.

As far as we can see, no new collective system for exploring coming potential comparative advantages has replaced the risk sharing collective of post-war partisans. Slovenia – like the rest of the transitory economies – has adopted one new image of industrial policy after another, ranging from liberalization/privatization, over clusters, national innovation systems, technology platforms, etc., but without institutionalizing an endogenous pattern of risk sharing and deliberate collective search for potential future comparative advantages that seems well-connected. Risk taking has become privatized and dependent solely on what goes on in a limited number of private enterprises, which the state can assist in a rather passive way through such schemes as the Slovenian Export Corporation (sharing risks in relation to exports), the Slovene Enterprise Fund (providing risk-capital for SMEs); the Public Agency for Entrepreneurship and Foreign Investments (JAPTI) and not least European Structural and Cohesion Funds. What seems lacking is the type of co-evolution, where public interests join hand with private to mutually enable each other. Much of the Slovenian government's effort seems primarily to be formative of a new class of individual capitalists to increase individual entrepreneurial activity. Steps have been taken to create an active labour market policy, but still people are searching for jobs under employment protection creating a significant difference in situation between included elderly workers and excluded youngsters. Among the old firms all this means that they will tend to build their own little world, and almost be pressurized to adopt a Chandlerian innovation mode at a time when the global dynamic is tipping towards an open collaborative form of innovation. Yet it is clear that Slovenia, due to its size and its quite diversified economy, will have extreme difficulties building up publicly financed educational and research institutions that can underpin and share the risks with private risk takers in such a strategy. Maybe

this is why a firm like Kolektor seems both to experiment with the old Chandlerian mode, and yet engages in collective ventures pointing in the direction of open systems of innovation. These experiments may force local communities of families to share even more risks with private enterprises by accepting increasing levels of work intensity and stagnant wages in a system, strongly regulated by organizational hierarchy, where the unions are too weak to negotiate fair concessions or eventual changes in business strategy. This could indicate a strong case of lock-in, where the economy is doing well, but its innovativeness is declining or wasted.

In this light, accepting to sell off enterprises to foreign multinationals, as in the case of the Danish owned Danfoss-Trata and the Swiss owned Novatis, seems a pretty attractive way out of the lock-in. In both cases, the new owners experience well-functioning subsidiaries ready to accomplish the tasks that are set for them, and in both cases they are offered room to search for expanded mandates and new role-taking within the global corporation. In both cases, foreign owners discover that the Slovenian firms give access to comparative advantages by the readiness of the Slovenian employees to accept either a Danish or a Swiss form of constitutional ordering of the company. In both cases membership of a multinational means for the Slovenian subsidiaries that they are given access to a much larger world of innovative search and a very different form of risk sharing. Yet we find that the effects are quite reproductive on the Slovenian society. As in the case of the traditional, typical Slovenian firm that carved out a social space for specialized skills and employees, unable and unwilling to search for jobs in other firms or communities, the subsidiaries of foreign multinationals create an enclave, functioning with each their tradition of work organization, distribution of skills and discretion, making it difficult for employees to shift to other employers as there is no general system for accrediting these distinct skills and working experiences. Slovenia is a low trust society in international comparisons, which is probably due to the extreme difficulty of individual employees to build up more broad competencies by exploring horizontal careers in the labour market. Without this mobility there are no mechanisms for transferring practises across firms and localities. Decentralized learning may take place, but transfer of new practises within the private sector is without carriers as employees search for stable employment. The place that used to communicate across boundaries of firms, the collective of partisans, seems not to have been renewed.

Yet the category of new firms, as Parsek illustrates, offers seemingly a way out of these self-limiting characteristics of the Slovenian Business System. In this case, special institutional conditions for students – in terms of salaries and temporary contracting – make it possible for entrepreneurs to organize and run a software company that simultaneously explores options of new technologies, serves local and regional customers and enables students to generate experience with new types of jobs in a way that does not systematically entail being locked in, but rather abandoned as soon as their position as students expires. Whether Parsek is part of a significant tendency in Slovenia, we cannot say, but if it is the case, the scheme for students – being subsidized in many complementary ways - seems ideal as it gives them an early introduction to the labour market, eventually in a rather experimentalist oriented fraction of the business community. If in such a fraction a different socialization to working life is provided, the effect could be a diffusion of novel practises on a broad scale by students searching for more permanent jobs and not being ready to accept the Taylorist forms of work organizations that are so prevalent in the previously dominating Slovenian firms.

Parsek represents a very interesting form of risk sharing. First, it makes it less costly for the firm to explore new competencies and experimentally co-evolve with customer firms. The students so to speak share the risk by being paid low salaries, this again is only possible because they are subsidized partly by the state (meal-tickets, etc.) and partly by their families. Thus a quite promising way of exploring possible alternative comparative advantages lies open for such firms. Unfortunately, the scheme is also limiting the extent to which this exploration takes place. Until recently Parsek seemed to stick to quite routine forms of jobs, e.g. setting up web-pages for customers, but did not really engage in increasingly elaborate forms of jobs. The reason is simple. Developing capabilities to do so demands experienced professionals with a much higher pay and more permanent employment conditions than are granted students. Without the more sophisticated employees it is difficult to imagine how firms such as Parsek could pursue a ssc-strategy and become interesting collaborators for advanced, foreign firms. And without such ties it is difficult to see how firms of this type could become entangled in the global networks of experimentalist innovation. Parsek seems to have realized this recently, has increased its number of permanent employees, and has been active in creating foreign relations to advanced centres of research. With this shift, firms such as Parsek could become important transitional agencies as they share the risk of new adventures through students with the state, for students they offer opportunities to tie up

with a the dynamic patterns of global innovation and its new ways of working – and as these students later on search for more permanent jobs, they may carry new practices with them.

Until recently membership of employers' organizations was compulsory in Slovenia, as is the case in Austria. Formally, Slovenia shares many institutional features with other coordinated market economies, and yet it is as if they are not present in the tales of the Slovenian case-study. We see no attempts to process collective decisions leading to novel organizational devices or initiatives that represent collective risk taking or – sharing. It is as if the legacy of such institutions were purely ritualistic and that all that happens takes place outside the realm of the apparatuses that could negotiate and process collective decisions. Privatization seems to have emptied the space between the economic and public sphere, and the system seems without means to coordinate and create institutional innovations.

Rather families must be entrepreneurial and by combining self-sufficiency farming, wage labour and grey economy activities they are struggling hard to continue a life form that is at risk, and yet is still seen as the primary means to the good life. Perhaps it is also from these struggling families that we might witness a break-up with the lock in? Such families have started to send their youth for educations in Ljubljana or abroad in order for them to escape employment with the employers for whom their parents work. Given the low salaries of students and young professionals, the high costs of housing, of public services, such as day-care for children, etc., such break-ups are highly costly for families and add troubles to their already threatened life form. Families will have to invent new forms of internal reciprocity, being more oriented toward transfers of financial means than toward exchange of personal services. It is unclear whether it will be possible to maintain the quite egalitarian representation of males and females on the labour market, and economic equality would probably suffer because of differences between those who succeed and those who fail in this break-up movement. The risks involved and the uncertainty of outcomes makes it a major challenge for families to overcome the lock-in and cast votes for a welfare state that supplies the benefits and social services that enable young educated families to engage in activities that will grant them membership of the global world of continuous innovation. But through their struggles they simultaneously bring a strongly increasing number of youngsters in contact with firms such as Parsek that offers a route to a different life form, increased mobility and highly innovative practices.

Given these tendencies, constituencies may force regions and municipalities to compete mutually over becoming attractive spaces for coming cohorts of young professionals by searching for new types of job openings, new types of relations to the global market that would enable local life in a reproduced, yet modernized form. From this perspective the formation of Regional Development Agencies jointly with state level Regional Development Programmes could become both discursive fora and platforms of resources for rebuilding localities. Would it be possible to imagine that some communities would set up vocational training institutions in support of subsidiaries, owned by foreigners, training institutions that break with the pattern of Fordism, as in the case of Danfoss-Trata? Obviously, the move toward open systems of innovation in firms like Kolektor would be a favourable way to increase its attractiveness. Could it be that creative destruction of some of the large enterprises could lead to a re-formation of another region to become a replicate of the processes going on in Örnköldsvik? Or are the Slovenians rather hoping that the Slovenian Technology Agency (TIA), like the Swedish Vinnova and the Finnish Tekes, will make them quantum leap from traditional to high-tech-industries? In any case, if such movements take place on an extended scale, it is easy to see that the risk sharing of the family may ease transformations. Yet at the same time it will mean – to the extent that transitions become successful – that families will have to become liberated from their extended responsibilities and instead need help to be enabled – by growth in public services that is already on its way (in e.g. childcare).

Rather than suggesting that Slovenia is trapped into a low cost route, this indicates that Slovenia has the possibility to enlarge the insular cases of new dynamics on a broader scale by making the labour force more mobile through building enabling welfare state institutions. This could come simply by municipalities starting to compete mutually over becoming attractive places for new professional families to live by offering them the services that make the new life and family form of the new economy possible, gradually exchanging the combination of subsistence farming, grey economic activities and routine factory work with one of continuous professional upgrading and change in firms that quickly run through a metamorphosis from cost effectiveness to innovativeness. Whether this is simultaneously a route to a good life, capable of competing or combining with the previous life form is another question? Gradual evolution from the present to a future state, however, seems possible with the elements already in place if the state and the public sector rather than catering for a neo-liberal route opt for a Nordic approach.

Searching for a Route to a Comprehensive Enabling Welfare State

As a heuristic concept “the enabling welfare state” searches for ways by which the state enables citizens, firms and regions to cope with disabilities and share the risks connected with experimentally out-stepping the boundaries of routines and activities of known comparative advantages and engaging in search for new ones, partly by connecting to international communities of search and innovation dynamically and collaboratively. In contrast to Slovenia, we saw that all the Nordic countries had achieved this at a general level, but in very different ways, partly reflecting divergent legacies of the past. Citizens in the Nordic countries have been enabled to engage in frequent changes in work, further training, etc., by the state providing services to families, which, again, has enabled firms to organize in ways that make experimentalist change happen due to responsibilities for learning being decentralized to employees in a system where union traditions create the constitutional foundation for continuous re-negotiations and collaboration among parties rapidly changing both identities and interests – at the level of individuals, social groupings and firms (eventually as subsidiaries of MNCs). Whether it is more effective for the state to engage in offensive risk sharing directly through citizens by offering rich access to further training and life long learning ,as in Denmark, or conversely by subsidizing the activities of particular groupings, such as engineers in Finland, to effect transformations of particular firms in a dominating position is difficult to judge. Probably Finland could learn much from Denmark and vice versa? In both the Norwegian and the Swedish case the state has been drawn into wrestling corporate communities out of dependence on corporations, stagnating because of global restructuring that has left them and their local communities comparatively disadvantaged.

The regional dimension seems to play a major role in Finland, Norway and Sweden, where “one corporation town” have played a major role during industrialization, and these “mill-communities” seem not to have been complemented with institutions that enabled them to search for and experiment with novel comparative advantages, while they were cultivating existing specialities. They – so it seems – specialize into a dead-lock, and either major system rebuilding schemes are brought to bear in order to re-configure these societies, or society wide depressions diffuse, when they are being abandoned by their former principals. Alternative costs are difficult to assess, but in the cases studied in both Sweden and Norway the costs of reconfiguring local communities must have been enormous for the state, while in Finland the abandonment of Varkaus makes both the

public and private citizens carry large losses. Despite huge costs it is very difficult to tell whether the Norwegian and the Swedish localities studied will not repeat to specialize into blind alleys, in Norway because the project sets a destiny of industrial specialization, in Sweden because the local coalition holds such a dominant position that it is difficult to see whether complementary activities and agents will find sufficient support to search for alternative forms of future comparative advantages.

In the case of Denmark, the regional dimension has played a less important role. There are several reasons for this, which it would be too complicated to review here. In Denmark, coming plant-closings, major steps into outsourcing, etc., are often announced as shocking news in the press, but then after a year when effects has been investigated the conclusion is most often that unemployed have been absorbed, new firms have taken their place, etc. The Danish study mentions a case where exactly this has happened. In contrast to the mill communities of the other Nordic countries, Danish peripheral communities have often been constituted around railway towns with a diversity of craft shops and –firms engaged in a multiplicity of specializations, making each locality much more diversified. These communities were continually competing mutually by building institutions to support their development, and for a complex set of reasons in many places around the country, towns are furnished with a complex of vocational training institutions, often set in motion to create continuous training schemes to solve problematic situations. In this way local communities may explore alternatives while exploiting current comparative advantages.

In terms of regional equality of economic development, the effects are large. In Denmark the overall convergence across regions in terms of low unemployment and moderate employment increases is the highest among all the Nordic countries, and nearly all types of communities are doing well. In contrast, in particular Finnish development is one of spatial polarization with rapid job creation within regions of low unemployment leaving peripheral regions with high unemployment and negative job creation. Sweden, though to a less extreme degree, repeats the Finnish pattern, while Norway with a generally low unemployment locates net job creation to its capital (Hannell and Persson, 2006, p 190-196).

These differences in regional patterns may have important implications for how the welfare state is working. In Finland, we would expect a lot of welfare state transfer payments, activation schemes,

etc., to be of a passive, social insurance nature so that the defensive and offensive risk sharing schemes (the latter related towards R&D) are highly divided. In Denmark, on the other hand, the social or defensive schemes have been much more turned into tools for offensive risk sharing. According to the IFO-Institute ⁷⁶ during the 1990s Finland modestly and Denmark dramatically increased (Denmark reached the Swedish level of) public expenditures as a proportion of GDP on Active Labour Market Policies (ALP) (while this proportion dropped in Norway). ALP is a way of turning passive into offensive risk sharing tools, but in contrast to Denmark (and Norway) where the spending on active measures as a percentage of all expenditures on labour market policies increased rapidly, this percentage dropped in Finland (and Sweden). While in Denmark the percentage distribution of active labour market expenditures was changed towards occupational training, which went up from 24% to 56% (compared from 25% to 31% for Finland), the basic change in Finland was from public job creation to subsidizing employment in private firms. Sweden, on the other hand, reduced the proportion spent on occupational training, and seems to have spent a major proportion on public employment creation and subsidies for employment in the private sector. Finally in Norway spending on occupational training fell from 36 to 6%, while most money was channelled into support for disabled. If the task is to search for future complementary comparative advantages, it is obvious that it is much better to give emphasis to occupational training than to place individuals in existing simple jobs international competition probably already threaten. Thus it is obvious that the Nordic countries have not found a formula for deliberative search for a way to turn the social into the enabling welfare state. Reforms are continually being adopted, but often in the dark and without any point of reference to what works, why and how.

In our view a combination of the Danish way of transforming social schemes into tools for activation, focusing on further occupational training that allows individuals to gain and explore competencies beyond current reach, combined with some of the Finnish systematic in exploring new technology fields with vigour and determination constitute a promising combination enabling localities and firms to transform gradually as the occupational identities of its population are changing.

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http://www.cesifo-group.de/portal/page/portal/DICE_Content/LABOUR_MARKET_AND_MIGRATION/LABOUR_MARKET/LM100_ACTIVE_LABOUR_MARKET_POLICIES/ACTIVE-LM-SPOTL-REP.PDF

Perhaps this hybrid is coming into existence in both Finland and Denmark currently. Thus Finland has over the last decade, with support from the EU-regional funds, created a regionally distributed system of vocational training centres that could be used as tools for gradual regional transformations and become tools for active labour market policies in the future. Simultaneously Denmark, with its Administrative Structural Reform merging municipalities and establishing five regions in place of many more counties, have set up regional Growth Forums intended to initiate R&D projects and collaboration among universities, training institutions, and regional business communities. The latter could become a locally initiated way of getting some of the Finnish system, but without running the risk of binding it to the Finnish form of centralized initiative and coordination. There is no doubt that both Finland and Denmark are currently looking toward each other to learn more about what next steps to take, while both Norway and Sweden provides too confusing lessons to make real sense. But this confusion is a dominating mode as our short review of changes in active labour market policies demonstrates. All the Nordic countries seem in need of new ways to learn systematically from gained experiences, to govern new experiments and to discover routes that can be safely imitated. What can be learned from both Norway and Sweden is that such societies need an institutional matrix that may be combined in distinctive ways so that regions and localities may be able to change from a past set of comparative advantages to a new one.

In Need of Governance for an Experimentalist Economy

For our research team it has been a fascinating surprise to discover the extent and variability of the experimentalist processes that goes on in the Nordic countries both among citizens recasting former professional identities and engaging in continuous efforts to rebuild profiles of competencies, and among firms that continuously change their work organization to pursue strategies that enable them to become increasingly more useful collaborators to their customers. But the way in which agents from both the private and public sectors join forces and make use of and recombine institutions in novel and innovative ways is perhaps the largest surprise. Wherever we have looked into a case-study, the experimentalist vigour of both private and public organizations has been striking and evoked admiration, not least because the general debate in the Nordic countries does not reveal this extent of innovativeness, in particular on the part of the public sector.

The experimentalist and innovative vigour of the Nordic countries cannot be said to be an effect of deliberate policy or strategy from the government – apart from the Finnish case. Rather it is unintended effects of policies that tried to bring about a different, mainly neoliberal orientation, but which became re-engineered by local agents in firms, institutions and localities and brought to bear on developmental projects that are very diverse. Some of our readers may ask whether our findings are typical of each of the countries studied. To some extent we believe they are, because in each of the countries local agents have remade and recombined institutional complexes that are distinct and characteristic for each country. Yet, we would expect other municipalities in Sweden to recast their entire society and economy in very different ways than in the case of Örnsköldsvik, to find different ways of combining restructuring of work-organization and vocational training than in the cases, we actually studied in Denmark. Furthermore, we would now expect that studying any privatized organization in Norway would reveal a novel pattern for making people and resources useful in unexpected ways. Our drill samples are too few to reveal the geology of the underground, but wherever we actually drilled, we found novel ways of innovating and experimenting that made sense from the perspective of the agents involved.

Apart from Finland, where the experimentalist processes are as one would expect from the innovation system type of policy that has been designed centrally combined with a conscious policy for distributing growth poles geographically, the experimentalist processes that we have studied are not the outcome of state planning and governance, and they are basically unrecognized by the state level politicians and administrators. Local agents have joined forces, they have evoked relations to national institutions and corporatist bodies and made local use of shifting national policies to coordinate flows of activities that helped them bring about transformations that would have looked formidable had they been done by design and implemented by the state top-down. Our study reveals that exactly the abundance of local initiatives, multifarious corporatist channels, a rich and varied institutional environment, etc., have created the foundation for making the Nordic countries score well in global comparisons, not deliberate state strategies for picking winners, choosing new technology-platforms or creating clusters.

In Norway it seems as if privatization under the guise of neo-liberalism created the pressure transforming former public institutions into successful private innovators. In Denmark a weak neo-liberal attack, inspirations from new public management and a systematic yearly reduction of

budgets of individual institutions have fostered innovation and readiness to collaborate across divides both within the public and towards the private sector. In Sweden similar measures, combined with a creative destruction of formerly dominating large enterprises, have provided the impetus for searching for novel paths, locally. Unintended this has provided the Nordic countries with experimentalist economies and enabling welfare states.

However, while such an economy and society may come into being unintended, it may not be cultivated, elaborated and come full without a shift in political orientation, new visions of its path and creative ways of learning how to govern it.

Compared to this need, it is depressive to observe how central state agents in most of the countries have become encapsulated by the vision of the neo-liberal turn. Reforms of the welfare state are still discussed in terms of creating more market and competition within the public sector, making the public sector better equipped for sub-contracting activities to the private, and mostly new public management principles install bureaucratic principal-agent forms of governance that lead to standardization or “mainstreaming”. Even with respect to achieving a more innovative public sector, such visions for governance are predominant.

One of us joined a conference in Denmark to discuss a strategy for an innovative public sector in May 2008. Nearly all participants from the state level – politicians and administrators alike – took departure from a view that innovation and public sector was a *contradictio in adjecto*, thereby revealing that the state basically ignores what actually goes on in society. Then they created a vision for how to create leadership and managerial techniques to push from the central level innovative pressures towards the bottom. It seems as if the intended use of benchmarking, evaluations, etc., would prepare for making it possible for the principal to blame agents, or to let the blind guide the sighted.

According to international measurements, the Nordic countries score high on good governance, not because they have found ways of governing experimentalist economies and enabling welfare states. In each country our case-studies show that agents evoke resources by working through corporatist channels and bodies. This probably creates the foundation for governance systems in which it is difficult to appropriate public resources for private ends that are not appreciated by a multiplicity of stakeholders. But it gives no indications of whether public resources are used with the best possible

effects. Nobody, today, can assess whether the enormous amount of public and private means that it took to transform Örnköldsvik from a mill society to a service economy has been a good way of spending the money, and whether it constitutes a template for imitation or an example to diverge from. Nobody have compared the “job bank” settlement between the labour market institutions in Odense and Microtronic with alternative ways of organizing local modes of doing active labour market policies, so that the better options can be chosen in the future. Nobody has questioned whether Norway needs to invest in building peak research institution in order to form future high-performance firms similar to those that we have studied. But such discussions need be at the centre if mechanisms for offensive risk sharing in searches for future comparative advantages are to be continuously improved.

Obviously, the Nordic countries are, first and foremost, lacking systems that recognize and appreciate what is going on in terms of decentralized learning and innovation. Only by creating such systems will it be possible for localities, firms and employee groups to learn from each other, to search for better and more competitive ways of combing processes within private firms and surrounding public institutions, to benchmark them against each other and to choose temporary templates for solving more general problems in the continuous struggle for constantly redefining roles in the larger global system. Contrary to the prevailing tendency, at least in Denmark, where it is central bureaucrats and politicians that formulate benchmarks, these must be formulated by those that live in the ongoing motion of the present. Only they can see what problems to overcome, the possible means to work with and what goals are achievable. But they need somebody to discuss this with, to reach mutual agreement with and to exchange information on known alternatives so that local learning becomes public and generalized. As it is now corporatist bodies of the past are being gradually made use of in novel ways so that institutional resources become re-directed in ways that the many stakeholders find legitimate. But the associations involved in these multilevel governing bodies are not comparing and controlling how effective the new ways are in generating a novel development path. To us it seems as if unions and employers associations, together with other emerging stakeholders, need to assess how different ways of organizing work may work in concert with changes in labour market institutions and public R&D institutions. Municipalities need collaborative institutions, where they can compare transformative outcomes in different localities and learn how to engineer restructuring and ask the state for help to follow strategies, rather than creating strategies gradually, drawing on resources that they happen to be able to wrest from an

assemblage of corporate bodies, probably created for different purposes. As we see it, the Nordic countries have managed to create institutions that make it possible to explore potential future comparative advantages by sharing risks and making enabling gradual steps mutually between the public and the private, but there is no deliberate way of governing and improving on these institutional talents when it comes to offensive risk taking.

The same can be seen in the case of institutions for more defensive risk taking. Educational and social policies are primarily being discussed in the light of the old social welfare state. Though social policies are increasingly being seen as schemes for rehabilitating the labour force and bring it back into employment, the schemes are not used deliberately to enhance the skills and cater for employment beyond existing skill-levels in society. Such schemes, though, can be found in Denmark, but they are created locally and owe their existence to a few individual entrepreneurs that move beyond existing institutional barriers. They are not part of an offensive deliberate national search for alternative novel ways of building skills and competencies that may force firms and public institutions to take new paths to attract employees furnished with novel professional aspirations. That the system nevertheless works this way is sheer luck, but this luck could be deliberately cultivated by a system of governance that appreciated, compared across, benchmarked and assessed the usefulness of institutional innovations.

Norway, Denmark and Sweden have recently been taken by surprise in discovering that PISA benchmarks in the performance of their public schools are mediocre though spending is high. Neither reading abilities nor math and natural science mastery seem high. In Denmark this has led to a painful discussion, where politicians have blamed teachers and school leaders for bad performance. Against advice from OECD, lists of performances of individual schools are being published so that the poorly performing schools can be blamed. But how and why the best performing schools are doing well, how they have overcome a set of problems, etc., has never been analyzed. Instead a number of new “disciplining” measures have been installed, such as national tests, obligations to make individualized learning plans for students, for teachers to work in teams on curricula development, etc. The interesting part is that the best performing society in terms of PISA tests, Finland, has not been consulted in order to find out how to re-design the Danish – and Norwegian and Swedish – school systems. A comparative understanding of different school systems would, however, reveal that the Finns are as concerned about students’ lack of creative skills as are the Danish or Norwegian about reading and math abilities. A search for the better

school system can only be made in full if we recognize that none of us know how such a system would look.

To make an anti-authoritarian, creative school that also brings about high standards with respect to reading, math, etc., is a challenge that most countries will have to face if they are to bring about individuals capable of mastering life in an experimentalist project economy. Governance systems that primarily focus on being able to blame those schools that fail in these attempts will probably have difficulties in creating the diagnostic knowledge that makes it possible to learn from the more successful ones. Yet such a tool is exactly what we need to enable deliberate search for ways to educate and prepare individuals for the new economy.

The same goes for family services. Most have been governed to make institutions provide some minimum standards that help families out of problematic situations. But if our way of comprehending the current and coming economy's dependence on families able to live changing and unpredictable lives is correct, the public service institutions must systematically be questioned and improved to make it possible for families to meet ever increasing challenges. Families in the Nordic countries have faster than elsewhere been able to enter the new life of mobility and change, because public services enable both mothers and fathers, single and double income families to do so. Yet it is obvious that in many and increasing cases, this transformation comes with high costs in terms of children with a multiplicity of problems, classroom filled with noise, a great need for parents to do homework with their children, children feeling left to themselves or the elderly feeling neglected. An increasing proportion of the populations in the Nordic countries suffers from stress and is burned-out. Looking to the pattern of stable life in Slovenian families and valley communities, Nordic families may easily become the envying part.

The Nordic countries have performed so effectively that today they stand – for better or worse – at the frontier of social and economic development. In many ways they must learn from themselves and each other what to do next. In this light their experimentalist steps are too serious to be collectively neglected as private experience and tacit knowledge. Individually and combined they constitute important experimental laboratories, but they need to create governance systems that make it possible to learn from experiments and make these lessons imitable for other practitioners.

The Global Challenge for an Experimentalist Economy

In many ways the concept of a fairly stable global value chain with a clear division of labour between the highly and not so highly developed countries has served as guidance for the policy orientation of the Nordic as well as the remaining EU countries. Within this framework it was believed that the highly developed should cater for the parts that involved R&D, design, logistic coordination and sales and management, while the less developed countries would serve with manufacturing facilities based on cheap labour. The states in the highly developed countries should primarily supply the economy with public financed R&D, higher education, facilitate entrepreneurial vitality, and help supply venture capital and infrastructure for networking in the digital age. The Lisbon process may be seen as a European wide way to institutionalize among member-countries a rivalry to do increasingly more of this among its members. But the less developed countries have done exactly the same in order to break out of a foregone conclusion of becoming sites for cheap manufacturing. India and China, in particular, have challenged the global space that the West had reserved for itself.

The outcome is a very complex pattern, constantly in transformation, where the location of exploitive and explorative activities is much more mixed and constantly being changed (Herrigel and Zeitlin, forthcoming). Within countries this has moved us away from “closed” to “open innovation” systems. During the last two decades of the 20th century a dramatic shift took place. As shown by Chesbrough (2003: 48) the share of R&D by the largest enterprises (more than 25,000 employees) in the US fell from 71% in 1981 to 41% in 1999, in the same period the proportion of R&D by the SMEs (with less than 1,000 employees) increased from 4% to 22%, signifying that the world is in search of a new “paradigm” of open innovation (Chesbrough et al. 2006). This evolution is no doubt fostered by the simultaneous change toward a high-mobility labour market, in the US created by experts that circulate among different firms on short term contracts and organizing search in novel ways (Barley and Kunda 2004). But it has also been shown by Saxenian (2005 and 2007) that brains are circulating globally among the technology-centres of the highly developed countries and the industrializing Asian countries, making it almost impossible to predict from where the new impulses for innovation will appear. In other words the location of technological frontiers becomes unpredictable and a number of competing solutions may emerge from different quarters of the world:

...the more knowable the world as a whole becomes, the less confident we can be about the kind of knowledge that will prove useful in engaging its parts. By the same token, the more development depends on applying knowledge from domains traditionally unrelated to the industry's core activities, the less meaningful the idea of a technological frontier – it is everywhere and nowhere – and the less confident we can be that leadership today assures leadership tomorrow. In these circumstances it may well be more important to be able to search effectively across domains than to dominate the generation of ideas and technologies within any one of them. The decline of the centralized corporate research laboratory, where stable project groups could pursue a line of research for a decade or more and the ad hoc research consortia, connecting expertise from once seemed disjoint domains is one widely remarked reflection of this transformation (Sabel and Saxenian, 2009: 17).

The challenge for business firms and the wider national setting in which they are hosted is to be invited into such ad hoc research consortia that join together domains in a stream of co-creation. To receive such invitations probably depends on capabilities that the firms already possess or have access to through the wider environment. Private and public investments in R&D, up-skilling of the labour force, abilities to work in a stream of re-combinant projects, etc., are no doubt important for being invited. But the big problem for governments is that the usual policies for innovation systems or for up-scaling skills in national labour markets have been to advance and make the movements of the parts of nations cohere in a joint development. However, on the new world-scene this type of policy could easily make the business units and the wider population less prone to engage in ad hoc projects spanning the world. It seems as if national governments are facing the challenge of making it possible for national actors to engage in a multiplicity of ad hoc projects globally by furnishing the national economies with an abundance of weak ties internally.

The cases we have studied show signs of moving unintentionally in this direction, while at the same time breaking the conformity of the stable global value chain. Take Unimerco as an example. It is not its internal strength in R&D that helps it become invited into joint search processes by its future customers. It is its capability to bring standard solutions together and combine them with a manufacturing capability to solve difficult tooling problems that makes it a good partner across many domains. On the other hand, the more this calling is being responded to globally, the more it weakens its numerical ties to the districts and branches it used to serve locally and nationally. Unimerco becomes less interested in solving usual problems in the national contexts, but becomes a highly valuable partner if unsolved problems in the national realm shall be researched for finding

new solutions. Nodes in national networks may transform from being frequently used to becoming multiplicities of departure points for global search when faced with novel problems.

How government policies can assist in making such architecture of national business systems possible is the future challenge, not least for the Nordic countries, where the business firms, which we investigated, seem to have outgrown the infrastructure that made their current success possible.

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