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TOWARDS AN INNOVATIVE PROCESS OF NETWORKED DEVELOPMENT FOR A NEW URBAN AREA

Four Theoretical Approaches

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To my Mother and Father,

who taught me that boundaries are to be crossed

and passions are to be followed - being prepared for hard work but relying on

creativity and intuition.

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PREFACE

My wish has long been to exploit my considerable practical experience through scientific research in order to contribute to the future development of the planning and design of our built environment. This has led, even if not always following the straightest path, to the writing of this thesis. The research idea is founded on my personal experience as an architect and urban planner, combined with the knowledge and understanding gathered as a researcher in multiple studies in the fields of planning and innovation. Over the period 2005-2009, the SimLab unit at the Helsinki University of Technology TKK[1] has provided me with an ideal working environment giving me access to many of the methods and tools most appropriate for my research.

I have become acquainted with the secrets of scientific thinking through numerous deep conversations with colleagues. At TKK, my introduction to the fascinating field of problem-based research in urban planning and architecture was provided by Professor Heikki Kukkonen at the Research Institute for Built Environment RYT. Heikki showed me that a researcher should always to be both curious and persistent. At the 'high-level' office of RYT in the Otaniemi Water Tower, I also had the pleasure of undertaking a rewarding collaboration with Aija Staffans, Marketta Kyttä and Ana Rodriguez. When I moved to VTT, the Technical Research Centre of Finland, a new scope of interest was revealed to me at the Group for Technology Studies by Annele Eerola and Sirkku Kivisaari who patiently guided me towards the field of foresight and innovation studies. With Annele, Sirkku and Kirsi Hyytinen I learned how enjoyable fellowship at work can be regardless of varying backgrounds. I thank you all for contributing essential elements to my researcher skills.

Through the OPUS research project, in 2005, the collaboration with Aija and Marke was reinvigorated. The chief enabler of this fruitful joint effort was Professor Riitta Smeds, Director of the Enterprise Simulation Laboratory SimLab at TKK, who far-sightedly identified the interdisciplinary potential of combining the studies of architecture and urban planning with management studies. Working in the stimulating atmosphere of SimLab was an unforgettable experience. I had the opportunity to include in my research team such top young personalities as Mirja Lemmetty, Otto Söderlund, Kaisa Hänninen and

[1] From January 2010, Aalto University School of Science and Technology

Esko Huhta. The SimLab team collaborated with the urban planning team from the Department of Architecture and the Centre for Urban and Regional Studies at TKK. In addition to Riitta, Aija and Marke, the core team also included Heli Rantanen, Sirkku Huisko, Maarit Kahila and Pilvi Nummi. The entire OPUS team demonstrated that team work can be extremely productive and great fun at the same time, something for which I am most grateful.

The OPUS research project provided me with most of the data used in this thesis. The project was financially supported by the Finnish Funding Agency for Technology and Innovation Tekes as well as by various municipalities and companies, which is also gratefully acknowledged. When the OPUS project was finalised, I transferred, in August 2009, to a new challenging post, at the Ministry of the Environment. Aila Korpivaara, the leader of the group for living environment, has been most patient with my repeated absences during the final intensive writing period. Thank you Aila for all your encouragement.

I am deeply grateful to my supervisors Professor Riitta Smeds and Professor Kimmo Lapintie for their commitment and for their suggestions to strengthen the interdisciplinary aspects of my work. On numerous occasions, Kimmo spurred my thinking with pointed questions. He also proffered numerous helpful comments and suggestions, which propelled my work forward. My most inspirational figure for the thesis production was undoubtedly Riitta who with her boundless energy and enthusiasm was a constant source of strength and motivation. She also co-authored several of my publications helping me progress academically through collaboration. It is Riitta's support and insightful advice that ensured that my thesis was ultimately delivered on schedule. And when I was in the need of additional advice, I could always rely on Aija's perspicacity. In the final phase, Chris Smith skilfully checked my English.

I also express my gratitude to Professor David L. Hawk from the New Jersey Institute of Technology and Dr. Anssi Joutsiniemi from the Tampere University of Technology, who devoted their time and expertise to pre-examine my thesis giving encouraging and highly valuable comments.

Writing a thesis in addition to holding down a regular job means that time is, inevitably, taken away from your nearest and dearest ones. Thank you Terhi and Taru for your unwavering belief in my capacity to pull this difficult balancing act off. And finally, my greatest debt is to my husband Pirkka - my wholehearted thanks to you for your understanding, patience and care.

ABSTRACT

This thesis analyses the development of a new urban area as a networked process that starts from the vision and goals for the area, includes the phases of urban planning, building design and construction, and ends up with the maintenance and use of the area. The point of departure is the practical problem observed in this process: Innovative ideas often do not reach implementation.

Three root causes are suggested for the practical problem. Following an abductive reasoning logic, this thesis aims to define the critical characteristics of an innovative process of networked development for a new urban area, able to mediate knowledge and new ideas through the process, and to override the deficiencies identified in the conventional urban development process.

Urban development is explained and analysed in an interdisciplinary way, through the lenses of four theoretical approaches originating from the management sciences: process management, network management, innovation management, and service development. The development processes of four Finnish urban areas are selected as case studies: Suurpelto, Viikki, Nupurinkartano, and Vuores.

In the qualitative analyses of the case data, 23 innovative features are identified, introducing new methods, practices, actors, networks, or subprocesses, as compared to the conventional urban development process. The explanatory power of each theoretical approach with regard to the innovative features is evaluated, producing the first research result: 18 propositions for a coherent and innovative process of urban development.

The innovative features and the theoretical approaches are further clustered with reference to the three root causes, generating the second result: five hypotheses to eliminate the root causes. From the hypotheses, five process design principles are synthesised for a model of an innovative process of

networked development for a new urban area, aimed to solve the practical problem. These principles form the third result of the thesis.

The new practical process design principles are the following: 1) The process is committed to common goals throughout the network, 2) Ideas are systematically processed and developed through inter-organisational learning, 3) The coherence of the process is secured, 4) Collaboration within the network is encouraged, and 5) The network is committed to long-term quality in the realisation of its goals. In addition, practical guidelines for the application of the model are presented, based on the data collected in the case studies.

Keywords: urban development, urban planning, networked process, innovative process, qualitative case study, interdisciplinary research, abductive reasoning

TIIVISTELMÄ

Tämä väitöskirjatutkimus tarkastelee uusien kaupunkialueiden kehittämistä verkottuneena prosessina, joka sisältää uuden alueen visioinnin ja tavoitteiden asettelun, kaavoituksen, rakennussuunnittelun, rakentamisen sekä myös alueiden käytön ja ylläpidon. Tutkimuksen tavoitteena on määritellä, mitkä ovat keskeisiä ominaisuuksia innovatiivisessa prosessissa, joka perustuu toimijoiden yhteistyöhön ja jossa tieto ja uudet ideat siirtyvät vaiheesta toiseen. Tutkimuksen lähtökohtana on kaupunkialueiden kehittämisen käytännössä havaittu ongelma, etteivät uudet ideat useinkaan päädy toteutukseen asti. Ongelmalle esitetään kolme perussyytä. Käytännön ongelmasta lähtevä tutkimus noudattaa abduktiivista päättelyä.

Kaupunkialueiden kehittämistä tutkitaan poikkitieteellisesti neljästä liiketaloustieteiden teoreettisesta näkökulmasta eli prosessijohtamisen, verkostojohtamisen, innovaatiojohtamisen ja palvelukehityksen näkökulmista. Menetelmänä käytetään tapaustutkimusta, jonka kohteiksi on valittu neljän uuden suomalaisen kaupunkialueen (Suurpelto, Viikki, Nupurinkartano ja Vuores) kehittämisen prosessit.

Tutkimustiedon laadullisen analyysin tuloksena tapausprosesseissa tunnistetaan yhteensä 23 innovatiivista toimintamallia. Innovatiivisuus perustuu mm. uusiin suunnittelukäytäntöihin, uusiin toimijoihin tai uusiin osaprosesseihin verrattuna tavanomaiseen uuden kaupunkialueen kehittämiseen. Kunkin teorianäkökulman osalta arvioidaan niiden kykyä selittää kohdealueiden innovatiivisia toimintamalleja. Tutkimuksen ensimmäisenä tuloksena muotoillaan näiden arviointien pohjalta 18 väitettä, jotka kuvaavat uuden kaupunkialueen yhtenäistä ja innovatiivista kehittämisprosessia.

Innovatiiviset toimintamallit ja niihin liittyvät teorioiden selitysarviot jaetaan kolmeen luokkaan, jotka pohjautuvat havaitun käytännön ongelman kolmeen perussyyhyn. Tämä analyysi tuottaa tutkimuksen toisen tuloksen eli viisi hypoteesia, joiden voidaan olettaa poistavan havaitun käytännön ongelman perussyitä.

Kolmas tulos muodostuu, kun hypoteesit tiivistetään edelleen viideksi innovatiivisen prosessin periaatteeksi kaupunkialueiden verkottunutta kehittämismallia varten. Nämä käytännön periaatteet ovat seuraavat: 1) Prosessi on sitoutunut yhteiseen tavoitteeseen koko verkoston laajuisesti, 2) Uudet ideat käsitellään prosessissa järjestelmällisesti ja niitä kehitetään hyödyntäen organisaatioiden välistä oppimista, 3) Prosessin yhtenäisyys varmistetaan, 4) Verkostoa kannustetaan yhteistyöhön, ja 5) Verkosto sitoutuu tavoitteiden toteutuksessa pitkän tähtäimen laatuun. Tapaustutkimuksessa kootun tiedon pohjalta esitetään lisäksi käytännön ohjeita em. mallin soveltamiseksi.

Asiasanat: kaupunkialueiden kehittäminen, kaupunkisuunnittelu, verkottunut prosessi, innovatiivinen prosessi, laadullinen tapaustutkimus, poikkitieteellinen tutkimus, abduktiivinen päättely

PART I

1 INTRODUCTION

1.1 Motivation for this study

As the society around us changes urban planning is inevitably presented with new challenges. Current phenomena such as the rise of environmental consciousness, population ageing and the transition to a service economy and an information society create a continuous demand for new ways of thinking in all spheres, including urban planning and architecture as well as the implementation of new built urban environments. This calls for increased innovativeness related both to the planning process and to the urban areas resulting from this process.

Urban planning, as a process of controlling land use and building, aims to ensure that our living environments are favourable. The most powerful instruments of urban planning in Finland are the land use plans on the regional, general and detailed levels. Since the renewal of the Land Use and Building Act in 2000, local detailed plans and local master plans no longer need to be approved by higher authorities, and the municipalities can make their own final political decisions concerning these plans.

Renewal of the Land Use and Building Act raised development expectations in respect of both the content and the process of urban planning. Interaction was introduced as a new theme to the planning procedure which should now be based on openness and public participation. The Land Use and Building Act ensures that local residents have the right to receive information about plans under preparation and the chance to influence them. The right to participate in planning procedures covers everyone affected by such plans, including local residents, landowners, public authorities, enterprises and other organisations (www.ymparisto.fi, 20.2.2009).

The changes introduced are highly visible with more actors now participating in the planning process. This should, in principle, pave the way for new ideas, perhaps from different areas of society, to be introduced into planning procedures. In practice, however, while the notion of participation seems to be

well integrated in a procedural sense it rarely seems to actually significantly affect the contents of plans.

Despite the successful aspects of the renewal of the Land Use and Building Act, urban planning seems to have remained a rigid sequential process dominated by municipal authorities who, in the main, represent and perpetuate a traditional rationalist way of thinking. The question then arises, is such a planning system able to produce innovative solutions to future challenges?

Urban planning can, however, be seen from a broader perspective. In addition to the municipal process planning consists, in reality, of several social, professional and political processes by which the community affects its members' quality of life and environment. The starting point of this thesis is that together these processes create sufficient administrative and intellectual resources to be able to respond to the increased demand for innovation on the horizon.

However, this is not yet the case, and we should therefore discuss the ability of the contemporary planning system to meet the current challenges faced. On the basis of my professional experience, three issues seem particularly critical: *Firstly*, the planning process is often claimed to be overly time-consuming thus causing economic losses for those involved. *Secondly*, the stakeholders involved in urban planning, through the renewed Land Use and Building Act, often feel that their participation remains superficial. *Thirdly*, new ideas and visions created in the planning phase seldom seem to survive through the implementation phase. These arguments are further considered in the following.

The slow process

Recent years have seen the emergence, in respect of the planning process, of a consistent if repetitive topic of public discussion: "The city planning process is too slow!" This discussion however seldom raises questions like, "*Slow for whom?*" or "*Slow compared to what?*"

The 'handling time' of a city plan can however have various meanings, depending on the point of view adopted. For the city planner, it means the period set aside for preparing studies and analyses of the planned area with hearings held for the stakeholders; a developer worries about the delay in the

realisation of the land value; a future resident calculates the right timing for the purchase of a site for a new single-family house; while the politician puts the blame for the housing shortage on the slow city planning process.

The duration of the urban planning process has been a constant concern particularly for decision-makers. Various attempts have been made to reduce the length of certain parts of the planning process, often without taking into consideration an overall view of the total process. It is, moreover, interesting to note that recent statistics show that the throughput times for local plans are in fact generally shorter than is assumed (Rinkinen 2007).

It is, however, not only the planning process that is under scrutiny. Time pressure on the building design and construction processes also continues to grow. At the same time, across all parts of the process, requirements are increasing in respect of the participation of residents and other users. This seems to be something of an unsolvable problem unless some of the variables are changed, but which?

One interesting feature in this discussion is that it concentrates on the sluggishness of the process but only seldom does it concern the outcome of this process, i.e. the living environment resulting from the total planning effort. This indicates that the connection between the process and its outcome often escapes attention. I argue that through the development of the planning process alone, we only solve a partial problem.

The power of participation

The increasing level of additional requirements in respect of participation of residents or other stakeholders set huge challenges for the planning process. This includes both formal participation, enhanced in Finland by the Land Use and Building Act, and the influence of various informal networks (Staffans 2004). Clarifying new roles and adapting new ways of working in the renewed stakeholder network also necessitate the further development of the planning system.

Recent studies (e.g. Staffans 2004, Puustinen 2006 and Bäcklund 2007) indicate that participation has not attained the influence on land use planning intended by the renewed Act. Staffans (2004) has demonstrated that changes are

required in the attitudes of the various stakeholders[2] and particularly in the conceptions of professionalism and expertise in this new planning system. It can be argued that a considerable share of the resources available for development is wasted when the expertise of all the stakeholders, e.g. the residents, is not put to use. On the other hand, an increase in the number of active stakeholders brings particular challenges to the traditional planning professionals who are not necessarily disposed to accept these new forms of knowledge.

Puustinen (2006) has examined the roles of Finnish urban planning professionals, with a focus on their opinions and conceptions in respect of the changes caused by the communicative turn in planning. According to this new paradigm, all participating actors have different kinds of knowledge and different values, and the function of the planner is to reconcile these viewpoints and to offer an opportunity to reach a common understanding. Puustinen suggests that planning professionals have to improve their skills especially in terms of communicativeness and reflectiveness, as well as process skills, in order to be better able to meet the future challenges related to their professional legitimation.

Active citizenship also faces other kinds of impediments. One topical question here is what happens to the information acquired through the citizen participation process when it reaches the municipal administration. Bäcklund (2007) has studied the utilisation of this information and knowledge in Finnish municipalities. She argues that current municipal administration practice does not support the systematic utilisation of the experience of local residents. The reason for this lies, according to Bäcklund, in the concept of knowledge in the administration that does not sufficiently acknowledge the relevance of experiential knowledge and information obtained from the general public.

New methods for the facilitation of interaction between administrators and citizens are under development and it is possible to find efficient technologies

[2] Stakeholders can be defined as those whose interests are affected by the issue or those whose activities strongly affect the issue. In urban development, stakeholders can represent broadly speaking the public sector and private sector, as well as citizens and their organisations.
In terms of public participation in planning stakeholders are defined by law. Participation in planning procedures is open to all parties with an interest in the plans, including landowners, local residents, and other people whose livelihoods or other interests will be significantly affected. This provision also encompasses other public authorities, enterprises or organisations whose activities may be affected, even if they are located in other municipalities (Land Use and Building Act, Sections 62, 66).

to enhance participation without causing delays in the official planning process. This however raises the question of how the planning system can digest the increased information flow gathered by these emerging channels (Rantanen 2008).

Innovation in planning

While innovation is urgently required in the face the of current challenges, there is, at the same time, little inherent support *within* the planning system itself for the implementation of such new ideas. One may even question whether the system has in-built features that tend to favour conventional plans based on the usual solutions as compared to more innovative approaches. It is argued in this thesis that in order to bring about change and enhance innovation within urban planning a deeper understanding is required concerning the complexity of the processes and the networks involved.

The two different functions of urban planning presented by Friedmann (1973) are innovative planning, searching for institutional changes, and allocative planning, concerned with the disposition of resources among competing uses. Staffans (2004, 282) refers to these and argues that the allocative function of urban planning includes supporting the self-governance of the city and the maintenance of citizens' welfare. But at the same time, urban planning should promote the adoption of creative practices and the search for innovative solutions. "*If urban planning intends to retain its position as a central arena for discussions on the development of the city, it has to answer both of these challenges*" (Staffans 2004, 283).

The relationship between urban innovations and the structure of governance has been discussed by e.g. Dente et al. (2005) in the context of Italian cities. They suggest that the role of different actors, compared to the level of innovativeness, is not unambiguous but may depend on the time scale of the process. The gap in urban planning between political decisions and their implementation has been repeatedly pointed out by Albrechts (e.g. 2003) in reference to Belgian cases. Despite the different national planning traditions these questions remain of common interest.

1.1.1 Personal interest and research problem

My research idea is strongly problem-based. Architects and planners have often seen their plans, originally full of new fresh ideas, gradually watered down in the course of the planning process or even discarded totally in the implementation phase. The end user, i.e. the resident, moves into a brand new but conventional environment, quite ignorant of the efforts made by planners and architects to be innovative in relation to better housing, traffic, services, recreation etc. Similarly, in respect of the ideas put forward by those citizens who participate in the process in accordance with the legislation – where do their ideas disappear? And how could the experience from planning and construction of the existing areas, with both their successes and failures, be mediated to the planners and to the constructors of new areas? The same applies to the knowledge gathered by the residents through living in these areas - what could be the channel for getting feedback from these true experts of everyday living?

The practice-based research problem stems from the observation of these discontinuities in the transfer of ideas and knowledge across the planning and implementation process of a new urban area. My personal interest here is to search for reasons for this problem and explore whether there are better ways for new ideas to proceed in this process.

When speaking of new ideas and their disappearance in the course of the process it is clear that there are, in principle, at least three possibilities: 1) The new idea is good but for some reason it does not reach implementation, 2) the new idea is not viable after all, though some stakeholders believe in it, and it is only reasonable that it is dropped, or 3) the process may be incapable of generating new ideas at all, not to mention realisable ones. Identifying these different situations requires a fuller understanding, not only of the urban planning process itself but also of the intertwining societal and cultural processes underpinning it. This thesis focuses on the alternative 1, in the context of urban development.

My research interest is related in many ways to the current discussion over the development of new ideas to help create more sustainable living environments. It is also linked to the discussion on the significance of collaboration and competitiveness in the pursuit of new solutions for urban areas. The research interest is also connected with the question of defining new roles both for

architects and other stakeholders in the changing planning environment. These discussion topics are presented as an overview in Chapter 2.

1.1.2 Researcher path

My work as an architect has been characterised by a strong desire to test my professional skills across the field from the most conventional activities to the rather less conventional ones. By gathering experience of various sectors of design, planning and construction, as well as management, it is my belief that I have been able to increase my understanding of how our living environment is developed and shaped in the real world, in practice, not just in theory and on paper. I have then pursued to transfer this practical experience to scientific research, and now the interplay between practice and theory is manifested in this thesis.

My earlier professional activities can be divided into several phases:

At the beginning of my professional career I focused on conventional architect's work ranging from the design of residential blocks and office buildings in Finland to various international projects. During the 1980s, I gained experience as an urban planner at the Helsinki City Planning Department. This revealed to me the way in which the municipal machinery, in this context, functioned. My lack of personal knowledge about business management was allayed when I was appointed as design manager to an outdoor advertising company. This experience opened up new perspectives to me in respect of the functioning of business processes and networks, something which has also broadened my conception of the variety of feasible ways of action in society.

In 1994, I was invited to participate in my first research project at the Research Institute for the Built Environment, within the Helsinki University of Technology TKK. My main interests there were all related to environmental questions: environmental impact assessment and environmentally conscious urban planning together with energy conscious architecture. This research made me realise how difficult it is to transfer new ideas and new technologies to existing practises. In order to acquire new tools for understanding this friction between ideas and implementation, I moved to VTT, the Technical Research Centre of Finland, working in innovation and technology studies.

My principal areas of expertise at VTT, Group for Technology Studies, were technology foresight and the societal embedding of innovations. The leap from TKK was not as big as it may seem. The environmental questions that were familiar to me from my previous post were essential also in many of my new projects e.g. climate-friendly innovations in the energy sector.

In the field of innovation studies, a very interesting new way of thinking was revealed to me in projects relating to the issue of making innovations successful. A new approach in this field, developed at VTT Technology Studies, termed the 'societal embedding of innovations' has been applied in several case studies dealing in the main with the energy and health care sectors (Väyrynen et al. 2002a and 2002b, Kivisaari et al. 2004). The term refers to an interactive learning process where the innovation is shaped to fit the needs of the market, while in the market, conditions are created in which the innovation can be adopted. These studies also familiarised me with new concepts such as Systemic Innovation and Transition Management.

The studies at VTT on systemic innovation in the Finnish health care system brought into clear view the barriers faced in the renewal of a large societal system. They demonstrated that the endeavours of the public sector are insufficient if they are not backed up with the well-motivated cooperation of a large network of actors, representing the private sector as well as clients and end-users. The analogy with urban planning is not so difficult to discern.

Conducting studies in new fields, one after another, raised my interest in combining the knowledge gathered and using it to examine one single subject much more deeply. Thus, I found myself in a very welcome situation when, in 2005, I was asked to contribute to a new and ambitious research project at TKK. This project included the opportunity to conduct post-graduate studies and prepare a doctoral thesis.

My part in this project called OPUS would include the development of urban planning processes by applying methods used previously in the development of business processes. For the first time, I now had the possibility to integrate my professional experience in architecture and planning with my research experience in innovation studies. My new research unit would be the Enterprise Simulation Laboratory SimLab at TKK, which provided me with a new theoretical background in business management sciences.

1.1.3 OPUS Research project

My study was conducted during the period 2005-2009 and formed a part of the OPUS research project. OPUS is an interdisciplinary research project carried out by two laboratories at the Helsinki University of Technology TKK[3] the Enterprise Simulation Laboratory SimLab at the Department of Computer Science and Engineering, and the Laboratory of Urban Planning and Design at the Department of Architecture. The OPUS acronym is based on the Finnish name of the project, translated as "urban planning and everyday life: a learning process".

It has been argued in recent years that the communicative tradition of planning theory has overlooked the significance of social interaction in planning practices (e.g. Staffans 2004, 104). This is important because it is clear that interaction is crucial for learning, knowledge co-creation and innovation (e.g. Nonaka and Takeuchi 1995). In the development of cities, and in the task of increasing the competitiveness of planning institutions, knowledge co-creation in collaborative networks is however a largely under- if not completely unutilised resource. The OPUS research project responds to this need by creating the concept of "urban planning as a learning process". (Lemmetty *et al.* 2005)

Research in the OPUS project has been problem-oriented and therefore fundamentally interdisciplinary. Its objective has been to study and develop urban planning processes by applying innovative methods and tools for interaction and learning. Planning has been examined as a communal learning process with a continuous dialogue between the institutional conditions, political and professional ideals and norms, and the practices of everyday life. Learning has been examined through the theories of knowledge creation and organisational learning (e.g. Nonaka and Takeuchi 1995). In addition to the communal learning aspect, OPUS examined the urban planning process from the theoretical approach of the management of networked business processes and models as well as Internet-based communication and environmental psychology (Lemmetty et al. 2005).

[3] On 1st January 2010, Helsinki University of Technology TKK became part of the new Aalto University which was created through a merger between the Helsinki School of Economics, the University of Art and Design Helsinki and the Helsinki University of Technology. TKK was renamed 'the Aalto University School of Science and Technology'.

Since the network of actors in an urban planning process also includes the residents, the traditional public-private partnership (PPP) approach was considered insufficient in this research. The OPUS project subsequently launched a new approach termed "public-private-people partnership" (4P). This 4P–model conceptualises urban planning as a networked learning process between the residents, the public sector and the private sector.

The network of residents and other local actors contains a vast amount of empirical knowledge. OPUS has promoted the concept of "local knowledge" to emphasise the role of this empirical knowledge which can be, for example, everyday experiences and impressions stored in the community's memory (Rantanen & Nummi 2009). By bringing together professional knowledge and lived experience, experts and citizens are able to form an "interpretive community".

As an integral part of the research OPUS has developed and applied new interactive methods and tools for collaborative planning: the Internet-based **OPUS forums** with interactive applications support public participation in ongoing land use and development projects, and the Internet-based **SoftGIS** provides methods to analyse the perceived environmental quality among different resident groups and to mediate this soft knowledge to planning practises. The third method applied in OPUS has been the interactive, dialogue-based **SimLab Process Simulation** method. This method brings together the various stakeholders in the complex urban planning process to create in face-to-face discussion a shared understanding of the development needs and to facilitate collaborative learning and innovation.

In the OPUS research project the empirical research data has been collected from several pilot cases, representing areas under planning, as well as areas already built and in use. This data has been used to analyse the functionality of the applied methods, their impact on urban planning and the challenges faced in their further development. The empirical data has also been used to address the emerging interdisciplinary research questions.

My research has been conducted in the OPUS project within the Enterprise Simulation Laboratory SimLab at TKK. An important part of the empirical data has been collected through the SimLab Process Simulation method. My research questions form an integral part of the OPUS research setting. This study combines two research fields, management and architecture, and two

academic chairs at Aalto University of Technology, 'Business and service processes in digital networks' and 'Urban and regional planning', and is supervised by the holders of both chairs.

1.2 Research objectives and research process

1.2.1 Research objectives

Urban planning, with its tools to control land use and building, plays a major role in creating the preconditions for a favourable living environment. The overall objective of this study is to uncover and promote procedures that help actors of urban development respond to future challenges by providing new and innovative means of shaping our physical living environment.

To be able to manage innovations in urban development, a deeper understanding of this complex and networked process is required. Specifically, we need more knowledge of the interactions in the process over time, and of the tools that are necessary to help transfer knowledge and learning across the different phases of the process.

Currently, a networked process theory of urban development does not exist. The objective of this research is thus to construct *a theoretical framework for an innovative process of networked development for a new urban area.*

1.2.2 Scope of the research

This study focuses on the relationship between the urban development process and innovation. New ideas and innovations examined in this study relate mainly to the process itself, but the outcome of this process (i.e. a new urban area) is also considered, for the process and its outcome are viewed as interdependent elements.

A deeper understanding of this process requires that it is conceived as a part of a larger system that produces the built environment. Therefore, the process under examination in this study starts with the vision of, and strategic goals for, a new urban area, then proceeds to land use planning (local master plans, local detailed plans), followed by building design and construction finally ending up with the use and maintenance of the area. In the context of this study this is

termed **the development process for a new urban area.** It is noteworthy that the urban planning process, in traditional terms, only forms one part of the expanded process outlined here.

The final period in the urban development process, use and maintenance, was not originally included in the research. During the research process it became however evident that the use of too limited a scope would only replicate the common misinterpretation which considers a new urban area to be 'accomplished' the day residents move in.

The broad time horizon employed in the context of this study is not particularly common in urban planning studies. Even the inclusion of an implementation phase has often been questioned although Friedmann, as early as 1969, has repeatedly criticised the rational planning model for ignoring it. Naess and Saglie (2000) are also among those researchers who have included implementation in the planning process in their study: "*It is also essential to be aware which parts of such processes the concept of planning includes. Some theorists include only the processes before decision-making, while others include both preparations for decision-making and implementation. [...] Our discussion is based on an understanding of the concept of planning including preparation for decision-making as well as implementation*" (Naess & Saglie 2000, 730).

The perspective adopted in this study is the process management perspective. This implies that many of the inherent aspects of urban planning, such as the legal procedure and the treatment of rights and responsibilities in this procedure, are left outside the scope of the study.

1.2.3 Research process

The research process began in 2005 within the context of the OPUS research project. My most active period for preparing and presenting conference papers, both as sole author and co-author, was the period 2006-2009. The conference papers and other publications prepared as parts of this study are presented in Table 1, grouped according to the main theoretical research approach utilised. The development of the theoretical base over time can be followed in the progression of the article themes: from innovation to processes, to networks and finally to services, in a global overall frame. The complete list of publications is also provided below.

Table 1. Publications and their theoretical research approach

Theoretical approach	2005	2006	2007	2008	2009
Innovation approach		***Väyrynen 2006a***: Innovation action research in urban planning – gaining new understanding of the development of built environment. ***Väyrynen 2006b***: Promoting innovations in urban planning (in Finnish)	***Väyrynen & Smeds 2007***: Promoting innovations in urban planning.		
Process approach			***Väyrynen 2007a:*** Bridging the way from urban planning to implementation - a process approach ***Väyrynen 2007b***: Planning and Implementation – from Sequential to Concurrent Processes. ***Väyrynen 2007c:*** Planning and implementation – from separation to joint processes.		***Väyrynen & Smeds 2009a***. The Joint Process (In Finnish)
Network approach			***Väyrynen et al. 2007:*** Networked planning and implementation of a new urban area - Case Suurpelto (in Finnish).	***Hänninen, Huhta & Väyrynen 2008:*** Management of Change in Complex Networks – Case Study of a Public-Private-People Partnership.	***Staffans, Väyrynen, Huisko & Melama 2009.*** Partnership in Planning (In Finnish)
Service approach				***Väyrynen & Smeds 2008:*** Urban Planning as a Networked Development Process of Service Innovation.	***Väyrynen & Smeds 2009b:*** Networked service innovation process in the production of a new urban area
Global approach	***Lemmetty, Väyrynen, Rantanen, Staffans & Smeds 2005*:** Urban Planning and Everyday Life - A Learning Process	***Lemmetty & Väyrynen 2006:*** Suurpelto simulation project report 2005 (in Finnish)	***Huhta, Hänninen, Söderlund & Väyrynen 2007:*** Suurpelto simulation project report 2006 (in Finnish)		***Staffans & Väyrynen 2009*** . Learning-based Urban Planning (in Finnish)

List of publications

Lemmetty, M., Väyrynen, E., Rantanen, H., Staffans, A. & Smeds, R. 2005. Urban Planning and Everyday Life - A Learning Process. In: Smeds, R., Riis, J., Haho, P. & Jaatinen, M. (eds.) Experimental Interactive Learning in Industrial Management: New Approaches on Learning, Studying and Teaching. Proceedings of the 9th workshop of the IFIP WG 5.7 Special Interest Group, June 5-7, 2005 Espoo. Pp. 114-122.

Väyrynen, E. 2006a. Innovation action research in urban planning – gaining new understanding of the development of built environment. In: Rivad, K. (ed.) Architects in the 21st Century – Agents of Change? Proceedings of the Nordic Association for Architectural Research, Annual symposium 2006, Copenhagen. The Royal Danish Academy of Fine Arts, School of Architecture. Pp. 230-239.

Väyrynen, E. 2006b. Innovaatioiden edistäminen kaupunkisuunnittelussa (Promoting innovations in urban planning). Paper presented at the Research Seminar on Urban Studies (Kaupunkitutkimuksen päivät), Helsinki, May 2006. (In Finnish)

Lemmetty, M. & Väyrynen, E. 2006. Suurpelto-simulointiprojekti 2005 (Suurpelto simulation project report 2005)."Suunnitelmista toteutukseen". Loppuraportti, tammikuu 2006 Teknillinen korkeakoulu, SimLab. 31p.+ app. 12p. (In Finnish)

Väyrynen, E. & Smeds, R. 2007. Promoting innovations in urban planning. In: Proceedings of the 8th International CINet Conference "Continuous Innovation – Opportunities and Challenges", Gothenburg, September 9-11, 2007.

Väyrynen, E. 2007a. Bridging the way from urban planning to implementation - a process approach. Paper presented at the Multidisciplinary Scientific Workshop "Innovations in Urban Planning and Design", January 2007, Helsinki University of Technology TKK.

Väyrynen, E. 2007b. Planning and Implementation – from Sequential to Concurrent Processes. In: Proceedings of the XXI AESOP Conference "Planning for the Risk Society", Naples, July 11-14, 2007.

Väyrynen, E. 2007c. Planning and implementation – from separation to joint processes. Paper presented at the Nordic Planning Research Symposium "Local Authority Planning in Change: Beyond Dichotomies", Oulu, August 16-18, 2007.

Väyrynen, E., Huhta, E., Hänninen, K. & Söderlund, O. 2007. Uuden kaupunkialueen suunnittelu ja toteutus verkostossa - Tutkimusnäkökulmia tapaus Suurpeltoon. (Networked planning and implementation of a new urban area - Case Suurpelto.) Helsinki University of Technology, SimLab Report series 21. 105p + app. 6p. (in Finnish)

Huhta, E., Hänninen, K., Söderlund, O. & Väyrynen, E. 2007. Suurpelto-simulointiprojekti 2006 (Suurpelto simulation project report 2006). Loppuraportti, tammikuu 2007. Teknillinen korkeakoulu, SimLab. 45p + app. 11p. (In Finnish)

Hänninen, K., Huhta, E. & Väyrynen, E. 2008. Management of Change in Complex Networks – Case Study of a Public-Private-People-Partnership. In: Smeds, R. (ed.) Innovations in Networks. Proceedings of the APMS 2008 International Conference, Espoo, September 14-17, 2008. Helsinki University of Technology TKK. Pp. 293-302.

Väyrynen, E. & Smeds, R. 2008. Urban Planning as a Networked Development Process of Service Innovation. In: Smeds, R. (ed.) Innovations in Networks. Proceedings of the APMS 2008 International Conference, Espoo, September 14-17, 2008. Helsinki University of Technology TKK. Pp. 591-601.

Väyrynen, E. & Smeds, R. 2009a. Yhteinen prosessi (The Joint Process). In: Staffans, A. & Väyrynen, E. (eds.) 2009. Oppiva kaupunkisuunnittelu. (Learning-based Urban Planning). Helsinki University of Technology, Department of Architecture, Publication 2009/98. Pp. 121-147. (in Finnish)

Staffans, A., Väyrynen, E., Huisko, S. & Melama, S. 2009. Kumppanuus (Partnership in Planning). In: Staffans, A. & Väyrynen, E. (eds.) 2009. Oppiva kaupunkisuunnittelu. (Learning-based Urban Planning). Helsinki University of Technology, Department of Architecture, Publication 2009/98. Pp. 151-191. (in Finnish)

Väyrynen, E. & Smeds, R. 2009b. Networked service innovation process in the production of a new urban area. Paper presented at the APMS 2009 International Conference, Bordeaux, September 20-24, 2009. Proceedings in print. Springer, Germany.

Staffans, A. & Väyrynen, E. (eds.) 2009. Oppiva kaupunkisuunnittelu. (Learning-based Urban Planning). Helsinki University of Technology, Department of Architecture, Publication 2009/98. 220p. (in Finnish)

1.3 Definitions

The key concepts in this study include terms that have varying meanings in different contexts and disciplines. To clarify the use of these terms in this study and to avoid misinterpretation, the salient terms are defined in this section, subsequent to a brief discussion on the prevailing definitions of each term.

1.3.1 Urban planning and urban development

Urban planning is an ambiguous term having different definitions according to the prevailing context.

Urban planning is, in the Finnish planning tradition, the branch of architecture dealing with the design and organisation of urban spaces and activities, exploring a wide range of aspects of the built and social environments of urbanised communities. Urban planning aims at conciliating the conflicting demands of social equity, economic growth, environmental sensitivity, as well as aesthetic appeal.

According to the Land Use and Building Act (2000), the Finnish land use planning system has three levels with a clear division of labour between them: the regional land use plan, the local master plan and the local detailed plan (Fig. 1). The land use planning system is hierarchical; higher level plans steer lower plans. In addition, the Government defines national land use guidelines, which should be taken into account throughout the country in all land use decisions and land use planning.

An essential feature in the Finnish local land use planning system is that it is a municipal monopoly [4]. The municipal land use planning system first produces local master plans tasked with defining general land use patterns and shaping the urban structure. Local master plans allocate areas for land uses such as housing, services and recreation. Local detailed plans are the most important planning tool used to control building design and construction. The main characteristics of local neighbourhoods are determined in the local detailed plans. The plans include regulations on the use of areas and the volumes and

[4] The only plans that still are submitted for ratification to the Ministry of the Environment are joint master plans (prepared cooperatively between several municipalities) and regional land use plans.

locations of buildings as well as on the types of construction allowed. Streets and park areas are also defined at this planning level.

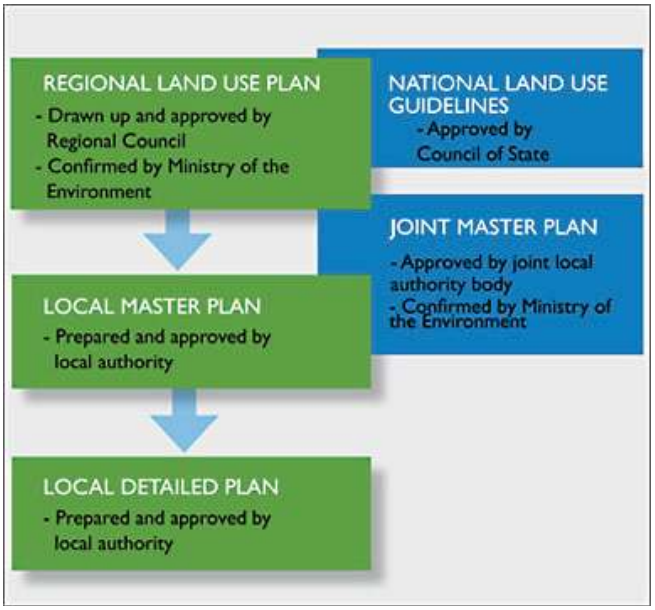

Figure 1. Land use planning system in Finland (www.ymparisto.fi, 5.3.2009)

The Land Use and Building Act entitles citizens to participate in land use planning procedures and influence decisions related to building developments, both at regional and local levels. The extent and nature of public participation are defined according to the nature of each plan. Participation in planning procedures is open to all parties with an interest in the plans, including landowners, local residents, and other people whose livelihoods or other interests will be significantly affected. It is noteworthy that this provision also encompasses other public authorities, enterprises or organisations whose activities may be affected, even if they are located in other municipalities. (www.ymparisto.fi, 5.3.2009)

According to Staffans (2004, 45, with ref. to Horelli & Kukkonen 2002), urban planning is a social, ethical and political practice applied by the municipality, in order to influence the future of its member citizens and the development of the community. In addition, Staffans emphasises the role of knowledge-building in urban planning, terming it a knowledge practice. She points out that urban

planning is not only a set of practices but also a set of processes related to these practices.

Urban planning can also be considered as a professional practice. For example, Puustinen (2006) has pointed out that planning professionals often consider themselves to be in charge of implementing 'the public interest' in land use planning. Many planners however share the view that they represent neutral experts seeking value-free technical solutions to planning problems.

Naess and Saglie (2000) have listed some definitions of the concept of planning reflecting different planning theories and ideologies:

- "Planning has been defined as a method or procedure to influence future allocations of activities to space or space to activities" (Williams 1996).
- "Planning is the process through which scientific and technical knowledge is connected to organized action" (Friedmann 1987).
- "Planning is the use of scientific procedure—albeit crude—in policy-making" (Faludi 1973).
- "Planning is the process of preparing a set of decisions on future actions, directed towards the achievement of goals by preferred means" (Dror 1973).
- "Planning is the ability to control the future by current acts" (Wildavsky 1973).
- "Planning is an activity dealing with proposals about the future, with evaluation of alternative proposals and with methods to achieve these processes. Planning is rational, adapted thinking, used on the future and on areas where planners, or the administrative organs of which the planners are part, have a certain degree of control" (Simon 1957).

In addition to the above definitions, Naess and Saglie remind us that planning is usually considered as the connection between theory and action. In practice, spatial planning involves both substantial issues and a number of procedural questions, including the organisation of the planning process, the roles of planners in relation to decision-makers, the types of knowledge to be utilised and analyses to be performed, and the instruments for implementation of the plan.

Mäntysalo (2000) presents the following definition: "Planning is representing future activities and attempting to organize these activities by arranging their

representations. [...] Land-use planning consists of representing the future uses of land attempting to organize them by arranging their representations [...]"

In this thesis, urban planning covers all the phases of local land use planning, as mentioned in the Land Use and Building Act, including public participation in planning.

> **The definition of urban planning** applied here is based on Staffans (2004), with an additional emphasis on the processual nature of this activity, in accordance with several definitions referred to above: *Urban planning is a political, social, professional and architectural practice with related processes, aimed at influencing the future of the municipality and the living environment of its member citizens.*
>
> Further, this thesis defines **urban development** as *an activity that includes stages both preceding urban planning and succeeding it. Thus, urban development starts from the visions and goals for a new area and includes the stages of urban planning, building design and construction, and also the maintenance and use of the new area.*

1.3.2 Process

In the management literature, two different meanings of the term process can be distinguished. The research approach that studies change and the emergence of phenomena over time is called 'process research' (e.g. Langley 1999). But the literature also uses the concept 'process' when it studies the process-oriented management structures of today's networked organisations, often called business or service processes. Here, the object of study is the process and its management (e.g. Davenport, 1993)

Change and the emergence of phenomena over time can be analysed through seven process research strategies, ranging form the quantification strategy with statistical analyses to a narrative strategy that describes and analyses qualitatively how things develop and change over time (Langley 1999). According to Pettigrew (1997), only the narrative approach explicitly and directly observes the process in action, and is thereby able to describe and account for how some organisational or social entity or issue develops and changes over time. Thus, Pettigrew elaborates the definition of a process: A process is a sequence of individual and collective events, actions, and activities unfolding over time in

context. Pettigrew also points out, that a process analysis is incomplete without linking context, processes and outcomes.

A common form of progression in the process models described in the strategy literature is, according to Van de Ven (2007), a linear sequence of stages or phases of development. For example, a decision making process is typically viewed as a sequence of separable stages ordered in time (e.g. need recognition, search, screen, choice activities) and with transition routines to make adjustments between stages.

Van de Ven points out, however, that many social processes reflect far more complex progressions than simple linear sequences. He has thus presented a vocabulary of developmental progressions that goes beyond simple unitary stages (Van de Ven 1992)[5]. When a developmental process unfolds over time following more than a single path, the progression of events may include convergent, parallel, and divergent streams of activities. A description of how multiple progressions of events diverge, proceed in parallel, or converge over time thus provides a useful vocabulary for making process statements about specific stages or the overall developmental pattern of a developing entity over time.

A (business) process as an object of research considers the structure and operations of an organisation. It involves elements of structure, focus, measurement, ownership, and customers (Davenport 1993, 5-6). It implies a strong emphasis on *how* work is done within an organisation, in contrast to a product focus where emphasis is on *what* is done. Davenport defines a process as "*a structured, measured set of activities designed to produce a specific output for a particular customer or market*". He underlines that a process is a structure for action, i.e. a specific ordering of work activities across time and place, with a beginning, an end, and clearly identified inputs and outputs.

This thesis studies the process of urban development. The structure and the outcome of the urban development process are in the focus of the research. It is, however, also essential to apply a process research approach to observe the urban development process in action and to be able to describe how it develops and changes over time.

[5] This vocabulary provides the analytical terms needed to make clear distinctions between various process models. The typology includes unitary, multiple, cumulative, conjunctive, and recurrent progressions.

The definition of process, suitable for this thesis, is therefore based on a combination of the definitions by Pettigrew (1997) and Davenport (1993): *A process is a sequence of individual and collective events, actions, and activities unfolding over time in context, designed to produce a specific outcome.*

1.3.3 Innovation

The simplest definition of innovation is "the introduction of something new". The meaning of the term innovation has, however, been constantly refined, starting from Schumpeter (1911/1934) who first determined the distinction between invention and innovation: "*An invention is a novel idea, a sketch or a model for something. Innovations are those inventions which have been commercialised on the market by entrepreneurs, while imitations are innovations which have been copied by others*" (Saarinen 2005, 49-50, with ref. to Schumpeter 1911/1934). Cumming (1998) has described how it gradually became accepted that a new concept had to be brought into use before innovation could be said to have taken place.

Latterly, this definition has been complemented to include the concept of success. For example, in 1988 Urabe wrote: "Innovation consists of the generation of a new idea and its implementation into a new product, process, or service, leading to the dynamic growth of the national economy and the increase of employment as well as the creation of pure profit for the innovative business enterprise" (Urabe 1988, 3). This signifies that a new concept must be brought into successful commercial use before innovation has taken place. Cumming assumes that this hardening of the understanding of the word innovation is a result of the increase in business competitiveness and the development of a customer focus. His conception of the most succinct definition that covers the broadest range of applications is: "Innovation is the first successful application of a product or process" (Cumming 1998, 22).

Researchers on innovation in organisations frequently distinguish between product and process innovations. When process innovations are at issue, the success of the innovation is not necessarily evaluated in commercial terms only but also in terms of e.g. duration or customer satisfaction (e.g. Davenport 1993, p.16). This broadening of the evaluation of success also applies with regard to urban planning.

Davenport (1993, 10-11) distinguishes process innovation from process improvement. According to his definition, process innovation means performing a work activity in a radically new way, whereas process improvement involves performing the same business process with slightly increased efficiency. He admits, however, that the level of change from incremental to radical forms a continuum. Where a process innovation yields only incremental benefit, Davenport would classify it as an improvement. Another important difference between process innovation and process improvement is the starting point. Process innovation initiatives start, according to Davenport, with a relatively clean slate, but process improvements start from existing processes.

A strict division between innovation and improvement has since been replaced by a renewed concept of innovation, including three degrees of novelty compared with the firms' previous products and activities: entirely new, significant improvement and minor improvement (see e.g. Palmberg et al. 2000, 20-21). Additionally, the degree of novelty from the viewpoint of the markets has been included in the evaluation: an innovation can either be new to the domestic market or new to global markets.

> In this research, the **definition of innovation** is as follows: *Innovation is the successful introduction of a new idea into the market in the form of a new product or new service, or an improvement in a process or an organisation, carried into practice.*

In addition to the above definition, innovations in urban development should be evaluated by their societal quality (Kivisaari & Lovio 2000; Väyrynen et al. 2002; see also Fig. 7, in Section 4.3.4).

1.3.4 Service

The definition of the concept of service has seen significant evolution over the last four decades. Research first concentrated on portraying services as being different from physical products. Rathmell (1966) observed that most marketers have an idea of the meaning of the term goods, because these are tangible products, but services seem to be everything else. He identified a list of characteristics for services, including e.g. intangibility. Vargo & Lusch (2004) suggest that this approach of defining services residually has persisted, and services are still mostly seen as opposed to tangible goods.

Several attempts have been made to elaborate the definition. Grönroos (1988) defines four basic characteristics that can be identified for most services: (1) Services are more or less intangible, (2) Services are activities or a series of activities rather than things, (3) Services are at least to some extent produced and consumed simultaneously, and (4) The customer participates in the production process at least to some extent.

Edvardsson (1997) views a service as part of the wider concept of the product. A product may consist of goods, services, computer software, commonly in combination. The customer is most often involved as a co-producer in the production process, while a service is created in and during a process.

Grönroos (2000) develops his definition by stressing the process nature of services. He now defines services as "processes consisting of a series of activities where a number of different types of resources are used in direct interaction with a customer, so that a solution is found to a customer's problem" (Grönroos 2000, 48).

Already in 1995, Gummesson had pointed out that consumers do not buy goods or services, but rather purchase offerings that render services, which create value. He thus used value instead of solutions to customer problems. Edvardsson & Olsson (1996) argue that service is generated by a process, and the customer outcome is created in this process. This process is, however, different from those in which goods are manufactured. The manufacturing process takes place at one time and in one place, and the customer does not participate in the process. In the case of services, the customer does take part in the process as co-producer. The customer is present and affects the result in terms of added value and quality.

Related to earlier research, Edvardsson *et al*. (2005) argue, that there are currently two main approaches within service research: service as a category of market offerings and service as a perspective on value creation. They claim that the new focus in service research today is not on the differences between goods and services, but on differences in how we want to portray value creation with customers (and other stakeholders) where the customer's perspective is emphasised. They conclude that looking at service as a *perspective* on value creation through the lens of the customer may add to future understanding of the service approach; co-creation of value with customers is key and the

interactive, processual, experiential, and relational nature form the basis for characterising service.

A different approach to defining the concept is suggested by Vargo and Lusch (2004, 326). They define services as "the application of specialized competences (skills and knowledge) through deeds, processes, and performances for the benefit of another entity or the entity itself".

Grönroos (2006, 6) states that, thus far, no common definition has emerged in the literature. He notes that earlier definitions are mostly based on *what a service is*, i.e., based on the service activity. With reference to Edvardsson *et al.* (2005, 118), he suggests that another starting point for defining a service is to consider *what a service should do for the customer*, i.e. service as a marketing logic. A logical starting point for developing such a definition could be that a service should support customers in a value-generating way.

Grönroos (2006) elaborates on this and claims that suppliers and service providers do not create value in their planning, designing and production processes. The customers do it themselves in their value-generating processes, i.e., in their daily activities when products are needed by them to perform activities. Suppliers only create the resources or means required to make it possible for customers to create value for themselves. In this sense at least, when suppliers and customers interact, they are engaged in the co-creation of value. Vargo and Lusch (2004, 331) share the same view: "*Value is always co-produced with the customer; the enterprise can only make value propositions*".

Due to the customers' involvement in these interactive processes, firms and customers are co-producers of the service and co-creators of value; at some point the customer may be a sole creator of value as well (Grönroos 2006). Following this service logic, a service as an activity can be defined as a process where a set of resources interact with each other and with the customer aiming at supporting the customer's processes in a value-generating way.

Grönroos (2006) emphasises that according to the Nordic School view, goods do not render services as such. A customer does not consume a drill as a service, but the process of using the drill together with, for example, information about the drill and knowledge about drilling in order to make a hole in the wall. This process is the service. The drill is not a transmitter of service (contrary to e.g.

Vargo & Lusch 2004), rather it is one resource needed to make a service process possible.

> In this research, **service is defined** according to the Nordic School view and following the views of Grönroos (e.g. 2006): *A service as an activity is a process where a set of resources interact with each other and with the customer aiming at supporting the customer's processes in a value-generating way.*

1.4 Scientific orientation and methodological choices

1.4.1 Epistemological choices

The interdisciplinary[6] character of planning research, including issues rooted in the humanities and social sciences, as well as in the natural sciences implies that planners and planning researchers bring with them different methodological traditions, theoretical frameworks of comprehension and epistemological positions (e.g. Naess & Saglie 2000). Due to this heterogeneity, planning researchers have to identify their positions in the field of science and, typically, at the intersection between different disciplines.

In his original theory of interest, Habermas (1971) presents the three distinct interests of the researcher in the pursuit of knowledge generation: *technical* interest in the empirical-analytic sciences, *practical* interest in the historical-hermeneutic sciences, and *emancipatory* interest in the critical reflective sciences. According to Habermas, practical interest refers to an orientation

[6] The terms inter-, multi-, trans-, and cross-disciplinary research are often used without providing a clear distinction between them. The following interpretation is an attempt to clarify these terms, synthesised from 'Facilitating Interdisciplinary Research' (2004) by the National Academy of Sciences, and Weingart & Stehr (2000):
- ***Interdisciplinary*** research integrates information, techniques, concepts, and/or theories from two or more disciplines to advance fundamental understanding or to solve problems whose solutions are beyond the scope of a single discipline. This interaction may forge a new research field or discipline.
- ***Multidisciplinary*** research means research that involves more than a single discipline in which each discipline makes a separate contribution. They split apart unchanged when the work is done.
- ***Transdisciplinary*** approaches transcend the boundaries of conventional disciplines and search for new perspectives beyond those disciplines.
- ***Cross-disciplinarity*** represents a coordinated effort to cross disciplinary boundaries to explain one subject in the terms of another.

toward gaining understanding through interpretation. The research aim is specified as the "*illumination of the understandings of the participants*". In this study, my interest in knowledge generation is predominantly practical.

In connection with the practical interest in knowledge generation, the methodological orientation employed is primarily that of **hermeneutic** interpretation where understanding is emphasised. Hermeneutics suggests that prejudice and foreknowledge is the necessary starting point to our understanding. This implies that researchers need to be aware of how their own views and biases are to a large extent determined by their own culture and personal history (Myers 2009, with ref. to Gadamer 1976, 125).

Hermeneutics implies that the researcher does not stand outside the subject matter looking in. Myers (2009, 190) refers in this context to Giddens (1976, 146) who has described the notion of the **double hermeneutic** in social science: social researchers, as such, are also 'subjects' and are just as much interpreters of social situations as the people being studied.

Hermeneutics is an approach commonly used in planning research. As Naess & Saglie (2000) point out, planning is a meaningful activity and plans consist of meaningful text, maps and drawings. Therefore, planning researchers generally seek the comprehension of plans and the intentions and meanings of the actors influencing a plan. The research focus may be on the understanding of either the built structures themselves or the processes and actors leading to the physical result.

In association with hermeneutics, Naess and Saglie (2000) also remind researchers that their own experience of the world constitutes the epistemological basis of their comprehension of the phenomenon subject to inquiry.

In this thesis, it is evident that my background and experience as an urban planning and design professional has affected the formulation of the research problem and will also have an influence on the whole research process leading to the results and conclusions. I am also aware that my interpretations are connected to the fact that my thinking is deeply rooted in the prevailing culture of planning in Finland. In addition, as the double hermeneutic concept suggests, I must form a comprehension of other people's comprehension, e.g. how various actors understand their roles in connection with the preparation of

a plan, which can be a complicated task. In order to avoid the risk of an excessive bias, my intention is to unfold the research process and my scientific reasoning in a sufficiently detailed and consequential manner.

This study concentrates on the processes of urban planning and implementation that lead to the development of a new urban area. In addition to the hermeneutic approach of understanding the current situation, this study also aims to suggest improvements to this process. In this sense, the approach of this study can be called normative (see e.g. Mäntysalo 2000, 17).

1.4.2 Logic of reasoning

Pettigrew (1997, 344) discusses the nature of process research and claims that it is in the constantly iterating cycle of deduction and induction that the real creative process of the research takes place. The deductive structuring is the prelude to a more open-ended process of inductive reasoning and pattern recognition, and these have to go hand in hand. Relating to this, Pettigrew makes an important remark: "*Few process scholars enter the field with an empty head waiting to be filled with evidence. Scholars are not just scientists, they remain obstinately human beings and as such are carriers of assumptions, values and frames of reference which guide what they are capable of seeing and not seeing.*" Pettigrew admits that his own inclination over time has been to increase the deductive component in what he calls the inseparable balancing act of deduction and induction in process work.

The traditional hypothetico-deductive approach may sometimes be used in planning research. Hypothetico-deductive research tests and improves scientific theories. From the theories, hypotheses are first derived and then, according to the empirical data, these hypotheses may be reinforced or falsified (Whewell 1840, Hempel 1965, in Ketokivi & Mantere 2010, 318). In social sciences, however, clear dichotomies are rare, but it is more often a question of varying degrees in the strength of relationships. According to Naess and Saglie (2000), this also applies to planning research. They refer, however, to abduction (Peirce 1932, in Naess & Saglie 2000, 743) as an approach more suitable to a large field of planning research.

The problem issues addressed in planning research often bring forth the observation that previous research and established theories provide little guidance to the development of hypotheses. Naess and Saglie (2000, 743)

describe this situation as follows: "*The research takes as its point of departure a puzzling or surprising fact that cannot be explained by our existing knowledge. The researcher then tries to imagine possible factors due to which the surprising phenomenon would be explainable.*" This kind of situation benefits from the abductive logic of reasoning.

The abductive approach stems from Peirce's insight that many great advances in science neither followed the pattern of deduction nor of induction (Niiniluoto 1999, S436). The abductive approach differs from deduction and induction in its inference. This difference can be explained in the following simplified way: The logical sequence of *deductive* research is from rule and case to result, whereas *inductive* logic follows the pattern from cases and result to rule. The *abductive* approach follows yet another path, namely from result and rule to cases (Niiniluoto 1999, S437).

The objective of **abductive reasoning** is not to invent rules but to search for explanations. Thus, abduction consists of the following inference steps: 1) studying facts and 2) devising a theory 3) to explain them (Peirce, in Niiniluoto 1999, S439). Abductive research starts with a real-life observation of a 'surprising fact' (=result). The research aims to invent cases by searching for suitable theories (=rules) that could, when applied to the cases, explain the result.

Abductive reasoning is found to be very suitable for case studies and action research due to the simultaneous data collection and theory development in both methods. In the field of urban planning, abductive reasoning has previously been applied by e.g. Nilsson (2001) in her study concerning planning for sustainable development. Abductive reasoning is thus applied in this research.

The **scientific reasoning in this thesis** proceeds according to the following logic presented in Fig. 2:

- The research starts with the observation and description of a practical problem ('the surprising fact'): *In the urban development process, innovative ideas often do not reach implementation* (1). This practical problem is elaborated through an empirically based process model M1 to discover the root causes for the problem (2).

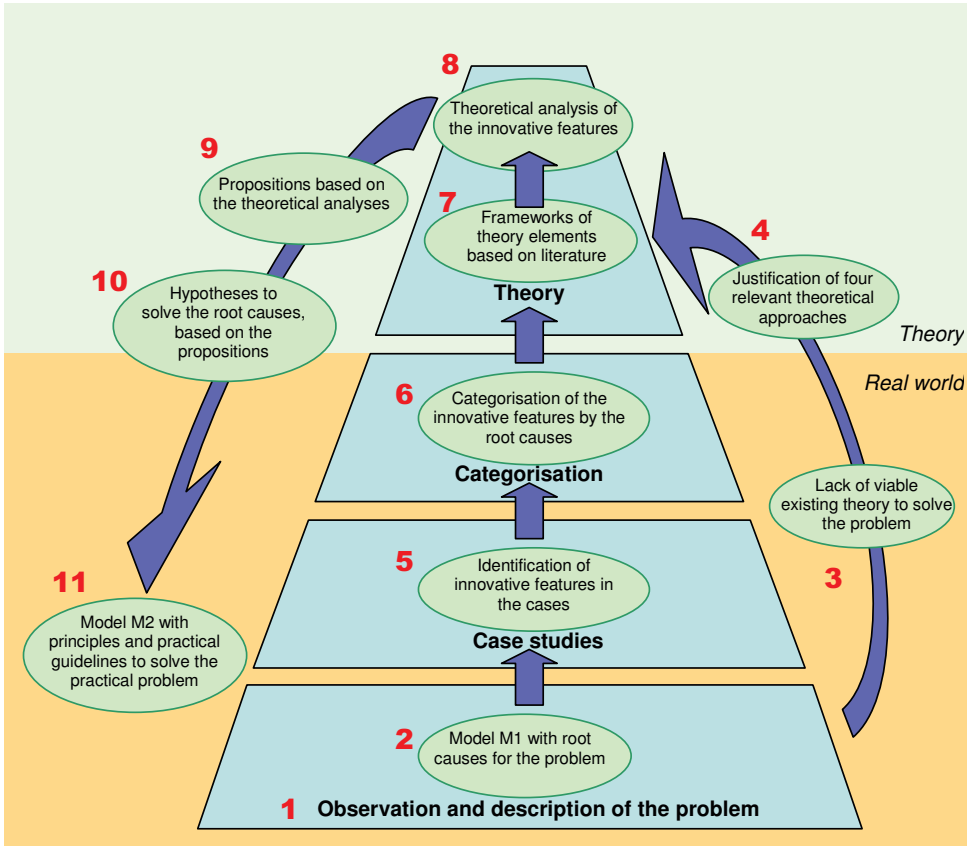

Figure 2. The reasoning process of the thesis

- The problem is linked to existing theories of urban planning, whereupon a lack of a viable existing theory to solve the problem is perceived (3). Four relevant theoretical approaches are justified as applicable to urban development, and four research questions are formulated that lead the literature review (4).

- In the case studies of selected urban development processes, innovative methods and practices are identified (5) and empirically categorised with reference to the root causes of the problem (6).

- The literature review of the four theoretical approaches is synthesised into corresponding four frameworks of theory elements (7).

- The innovative features in each case are linked to the theory elements of the four theoretical approaches . The explanatory power of each theory

element with regard to the innovative features is evaluated, and theoretically discussed and contextualised in urban development (8). The answers to the research questions are formulated as propositions for a coherent and innovative urban development process. Cross-case analyses of the propositions are conducted, and critical contingencies are discussed (9).

- The theoretical elements and the propositions are clustered into hypotheses pursuing to eliminate the root causes of the practical problem (9). Derived from the hypotheses, process design principles are synthesised for an innovative process of networked development for a new urban area (model M2), aimed to solve the practical problem. Practical guidelines for the application of the model M2 are presented, based on the data collected in the case studies (11).

- The model M2 is a normative, but hypothetical model. It has to be further tested in new urban development cases in practice, and researched for its effects and contingencies.

1.4.3 Choice of research strategy

Different epistemological positions are represented within the field of planning research, and this has led to incessant discussions regarding the use of quantitative versus qualitative research (e.g. Naess & Saglie 2000, 735). It is, however, evident that the research strategy should depend on the research problem addressed.

In this study, **qualitative research** has been chosen as the overall research strategy for several reasons. Qualitative research methods were developed in the social sciences to enable researchers to study social and cultural phenomena that are hard to study with quantitative methods and tools. Qualitative data is gathered and used to understand people, their motivations and actions, in their broader context. The planning process of an urban area may also be considered as such a phenomenon that has to be studied qualitatively in its context in order to understand it.

It is often claimed that the major disadvantage of qualitative research is that it does not allow for generalisation. However, Yin (1984) argues that it is possible to generalise from qualitative research to theory. Eisenhardt (1989) adds that

theory developed from case study research is likely to have important strengths like novelty, testability, and empirical validity, arising from the intimate linkage with empirical evidence.

Among the wide scope of qualitative methods, the **case study research** method has been applied in this study. The advantage of the case study approach is that it enables the capturing of the nature and complexity of the phenomenon studied, and also provides understanding of the dynamics within its setting (e.g. Yin 1984/2003). The case study method applied in this study is presented in greater detail in Chapter 5, together with the data collection and data analysis methods.

Case studies are often conducted as **action research**. Action research aims both at solving a practical problem in the case at hand, and at contributing to science. Consequently, an action researcher participates actively in a development effort, and simultaneously, collects data for scientific analysis and theory building (Gummesson, 2000). The distinctive feature of action research among other qualitative methods is that the researcher deliberately intervenes while at the same time studying the effect of that intervention (Myers 2009, 57).

According to Yin (1984/2003), a case study inquiry always relies on multiple sources of evidence, with data needing to converge in a triangulating fashion. As a positivist researcher, Yin recommends that the prior development of theoretical propositions or hypotheses should guide data collection and analysis. As a comment on this, Myers (2009, 75-76) points out that interpretive case study research does not necessarily require the use of propositions or hypotheses. This study follows the interpretative case study approach.

Assessment criteria for the research

The quality of scientific research has traditionally been evaluated through the criteria of *validity*, *reliability*, and *objectivity*. Validity in case study research can be evaluated internally and externally (e.g. Yin 1984/2003). Internal validity refers to the extent to which the study establishes how things really are and really work. External validity addresses the generalisability of the study, i.e. the extent to which the results can be applied in other contexts or with other subjects. Reliability refers to the repeatability of the study and objectivity responds to the demand for the neutrality of the researcher.

The inconvenience with the above criteria is that they rather reflect the requirements of quantitative research. Lincoln and Guba (1985, 300) have defined parallel criteria that better meet the requirements of qualitative research. These criteria for the trustworthiness of research are *credibility*, *transferability*, *dependability*, and *confirmability*. Lincoln and Guba (1985, 301-331) also suggest means by which these criteria can be operationalised. Credibility (*uskottavuus*) can be increased by e.g. prolonged engagement, persistent observation, and triangulation. Transferability (*siirrettävyys*) is reinforced by providing a detailed description of the data and of the context of the study. Dependability (*käyttövarmuus*) and confirmability (*vahvistettavuus*) measure the stability and objectivity of the study. They can be established by a consistent research procedure that follows an explicit logic of reasoning.

This research and its results are evaluated in Chapter 10, where also the validity, reliability and limitations of the research are assessed.

1.5 Structure of the thesis

This study is organised in three parts:

Part I has four chapters. The introductory Chapter 1 outlines the motivation for this research and the author's personal interest in the subject. It describes the research context that has enabled this study and provides definitions for key concepts, as well as explicating and justifying the methodological choices adopted. The objectives of the research are indicated and the scope of the study is defined, followed by a description of the research process.

Chapter 2 refers to the ongoing discussion in the field of urban planning and development. The context of this study, i.e. urban planning as a networked process, is presented in Chapter 3. The practical problem is described and elaborated through an empirically derived model M1 illustrating a conventional process of urban development. A research gap is identified, and the theoretical approaches are selected and justified. Chapter 4 introduces the research questions, presents a literature review of the four theoretical approaches, and develops theoretical frameworks for the empirical analyses of the case studies.

Part II deals with the case study. It starts with the presentation of the data collection and analysis methods applied in the case study, in Chapter 5.

Chapter 6 is composed of the descriptions of the four cases studied and the innovative features identified in the cases.

In **Part III**, a theoretical analysis of the case studies is conducted in Chapter 7 followed by answers to the research questions. In Chapter 8, based on the theoretical analysis, hypotheses are introduced to solve the practical problem. Theoretical and practical conclusions for the study are drawn in Chapter 9, and a new model M2 of an innovative process of networked development for a new urban area is presented, with new design principles and practical guidelines for the process. Chapter 10 evaluates the results and, finally, Chapter 11 provides suggestions for future research.

2 BACKGROUND: ONGOING PROFESSIONAL DISCUSSION IN THE FIELD OF URBAN DEVELOPMENT

The introductory chapter presented the outline of my research together with the personal experience and observations that have led my interest in this theme. This second chapter enlarges the background by providing an overview of certain recent discussion topics concerning urban planning. These topics are: *sustainable communities*, *competitiveness and collaboration*, and *new expertise*. These issues have been selected mainly because they are in various ways linked to my research interest, even if they do not constitute the focus of this study. All three topics illuminate the need for continuous development, related both to planned urban areas and to the process of planning, as well as to the roles of actors in this development process. Furthermore, all three discussions run in parallel with each other not only in Finland but also internationally. At the end of this chapter, the *management* perspective in urban planning is addressed.

My intention in this thesis is to demonstrate that thi professional discussion in the field of urban development would greatly benefit from the multidisciplinary dialogue with the management theories selected as theoretical approaches in this thesis. The overview of the discussion topics additionally contributes to the contextualisation of the research problem, thus complementing my practical experience in the field of urban development.

2.1 Sustainable communities

Sustainability is a good example of a new idea that has long been waiting to be integrated into urban planning. Sustainable development has been defined innumerable times since the launch of the term in the 1980s. Despite the deviating conceptions it is of paramount importance that this term is no longer used only by a restricted group of environmental scientists and experts but it is adopted across all sectors of society.

The relationship between urban planning and sustainability emerged in the discussion as a permanent topic in the early 1990s after the 'Earth Summit' conference at Rio de Janeiro. However, a first wave of ecological thinking could be said to have already filtered through into planning theory as early as the 1970s. Taylor (1988, 148) mentions that the systems view of planning (cf. McLoughlin 1969) was partly influenced by the idea of viewing the world as an ecosystem. The 1980s and 1990s manifested an increasing interest in theoretical work on planning for sustainable cities (Taylor 1988, 149).

Still, the main debate has over the years remained focused on the relationship between community structure and sustainability. Already in 1998, Lapintie pointed out that almost every suggested planning solution can be defended or rejected by using sustainability arguments, provided that all dimensions of sustainability - ecological, social and cultural, as defined in this context - are considered together. Since then, the need to dispel the definitional insecurity around the term sustainability has been strong, and several research projects are even today seeking an answer to this topical question: which is more sustainable - a centralised compact city or a decentralised network of communities?

Staffans et al. (2008) have tackled the problem by dividing the concept into seven dimensions and examining them in detail both from a theoretical, practical and a policy perspective. Their report introduces a broad interpretation of the term Sustainable Urban Structure, including the following dimensions: Land Use Planning, Communities as Parts of the Natural Environment, Mobility and Traffic, Urban Space and Architecture, Management of Urban Development, Participation and Interaction, and Well-being and Health.

But, even if we could agree upon the definition of a sustainable community and upon the characteristics of a sustainable building, the problem would still remain: How can this new goal be reached?

Hence, besides the need for an ever clearer goal, we quite evidently need changes in the process that should lead us to the desired result. The question linking this issue to the research problem presented in this thesis is: What should this new urban planning process leading to sustainable communities be like?

Potential answers to this question as well as the prevailing barriers to sustainable urban planning have been widely discussed in recent years. The discussion includes a variety of sub-topics and perspectives that have influenced my way of thinking, These perspectives are presented in the following subsections.

2.1.1 Sustainable development in current planning practice

Nilsson (2007) has studied the ways in which the idea of sustainable development is integrated into current spatial planning practice by Swedish local authorities. She argues that today's planning processes deal with large volumes of basic data where epistemological and technical knowledge must be co-ordinated with the actors' values and views of society, which makes spatial planning a very complex process for local planning authorities. Her case studies indicate that local authorities seek to limit this complexity by dividing the main topics, i.e. ecological, social and economic, into separate planning processes and planning documents, in order to manage the ideals of sustainability. Nilsson points out that this does not comply very well with the original aim of sustainable development, which is to integrate all dimensions of sustainability, but it makes it possible to avoid the difficult choices and decisions that integration would require.

Naess (2001) discusses in-depth the role of urban planning in striving towards sustainable development. He remarks that sustainable urban development will not emerge as a result of free market forces, because market processes are not able to counteract so-called externalities, such as the costs arising due to pollution. Market processes are also unable to ensure a socially acceptable distribution of burdens and benefits. This implies that both of the key elements of a sustainable development depend on planning and management by public authorities.

Another barrier to sustainable development, identified by Naess, is the incremental planning and decision-making model. According to the incremental model, alternatives for action are chosen in a way that they deviate only slightly from current practice. Alternatives that clearly differ from the status quo in this context quickly lose the opportunity to become visualised and discussed.

Naess also criticises the planning literature for the detachment of planning theories from the actual subject areas such as the substantive content of a

sustainable spatial planning. He agrees with the normative planning theories that planning has to be goal-oriented and the means included in the plan must be efficient. However, he considers the **rational-comprehensive planning** model to be too heavily based on technological optimism and the utilitarian tradition. Naess supposes that this model of planning has an inherent tendency towards 'majority tyranny' which can result in the sacrifice of a minority's vital interests in order to bring about marginal improvements for the majority. In addition, he reminds us that proponents of the goal-oriented rational planning model have high faith in technical-economic methods of analysis which, in practice, often neglect factors that cannot be quantified or expressed in monetary terms.

To sustainability through technical regulation or collaboration

Healey (1997, 30-31) describes European spatial planning as a battlefield the flow of which moves in two opposing directions, namely, technical regulation and collaboration. According to Healey, **technical regulation** here responds to an economic demand for less regulation and for more precision in the remaining regulatory requirements, as well as to environmentalist demands for more regulation. This approach implies greater certainty for developers and businesses about what regulatory requirements, regarding e.g. zoning or environmental pollution control would have to be met, and how.

Healey (1997, 31-32) points out that several inadequacies can be found in the technical regulation model. She mentions, among others, that this approach pays no attention to the overall qualities of places, in terms of quality of life, of the business environment and the local biosphere. In addition, it is not clear that the knowledge and technique of experts is sufficient to define the criteria required by this regulation. She calls attention to the practical knowledge of people in households and firms, being increasingly recognised as relevant to articulating and probing policy principles. Her conclusion is that all these difficulties are pushing the supporters of technical regulation in the direction of collaborative approach. According to Healey, it is the collaborative approach that offers a way of interlinking economic, socio-cultural and environmental issues of collective concern.

Healey's doubts in respect of technical regulation should be seen, at least partly, in the light of the British tradition of the planner profession. In many other European countries, including Finland, planners are mainly architects by

education, which provides them with good capabilities to, even as a part of the technical administration, "pay attention to the overall qualities of places".

The relationship between collaboration and interaction, and substantial issues, such as producing better places to live in, remains quite controversial because we still lack in-depth research on this topic. Nevertheless, the literature on **communicative planning** is characterised by a strong belief in interaction and dialogue which enhance consensus-building and reduce conflict (e.g. Healey 1997). The various strands of the collaborative approach are also united through recognition of the legitimate interest of a wide range of stakeholders to be involved in the plan-making and by a deliberate attempt to involve all key actors in the process.

Communicative planning can be analysed from various perspectives in relation to the challenges of sustainable urban development. Forester (1989, 5) argues that planners have to be effective communicators and negotiators, in order to 'get things done'. He also stresses that planners should be active in protecting the interests of all groups, including less powerful groups (Forester 1989, 28). Considered in this way, communicative planning could certainly be a suitable model to promote sustainable urban development.

Naess (2001) reminds us however that participatory planning processes run the risk of bringing more power to the powerful if planners do not make a serious effort to empower the weak. This may imply that planners should try e.g. to unveil the vested interests in unsustainable ways of developing land use and mobility which can often prove to be an inconvenient task.

In conclusion, Naess argues that planning for a sustainable urban development should be oriented towards long-term goals and should utilise knowledge about the consequences of different solutions, seen in the light of criteria for sustainable development. But rather than aiming at consensus including all stakeholder groups, as advocated by proponents of the **collaborative planning** model (Innes 1996; Healey 1997), Naess suggests that planning for sustainability should be based on alliance-building among those population groups who can support the basic values of a sustainable development. Open and well-informed planning processes might, according to Naess, contribute to the emergence of common strategies for ecological sustainability and social justice. If this process is supported by a sufficient number of people to make a

difference, Naess assumes that it would be able to withstand the pressure from those actors who harvest profit from the present non-sustainable development.

Having introduced the benefits of the collaborative approach to planning, Healey (1997, 32-33) admits that many of these advantages could also be achieved through narrower alliances of key players, typically in the public and business sectors. But she stresses that in situations where environmental interests are well articulated and where local citizens expect an active participation the broadly based involvement of stakeholders should be encouraged in order to achieve stability and a robust policy consensus.

Nevertheless, trust in the communicative and collaborative planning model, particularly in its ability to deal with environmental issues, has been questioned. Naess (2001), for example, doubts whether an ecologically defensible and globally responsible land use or resource consumption will emerge spontaneously from the grassroots among the population in countries belonging to the world's most privileged nations. He argues that sustainable development is to a large extent a matter of distributing consumption levels from present-day inhabitants in the most affluent countries to people in future generations and in poorer countries. Naess reasons that a higher level coordination is necessary at the regional, national and international scales in order to resolve the environmental problems faced in local communities. This is certainly true but at the same time, brought into practice, it is an arduous task. The difficulties encountered in the attempts to coordinate the handling of environmental challenges at the highest level have been clearly illustrated in the course of the international negotiations on climate change.[7]

The technical regulation approach, on the other hand, implies a shift from the resolution of conflicts through political processes or negotiation to legal

[7] The most recent proof is offered by the United Nations Climate Change Conference in Copenhagen in December 2009. Even if the Kyoto Protocol, an international and legally binding agreement to reduce greenhouse gas emissions worldwide, entered into force already in 2005, the outcome of the Copenhagen Conference could only be referred to as an "essential beginning" by UN Secretary General Ban Ki-moon. When approved, the Copenhagen Accord would oblige richer nations to contribute to a multi-billion dollar fund to help poorer countries cope with global warming. (unfccc.int, United Nations Framework Convention on Climate Change, 21.12.2009)

Under the accord, developed countries will finance a 10 billion-dollars-a-year, three-year programme starting in 2010 to fund developing nations' projects to deal with drought, floods and other impacts of climate change, and to develop clean energy. It also sets a goal of mobilising 100 billion dollars a year by 2020 for the same purposes. (en.cop15.dk, United Nations Climate Change Conference in Copenhagen, 22.12.2009)

resolution in the courts. This should result in lower transaction costs spent in the regulatory process (Healey 1997, 31). Healey claims, however, that the transaction costs in a collaborative and interactive plan-making process may be saved by fewer conflicts over specific plans and projects. It is just the continuous rise in legal costs that is "pushing even reluctant neoliberals to the collaborative approach" (Healey 1997, 32). This question of transaction costs is still today continuously and widely raised in discussions concerning the choice of the best planning approach but we are still waiting for reliable results to solve this problem.

Sustainability in planning argumentation

The ever increasing use of concepts like sustainable communities and ecological planning has also drawn a critique from the argumentative point of view. Lapintie (1996) illustrates, based on the analysis of an architectural competition for an ecological housing area, that environmentalism has produced new discursive means of justification but not necessarily new types of urban planning.

In his argumentative critique, Lapintie reveals several inconsistencies in the programme of the competition: the competitors were not encouraged to consider the central problems of urban ecology that are relevant on the site, such as urban structure in general, and its relation to natural areas, car-dependence and the resulting problems of everyday life etc. Instead, the competitors were encouraged to use several 'cosmetic' ecological solutions though the respective heavy technological solutions were already available on the site (e.g. local sewage treatment versus a new highly equipped sewage treatment plant in the vicinity, and alternative energy sources versus the fact that the whole area will be connected to central district heating.)

One explanation for these inconsistencies may be, according to Lapintie, that there is simply a conflict between the intentions of the planners and their ability to implement ecological solutions in plans. Another possibility is that ecology is only used as a fashionable green 'theme' to increase the marketing value of the future area. A third interpretation given by Lapintie is that the planning professionals attempt to define the concept of ecology in a way favourable for themselves, namely, as a defensive strategy to counter the ecological critique.

Lapintie (1996) also evaluates the arguments used by the jury of the competition in the descriptions of the winning entries. His analysis demonstrates that the urban structures suggested by the three winners were not innovative nor did they arise from ecological considerations, in spite of the contrary opinions reported by the jury. In fact, the winning solutions were in all relevant respects the most traditional. As the goal of the whole project was to develop *alternative* planning strategies that could better answer the ecological challenge Lapintie saw the result as somewhat disconcerting. The jury, instead, declared the competition to be a success. This gives reason for Lapintie to assume that the argumentation points to the existence of a strong legitimating function in the competition.

Even though Lapintie drew his conclusions more than ten years ago they still seem highly relevant. He presented serious doubts about the ability of mainstream planning to answer the ecological challenge unless a profound reorientation in both planning theory and practice was to take place. This kind of reorientation is, at last, starting to gain momentum with increasing awareness of the environmental threats faced. But even today, the profession seems to be just as unprepared to define and concretise environmental objectives and transform them into planning innovations as it was at the time of Lapintie's original article.

2.1.2 The conflict view

Campbell (1996) has explored the contradictions of sustainable development in urban planning in an interesting way. He presents his view in the form of a "planner's triangle" and then elaborates on the implications of this model. The triangular shape emphasises, according to Campbell, the point that a one-dimensional "man versus environment" spectrum misses the social conflicts in contemporary environmental disputes.

In his triangle of conflicting goals for planning, Campbell names the three corners in accordance with the divergent interests of planning: the Economy, the Environment, and Equity. Between these corners, he defines three associated conflicts: the *property conflict*, the *resource conflict*, and the *development conflict*. In an ideal world, the planner would strive to achieve a balance between all three goals. In practice, planners have to define themselves, often implicitly, where they stand within the triangle. Campbell also illustrates the gap between the call for integrative, sustainable development planning (the

centre of the triangle) and the current fragmentation of professional practice (the edges).

The three types of priorities lead to three perspectives on the city presented in Table 2. The typification can still be considered relevant, even though the definitions by the "environmental planner" in the table reflect a somewhat outdated approach to environmental thinking.

Table 2. Three perspectives on the city (modified from Campbell 1996)

	Concept of the City	Concept of Competition	Concept of Space
The economic development planner	The city as a location where production, consumption, distribution and innovation take place.	The city is in competition with other cities for markets and for new industries.	Space is the economic space of highways, market areas, and commuter zones.
The environmental planner	The city as a consumer of resources and a producer of wastes.	The city is in competition with nature for scarce resources and land, and always poses a threat to nature	Space is the ecological space of greenways, river basins, ecological niches.
The equity planner	The city as a location of conflict over the distribution of resources, of services, and of opportunities.	The competition is within the city itself, among different social groups.	Space is the social space of communities, neighbourhood organisations, labour unions: the space of access and segregation.

The traditional paths towards sustainable development would, in Campbell's words, be fruitless: "States will require communities to prepare Sustainable Development Master Plans, which will prove to be glib wish lists of goals and suspiciously vague implementation steps. To achieve consensus for the plan, language will be reduced to the lowest common denominator, and the pleasing plans will gather dust." (Campbell 1996, 446)

As an alternative, Campbell suggests an incremental, iterative approach. He would let holistic sustainable development be a long-range goal for planners who certainly do need a vision of a more sustainable urban society. The task for planners in their striving towards this vision is to adopt a dual, interactive

strategy: (1) to manage and resolve conflict, and (2) to promote creative technical, architectural, and institutional solutions.

Thus, Campbell encumbers planners with a double burden: they should both negotiate the procedures of the conflict and promote a substantive vision of sustainable development. Campbell lists four separate procedural paths to sustainable development: Conflict negotiation, Redefining the language of the conflict, Political pluralism, and the Market mechanism.

- **Conflict negotiation.** Referring to many conflict theorists, Campbell points out that negotiated conflict resolution leads to a better understanding of one's opponent's interests and values, and even of one's own interests. The very process of negotiation can be a powerful tool to mobilise community involvement around social and environmental issues. Campbell admits that conflict resolution is no panacea. He reminds us, however, that numerous cases have already shown that through skilfully led discussions, the parties can separate their initial, clashing demands from their underlying interests, which may be more compatible, and thus solve their dispute.

- **Redefining the language of the conflict.** Campbell is worried about what he calls 'linguistic differences', which reflect separate value hierarchies, and considers them to be a major obstacle to common solutions. It is the planner who needs to act as a translator assisting each group to understand the priorities and reasoning of the others. Campbell believes that a level may generally be found where economic, ecological and social thoughts may be brought together. Yet translation also has its limits. This is the case when linguistic differences represent real and intractable differences in values. The interests of the conflicting parties may fundamentally clash no matter how they are expressed.

- **Political pluralism.** When the general political process is chosen as a strategy for deciding over a conflict it takes the process largely out of the hands of planners. Campbell thus reminds us that a binary vote has, however, certain restrictions in the way it is able to handle complex issues, such as specific land-use conflicts, or to develop creative solutions to them.

- **Market mechanism**. The market approach can decide conflicts along the economic-environmental axis but often neglects equity. However, Campbell has noticed that the market now seems to be dealing better with environmental externalities than it once did. Some attempts to internalise externalities have already been met, and this has, to some extent, also raised the issues of social justice and equity.

Similarly, Campbell presents several substantive strategies to sustainability: *land use design*, *bioregionalism*, and *technological improvement*. The role of the

planner in each of these substantive strategies is to design outcomes without necessarily emphasising the means of achieving them.

As a result, Campbell suggests that combining the approaches described above can overcome their individual shortcomings. Substantive vision combined with negotiating skills and other resolution strategies may allow planners to create win-win solutions, rather than negotiating in a zero-sum game.

To implement this strategy, Campbell (1996, 447-448) warmly recommends practical field work for the planners: "Planners will find their vision of a sustainable city developed best at the conclusion of contested negotiations over land use, transportation, housing, and economic development policies, not as the premise for beginning the effort." To make it even clearer, he declares: "To first spend years in the hermetic isolation of universities and environmental groups, perfecting the theory of sustainable development, before testing it in community development is backwards."

In addition to a call for combining field work and desk work, the interpretation taken here of the above statements is as an encouragement for planning researchers to undertake action research, as described in Section1.4.2.

2.1.3 Managing the transition to sustainability

Transitions are transformation processes in which society or a complex subsystem of society changes in a fundamental way over an extended period (Kemp & Rotmans 2004, 138). Transitions are particularly interesting from the sustainability point of view because they offer the promise of developing new systems that are inherently more environmentally benign, in addition to inducing improvements in existing systems.

Kemp and Rotmans have raised the question "Can transitions be managed?" The easy answer would be that transitions cannot be managed because they are a result of the interplay between many dissimilar processes, several of which are beyond the scope of management, such as cultural change (Kemp & Rotmans 2004, 141). Nevertheless, Kemp and Rotmans claimed that it is possible to influence the direction and speed of a transition through various types of steering. In 2001, they developed a model for the Dutch government for managing the transition process to sustainable transport in a gradual, non-

disruptive way[8]. Transition management, as they define it, is a new policy perspective that aims to develop structural, long-term solutions that offer both user benefits and sustainability benefits.

The literature on transition management has sought to deal with the role of experiments in the transition towards sustainability. This perspective emphasises the interaction between technical and social change. It describes transition as an interactive process of three levels (Fig. 3): ***landscape developments, socio-technical regimes, and technological niches*** (e.g. Geels 2004, Kemp & Rotmans 2004, Elzen *et al*. 2002, Hoogma *et al*. 2002, in Kivisaari, Lovio & Väyrynen 2004).

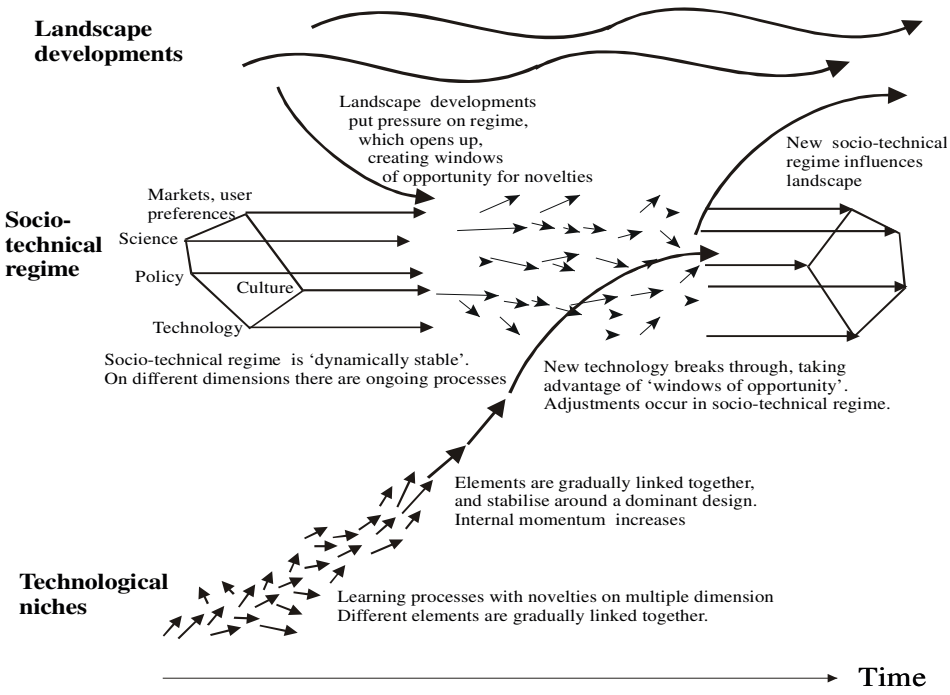

Figure 3. The three levels of socio-technical change (Geels 2004)

In this literature, experiments are regarded as necessary components of broader transition processes as they create pathways to a new socio-technical regime. The landscape level, in this context, is a metaphor for the overall setting in

[8] The model was developed and used for the 4th National Environmental Policy Plan of the Netherlands (NEPP4) in 2001.

which processes of change occur. It consists of e.g. the social values, policy beliefs and worldviews, as well as economic conditions such as trade patterns and incomes (Kemp & Rotmans 2004, 141).

Regimes tend to generate incremental innovations, while radically new innovations are generated in *niches* which are protected from normal market selection. Geels (2004) explains that niches provide locations for experiments and learning processes, and they also provide space to build the social networks which support innovation. Radically new innovations often need protection because it takes time to improve e.g. their cost efficiency, technical performance or usability.

According to Geels, innovations can break from the niche level when the external circumstances are favourable to them. Referring to the levels in Fig. 3, Geels points out that the ongoing processes at the regime and landscape level may create a '*window of opportunity*' for a radical innovation. The windows are opened by tensions in the socio-technical regime: landscape level changes may lead to pressures on the regime, like climate change putting pressure on the energy and transport sectors. Pressure on an existing regime may also be generated by technical problems, negative externalities or changing user preferences.

Kivisaari et al. (2004) have assessed the role of an experiment in energy saving in Finland by considering the development, on all three levels, of Geels's model. The main developments took place on the technological niche level. The successful experiment encouraged political and other actors to make incremental changes to the regulatory framework in the regime level. Simultaneously, landscape level changes exerted pressure in the same direction. This study appears then to support the transition management theory where the interplay between landscape level pressure and successful experiments should push forward regime level changes leading towards the desired goal.

In a complex system like urban planning it is evident that achieving any kind of change requires decisions and actions from the parties involved. When sustainability is perceived as a landscape level phenomenon, the three-level model of socio-technical change by Geels may offer a useful framework allowing us to follow the dynamics of a large system and to understand the roles of key actors and their interaction. This model could also be used as a tool in the description of prerequisites for change in the urban planning system.

2.1.4 Growing research interest in sustainable communities

As a signal of topicality, the Finnish Funding Agency for Technology and Innovation Tekes has recently launched a technology programme entitled "Sustainable Community". During the period 2007-2012 Tekes will invest 100 million euros into the research and development of sustainable and energy efficient areas and buildings. The reason for their interest in sustainable communities is the fact that the real estate and construction cluster plays a key role in promoting the objectives of sustainable development due to its heavy environmental impacts and great significance to the national economy (www.tekes.fi, 1.2.2009).

It is noteworthy that the main actors in the real estate and construction cluster have started to use the types of knowledge which were once the preserve of researchers in the field of planning: "*Where and how communities are built affects their energy consumption and environmental loading. Land use planning thus has a major effect on the need for mobility and on the environmental impacts of traffic. In turn, the standard of construction has a major impact on the use of energy during both the construction process and, indeed, over the whole lifetime of a building*" (The technology programme Sustainable Community 2007-2012 homepage, www.tekes.fi). This awakening is certainly one of the prerequisites for sustainable planning.

The discussion on sustainability is today a global one and it has reached all spheres of society. As an example of the new actors in this field, the World Business Council for Sustainable Development (WBCSD)[9] has been active in invoking sustainability initiatives among its members. Their recent report "Energy Efficiency in Buildings: Transforming the Market" (2009, 3) states the following: "*We recognize that building energy is part of a complex system that includes transport and urban planning and has major social consequences as well as climate change impacts.*"

[9] The World Business Council for Sustainable Development (WBCSD) brings together some 200 international companies in a shared commitment to sustainable development through economic growth, ecological balance and social progress. Its mission is to provide business leadership as a catalyst for change toward sustainable development, and to support the business license to operate, innovate and grow in a world increasingly shaped by sustainable development issues (www.wbcsd.org, 11.6.2009).

The central message of the report is that energy use in buildings can be cut by 60 percent by 2050[10], which is essential to meeting global climate change targets – but this will require immediate action to transform the building sector. The report is based on the WBCSD's four-year, $15 million research project Efficiency in Buildings, which is, according to the authors, the most rigorous study ever conducted on the subject (www.wbcsd.org, 11.6.2009).

2.2 Competitiveness and collaboration

2.2.1 Competitive and creative cities

The goal of planning and development in cities has long been to increase citizens' well-being by building better places for living. Some studies of urban policy suggest however that the logic of development is slowly being changed. Mäenpää *et al.* (2000, 189-190) argue that the quality of the city is no longer assessed by the well-being of its residents but by the positive image and the attractiveness of the city. This implies that a city is developed and marketed as 'a better place for living' primarily in order to be successful in a broader global competition sense. Looking through the homepages of cities in all continents tends, in fact, to reflect this view: Cities seem to have actively embraced this competition which, to many of them, nevertheless remains a rather superficial game designed to attract top taxpayers.

Urban strategy approaches where competitiveness is one of the main goals for urban development have attracted many supporters, also from beyond the traditional network of actors in urban planning. The term 'competitive city' is, however, far from being unambiguous. There have been many different attempts to define competitiveness and the factors underpinning competitive success at the level of cities or city-regions. Boddy & Parkinson (2004) have identified the following characteristics associated with competitive success: economic diversity, skills and human capital, quality of life and environment, innovation, and connectivity.

[10] Ever-increasing targets for the cutting of energy use and carbon dioxide emissions are being presented by organisations and governments. In line with the EU, the Finnish government aims to reduce its carbon emissions by at least 80 percent by 2050 from 1990 levels, in order to minimise the risks caused by climate change. This would require a reduction of building energy use by at least 60 percent by 2050 (Government report on long-term climate and energy policy, 15.10.2009).

From an urban planning perspective, at the local level, the main interest is first directed to those factors that can be summed up in terms of quality of life and environment. These would certainly include the combination of the distinctiveness of core urban areas, architectural and housing quality, the diversity and the nature of the built environment, as well as cultural facilities, not forgetting access to the natural environment.

In recent years one of the most popular models for predicting urban innovation and economic success for cities has been Florida's (2002) "creative class" model. According to this model, the most competitive cities, the "creative centres", are those which can attract or retain the representatives of what Florida calls the creative class. These talented people include above all professional, managerial and technical workers of the new knowledge economy for whom lifestyle and environment-related issues are increasingly important. [11]

Florida's ideas have been adopted across exceptionally large spheres in society. His conclusions have recently however begun to be questioned by a range of scholars. For example Hoyman & Faricy (2009) have empirically tested the creative class theory as compared to the human and social capital models of economic growth. Their results demonstrate that the creative class fails to explain any elements related to growth, whereas human capital is a good predictor of all economic growth and development measures. The social capital approach also outperforms the creative class model. Based on these findings, the authors argue that increased educational investment may be a winning strategy for cities in a knowledge-based economy.

The Creative City by Landry (2000) describes another perspective to creativity. He introduces a new method of strategic urban planning and examines how people can think, plan and act creatively in the city. His central message is that cities are changing dramatically in ways that amount to a paradigm shift. If we keep trying to solve urban problems with the old intellectual apparatus and mindset we will come up against the same obstacles.

Landry is convinced that nearly every place has its creative potential, but in many cities it is blocked. He also underlines that creativity is not only for artists

[11] The creative class has two strata: the super creative class (computer scientists, academics, architects and artists) and creative professionals (managers, accountants, lawyers, and health care professionals), both of which are related to the process of creating meaningful new forms of goods and services (Florida 2002, 68).

and innovations are not only technological - there is social and political creativity and innovation, too. His 'Toolkit for urban innovators' is intended to provide a totally new way of addressing urban planning.

For urban planners, this seems to point to the importance of measures which secure improvements in the overall quality of the urban environment. Boddy & Parkinson (2004, 424) remark, however, that success in terms of physical regeneration, cultural development, and international profile does not automatically lead to competitive success. They argue that so called 'urban renaissance' should not be confused with urban competitiveness.

Levels of innovation have been seen as key drivers of competitiveness and economic growth. It is widely argued that combining a variety of factors can create a virtuous circle of innovation spatially concentrated in a small number of internationally competitive city-regions. These factors include, according to Simmie (2004), the concentration of high-quality labour-pools in particular urban areas, business services and high quality transport and communications infrastructure. He argues, however, that the crucial asset is access to cutting-edge knowledge and to international suppliers, customers and collaborators.

These findings emphasise the importance of metropolitan cities but suggest, at the same time, for smaller cities the need to support networking and supply chains between their own urban areas and the metropolitan core. A successful combination would include a policy that seeks to promote contacts between key players in innovative international networks, reinforced by policy measures which support a high-quality urban environment, housing, cultural and leisure facilities (Boddy & Parkinson 2004). In practice, this implies that such issues as the availability of land and property in the city as well as the effectiveness of its planning system should be seen as factors that clearly sustain competitive success.

Cooke (2004) suggests that competitive success between companies is, though paradoxically, driven by collaborative behaviour, by networking and cohesion, at least within the most innovative SME enterprises. He underlines the importance of recognising the centrality of non-market processes of collaboration and interaction and potential means of fostering such linkages.

In their studies on British cities and their competitiveness, Boddy & Parkinson have noticed that there is a policy vacuum in relation to the traditional suburbs.

Instead of suburbs, the local authorities have more pressing concerns including both inner city areas and outer social housing estates. The residents in the traditional suburbs are ageing, and there is increasing pressure from developers for redevelopment on a piecemeal basis. Very often, this coincides with a lack of community involvement or of a coherent community of interest. The writers argue that there is a significant gap in the city strategies in respect of these suburbs and their future role in the overall structure of the city and its urban assets.

The pursuit of quality in the urban environment can by attained by using diverging strategies. In the comparative study of the planning practices in Finland and in the Netherlands, Soudunsaari (2007a) analyses the characteristics of the planning processes, aimed at promoting quality of the built environment in these two countries. The main differences observed in the study relate to the emphasis laid on the legal planning process. The Finnish planning relies heavily on the official land use planning procedure resulting in the local detailed plan, while in the Netherlands the focus is on the continuous process of planning, implementation, and evaluation of the result (Soudunsaari 2007a). Both planning systems, however, share the view of the significance of quality as a competitive factor in the urban development.

Competitiveness cannot be achieved without strategic thinking at both the city and regional level. The implementation of the strategies would require the involvement of all actors particularly at the local level. This is not however possible without a shared vision and collaborative efforts in the planning process.

2.2.2 Collaboration in planning

The term collaborative planning has a twofold meaning in the current literature:

1. Collaborative planning is often used in the same sense as **communicative planning** (e.g. Healey 1997) *(= yhteistoiminnallinen suunnittelu)* where special emphasis is placed on the interaction, collaboration and networking of all stakeholders. The term usually also covers **participatory planning** *(= osallistuva /osallistava suunnittelu)*

2. Collaborative planning may also mean a planning process where municipal authorities prepare the local detailed plan **in partnership with developers**, as opposed to planning conducted by the public sector alone (Nykänen et al. 2007) *(= kumppanuuskaavoitus)*. It does not necessarily then include the characteristics of participatory planning.

With regard to the first meaning of collaborative planning, Lapintie (2002) introduces a rather sceptical view of the benefits of the drive for an ever increasing level of citizen participation. The main problem is that the resident and the planner have no means to construct a shared reality. Their perspectives and their commitment to the planned area are intrinsically so different that the prerequisites for a successful interaction in the planning process do not exist. As a possible way out of this dead end Lapintie proposes a shift to a new level of action in respect of the encounters of the stakeholders. It nevertheless remains unclear even here who should be responsible for setting up this new sphere. Lapintie is primarily issuing the challenge to the residents.

It seems moreover that the residents have accepted this challenge at least with the support of the rapid development in information and communication technology (ICT). As part of the broader concept of e-governance, the so called e-participation, or e/m-participation[12], has become more and more popular. Lahti et al. (2006) have reported the experiences of the IntelCities Programme that brought together 18 European cities and 20 ICT companies. Their case studies confirm that residents and other users are prepared and willing to participate and create common content or services, particularly if they are able to see the benefits of their activity. Despite the large variety of possibilities provided by e/m-participation, the concluding message of the report is clear: Citizen participation and contribution through various channels should not be increased just by adding technology but rather at the same time by transforming existing municipal planning and decision making practices.

This transformation requires strategic decisions be taken by the cities and concrete resources be given to practitioners, for the purposes of training and working with participating citizens (Lahti et al. 2006, 63). This observation is echoed by Nummi (2007) who emphasises that the development of the tools and methods for participation have also to entail changes in the participation

[12] e/m-participation = electronic and mobile participation

process, which should thus become more user centred than in the current practice.

An ongoing EU project in this field is CADDIES (Creating Attractive, Developed and Dynamic Societies together with Inhabitants) 2009-2011. The overall aim of the project is to develop and test methods which will empower and enable different residential groups to take charge of the development of their own environment. The Finnish partner here is Helka, the Union of City District Associations in Helsinki.

Lapintie (2002) is not however alone in his scepticism with regard to resident participation. For instance, Brand and Gaffikin (2007) espouse the concept of collaborative planning to the reality of planning in their article with the disclosing title "Collaborative Planning in an Uncollaborative World". They have investigated cases in which special care has been invested in participatory deliberation processes in Northern Ireland. Their analysis reveals aspects where collaborative planning as a conceptual tool for practitioners needs to be renovated. As such, Brand and Gaffikin remind us that even maximally inclusive planning processes face problems in this uncollaborative world, mainly due to obvious inconsistencies in a political framework that struggles to accommodate both global competitiveness and local democratic collaboration. One of the cities that has gained success in both these fields is obviously the city of Vancouver in British Columbia, Canada[13]. Collaboration in planning in Vancouver includes extensive public consultations in the form of e.g. Public Open Houses hosted by the City of Vancouver (vancouver.ca/pnepark/public.htm, 12.1.2010).

The question can also be raised in respect of the further utilisation of all the information received through the participation. It often seems that the citizens' ideas and opinions just disappear somewhere without any visible effect on the planning. Bäcklund (2007) has demonstrated that the information and

[13] The Economist Intelligence Unit EIU is a provider of country, industry and management analysis. Every year it prepares a ranking list of the world's most liveable cities, which can be seen as an indicator of the global competitiveness of cities. Vancouver is a consistent high achiever in this list, as well as in other polls of the same kind. In February 2010, the EIU has again declared the city of Vancouver to be the number one urban area in the world. Helsinki, Finland is number six in the same ranking. In this survey, each city is assigned a rating of relative comfort for over 30 qualitative and quantitative factors across five broad categories: stability, healthcare, culture and environment, education, and infrastructure (www.eiu.com, 14.2.2010).

knowledge acquired through the participation processes with local residents is, to a large extent, buried in the 'normal practice of municipal administration' which has proved to be incapable of utilising this kind of knowledge.

Collaborative planning (in the second meaning, i.e. the city and the developers in partnership) is starting to gain a foothold in Finland. A survey by Laine et al. (2005) indicates that the majority of Finnish municipalities are interested in collaborative planning projects and many of them already have some experience in the field. Collaboration between the municipality and the developer or the landowner is mainly applied in the preparation of plans and in the construction of technical infrastructure. Some projects also include the construction of buildings. According to Laine et al. (2005), collaborative planning projects continuing all the way through to the maintenance stage are still very few in number.

In order to develop the concept of collaborative planning, Huovila et al. (2007) have presented a performance-based collaborative planning procedure in neighbourhood development. The authors point out that despite the many positive aspects of the existing Finnish planning system, it can however be criticised for its lack of space for innovation. Their approach provides performance classification tools to define quality objectives for neighbourhood development while still preserving space for innovation. Based on their case study, Huovila et al. remark that the early stages of collaborative planning need to have a strong political backup especially in small municipalities.

2.3 New expertise

The architect-planner has traditionally had multiple intertwining roles in the planning process. This has become explicit in e.g. Nilsson's study (2001) concerning planners' experiences in using comprehensive planning as an arena for the more sustainable development of society. Her findings indicate that local authority planners are often engaged as experts, co-ordinators and facilitators, all at the same time, in the same process of planning. According to Nilsson (2001, 151), problems occur particularly in how other actors trust the planners who constantly change from role to role. This 'jack-of-all-trades' is prone to meet trouble in combining her/his numerous roles while the lack of trust may have many unwelcome consequences during the planning process.

As Staffans (2004) and Puustinen (2006) among many others have pointed out the communicative turn in planning has precipitated a pressure for change both in the ways planning is conducted and in the expertise and knowledge required in this process. The need for new expertise can be interpreted in two different ways: 1) New skills and new roles are required from architect-planners, and 2) New experts enter the stage, including citizens themselves. These perspective,s elaborated further below, should not in any way be contrary but, instead, complementary.

2.3.1 New skills and new roles for architect-planners

In addition to drawing up plans the common role of the architect-planner is to arrange the procedures for making decisions. When conflicts occur, however, the architect must help shape that structure (setting of a mediation forum, creating a common language etc.,), which, done successfully, gives the process credibility. The primary issue arising from this is whether the architect should play the role of neutral moderator, or that of an advocate representing a single party. This has been a long-standing debate in the field of planning. In what follows some of the new skills and roles required from an architect in various situations are presented to manifest their diversity.

Mediator. The role of neutral mediator is introduced by Harry Edelman (2009, 46). He argues that current project development and urban planning practices have failed to utilise some of the value that could be distributed to the parties concerned, including municipalities and real estate developers. Edelman also calls attention to the contradiction between the many different municipal interests represented by the officials in the planning and development process and the desire for the neutrality of the process that should be the responsibility of the same officials. As a solution, he offers a model of cooperation based on integrative negotiation in which town planning and project development will be assisted by a third party, i.e. a neutral mediator who has no interests in the process. More precisely, he suggests that an architect who has been trained in mediation could help the parties both in project development and town planning as well as in finding solutions that satisfy the interests of the various parties.

Conflict manager. Peltonen et al. (2006) have studied land use conflicts and the possibilities for their resolution in the Finnish planning system. The number of conflicts has steadily increased and, consequently, planners have

been obliged to develop personal procedures for conflict situations without any systematic methods. Even so, land use planners consider their own role as central in resolving and managing conflicts. Additional training in the skills of conflict resolution is, however, considered necessary by the majority of planners.

It is noteworthy that conflicts are not always caused by deviating substantive interests or principles. One reason for conflict escalation may lie in frustration when the expectations raised in the course of the participative planning are not ultimately met. This kind of situation certainly tests both the communicative skills of planners and the participatory practices applied.

Urban manager. Mäkynen (2009, 50) specifies two types of design roles for the urban design manager in the Urban Design Management (UDM) approach: (1) the development of an urban design scheme that delivers value, and (2) the design and management of the development process that creates that value. He underlines that the urban design manager is also responsible for engaging the actors in an interactive way of working.

Communicator. Along with the communicative turn in planning, citizens' participation is being emphasised. For a planner who has seen himself as a value-free expert leading a smooth process, these new actor groups may cause embarrassment. There is however no return here for the architect-planner to the traditional expert role for the architect-planner. On the contrary, this situation necessitates new attitudes towards other actors, new skills for interaction and new openness.

If planners cannot respond to this challenge they might be replaced. Lapintie (1998) presented ecological planning as such a communicative challenge necessitating new kinds of expertise from the planner. The traditional architect-planner is required to construct a new concept of the environment as well as to acquire new communicative skills. If they cannot do this they risk failure in the task of reidentifying their professional role, something which would open the path to new professions in urban planning.

The planner's task in communication is manifold. Planners have a responsibility not only to communicate adequate information to all participants, but also to correct and counteract any inaccurate communications which occur in the context of the planning process. In particular here, the

challenge remains for planners to counterbalance the ability of the most influential players in the game dominating and manipulating the other participants (Naess 2001). Without the planner's efforts to contain the strong and empower the weak participatory planning processes run the risk of simply giving more power to the powerful.

Reflective planner. Puustinen (2006) has developed, with reference to the reflective practitioner introduced by Schön (1991), a model of the reflective planner as one possible professional role-model to accord with the communicative planning paradigm. The reflective planner is capable of reflection in respect of his/her own actions as a professional in planning but is also eager to have reflective discussions with other stakeholders. This entails that a reflective planner has to be an expert both in substantial matters and in communicative skills.

2.3.2 New experts

Citizens. Provision for citizen participation in planning is now included in the legislation and can be regarded as being well established in the planning procedure. Traditionally, planning professionals have considered citizen inputs as opinions and beliefs. A new approach however terms citizens as 'experts of local knowledge'. In this way, the experiential 'soft' knowledge of citizens is raised to a comparable level to that of the 'hard' technical knowledge of professional expertise (Rantanen & Kahila 2009).

Residents' local knowledge of their living environment is often invisible, qualitative and vague, and thus difficult to collect. Based on previous studies by Kyttä and Kahila (2006), Rantanen and Kahila have developed further the so called softGIS [14] approach in order to embed local knowledge into urban planning processes in such a way that a more comprehensive knowledge base for decision-making can be attained.

Organisations. In addition to individual citizens, organisations can also be considered as new experts in planning. Wallin & Ristisuo (2005) have examined non-governmental organisations' (NGO) experiences of access to

[14] SoftGIS is a multidisciplinary approach where different Internet- and GIS- (geographical information system) based methods are developed to gather and process local knowledge. In SoftGIS, planning is seen as a participatory and communicative process. The aim is to incorporate local knowledge into the planning process and aggregate and support it in this way. (Rantanen & Kahila 2009)

information, and their ability to influence and participate in land use planning. Their study indicates that organisations are participating more actively than before while the municipalities are now providing better information on land use planning. This has resulted in increased openness and cooperation. Only a minority of organisations, however, felt that they had managed to have an influence on the contents of the plan, particularly where this concerned issues of real significance for them. Not surprisingly the organisations consulted expected that in future they should receive more information during the planning procedure as well as more training in the methods of participation.

Academics. Balducci and Bertolini (2007) have observed that current developments seem to be pulling planning academics and practitioners further away from each other, with each becoming more self-referential and distant. Continuing interaction between science and practice is however essential for progress in planning. Balducci and Bartolini suggest a more effective role for universities in the search for solutions to the complex planning challenges facing contemporary societies. To avoid the potential risks of such engagement they argue that academics should only engage in activities which show a clear demand for innovation and that can therefore benefit from a rich exchange of knowledge.

Facilitators. Planning, and the participatory planning model in particular, may create situations where group discussions may be impossible to conduct without the support of an external facilitator[15]. Eden (1990, in Huxham & Cropper 1994) presents a model where there are two main roles for the facilitator in group decision support, management of the social processes (P) and management of the content of the problem (C). It has been argued (e.g. Phillips & Phillips 1991, in Huxham & Cropper 1994) that in order to attain credibility, the facilitator must be seen to act disinterestedly and he/she should not make substantive contributions to the problem solving. So, this model calls for a professional facilitator without any substantive expertise of the issue at hand.

Taken literally, this would imply that an architect-planner could not act as a facilitator where planning issues are concerned - which in some cases may be

[15] Facilitators and mediators are sometimes used as synonyms. In this study, a mediator is more deeply involved in the process of negotiation and problem-solving, whereas a facilitator is usually needed in workshops and other group discussions. Edelman (2007, 99-102) has defined more in detail the differences between facilitation and mediation in the context of urban development.

true, at least without any training in facilitation. However, in order to describe the way facilitators actually work, Huxham and Cropper (1994) add to Eden's model a third component, substantive expertise (S). They remind us that there is a shifting balance between these roles: the focus may be on each of P, C or S. The contribution of this model is that it conceptualises the dilemma often faced by professionals in real planning situations.

2.4 Management perspective in urban planning

The management perspective is not a novelty in urban planning. Management was strongly emphasised already in the 1970s when planning theory was influenced by sociology's General Systems Theory Movement. Mäntysalo (2000) describes the model of planning activities provided by this thinking: "*This model represented planning activity as an ongoing cybernetic process of governance, which incorporates systematic procedures for continuously searching out goals, identifying problems, forecasting uncontrollable changes, inventing and evaluating alternative strategies, stimulating development, statistically monitoring those conditions of the publics and of systems that are judged to be germane, feeding back information to the simulation and decision channels to allow correction of errors – all this in a coordinated system of public management*" (Mäntysalo 2000, 45). If this represents the conception of management in planning, it is no wonder that a critical view of systems theory sees 'management' as merely a more sophisticated name for 'control' (Mäntysalo 2000, 54).

The distinction between the process of planning and the substance of planning was brought out, among others, by Faludi (1973). In this distinction, the systems view of planning is a substantial theory, whereas the rational process view is a procedural theory. One factor providing a favourable context for the development of the rational process view was the increasing interest in corporate styles of management and decision-making (Taylor 1998). This also entailed a new model for the process. The rational process of planning would involve a number of distinct stages with feedback-loops, indicating that the process is ongoing and continuous, without a final end-state.

The relationship between planning and implementation has been a concern of planning theorists for decades. Friedmann criticised the rational planning theory for ignoring the problem of implementation already in 1969. In the

rational process model of planning, presented as a linear series of stages, plan-making forms a separate stage before final implementation. Friedmann (1969, 312, ref. Taylor 1998, 113) claimed that this provided a model for planners to first attend to the task of making plans and only later to the problem of how to put these plans into effect.

Referring to Friedmann, Taylor (1998) asks if there is something wrong with this linear way of conceiving rational planning; it is only logical that the problem of implementation only arises when you first have planned something to implement. Taylor continues, however, by observing that if one makes plans without at the same time considering the problem of implementation, one is liable to make plans which cannot be implemented, and great expectations are likely to be dashed. To become effective implementers, planners are required to be skilled in three tasks: contacting, communicating and negotiating (Taylor 1998, 117).

These interpersonal skills continued to be regarded as central to many planning theorists through the 1980s. By the early 1990s however a whole new theory was being articulated around the idea of planning as a process of communication and negotiation. In line with this 'communicative turn' in planning the participation of citizens in the planning process has become increasingly important.

The issue of management in planning has however proved to be a rather thorny one for theorists of communicative planning. Mäntysalo (2000, 99) suggests that this stems from their negative attitude towards systems theory: The issues of public management and organisation dynamics are placed on the 'system' side while public management is taken as the management of a 'bureaucracy'. This is often seen as the embodiment of organised oppression. Mäntysalo (2000, 369) reminds us that "emancipation in planning has to be organized emancipation in order to make a difference".

Early urban planning and implementation theories nevertheless provide a useful background to this study. This is particularly so for procedural planning theory focused on either describing how planning proceeds or giving normative instructions on how it should proceed, as this is closely linked to the research idea forwarded in this thesis. These theories mainly deal with the phenomenon of planning and implementation on such a general level, however, that the practical problem of the urban development process, which is the focus of this

study, seems to be too specific to be addressed through them. This has led to the conclusion that sufficient support cannot be found in traditional planning and implementation theories for a solution to the research problem, but instead, new approaches from management theories could be more fruitful. The selection of the theoretical approaches to be applied in this study is presented and justified in Section 3.4.

3 URBAN DEVELOPMENT AS A NETWORKED PROCESS

In the traditional urban development system planning precedes implementation. Planning is usually meant to be a tool to manage competing uses for space and to provide preconditions for a satisfactory physical environment for the users of the area in all their activities. However, the development of the society around us constantly brings new challenges both to planning professionals and to decision-makers. As a solution, new stipulations may be created, but on the other hand, urban planners endeavour to prepare new and innovative plans within the existing legislation.

Many of those involved in urban development have, however, observed that the visions and new ideas created in the planning phase seldom survive until the implementation phase even where they are incorporated in the planning documents. There is, of course, the possibility that some of the unrealised ideas were subsequently seen to have been impractical and thus doomed to failure. But assuming that the ideas are both sound and feasible and yet they still fail to make it through to the end of the process then it is clear that the new environment quite unambiguously fails to create the promised value for the users of the area who, in any case, have been obliged to make significant economic investments in their physical surroundings.

One way to examine the relation of urban planning to implementation is through the process perspective[16]. This view can illustrate the sequence of events during a typical urban planning and implementation process and contribute to our understanding of the factors that maintain their separation. Additional challenges to the whole process are raised by the time span in the development of built environment which, in general, is exceptionally long: the actors in the network change over time, economic trends may shift their direction totally, and the preferences of residents and other users may be dramatically transformed.

[16] The main difference between the process and project perspectives is that a process is usually conceived as cyclical and recurrent while a project is a single realisation of the process.

3.1 Urban planning as part of a core process of the municipality

When the process of urban planning is studied the analysis often concentrates on the different stages of the planning procedure itself. This setting usually implies that the process of planning has been successful if the resulting local detailed plan is acceptable to the stakeholders. This is, however, only a narrow view of the planning process. The inclusion of the innovation perspective in planning, as defined in Section 1.3.3, also necessitates the broadening of the process view.

Lemmetty (2005) has demonstrated that the analysis of urban planning as a networked process benefits from approaches proven efficient in the development of networked business processes. Lemmetty has examined urban planning as part of one of the core processes of the municipality, i.e. the process of the development and maintenance of the built environment, aimed, primarily, at enabling the activities required by citizens, such as housing, working, and studying, with corresponding services (Fig. 4).

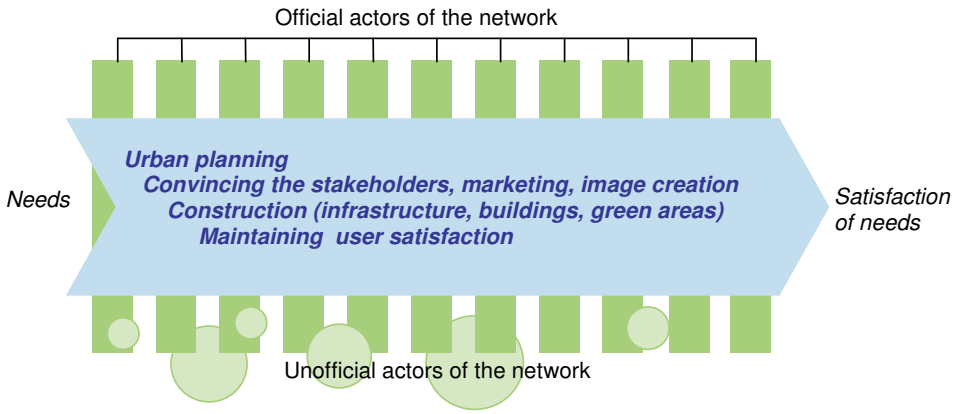

Figure 4. Urban planning as a part of the core process functions of the municipality: The urban development process (Modified from Lemmetty, 2005)

In the business world, process management, the core processes of organisational units, begins from the definition of customers and their needs. The processes then run through the official and unofficial networks or through different functions and units, and ends with a solution acceptable to the stakeholders and

with the satisfying of customer needs (e.g. Hammer & Champy 1993, Hannus 2004).

Similarly, when the process management approach is applied to the development of the built environment it is essential that the process starts from the definition of needs and is continuously directed to the satisfaction of these needs (Lemmetty 2005). In this process, 'customers' are usually replaced by **users of the area** under development. In addition to future residents, the term 'user' or 'end user' refers in this context to companies and service providers expected to operate in the area, as well as to their employees and clients. Users of public services such as schools and libraries and visitors to the area also belong to this group.

The significance of user needs is quite evident in the Finnish Land Use and Building Act, where the first objective mentioned for land use planning is "*to promote a safe, healthy, pleasant, socially functional living and working environment which provides for the needs of various population groups, such as children, the elderly and the handicapped, through interactive planning and sufficient assessment of impact*" (1999; section 5).

3.2 Conventional process for the development of a new urban area: Model M1

In order to obtain a reference model for my research, I have visualised a conventional process for the development of a new urban area in a simplified manner. It is evident that each development project shapes the process in its own particular way, and thus, the modelling of a conventional process will always be ambiguous. The model M1, in Fig. 5, is empirically derived, based on my practical knowledge gathered in multiple planning cases (Väyrynen 2007b). Thus, it does not represent an idealised process of strategic planning and implementation.

The process is described over time by applying the typology of developmental progressions presented in Section 1.3.2. The developmental pattern of the process in question appears in the form of multiple progressions where the process follows more than one single path (parallel, divergent, and convergent

progressions). The amplitude between the arrows reflects the number of options available in each phase.

For a structured examination of the process, the time scale is decomposed into five periods, following Langley's temporal bracketing strategy (Langley 1999): visioning and goal setting, urban planning, building design, construction, and finally, use and maintenance. By expanding the time scale to include also the use and maintenance phases, I highlight the broadened process view in respect of urban development

The actors in the development process for a new area are categorised into seven groups: municipal authorities, elected officials, land owners, consultants, developers and constructors, residents, and other users of the area (i.e. those working or studying in the area, or consuming services provided in the area).

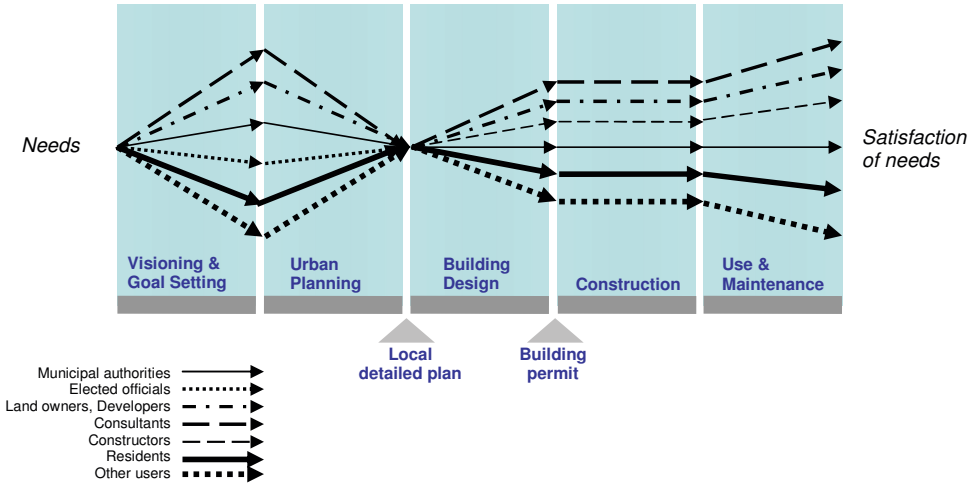

Figure 5. Model M1: Conventional process for the development of a new area (modified from Väyrynen 2007b)

The process in Fig. 5 starts from the identification of **needs**[17]. These needs are ordinarily related to future residents and other users of the new area, and they are usually defined by the municipality, either by the elected officials as an intermediary for their voters, or by the municipal authorities. The national land

[17] I am aware that there are multiple interpretations of the concept of 'needs' in different contexts. It can be argued that people have physiological, psychological, social or cultural needs irrespective of whether these are recognised by the political system. In connection with this, it is widely accepted that people have an inalienable right to have certain needs satisfied.

use guidelines together with the regional land use plans may also establish needs for planning[18]. The great diversity of needs is compressed into the starting point in the model.

In the **visioning and goal setting** stage, a number of actors prepare their visions and set various goals for the new area. They often act independently without coordination. This is described in the model with diverging paths.

The **urban planning** stage includes all planning activities at the local level, prepared and approved by the municipalities, i.e. the local master plans and the local detailed plans. When the actual planning starts, specific participation and assessment procedures are required by law and this creates activity among the stakeholders. The vision and related goals should act as a guideline for the planning. As the planning proceeds, the pathways gradually converge until the activities and knowledge accumulated in this phase are condensed to a document called the local detailed plan.

When the process then restarts the process ownership is shifted to urban area developers and constructors. In the **building design** phase, some divergence of paths may still occur, provided that the local plan is interpreted with creativity. The building permit department controls that the plans are in compliance with legal regulations and the local plan; it does not, however, have a duty to assess whether the plan is in accordance with the visions or guidelines presented earlier in the process.

The actors in the **construction** phase are usually reluctant to maintain alternative pathways and the process runs with parallel paths. In the **use and maintenance** phase many of the earlier actors disappear. The remaining actors may continue the process in divergent directions without a common goal because the original needs tend to be forgotten and the new residents recognise only their own actual needs.

The process in the model is aimed at the **satisfaction of needs**. In each separate phase the actors may have goals of their own concerning their particular activities, but when considered as one of the core processes of the municipality

[18] The national land use guidelines are Government tool to steer policy on land use issues seen as important for the whole country. The guidelines relate to the regional and urban structure, the quality of the living environment, communication networks, the energy supply, the natural and cultural heritage and the use of natural resources (www.ymparisto.fi).

(cf. Fig 4, in Section 3.1), the total process is expected to satisfy the original needs.

3.3 The practical problem and the root causes

In this study it is assumed that the perseverance of goals set in the initial phases of the process would be favourable for innovations concerning both the planning process and the resulting environment. The goals would stimulate new ideas the screening of which should be handled openly throughout the process. The best innovative ideas would be refined along the process and finally realised. However, the conventional process for planning and implementation of a new urban area, described through the model M1, does not generally fulfil all the above expectations.

Based on my own professional experience and on numerous discussions with key actors in the field of urban development, I formulate the **practical problem** examined in this study as follows: *In the urban development process, innovative ideas often do not reach implementation.*

The conventional process for planning and implementation of a new urban area (model M1) conveys the following **possible root causes** for the problem observed: 1) Visions do not steer the process until implementation, 2) Discontinuities exist in the knowledge transfer process, 3) There is a lack of interest in the use and maintenance of the new area.

The term 'root cause' refers in this thesis to the initiating causes stemming from the practice of urban planning in Finland, and leading to the practical problem formulated. It is assumed here that the problem is best solved by eliminating the root causes identified. Notwithstanding their potential relevance for the questions addressed, the causes stemming from other fields of interest (e.g. professional power, political regimes) are not within the scope of this thesis.

In what follows these root causes are considered further and analysed more in detail. Fig. 6 illustrates to which parts of the process the root causes pertain.

Root cause 1. Visions do not steer the process until implementation

The steering effect of the vision and related goals often seems to lose its power relatively quickly (No. 1, in Fig. 6). It may extend up to the planning phase but

generally not beyond it. The vision for a new area can be interpreted as a call for innovation from all future actors in the process. It can be assumed however that the indifference in respect of fulfilling the vision has a detrimental effect on the motivation to innovate over the whole process. Building design and building control are often carried out with little knowledge of the vision and goals set for the new area. This is probably welcomed by the construction sector which is not generally well-known for its innovativeness. The developer's interest is, regrettably often, also to minimise all costs and therefore to utilise the most conventional solutions. In consequence, none of the actors in this chain are induced to create innovative solutions to fulfil the vision for the new area.

The relatively long time span experienced for a project may also have an impact on the likelihood of the inability to implement the original goals. An additional common feature here is that the goals are often written on a very vague level, contrary to the recommendations of the process management literature where great emphasis is laid on the importance of deriving concrete goals from the vision (e.g. Hannus, 2004). Moreover, the goals are generally set without defining the indicators which would show whether the resulting environment reflects the original goals or not. The lack of indicators is connected to the fact that post-occupancy evaluation is not usually executed in urban areas in Finland (Kyttä & Kahila 2006).

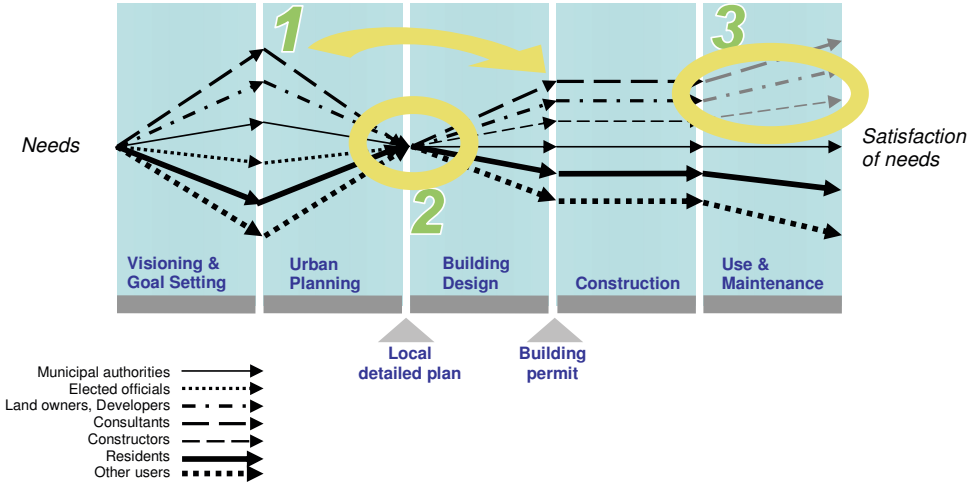

Figure 6. Possible root causes (1, 2, 3) for problems in the conventional process for the development of a new area (model M1).

In practice, it seems that the only way currently available to ensure that the original goals survive to the building design stage is the use of the local detailed plan. The contents of this document are fixed by law: It includes regulations on the intended use of areas with their boundaries and types of construction, as well as quantitative regulations, such as the maximal volumes for buildings and the number of parking places (Land Use and Building Act, Section 55).

The use of the local detailed plan as the sole decisive document has its restrictions. Only seldom can the qualitative and functional goals set for the new area be discerned through the regulations in the local detailed plan. Similarly, the original user needs and the eventual innovative ideas and solutions created during the visioning and planning phases can easily get lost behind the stipulations, and can thus remain hidden to the new actors responsible for the implementation of the plan.

The Land Use and Building Act does, however, provide a suitable tool through which to present the visions and goals, based on which the local plan is drawn up: "*The local detailed plan shall include a report which provides the information required for assessing the aims and alternatives of the plan and their impact, and the justification of decisions taken, as provided in more detail by decree*[1]." (Land Use and Building Act, Section 55). Unfortunately, this **report of the local plan** (*kaavaselostus)* remains rather overlooked and is not widely known among the key actors in urban development. It can be argued that the process does not recognise the need for this kind of document, and the potential of the report in this respect is ignored.

Root cause 2. Discontinuities exist in the knowledge transfer across the various phases in the process

The modelling of a conventional urban planning and implementation process indicates that the local plan may be a point where discontinuities of information and knowledge occur in the process. The two parts of the process, planning and implementation, are separated by a gap through which knowledge transfer is narrow and formal (No. 2, in Fig. 6).

[1] The Land Use and Building Decree, Section 25, terms this document "the local detailed plan statement". The variation is due to the lack of official translation of this legislation.

As such, learning either from earlier phases or across the network is difficult because the process is strictly sequential. When moving from one phase to another the network of actors involved changes. This is particularly evident in the urban planning phase where all actions are directed and focused towards the local detailed plan. When this phase is completed, and the building design phase begins, nearly all actors change: The municipal authorities are represented by a different department than previously, the elected officials represent new boards, the planned land area is often passed to a new owner who engages new consultants and it is at this moment that the interests of the construction companies are usually awakened. The actors emerging after the completion of the local detailed plan seem to have very little interaction with the actors from earlier phases. One may even argue here that the letter of the plan is transferred but not the spirit.

The first residents participating in the process generally come from the neighbouring areas. Their role diminishes over time as the new residents begin to be committed to the construction projects. Other future users of the area, such as companies and service providers aiming to get settled in the area, start to show interest only when the construction works in the area has visibly begun. After the construction phase, the actor network gains members, in addition to the residents and their organisations, from the housing companies[20], real estate manager companies and property maintenance companies. In practice, it is possible that they all enter the process without any connection to the prior actors. In consequence, only a tiny amount of the knowledge accumulated during the process previous to that is transferred for their use.

Root cause 3. There is lack of attention given to use and maintenance of the new area

The main actors in the conventional process do not generally show much of an interest in the use and maintenance phase. One reason for this may be that the actors of the design, construction, and maintenance phases have little connection to the previous stages of the process, and thus find it difficult to commit themselves to quality targets that they have not set themselves. In

[20] Housing companies *(asunto-osakeyhtiö)* are a typical housing system in Finland. The shares in a housing company confer on their owner the right to possession of a specific apartment while the building itself is owned by the company and it is the company that is responsible for the management and upkeep of the building and joint facilities.

consequence, their responsibility in practice extends up to the final inspection task at the end of the construction stage but not further. (No. 3, in Fig. 6).

A central feature of process management is that the process starts from an understanding of user needs and ends with the satisfaction of these needs (e.g. Hannus, 2004). When we consider the residents of a new area and their satisfaction the most important phase certainly starts after their relocation to the new apartment. Nevertheless, this phase is not generally recognised as a part of the same process as that initiated with visions and goals some time beforehand. One clear indication of this is the lack of services that the new residents so often initially encounter in a new area. Obviously, the potential service providers have not been included early enough in the team responsible for the implementation of the area.

3.4 Research gap and justification of theoretical approaches

The model M1 of a conventional process for the development of a new area reveals three possible root causes for the practical problem examined in this thesis. The first root cause is related to deficiencies in the steering effect of the vision and goals, the second points to discontinuities in the transfer of knowledge across stages in the process, and the third is linked to the lack of attention given to the use and maintenance of the new area.

At this point, I raise the following **main research question** for my thesis: What are the critical characteristics of an innovative process of networked development for a new urban area, able to override the above-mentioned deficiencies identified in the conventional urban development process?

To my knowledge, this question still remains largely unstudied and unanswered. I argue that a clear **research gap** related to the existing knowledge in the field of urban development and the question presented above thus exists.

The nature of these questions suggests that theories generally applied in urban planning studies may not be the most appropriate in the search for answers. Therefore, I am curious to find out whether certain new approaches could offer theoretical tools suitable to solve the problems highlighted above. The questions posed above clearly indicate my interest in how the **process** under

investigation and the corresponding **network** could be better managed through all the stages until implementation. Furthermore, questions were raised in respect of **innovations** in the process and their implementation. Finally, the inclusion of the use and maintenance of the area into the process point to the need for **service** thinking in urban development.

In the selection of theories deemed relevant for this study, guided by the keywords introduced above, it became clear that the management sciences were likely to be a viable choice. The long tradition of the management sciences ensures that there is a wide spectrum of scientifically interesting theories available. While remaining fully aware of the essential differences between urban development processes and business processes many similarities can nevertheless be found in these outwardly rather disparate activities. In both processes, for instance, visions and goals are set, new ideas are generated, the network of stakeholders has to be committed to common targets, plans have to be turned into actions and customers and end users, ultimately, must be satisfied. Irrespective of these similarities, the potential applications of new theories to urban development have to be examined with careful consideration.

The selection of the theoretical approaches used in the context of this study is justified below.

Why use the **process approach**? Process management deals with needs, goals and timing - all relevant aspects for this study. The sequentially divided planning process may create uncertainty in goal setting and difficulty in identifying user needs in the different phases of the process. In the planning phase, the emphasis is on satisfying the needs of tomorrow's unknown customers, whereas in the implementation phase, the first customers are already present in the new urban area, and they perceive but also affect the quality of the built environment. Could this be better managed through process management? Could process management provide a solution to the often-repeated question of how to shorten substantially the total duration of the process, and produce the desired value to the end customer? Related to this, it is useful to consider that planning and implementation are both basically aimed at satisfying the needs of end users. This gives reason to presume that the interests of these two processes, often seen as opposed, could be combined by adapting a joint process view with new ways of working and new roles in a renewed network.

Why the **network approach**? Urban planning has long lasting effects on the quality of life and the environment in the community. It consists of many professional, social and political processes spanning the decades, and involves in its many phases wide networks of public and private actors in the planning, decision making and in concrete actions to develop the urban area. Urban planning can thus be conceptualised as a complex, networked innovation process that is transformed structurally over time. How could this network be steered in the direction indicated by the vision and goals, and by whom? Could network management thinking generate new understanding in respect of this issue?

Why the **innovation approach**? Companies have already learned that change requires continuous innovation in both products and processes. This is achieved by the dynamic alignment of two contradictory objectives: operational effectiveness through existing configurations that satisfy today's customers' needs and simultaneous strategic flexibility to develop new configurations for tomorrow's customers (Smeds & Boer 2004). New product development and urban development share both the same interest in knowledge creation and in gathering and managing knowledge. In the search for ways to enhance innovation in urban development, the assumption made in the context of this thesis is that innovation management could be used to propose new and useful viewpoints concerning both product and process innovations.

In the course of this study it became evident that the focus of recent innovation studies has shifted from product to service innovation. In accordance with this, a fourth approach was added to the theoretical framework. Thus, the potential for **service development** theories to contribute to the analysis of urban development will also be studied.

To sum up: The analysis of urban development as a network of political, social, professional and architectural processes at different levels of action, striving towards the realisation of an innovative urban area, providing a high quality of life and value for the end-users, requires a novel theoretical background. In this study, urban planning is therefore examined through the lens of process and network management. In addition, the theories of innovation management and service development are applied to gain new understanding of the successful renewal of processes and practices.

However, while applying these theories, the research has to be sensitive to the context of urban development. Typically the new ideas in business management spill over into the public realm, albeit with a certain time delay, irrespective of the differences in their values and logics of action (e.g. recent development in the healthcare sector). Related to this transfer, the concern in this study is to evaluate the contribution of the above-mentioned theories to the development of urban areas.

The four theoretical approaches identified above will be presented in Chapter 4 through a literature review.

4 THEORETICAL APPROACHES

As justified at the end of Chapter 3, urban development will be examined through the lens of four theoretical approaches. In this Chapter, a focused literature review of these approaches is presented, guided by a research question (RQ1-RQ4) concerning the applicability of each approach to the research problem of this thesis. At the end of each section, the main elements of each theoretical approach are condensed into the form of a table, in order to match the theory elements to their application potential in urban development. These tables will be applied in Chapter 7 as frameworks for the theoretical analysis of the case studies.

4.1 Process approach

RQ1: What characteristics of the process approach can contribute to the creation of a coherent process of urban development

Pettigrew (1997) explains the nature of process research in the following way: "The major contribution of process research [as characterised here] is to catch reality in flight, to explore the dynamic qualities of human conduct and organisational life and to embed such dynamics over time in the various layers of context in which streams of activity occur."

When describing process research, Pettigrew (1997) underlines that the aim in a processual analysis is not to produce a case history but a case study. The case study goes beyond the case history in attempting to fulfil a range of analytical purposes. According to Pettigrew, there is (1) a search for patterns in the process and some attempt to compare the shape, character and incidence of this pattern in case A compared with case B, and (2) there is a quest to find the underlying mechanisms which shape any patterning in the observed processes.

Pettigrew identifies three main types of mechanisms driving the processes: They may be the directly observable and conscious intentions of key actors in this process; They may also be a feature of the immediate or more distant context

and not part of the sensibility of local actors; The mechanisms may also be elements in the interactive field occasioned by links between levels of process and context around the primary process stream under analysis.

Unlike some other process scholars Pettigrew stresses the linking of processes to outcomes. He argues that the purpose of a processual analysis is to explain the *what*, *why* and *how* of the links between context, processes and outcomes.

It is noteworthy that process research can be interpreted in two different ways. On the one hand, it can be applied as a research approach to study how whatever issue gradually evolves (see e.g. Langley 1999) or how change unfolds in the entities or things being studied (Van de Ven & Poole 1995). On the other hand, processes can be studied as objects that can be developed (e.g. Davenport 1993, Hannus 2004, Smeds 1996, see also Section 1.3.2). The process management view stresses that processes and their development can also be managed.

In practice, process management and process development are almost inseparable actions. The task of process management is to coordinate the operations of separate functions into a cross-functional process that operates effectively towards a joint objective. However, the organisations are on different levels in their evolution from a functional organisation towards a process-oriented organisation. The processes also face continuous development needs, because of the dynamics of the competitive environment and the development of technology that affect the functions and their interactions (Smeds 1994, 1996).

The focus of this research is the urban development process itself, as a purposeful and managed chain of interrelated tasks that strives towards a joint objective. In this respect it can be compared to a business process that has been defined as a chain of human, technology-supported operations, connected by material and information flows, integrated into intra-or inter-organisational networks to create value for the customer and profit for the stakeholders (Smeds 2001). The urban development process is also a prime example of a complex and turbulent process that has to be continuously and consciously developed.

The perspectives of the process approach presumed useful in this study are process management, process development and performance measurement

4.1.1 Process management and process development

In the process management and quality management literatures several common elements are suggested to be critical to process management's success. Ittner & Larcker (1997) list five elements: Process focus, Human resource management practices, Information utilisation, Customer/supplier relations, and organisational commitment. They point out, however, that it is increasingly important to understand how the entire value chain can be managed to achieve process improvements.

The theories of management of business processes often distinguish between core processes and support processes (e.g. Davenport 1993, Hannus 2004). Core processes cross organisational units and extend beyond organisational boundaries to the activities of the customers and other stakeholders. Support processes can be defined as processes that enable the actual core processes. The core process begins from the interests of the stakeholders, runs through the official and unofficial networks and ends with a solution acceptable to the stakeholders.

Hannus (2004) reminds us that it is essential to set the right level of ambition in process management and development efforts:

- Lowest level: Documentation of current processes which results in minor impacts on business benefits.
- Second level: Streamlining and harmonising current processes may bring in moderate improvements in customer service and cost efficiency.
- Third level: By re-engineering critical processes, significant improvements can be reached.
- Highest level: Reinventing and implementing new business models may yield strategic benefits.

As the ambition level in process-orientation rises, the potential business benefits increase but, at the same time, change management becomes more challenging. If these levels are compared to urban development it is noticeable that, in urban development processes, the efforts usually remain at the lowest level.

Total quality management (TQM), continuous improvement (CI), and business process re-engineering (BPR) are examples of widely adopted process

management and development techniques. Ittner & Larcker (1997) emphasise the importance of understanding which process management techniques are most useful and mutually reinforcing in different contexts. According to them, the establishment of long term partnerships with suppliers and customers appear to be of major importance in improving performance in the industries studied. This is concordant with the process management literature arguing that organisations must extend their process improvement efforts beyond their own boundaries to incorporate suppliers and customers.

In the operational management of business processes, improved **coordination** of the inter-related tasks an important objective. The basic mechanisms of coordination in an organisation are standardisation, planning, and mutual adjustment (Thompson 1967). The process approach serves coordination needs in novel and more efficient ways, when compared to a functional hierarchy, and often enabled by information and communication technology. The process approach becomes even more important in inter-organisational networks. (Smeds 1994, 1996.

One new coordination mechanism in the processes are the so called '**process owners**' that are responsible for the management as well as development of the inter-functional processes (e.g. (Hammer and Champy 1993, Hannus 2004, Smeds 1994). A process owner is not only responsible for process results and performance, but also for the continuous development of the process (Davenport 1993, Hammer and Champy 1993, Smeds 1994, Hannus 2004).

Suboptimisation and project portfolio management

One of the principles in business process reengineering holds that optimising a part of a process can result in less than optimal performance for the process as a whole (e.g. Markus & Keil 1994). This is known as **suboptimisation**. Suboptimisation usually occurs when one department or unit narrowly focuses on one subprocess while ignoring its connections to other processes or its relationship to the whole system. Elimination of suboptimisation is therefore one of the central concerns in process management and development. This entails a clear goal setting and a process management that measures, monitors, and also rewards the progress toward the goal (Markus & Keil 1994).

In the process of urban development, the risk of suboptimal results is remarkably high, due to the wide variety of public and private actors in the

numerous subprocesses. In their study concerning the building of new information systems, Markus and Keil emphasise, however, that even if suboptimisastion is avoided, the motivation of people to act towards the common goal is of major importance: "*Systems do not improve organizational performance or create business value; users and their managers do*" (Markus & Keil 1994, 25).

The process of urban area development consists in practice of a large number of separate planning and implementation projects. With regard to business projects, their management is often associated with project portfolio management. In urban development, the projects could also be managed as a portfolio towards the common goal, over a long time period.

Project portfolio management usually has three objectives: maximising the value of the portfolio, linking the portfolio to the strategy, and balancing the portfolio (Cooper et al. 1998). Elonen and Artto (2002) have studied the problems in managing multi-project portfolios in construction industry. They introduce portfolio management in other words: doing the right projects, creating a link from the projects to the organisation's strategy and, simultaneously, adopting the long-term view.

Elonen and Artto suggest that many management activities are needed both at project and portfolio levels. The objectives of different projects should be systematically integrated into the strategy, and the projects should be prioritised using suitable methods. The roles and the responsibilities of the portfolio level should be clear and feedback should be given to the project level to guide projects to a right direction. Elonen and Artto argue that portfolio management encounters major problems if the monitoring of project progress is infrequent and where no adequate methods or guidance for portfolio evaluation, or project planning and management, exist.

The idea of managing projects as portfolios should be a welcome one for urban planning and urban development. Portfolio management in urban development entails systematic project level management combined with appropriate portfolio level management, and also includes making selections based on a global development strategy.

Knowledge-intensive work processes

Process reengineering efforts have sometimes been criticised for focusing too heavily on cost reduction, and not enough on adding value to products, services, and customers. Davenport et al. (1996) have examined the methods used to improve processes of knowledge work being generally focused on increasing value and improving quality, both of which are relatively difficult to measure. The authors suggest that in knowledge work, reengineering methods should not be adopted as such. Instead, organisations should select a set of methods and tactics that reflect the type of knowledge work they are addressing, their organisational culture, and the business requirements for the change.

Urban development includes, in addition to the administrative and operational work, also many knowledge work processes. According to Davenport et al. (1996), the distinctive characters of the different types of work should be taken into account when processes are improved.

The importance of managing knowledge in a business process has been broadly discussed in management literature. The interest towards **knowledge management** is based on the view that organisations can derive significant benefits from consciously and proactively managing their explicit and explicable knowledge (Zack 1999). According to Zack, the process of refining knowledge includes the stages of acquisition, refinement, storage and retrieval, distribution, and presentation of knowledge. This process should enable the meaningful use of the knowledge and its application across multiple contexts.

In urban development, knowledge is produced during the whole process by different stakeholders and organisations. In the planning phase, in particular, knowledge is utilised in various forms: it is first gathered and then managed to support the decision-making and planning of the physical environment. Rantanen and Kahila (2009) argue that, in addition to 'hard' knowledge, also 'soft' local knowledge[21] should be valued, produced and utilised by both the planning professionals and the residents.

[21] Rantanen and Kahila (2009, 1983) explain the difference between 'hard' and 'soft' knowledge with reference to Schön (1996) and Polanyi (1998): *"The rationalist and technologic approach to knowledge underlines exact information and the unambiguous and objective nature of hard knowledge. This knowledge is often formally articulated and stored in, for example, registers. On the other hand, local knowledge is often considered soft. It is personal knowledge and thus subjective and based on experiences and perceptions".*

The process approach provides tools to visualise the logic of knowledge-intensive work processes by **modelling the processes**. The visual process model illustrates the logic of the tasks and reveals contingent timing problems and other possible bottlenecks. By means of process descriptions and process charts it is possible to understand the task interdependencies, and to perceive what is critical in achieving the main targets of an organisation (Hammer & Champy 1993, Hannus 2004). When processes are developed further, the process model supports the creation of common understanding between the parties, a necessary requirement for successful process innovation (Smeds et al. 2006).

Visual process models are especially useful when business processes are developed in collaboration with the network participating in the process. The joint process dialogue in process workshops, in front of a visual process model, creates a holistic process understanding, raises important development ideas, and creates motivation for process development and change. The participants in process workshops can immediately utilise some of the learning in their own work. Long-lasting organisational learning is thus achieved and the lead-time of process innovations is shortened. (See e.g., Smeds et al. 2005, Smeds & Alvesalo 2003). Collaborative process development can also increase communication and knowledge-sharing on the goals of common business, and develop common understanding and trust between the collaborators (Jaatinen et al. 2006).

In an inter-organisational facilitated process development workshop, the members of the different partner organisations discuss and make sense of each other's knowledge about the collaborative case and its process, they define joint terminology, re-produce their experiences so as to develop a shared understanding of the process, they make and take perspective, ignore and add to their previous knowledge, and develop together ideas for a better process in the future. (Smeds et al. 2005)

4.1.1 Performance measurement

Performance measurement has long been studied at the operational level of organisations particularly in the context of manufacturing. Evans (2004) has pointed out that the design of an effective performance measurement system, which includes the selection of appropriate measures and approaches for analysing results, is central to aligning an organisation's operations with its

vision and strategic direction. The results of his studies suggest that organisations with more mature performance measurement systems report better results in terms of customer, financial, and market performance.

One of the most influential frameworks for organisational performance measurement has been the balanced scorecard (Kaplan & Norton 1996). A balanced scorecard (BSC) approach provides a means of setting targets and allocating resources for short-term planning, communicating strategies, aligning departmental and personal goals to strategies, linking rewards to performance, and supplying feedback for organisational learning. In BSC, as well as in most competing models, the focus is on a set of measures that provide a comprehensive perspective on organisational performance, and any measure an organisation might use can be assigned to an appropriate category in the framework. In BSC, the four main perspectives are the Financial, Internal, Customer, and Innovation and Learning Perspectives. Thus, the scorecard also guards against suboptimisation by forcing managers to consider all key measures that collectively are critical for the success of the organisation.

Otley (1999) describes the balanced scorecard as a powerful tool designed to be at the centre of an organisation's control mechanisms to effectively deploy strategy and to link operational practices with strategic intent. The BSC focuses on establishing links between strategic objectives and performance measures; it also pays some attention to measuring the achievement of the components of the strategic plan the organisation has espoused.

According to Otley (1999), setting performance targets is a crucial feature of a well-implemented balanced scorecard, and worthy of detailed attention. He indicates that the balanced scorecard is clearly a dynamic tool the contents of which will change over time as strategies develop and key success factors change. In this respect, Otley discusses the role of feedback from the balanced scorecard providing information about the extent to which a company is achieving its key strategic aims. He assumes that 'double loop' learning is important because it can provide answers to topical questions like "*Is the strategy working as expected*?" and "*If not, is this because of inadequate implementation or because the strategy itself is faulty*?" Otley suggests that performance measurement practices need to be evaluated not just from an economic perspective, but also from a social, behavioural and managerial perspective, within an overall organisational context.

The strong belief in the power of measurement has also made its entry into the public sector usually associated with a shift in public management styles. Townley et al. (2003, 1046) argue that performance measurements are introduced into the public sector in "an attempt to shift decision-making beyond political bargaining" and also as an "extension of market economy and managerialism into the public sphere"[22]. The authors refer to the discussion on New Public Management, when they describe their case study of the Provincial Government of Alberta, Canada. Their analysis illustrates how an initial enthusiasm for the performance management initiatives, promoted as a means of increasing transparency in public government, was replaced with scepticism and cynicism when the plans and measures were introduced and experienced. Middle managers in particular saw these mechanisms as undermining their expertise, closing off debate and promoting only a form of instrumental rationalisation without seeing the benefits gained.

One way of avoiding the threats revealed above by Townley et al. is to look beyond the *measurement* of performance to the *management* of performance. Otley (1999, 365-366) presents a framework for the **management of performance** which includes, in addition to traditional issues of performance measurement, questions related to the information flows (feedback and feed-forward loops) that are necessary to enable the organisation to learn from its experience and to adapt its current behaviour in the light of that experience.

Bititci et al. (2005 have studied performance management in 'extended enterprises' that are formed by several collaborating companies combining their core competencies and capabilities to create a unique competency. In this respect, extended enterprises can be compared with a network in urban development. The authors highlight the structural differences between traditional and collaborative enterprises, and specify performance management requirements of these collaborative organisations. They propose that the collaborating organisations are required to be more open and willing to share critical performance information with one another. According to Bititci et al. , this will require change in both practices and attitudes.

[22] Performance measures have generally been considered as one means of transferring a business rationale into the public sector. The pursued reforms include e.g. reducing the size of the public sector, cutting government expenditures, bringing free-market principles and disciplines into government, developing a more customer-oriented focus, and allowing public-sector managers to be more autonomous and entrepreneurial (Townley et al.2003).

Non-financial indicators in performance measurement

Traditionally, performance was measured using financial measurements. Since the late 1980s, these have been found insufficient, and in consequence we have seen a turn towards multi-dimensional measurement systems incorporating a wide range of non-financial measurements (e.g. Kaplan & Norton 1994).

Nevertheless, the use of performance measurement has been a complicated process especially within public sector organisations. Ersson (2007) points out that public organisations often face a situation of having both multiple and vague goals. This inevitably complicates the use of performance measurements. This is, indeed, also the prevailing situation in urban development.

Ersson 2007 debates the potential of performance measurement by attending to the development, use and consequences of non-financial indicators. Indicator potential depends on the meaning ascribed to the indicators, how indicators are assumed to link to action, how they are used and how they are related to other organisational activities. She highlights the relevance of the ways in which indicators are used: indicators can also have a negative impact on performance unless used in a sophisticated manner[23]. Ersson argues that the users of the measurement need to know the purpose of the measurement in order to trust them: Are they generated e.g. for the purposes of reporting to higher authorities, for learning purposes or to influence the conduct of individuals? Her results indicate that the commonly used saying of "*What gets measured gets managed*" needs to be reformulated to "*What gets mobilised gets managed, especially if it gets measured*".

Quantitative vs. qualitative measurement

The performance measures required in the performance measurement systems of public organisations are very often quantitative. This is based on the notion that measures are more powerful than words as a mechanism of transcription, due to their reproducibility, durability and communicability (see e.g. Latour 1987). Townley et al. (2003) however remind us of the danger of focusing on easily quantified objects, leading to a preoccupation with them, and resulting in bizarre strategic consequences. This has been amply demonstrated in the literature.

[23] The concept of "sophisticated use" refers to the inclusion of indicators in models of cause and effect relationships and the communication of indicators by discussing them with employees.

4.1.3 Process management and urban development

Urban development can be seen as a collaborative development process of a complex network of public and private actors working hand-in-hand with the users of the planned area as customers. Thus, the analysis of urban development may benefit from approaches proven effective in the development of networked business processes.

As Lemmetty (2005) has demonstrated in her research in the OPUS project, urban planning can be considered as part of the larger core process of the municipality which includes the processes of development and maintenance of built environment aimed at enabling activities needed by citizens and other stakeholders (see also Section 3.1). In consistence with process management principles Lemmetty claimed that this process should start from user needs and end with user satisfaction. Her study focused on urban planning as the preliminary phase in the process of building the physical environment, while this thesis examines the whole process of urban development including, by definition, the maintenance of the area.

The process view in urban development has gained increasing interest both among practitioners and planning researchers. In a recent study on the characteristic differences of the planning processes in the Netherlands and Finland, the linking and overlapping of the processes of planning and implementation was shown to produce high quality living environment (Soudunsaari 2007b). Soudunsaari suggests that Finnish planning practices are moving to a more flexible direction, and the linking of planning and implementation is becoming more common also in Finland.

A central element in process management is measuring performance in key areas. Hannus (1994) points out that this requires process-oriented performance indicators and their adequate measuring. In Finnish urban development this is often neglected though measures could be developed for both tangible and intangible assets (Kaplan & Norton, 2004). For example, post-occupancy evaluation of new areas and buildings would be very much needed, but their application remains low (Kyttä & Kahila 2006). The reason for the almost non-existent performance measurement in Finnish urban development may lie in the lack of process thinking and, in consequence, in missing process management. Only when the process really is managed do the issues on performance measurement emerge. The use of appropriate performance

indicators may increase the understanding of the common goals, and thus help to avoid suboptimisation. The indicators also serve as practical tools during the follow-up from implementation to the use of the area.

The coordination of the knowledge-intensive work of a huge amount of partners in the complex networked process of urban development, and the overall process ownership, are key challenges in managing the urban development process. In addition, urban development mainly proceeds in the form of projects. Thus, together with process management, project management is also required, not only on the level of a single project, but on the level of a set of development projects that together produce the urban area. Portfolio management provides the tools needed to accumulate a balanced set of urban development projects. It is essential to understand how alterations in one project affect the portfolio as a whole. An important feature of the portfolio is that it also indicates whether a project should be abandoned because it does not fulfil the strategic goals set.

In urban development, and specifically in its urban planning phase, the political nature of decision making brings with it an additional challenge in the attainment of long-term goals. Elected officials on municipal boards and councils potentially change every four years, which represents a rather short period as compared to the process time taken for the normal process of development of a new area.

Summary: Framework for process management and urban development

As a summary of this section, Table 3 presents a framework of important elements in process management theories and relates them to the application potential in respect of urban development.

Table 3. Process management and urban development

Theory elements in process management		**Potential application to urban development**
p1 Continuity of the process through organisational boundaries	Business process management theories distinguish between core processes and support processes. Core processes typically run through organisational boundaries (Hannus 2004)	Urban planning can be examined as part of one of the core processes of the municipality, i.e. the process of the development and maintenance of the built environment (Lemmetty 2005). In this thesis, urban development is comparable to this core process.
p2 The process starts from customer needs and ends with their satisfaction	The business processes of organisational units begin from the interests of the stakeholders or customers, and end with a solution acceptable to them. (Hannus 2004)	The processes of urban planning and implementation could benefit from the view of joint customers whose expectations should be met.
p3 Elimination of sub-optimisation	In process management, the activities are not managed by function but by inter-functional processes that create value to the customers. This eliminates risks of suboptimisation, often caused by the functional mode of action (e.g. Davenport 1993, Markus and Keil, 1994 Hannus 2004). In project-based business, portfolio management is additionally required within the process management approach (e.g. Elonen and Artto 2002)	The public sector is highly concentrated around sections and departments often leading to sub-optimisation from the point of view of the citizen. The application of process management could bring about essential improvements towards more optimal solutions.
p4 Maintaining the goals through measurement of performance	In a process-driven mode of action, strategic goals are first derived from the vision, and the performance is measured in key areas using process-oriented performance indicators. (e.g. Kaplan and Norton 1992, 1996; Evans 2004; Otley 1996, 2003; Bitici 2005; Ersson 2007).	In Finnish urban development, targets are often set without defining corresponding indicators. The degree of post-occupancy evaluation of new areas and buildings remains low (Kyttä & Kahila 2006). Together with the introduction of process management, the definition of meaningful performance indicators for urban development could be enhanced.
p5 Naming of process ownership	The process owner is responsible for the management and the development of the process (Hammer and Champy 1993; Davenport 1993; Hannus 2004; Smeds 1994)	The process is divided in sequences, many of which remain without process ownership. Naming of process owners, and their relationships in the overall process, could improve the performance of the urban development process.

4.2 Network approach

RQ2: What characteristics of the network approach can contribute to the coherence of a networked urban development process?

In addition to the broad process approach urban development should be seen in the context of networks. In the current business world companies and other organisations increasingly form economic networks and alliances to achieve competitive advantage. Thus, networking and network management have become important skills, perhaps even prerequisites for success in many fields of society.

The first business networks were formed by private companies and they still constitute the majority of existing networks. The main benefit from networking is that a network can provide its member companies with access to resources, technologies, markets and knowledge which would otherwise be unattainable (Gulati et al. 2000). Networks also enable companies to focus on their own core competencies and outsource other value chain activities (Jarillo 1988). Network literature lists several additional advantages for networking companies: operational efficiency and added flexibility, the ability to meet customers' individual needs, sharing and lowering risks and the creation of new technologies and products (e.g. Möller & Rajala 2007, Gulati et al. 2000).

In his article 'The strength of weak ties', from 1973, Granovetter presented a paradox that had a major impact on network theories, namely, strong ties breed local cohesion and lead to overall fragmentation whereas weak ties are indispensable to individuals' integration into communities. Most network models deal with strong ties. Weak ties are, however, important channels of information. Granovetter criticises organisations because of their inability to understand the meaning of human relations. He emphasises the embeddedness developed in these networks.

Gulati (1998) introduced a social network perspective to the study of strategic alliances. In this way he extends prior research, which has primarily considered alliances as dyadic exchanges and paid less attention to the fact that the processes and outcomes associated with alliances can be defined and shaped in important ways by the social networks in which the firms are embedded. According to Gulati, alliances provide a unique arena in which action and structure are closely interconnected and the dynamic co-evolution of networks

can be examined. Gulati demonstrates how social networks are valuable conduits of information and can, therefore, be influential in both the creation and success of alliances.

4.2.1 Network typologies

Networks can be typified on several bases. Commonly used typologies are formed according to the structure of the network (e.g. Achrol 1997), the goals (De Man 2004), and to the value-creation systems (Möller & Rajala 2007) of the network. Regardless of their business context the typologies referring to the goals and value-creation systems are interesting from the viewpoint of urban development. They are presented in greater detail below[24].

According to De Man (2004), the selected network type should support the **goals** of the company. Therefore, identifying the goals of the network is crucial for its success. De Man has created a typology based on five different goals:

- *Quasi-integration networks* are established between direct competitors in order to increase market power and save costs. Good examples of quasi-integration networks are airline alliance networks.

- *Vertical supply networks* aim at improving supply chain effectiveness and are thus formed by the suppliers and producers of a certain value chain. These network types can mainly be found in the manufacturing industry.

- In *solution networks*, partners with complementary goods or services from different industries form either horizontal or diagonal relationships in order to provide customers with complete offerings. Most solution networks are found in the IT sector in business-to-business settings.

- The goal for *R&D networks* is to share risks, costs and competencies between partners while developing new technologies. R&D networks are often pre-competitive, project-like and exist for a limited time period.

- *Standardisation networks* aim at setting dominant technologies or processes and have visual impacts on markets. Standardisation networks involve the key players of certain sectors and often competitors need to collaborate in order to set the standard.

Möller & Rajala (2007) have created a network typology based on the network's underlying **value-creation** system. They draw a distinction between general networks and intentional business networks by calling intentional business

[24] The presentation of network typologies is based on Hänninen, Huhta & Väyrynen (2008).

networks 'business nets'. Based on value-creation systems, networks can be roughly divided into three types, which form a continuum:

- *Current business nets* have stable and well defined value-creation systems. Value activities and the actors performing them are well known as are the technologies and business processes used. Current business nets are used to improve efficiency.

- In *business renewal nets*, incremental improvements are made to the value-creation systems. Value-creation systems are however well known and the modifications are made to already existing value-creation systems. The goal of business renewal nets is to amend business processes through small innovations and changes.

- *Emerging business nets* involve radical changes and innovations with the emergence of new value-creation systems. Both existing value activities and the actors performing them can encounter radical changes. The goal of emerging business nets is to create new business concepts and technologies.

Public-Private Partnerships

The need for private companies to reinforce their socio-economic relationships with public institutions coincided with the public sector need for private financing. As a result, public-private networks started to emerge in the 1990s, mainly in the UK[25]. A Public-Private Partnership (PPP) can be seen as an extension of what is termed New Public Management (Broadbent & Laughlin 2003, 332). PPP's are usually defined as contractual agreements between a public agency and a private sector entity. Through this agreement, the skills and assets of both public and private sectors are shared in delivering a service for the use of the general public. In addition to the sharing of resources, each party shares in the risks and rewards potential in the delivery of the service. Broadbent and Laughlin (2003) forecast that PPP's are likely to be the major vehicle for future development in the provision of public services though significant differences nevertheless exist between countries both in their adoption of, and in their adaptation to, PPP's. In urban development, in Finland, public sector interest in PPP's has obviously been raised by the need to acquire additional resources to fund urban development activities (cf. Nykänen et al. 2007).

[25] The Conservative government in the United Kingdom introduced in 1992 the private finance initiative (PFI), the first systematic programme aimed at encouraging public-private partnerships.

The newest form of network is based on the collaboration of actors representing both the public and private sectors together with their customers. This network is called **4P-network** where 4P = Public-Private-People Partnership (Lemmetty et al. 2005, Majamaa 2008, Staffans & Väyrynen 2009). These new 4P-networks are, by definition, more complex and their actions are more time-consuming than those of conventional business networks (Hänninen et al. 2008). The problem faced in 4P-networks is the difficulty in proceeding from vision to successful implementation, when the actors of the network change during the long-lasting process and, in the interim, the operational environment may be transformed in many respects. This situation sets new challenges for the management of a 4P-network as compared to that of other more homogenous networks.

Majamaa (2008) has studied the end-user's role in PPP-based urban development and has developed a 4P-based urban development process. He has considered urban development from a consumerist perspective. In this context he argues that the inclusion of an end-user's perspective in the urban development process provides flexibility to and generates benefits for all stakeholders and should be seen as a useful method of creating desirable living environments and neighbourhoods (Majamaa 2008, 65). Majamaa also discusses the end-users role as primary stakeholders in the innovation process of creating residential products. He does not, however, consider the inclusion of a fourth 'P' from the point of view of network management nor from the point of view of citizenship.

Network typologies presented earlier are created for business networks. Application of these typologies to public or public-private networks requires careful case-specific analysis (Hänninen et al. 2008).

Public networks have been classified by Agranoff (2006) in four categories based on the scope of activities undertaken within the network: (1) informational, (2) developmental, (3) outreaching or (4) action network. Informational and developmental networks are concentrated on problem solution and exchange of information; all activities occur in the home organisation, not at the network level. Outreach networks develop collaborative plans and strategies for different situations, but these are not implemented at the network level. In action networks, e.g. in service production, network level activities are executed collaboratively between network members.

Communities of practice

The theory of communities of practice (Wenger 1999) provides an additional way of understanding the methods and motives of collaborative action of various groups. Communities of practice are informal and self-organised, and the membership in a community of practice is self-selected. They are formed to build and exchange knowledge and to develop their members' capabilities. Not being formal entities, communities of practice are easily overlooked as a resource. Nevertheless, as Wenger (1999, 253) notes, "*communities of practice are the social fabric of the learning of organisations*". Besides, their ability to cross institutional lines and stretch beyond organisational boundaries makes them crucial to learning in organisations.

It is worth noting that it is possible to participate simultaneously in multiple communities of practice. This experience of multi-membership creates a major potential for learning and innovation (Wenger 1999). Smeds and Alvesalo (2003) point out that it is the challenge of management to organise and give direction for this potential: to connect up the knowledge that exists in the different communities of practice into a dynamic and systematic innovation process.

In urban development, e.g. the residents can be regarded as a community of practice, "*informally bound together by shared expertise and passion for a joint enterprise*", as defined by Wenger and Snyder (2000). Wenger and Snyder remind us that communities of practice, though informally grouped, can be directed towards the targets of a formal organisation by providing an environment for their activities and supporting organisation's members to engage in those activities.

Staffans (2004) claims that urban planning itself at local residential level can be seen as a community of practice, which is institutionally bound up with political decision making and with the professional expertise responsible for preparing the decisions and plans. In addition, communal actors in the planning process, as well as professionals like architects, build their own communities of practice.

Learning in networked cooperation

Knowledge acquisition and knowledge transfer play a significant role in networked cooperation. This is not, however, sufficient if the objective is set to learning between the network partners, which is the case when the network not only carries on their activities as usual but aims, instead, at finding innovative solutions. Learning in a networked cooperation situation necessitates, in addition to knowledge sharing, joint knowledge creation. Lubatkin et al. (2001, 1366-1368) argue in their study on inter-firm learning that there are several preconditions for the occurrence of reciprocal learning and joint discovery:

1. The similarity of the partners' general knowledge base and the ability to speak the basics of each other's language
2. The areas of expertise and commercial objectives are in different domains
3. The similarity of institutional values and routines
4. Similar vision and strategic motivations for engaging in cooperation
5. Reputation for being a good and committed partner.

In the model of Lubatkin et al (2001), successive learning cycles of convergence, divergence and reorientation facilitate knowledge creation and innovation. The authors also stress the importance of goal interdependence: "*Through repeated joint activities, the alliance partners may develop a shared belief as to how their respective knowledge might be blended and leveraged in a manner that is independently meaningful to each, and in the process, realize their goal interdependence*" (Lubatkin et al. 2001, 1371).

In a networked cooperation situation, learning can take place at several levels: at the individual, group, organisation, or at the inter-organisational network level (Knight 2002). This entails understanding that the notion of learning differs from level to level. In her model of network learning, Knight illustrates how a group of organisations learn as a group. Network learning is not merely the sum of learning by the individuals and organisations that make up the network. According to Knight, network level learning is characterised by changes to network level properties, i.e. organisational processes and practices and structures of interaction, as well as by changes to interpretations and norms.

Toiviainen (2007) claims that when considering inter-organisational learning in networks, the emphasis of network activities should not rely too heavily on the relations but instead on the object of activities. She also points out that the multiple level structure of the network is an essential feature of the flow of information and learning. According to Toiviainen the relations in a network can sometimes, however, be too strong which may lead to a stiffening of activities and, consequently, to regression instead of progress.

4.2.2 Network management

Networks differ from hierarchical organisations in many respects and they also set additional requirements for management. Network management methods have become an important competence factor for managers and also an interesting research topic. Research in this area has mainly concentrated on network management in private sector organisations (e.g. Möller & Rajala 2007). Recent literature has however also covered some aspects of public sector networks. Agranoff (2006) has studied the network structures and characteristics as well as the differences between the public and private sectors. McGuire (2006) has defined the managerial skills needed for the management and collaboration of public networks. Nevertheless, management in public sector networks remains an area where additional research is undoubtedly needed.

It is an inherent feature of networks that they cannot be managed in the sense of having full control of another actor's resources and activities. While agreeing with this, Möller et al. (2005) maintain that the management of networks can be considered a relative issue where the opportunities of control vary according to the types of the networks. Consequently, different skill sets or managerial capabilities are needed in operating in different types of networks.

With reference to the network typologies presented earlier, methods of network management can be classified respectively. The management of networks based on value creation (Möller & Rajala 2007) presents the following requirements[26]:

- In *current business nets*, management has to support the utilisation of the existing capabilities of network members by creating an efficient and competitive value creation system. The value activities and operating principles of the network

[26] The presentation of management requirements is based on Hänninen, Huhta & Väyrynen (2008).

need to be determined and well understood throughout the network. Seamless information and material exchange between the network partners, as well as transparent and codified processes, are essential.

- In *business renewal nets*, it is important to create a common understanding about the capabilities needed in the project and to coordinate the dispersed resources for development. In order to make learning and problem-solving possible, collaborating actors have to trust each other and be able to communicate and share their capabilities. The benefits of networking must also be shared between all actors in a motivating way.

- Management of *emerging business nets* requires complex organisational and managerial capabilities. In an emerging business net, new ideas can be numerous and disorganised, So the main challenge is the identification of the ideas with the most potential. The common development agenda has to be communicated to all parts of network. There is also a need to encourage collaboration, learning, trust and information change between actors, together with project-based management.

Hänninen et al. (2008) suggest, referring to 4P-networks in urban development, that a careful analysis of network typologies can contribute to defining an adequate combination of private and public sector network management methods for these large and heterogeneous networks. Both of these sectors share the strong interest in coordination as an essential part of the management of the network

Management of networks also include **management of change**, although managing change in networks has not yet been extensively studied. Hänninen (2009) combines theories of business networks, business process development and change management in a novel way. According to Hänninen, the success factors in managing change in networked business processes include, in addition to the success factors identified in the previous change management literature, the following: a neutral facilitator of the development effort, a common steering group, a concrete understanding of all key actors' processes, a comprehensive understanding on the impacts the change has on all stakeholders, and the appointment of a process owner (Hänninen 2009, 131). The network of actors operating for urban development encounters continuous change, and the environment of their actions is also constantly changing. Thus, the results presented by Hänninen are of particular interest from the perspective of urban development.

At the organisational level, many studies on change show that a prerequisite for the success of a change project is the existence of a change champion, who acts enthusiastically to have the idea implemented (e.g. Smeds 1994, with ref. to Kanter 1983). These champions build informal support networks for the change provided that they have the required information, political intelligence and expertise, as well as resources and support from the top management. Smeds (1994, 72) points out that these requirements reflect personal qualities of key people, and they cannot be created through managerial methods.

4.2.3 Networks in urban development

Networks of actors in business, administration and politics usually organise themselves hierarchically according to functions and roles. Staffans et al. (2009) argue that the problem with these kinds of hierarchical networks is that they do not support a culture of trust and cooperation, which again is essential for the functioning of an urban development network.

As Lemmetty (2005) points out, the complexity of networks in urban development is constantly increasing. The vision of a new urban area cannot be implemented without the cooperation of a broad network of public and private sector actors, developers and service providers - even in the case they were each other's competitors - together with the current and potential future users of the areas. While the networks expand, the redefinition of the roles among the old and new actors is often neglected.

Developer networks

The developer network is a new type of cooperation in the development of an urban region. Kostiainen (2002, 47) has examined the elements of urban regional competitiveness, and defines two of them as essential: 1) institutions, and 2) an efficient developer network. The developer network means the group of those actors whose specific task is the development of the urban region and whose influence is strong due both to their own activities and mutual interaction. According to Kostiainen, it is a loose network without any fixed operational model, and its composition may change with development measures. In addition to municipal representatives, the members of the network may include research institutes, technology centres, development companies,

financiers, state agencies, and key companies. It is noteworthy, that this kind of developer network may be managed by any member of the network.

Kostiainen (2002, 48-49) has studied the learning processes of developer networks within the theoretical framework developed by Nonaka and his colleagues (cf. Nonaka & Takeuchi 1995, Nonaka & Konno 1998). Kostiainen interprets learning in an urban

region as a qualitative property of the development process: the more learning, the higher the quality of the process. When a developer network operates well, i.e. when it learns, it connects the external knowledge received via marketing with, for example, the internal knowledge created in the network of the innovative *milieu*[27]. On a more general level, the development network interprets global flows and looks for ways to connect to them while transferring knowledge from them in a continuous learning process.

Staffans et al. (2009) point out that the developer network does not offer self-evident roles to any of its actors. This new practice certainly brings to urban planning a new perspective, totally different from the traditional practice of political governance. Both the new and the old actors have to choose their strategies under altered circumstances. Their task is also to provide a clear definition for the scope of the network of urban planning, striving e.g. for regional competitiveness or for the well-being of citizens.

The developer network described by Kostiainen does not include the local point of view represented by the residents. Staffans et al. (2009) argue that residents should be accepted into the developer network as experts of local knowledge. This would only be possible when the institutions around urban planning recognise the value of experiential knowledge and the significance of the expertise found outside the professional sphere.

[27] Kostiainen has developed the concept of *the innovative milieu* to be "a whole of relations appearing in a certain geographical area with a high level of quality of life which is also networked beyond the area itself and which increases the unity of production systems, economic actors and industrial culture creating local collective learning and acting as a mechanism alleviating insecurity within the innovation process" (Kostiainen 2000, 44).

Value networks

The urban development process can also be seen in the context of a *value network*, composed of public and private organisations and the residents (Lemmetty et al. 2005). According to the definition (Möller et al. 2005), value networks are formed by organisations collaboratively producing value for customers; each organisation adds value to the collaboration by operating on the field of its core competences. The management of the network requires that the value activities and competences are first identified (Möller et al. 2005).

When applied to urban development, an important element of the value network is the inclusion of residents, their associations and other stakeholders in the development process as significant actors. Staffans (2004, 285) described local citizen networks and developer networks as "resource banks" that could, under favourable circumstances, produce innovative ideas for urban planning. Referring to Staffans (2004) and Möller et al. (2005), the identification of the value brought into the network by all these stakeholders would be an essential prerequisite for successful network management in urban planning. This would necessitate the clear definition of the competences of these actors as well as specifying the value activities suitable for them.

Summary: Framework for network management theories and urban development

As a summary of this section, Table 4 presents a framework of essential elements in network management theories and relates them to the application potential in respect of urban development.

Table 4. Network management theories and urban development

Theory elements in network management		**Potential application to urban development**
n1 Value creation in collaboration, combining each partner's core competence	Value networks are formed by organisations producing collaboratively value for customers through combining their core competences. Management of the network requires that the value activities and competences are first identified (Möller et al. 2005).	The urban development process can also be seen in the context of a value network, composed of public and private organisations and the residents. The definition of value activities and competences of these actors would be a prerequisite for successful network management also in urban development.
n2 Commitment to common goals throughout the network	A shared view of the common goal has to be communicated throughout the network in order to reach a commitment to the goal (Möller & Rajala 2007). In addition, the stakeholders have to be able to develop a shared knowledge that is meaningful to each of them individually, and to realise their goal interdependence (Lubatkin et al. 2001)	Actors in the planning network seldom share a common goal because the management of the process is dispersed. This situation seems to call for a clearer definition of the responsibility for communicating the goal, as well as for a process where the stakeholders can build joint knowledge, meaningful to each, and in this process realise their goal interdependence, which in turn helps build the common goal .
n3 Coordination is essential in the management of a network	Being able to mobilise and coordinate the value activities of other relevant actors is essential in managing networks (Möller et al. 2005). The coordinating role should be taken by the organisation that is best placed to gather and use the information needed for the network (Hannus 2004).	During the long process of urban development, an active coordinator could enable the actors to create new relationships and ways of collaboration already at the early stages of the process.
n4 Encouragement of collaboration	Open sharing of information, mutual support and trust are typical characteristics of a successful collaboration in a network. A network can simultaneously contain both competition and collaboration (Hannus 2004).	The planning organisations often have a different set of values, compared with the implementing organisations. For example, many construction companies may have difficulties in considering their partnerships as being based on mutual support and trust. True collaboration presents a real challenge to urban development.
n5 Interaction is a prerequisite for learning in the network	Interaction between the members of a network is essential for learning; learning is necessary to improve the performance of the network (Knight 2002). Learning in a network develops most favourably if each partner has an important and unique role in it. The partners should realise that their own goals are best reached by striving for the common goal (Lubatkin et al. 2001)	The performance of the network in urban development could be improved if more learning takes place during the process. Interaction between different communities of practice may create learning and innovation in the network context even in urban development.

4.3 Innovation approach

RQ3: What characteristics of the innovation approach can contribute to an innovative urban development process and to an innovative outcome of the process, the urban area itself?

Innovation in industrial organisations originally meant the development of new products that were then 'handed over' to production, marketing and sales. This sequential approach was sufficient when the pace of innovation was slow. With increasing competition in speed, quality and cost, operations were organised to run in parallel. The latest dynamics in the globalising business world have however led to the creation of complex network structures which seek to collaborate in the context of inter-organisational processes.

These networks increasingly also include the customers in the business processes. Thus, we are currently reconceptualising products as services which the customer co-develops, co-produces and finally consumes (Smeds et al. 2005, Grönroos 2006). This development has been reinforced by the integration of ICT into the processes. To manage this inter-functional, networked collaboration, process innovations are badly needed. The challenge of innovation is ongoing: to stay competitive, companies and their networks have to innovate continuously and they also have to continuously improve this innovation capability (Smeds 1996).

In a broad sense innovation can be interpreted as the successful implementation of new ideas in any setting. Renewals occurring in complex systems like urban development may be better conceptualised through the term of **systemic innovation**. Innovations are generally assessed based on their technological novelty. Systemic innovations, however, are not necessarily radically new in terms of technology. Systemic innovativeness may be based on a new way of combining different kinds of incremental innovations (cf. synthetic innovation, Tushman & Nadler, 1986).

According to Henderson and Clark (1990), in systemic innovation, the core elements of the system remain unchanged, but their linkages change. If also the core elements change, they classify the innovation as radical. After the seminal work of Henderson and Clark (1990) the concept of systemic innovation has been used in different disciplines and discussed in the literature (e.g. Elzen et al. 2004).

From the perspective of urban development, the study of innovations in the Finnish health care and energy sectors by Kivisaari et al. (2004) awakens interest. This study defines systemic innovation as consisting of simultaneous changes at different levels of an integrated system; innovations may relate to new technologies, services, processes or organisations that together form a new mode of operation. A systemic innovation is often created when the adoption of a technological innovation requires new modes of thinking and changes in user practises (Kivisaari et al. 2004).

The production of a systemic innovation in a complex network of activities, such as urban development, requires the participation of numerous actors, from policy makers to service and technology providers. The challenge in managing systemic innovation lies mainly in the creation of interaction channels between the many actor groups, and in maintaining these connections during the whole process. A typical feature is that systemic innovation calls for amendments to regulations and legal provisions. This brings new actors to the network and extends the process even further (Saranummi et al. 2005).

4.3.1 Process innovation management

When global markets require higher quality products and services, increasing flexibly and quicker transaction times etc, the answer usually relies on process innovations: on new and more efficient - often IT-enabled - solutions in the division of labour along the customer-oriented value chains. According to Smeds (2001), the development of business processes has thus far been driven by innovations in the order-to-delivery process. The innovation focus is however currently shifting to the product development process, with process, service, and product innovations becoming ever more intertwined. It is also noteworthy that process innovations are often induced by the development of new products, and service innovations include process innovations as an integral part.

Following the general definition of innovation (Urabe 1988, 3), process innovations are successfully implemented process ideas. Process innovations are usually regarded as incremental innovations, but changes in the chain of business processes can also trigger strategic renewal. Smeds remarks that achieving radical change through implementing incremental steps implies manageable, evolutionary change.

The successful implementation of process innovations calls for **shared process understanding and learning** in the organisations and in the whole business network. Smeds argues that without organisational learning, process innovations will not be implemented. "*In single loop learning, new knowledge is applied for routinisation, to improve incrementally the quality and efficiency of existing operations. Double loop learning leads to radically new practices in the organisation, by questioning its basic values and norms. Double loop learning happens continuously in knowledge creating companies*" (Smeds 2001, 3, with ref. to Nonaka & Takeuchi 1995).

The management of business process innovation requires **participation and empowering** mechanisms for knowledge sharing and creation. The importance of participation is that it creates a common understanding and commitment to change, more viable ideas are developed, and their implementation into innovations is facilitated. Empowerment is needed for at least two reasons: "*The employees who work in the process to be developed possess the important, often tacit operational knowledge that has to be included in the spiral of knowledge creation for valid process redesign. They are also the key actors in realizing these ideas, in implementation*" (Smeds 2001, 4).

The importance of the composition of process development teams in process innovation is also emphasised by Smeds (1996). The team members should come from different functions and different organisations that belong to the same business process, in order to reach holistic knowledge. When the members also represent different hierarchical levels, it is possible to include in the teams operational as well as strategic knowledge.

Process innovations do not emerge without the strategic direction provided by management. Smeds (2001, 4) argues, using the concepts of Henry Mintzberg (1988), that "*successful evolution management requires an umbrella strategy. It gives the vision and guidelines for the emergent process innovations, but does not define them in specific terms*". Lessons learned from product innovation should also be applied to process innovation. Smeds suggests that e.g. strategic project portfolio management and an aggregate project plan could help in managing a balanced mix of process development projects as well as in allocating resources. At the same time, management should not endanger the continuous, creative bottom-up development of process ideas but instead support it.

The results of business process innovations have been labelled as new management paradigms, such as *lean management* and the *lean enterprise*, the *extended or virtual enterprise*, and *agile manufacturing*.

Innovation and learning are, according to Urabe (1988), inseparable forces in the management of innovations. It can be concluded that the successful implementation of process innovations calls for shared process understanding and learning in the whole business network. Only when the organisation really learns and implements the new ways of working does the process innovation create value added. Process innovations in a networked environment pose a great challenge to individual as well as to organisational and inter-organisational learning.

4.3.3 Product development

The aim of any product development project is to convert an idea from a concept to a specific product able to meet market needs in both profitability and manufacturability terms (Wheelwright & Clark 1992, 111). Product development highlights the needs of the end customer and emphasises broad idea generation steered by the company's business strategies (Wheelwright & Clark 1992, 124-127). Systematic management of product or process idea generation and concept development is an essential feature in product development.

The **development funnel** is often used as metaphor for product development (e.g. Wheelwright & Clark 1992). In the initial phase of the development project, through the wide mouth of the funnel, ideas are gathered from a large variety of sources. Innovation and input is encouraged from all parts of the organisation as well as from customers, competitors, and suppliers. Following a first screening, the best of those ideas are then detailed and analysed, and additional information is acquired when needed. At the second screening, the product or process development options are reviewed, and those selected will become development projects with the expectation that they will be carried through to market introduction. With each screening, the funnel is narrowed down, until the final selection and funding decision. The main challenge is to aggregate a project portfolio that contains a set of projects matching, in total, the company's strategic requirements (Wheelwright & Clark 1992, 107).

Every company aims to launch their new innovative product to the market successfully. In their study concerning predictors of new project success, Goldenberg et al. (2001) draw attention from popular areas, such as speeding up product development, towards a more thorough analysis of the product idea itself and of the circumstances of its emergence. They argue that early determinants, provided that they are examined carefully, allow for the prediction of an idea's market potential in the very first stages of its emergence.

The principles of product development apply to process development as well. The customers of the business process are its end-users, i.e. the employees that work in the process (Smeds 2001). The user centred view, systematic management of the development project and the involvement of a wide range of stakeholders, together with emphasis on the development strategy and the management of the development projects as a portfolio, are all relevant principles for business process development, and can also be useful in developing an urban area and its planning process (Lemmetty 2005).

Many of the principles and concepts of product development are currently applied to service development. New service development and service innovations will be considered more in detail in the next Section 4.4 dealing with the service approach.

4.3.4 Innovations and urban development

Lemmetty (2005) has examined urban planning using the analogy of a networked product development process. Similarities can be found e.g. in the ways in which idea generation is managed in a development network crossing organisational boundaries. She suggests that the principles of product development can be applied to urban planning in order to develop both the planning process (process innovation) and the resulting urban areas (product innovation).

The main differences between a city practicing urban development and a private company carrying out product development lie in the amount of interest groups and in the main intention of action. When a city aims for the smooth progression of its development process, the commitment of its official partners will not be sufficient; contrary to private companies, the city also has to consider the opinions of all other stakeholders, such as residents. These stakeholders have, for example, a legal right to appeal against the local detailed plan if they

feel that their arguments have not been taken into account. While decisions are made in a product development process on the basis of financial and commercial considerations, the urban development process in addition goes through several stages of political decision-making, which underlines its extensive impact on and responsibility to society.

Regardless of the apparent differences between urban planning and product development, the model of the development funnel for idea generation and screening could be useful in the context of urban planning. The idea processing should be led by a development strategy and the selected ideas should be introduced to the decision makers. The amount of new knowledge produced in this kind of process also requires novel approaches to knowledge management.

When urban development is considered as a process this will presumably uncover needs for process innovations. Smeds (1996, 2001) points to the basic similarities in the management of both product and process innovations. Innovation management theories offer tools to examine the roles of different actors, e.g. architects and planners, in the development of improved products and processes in the urban context.

Majamaa (2008) has studied the inclusion of the end-users' perspective into urban development processes based on Public-Private-People Partnership (4P). Through the 4P-based urban development process, according to Majamaa (2008, 51), it is possible not only to find out what end-users desire as consumers, but also to bring them into an innovative process of creating residential products. The 4P-based urban development process should be able to create desirable living environments and neighbourhoods to match end-users' lifestyles by involving them in the urban development process, using new participation methods.

Societal quality of innovation

When an innovation is designed to meet societal needs, e.g. resisting climate change or reducing emissions, we have a reason for highlighting the **societal quality** of the innovation (Kivisaari & Lovio 2000; Väyrynen et al. 2002). This term refers to co-operative efforts to secure the societal benefits of an innovation. According to Kivisaari & Lovio, societal quality can only be achieved through the close interaction of producers, users and societal actors. Urban development is undoubtedly an activity designed to meet societal needs.

As such, when urban planning is at issue, the success of innovations in this process should be evaluated by the societal quality of the resulting environment.

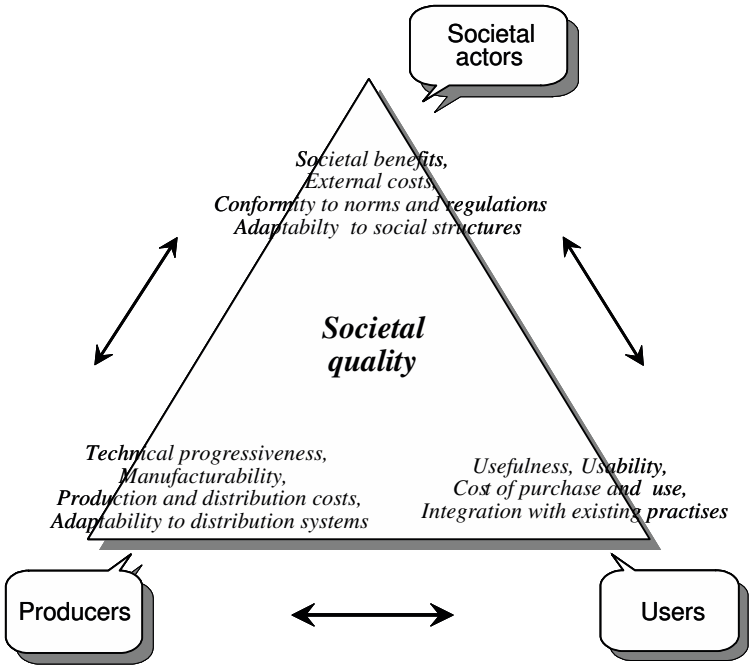

Figure 7. The dimensions of societal quality (Kivisaari & Lovio 2000)

The dimensions of societal quality are presented in Fig 7., with the critical actors contributing to the success of the innovation In a product development process, the producers are typically responsible for the technical progressiveness of the innovation, and for the production and distribution costs. The users are interested in the usability of the product as well as in the cost of purchase and use.

The quality of an innovation is usually assessed by these two groups. Realising the multi-dimensional societal quality of a product or a service calls for a continuous dialogue and co-operation between a number of external actors. This group of so called societal actors consists of the public authorities and of various other interest groups, including the media and NGOs. The societal actors are in charge of e.g. the societal implications and external costs incurred by the innovation as well as its conformity to norms and regulations.

Orchestrating parallel interaction with users, producers and the societal actors is needed.

When this triangular model is applied to innovations aimed at satisfying societal needs, we can see that the technical progressiveness of the product or its adaptability to infrastructure are not sufficient elements to attain high societal quality. Väyrynen et al. (2002) point out that, in addition, several other questions need to be solved: Who will be responsible for external costs ensuing from the use of the innovation? How will the product or service be integrated with the existing practices of the users? What are the prerequisites for its wider acceptance by the public? These are all highly relevant questions also in respect of innovations in urban development. It has to be noted here that pursuing commercial success and societal quality are by no means in conflict with each other. Instead, societal quality of an innovation may in future become a precondition for its commercial success.

The **societal embedding of innovations** is an approach used to promote the implementation of innovations aimed at meeting societal needs and thus demonstrating high societal quality (Väyrynen et al. 2002). The societal embedding of innovation can be characterised as an interactive learning process among three groups of key actors, producers, users and societal actors, described in Fig. 7. Innovation is shaped co-operatively to fit the needs of the market and to attain the societal quality expected. The approach thus aims to create the conditions in which innovation can be adopted by its environment, which makes it particularly suitable to be applied in urban development.

The objective of the societal embedding of innovations is to promote the commercialisation of innovations that on the one hand yield a business profit and on the other support societal needs, e.g. sustainable development. Societal embedding contributes to the creation of the conditions in which these innovations can be adopted and, at the same time, it assists in adapting the innovation to the demands made by its environment. This approach can be characterised as a mutual adjustment of an innovation and the needs of the market (Kivisaari 1999).

The notion of societal embedding is built on the idea of innovation as a recursive process; the different stages (idea generation, development, testing and implementation, see e.g Wheelwright and Clark 1992) do not follow one another in linear fashion. Instead, the stages overlap each other. The reasons for

possible implementation problems are probably already woven into the product during the course of the development process. The final product reflects the developers' values and ideas in addition to aspects of which they were not potentially aware. Therefore, in order to secure acceptance on the market, the expertise of users and various other interest groups also needs to be integrated into the development process. In practice, the process includes continuous dialogue and negotiation between multiple actors. It can be described as an interactive learning loop in which both the development target and the participating network of actors undergo continuous change (Väyrynen et al. 2002).

New technologies in urban development

The new tools provided by the Internet and other new technologies enable an ever broader gathering of ideas, which is a very welcome trend, since participation and empowerment are the generic cornerstones of successful implementation of innovations (e.g. Kanter 1983, Smeds 1996). In the application of the new technologies to interactive urban development, however, also new problems emerge. Staffans et al. (2010) indicate that, for example, the interactive maps and message boards generate qualitative data, the use of which is not unequivocal. The map comments are currently processed by content analysis, i.e. by reading through the comments and classifying them into relevant categories. Local knowledge is needed to avoid misinterpreting the discussions and map comments (Rantanen & Nummi, 2009). Staffans et al. (2010) also remind us that there are no existent structures that could be used to import the information compiled on the websites and Internet forums to formal organisations, such as municipal departments. The discontinuity of information transfer is a major disturbing factor in the idea processing funnel, described by Wheelwright & Clark (1992). Further development of ICT is certainly needed in order to promote innovations in urban development.

Summary: Framework for innovation management and urban development

This study examines process innovations aiming to enhance the urban development process. At the same time this study discusses whether the new urban area resulting from this process can be described as an innovation itself. As a summary of this section, Table 5 presents a framework of essential elements in innovation management theories and relates them to the application potential in respect of urban development.

Table 5. Innovation management theories and urban development

Theory elements in innovation management		**Potential application to urban development**
i1 Wide idea generation and systematic screening	Product development highlights the needs of the end customer and emphasises broad idea generation. A systematic management of the product or process idea generation and concept development is an essential feature (Wheelwright & Clark 1992).	Product development and urban development share both the same interest in idea creation and in gathering and managing knowledge. New interactive net-based tools could support this idea generation process in urban development.
i2 Development strategy to steer idea processing	Idea generation and development should be steered by the company's business strategies (Wheelwright & Clark 1992). An umbrella strategy sets guidelines for the emergent ideas towards the vision (Mintzberg 1985, 1988; Smeds 1996, 2001)	In the context of urban planning, idea processing could also be led by a development strategy. After first selection, ideas could be introduced to the decision makers. Strategic guidelines are needed to steer the ideas towards the vision.
i3 Inter-organisational learning to promote process innovations	The successful implementation of process innovations calls for shared process understanding and learning in the whole business network (Smeds 2001). The societal quality of innovations is attained through an interactive learning process (Kivisaari & Lovio 2000, Väyrynen et al. 2002)	Organisational learning for process innovations requires adequate participation mechanisms for knowledge sharing and creation in urban development.
i4 Empowerment of actors is crucial in promoting process innovations	Participation and empowerment of the personnel in knowledge creation is crucial particularly in relation to process innovations (Kanter 1983, Smeds 1994, 1996).	The empowerment of actors in knowledge sharing and creation during the urban planning process requires a broad interpretation of expertise throughout the network (cf. Staffans 2004).

4.4 Service approach

RQ4: What characteristics of the service approach could be applied to enhance the coherent process of urban development?

In parallel to the general trend of producing services instead of products, new product development (NPD) has given way to new service development (NSD) in many business fields. This has also brought along an increase in the importance of the customer perspective. Involving customers in the new service development is central because services are produced and consumed simultaneously and the customer participates in this production process (e.g. Grönroos 1988).

Services differ from physical products, which brings particular features to their development efforts. Several studies nevertheless show that many of the concepts originating from the new product development literature are also applicable to service companies. Customer-oriented NPD requires collecting knowledge about the customers' needs in a systematic way and designing products based on this knowledge; the same applies to services and NSD.

A NSD process starts with the formulation of the service objectives and strategy, followed by idea generation, idea screening, service concept development and testing and an analysis of business implications of the service (Valkeapää et al. 2006). This process leads to the final decision on the implementation of the service. When a new service is implemented and it yields a profit, a service innovation can be said to have emerged, in accordance with the definition of innovation by Urabe (1988, 3).

In the field of innovation studies, service innovation is quite a recent approach (e.g. Gallouj & Weinstein 1997, Sundbo 1997) while service innovations, particularly in networks, have not yet been extensively studied. Innovation in services can be related to changes in various dimensions: in the service concept, in the client interface, in the delivery system and in technological options etc. (Jong & Vermeulen 2003). Most innovations involve a combination of changes across several of these dimensions.

The emphasised role of the customer creates the main differences between the processes of product and service development. The simultaneity of production

and consumption, and the customer's participation, make it even more important to involve customers in the development efforts than in the case of physical products. Differences are also caused through the intangibility of services and therefore services are often made more tangible by using concrete products. Hence, new service development generally consists of both the product and the service process (Grönroos 2006).

4.4.1 Customer involvement in new service development

In today's business environment, companies collaborate through complex inter-organisational networks and strive to include customers in their business processes (e.g. Doz & Hamel 1998, Gulati et al. 2000). Many similarities can be found in the comparison with contemporary urban development: when urban development is seen as a collaborative development process of a complex network of public and private actors, searching for adequate practices for including the users of the planned area in the process becomes a necessity. An essential question in this respect is which stages in the process are the most important for customer involvement.

Valkeapää et al. (2006) have studied how to enhance customer orientation in NSD in a strategic alliance. They present a new framework illustrating the prerequisites for a customer-oriented NSD process in an alliance context. They point out that collaboration in service processes promotes potential for service innovations and should therefore be encouraged.

In their framework, Valkeapää et al. have modelled the interaction needed in a NSD process through a case study relating the strategic alliance between two partner companies. The case alliance consisted of an insurance organisation (Partner 1, in Fig. 8) and a group of banks (Partner 2).

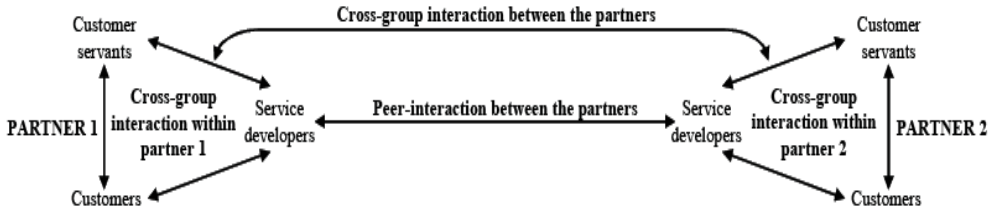

Figure 8. The model of interaction in a customer-oriented NSD process in a strategic alliance (modified from Valkeapää et al. 2006, 1495)

Based on their case study, Valkeapää et al. confirm that factors such as shared vision, values, and rules are important prerequisites for the NSD in the case alliance. Another important prerequisite for the development of the new collaborative service is a *shared view of the customers*, which also contributes to trust between the partners. Their study further highlights the significance of interaction between different parties in the collaborative NSD process. A collaborative NSD process should support *peer-interaction* between the personnel of the strategic partners. This peer-interaction between the partners is crucial in order to build a common vocabulary and consensus about the collaborative service.

In order to discover customer needs special emphasis should also be placed on the *interaction with customers* throughout the service development process. In the particular case studied by Valkeapää et al., the concept and service process development and testing phases included interaction between the service developers, the customer servants, and customer representatives. This *cross-group interaction* should evidently take place *within* one company but also *between* the partners (Valkeapää et al. 2006).

The development and testing of the service process differentiates NSD from the development of physical products. Based on their observation, Valkeapää et al. suggest that the service *process* should be developed and tested along with the service *concept*. It is the service *process* in particular that makes intangible services concrete and differentiates them from competitors' services.

Alam and Perry (2002) suggest, based on earlier literature on service innovation, that the failure rate in service innovations is high, partly because too little customer involvement occurs. Alam and Perry have identified the stages of the new service development (NSD) process for financial services and explored the input of customers at various stages. Their research confirms that customer involvement is needed to develop a superior service with better value for customers. Customer input appears to be particularly important at three stages: idea generation, service design and service testing.

When striving to develop services that match customers' needs, it can be stated that most attention should be paid to the idea generation stage in the development process. Managers should develop a planned and formal process of obtaining input from customers for their NSD projects while treating

customers as partners in their quest for successful new services (Alam & Perry 2002; see also Smeds et al. 2005),

4.4.2 Service quality and management of expectations

Grönroos (1988) has pointed out that customers' perception of service quality is influenced by two dimensions of quality: the outcome dimension, represented by the *technical quality* of the end result of the service transferred to the customer, and the process-related dimension, i.e. the *functional quality* or the method by which the service was provided. According to Grönroos, however, technical quality considerations are all too often seen the paramount quality issues. Developing the functional quality dimension – acknowledging it importance – may thus add substantial value for customers and create the necessary competitive edge. Grönroos also refers to corporate and local image as being of the utmost important to most services as they have a filtering impact on the perception of quality.

Grönroos (1988) concludes that the total perceived quality level is not determined by the level of technical and functional quality dimensions alone but rather by the gap between the expected and experienced quality. Good perceived quality is obtained when the experienced level of quality meets with the expectations of the customer, i.e., the expected quality. If the expectations are unrealistic, the total perceived quality will be low, even if the experienced quality measured in some objective way is good.

Based on earlier findings on expectations by e.g. Grönroos (1988), Ojasalo (2001) points out that service quality and satisfaction result from how well the actual service performance, in other words the service process and outcome, matches expectations. This justifies the need for methods of **managing expectations**. Thus, Ojasalo has explained the nature of three types of expectations typical in the professional services context: fuzzy, implicit and unrealistic expectations. Customers do not always have a clear understanding of what they want from the service provider. Some elements of the service may be so self-evident that customers do not actively or consciously even think about the possibility that they will not materialise. Sometimes expectations are either impossible or hugely difficult for any service provider to meet.

According to Ojasalo, these various expectations, if uncontrolled, may present a danger to long-lasting customer satisfaction. He has thus suggested the following

methods for managing these expectations in order to facilitate long-term customer satisfaction (Ojasalo 2001):

Focusing expectations from fuzzy to precise. Focusing expectations should always happen in a dialogue between the service provider and the customer. If the fuzzy expectation is not identified the wrong problem may be solved.

Revealing expectations purposely, from implicit to explicit. If the expectations become explicit only after they have not been matched by experiences, the "accident" has already happened causing dissatisfaction in the long run.

Calibrating expectations from unrealistic to realistic. When expectations are pitched realistically before or at the beginning of the service process future disappointment can more easily be avoided.

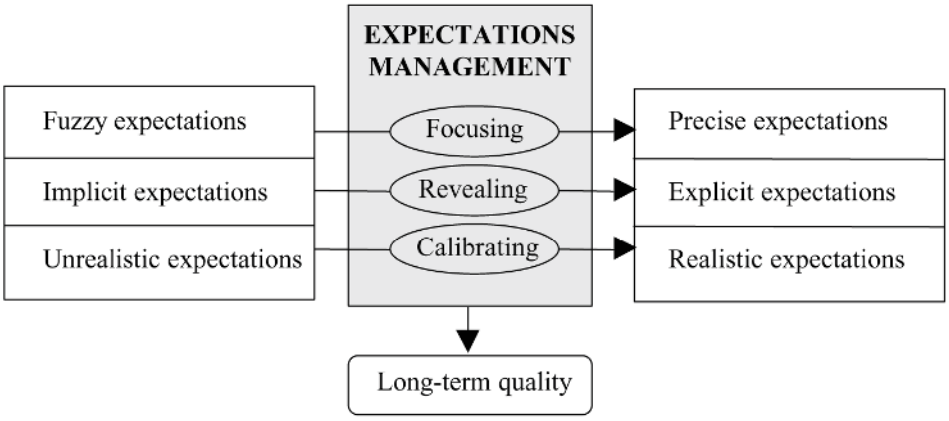

Figure 9. A framework for managing customer expectations (Ojasalo 2001, 206)

All these methods of expectations management increase the likelihood of achieving **long-term quality** and customer satisfaction. Ojasalo however reminds us that managing expectations always requires customers to sacrifice time and share information with the service provider.

4.4.3 New urban area as service innovation

According to a simple definition of the term service, it is usually composed of a tangible product and a set of intangible activities related to the product (see also 1.3.4). Together, these should create value for the customer and lead to the satisfaction of the customer (Fig. 10). This raises the question: Could new

urban areas be conceptualised as service innovations? The built environment of an urban area would constitute the tangible part of the service and the intangible part would relate to all those activities that take place in this physical environment and utilise it in some way. If prepared successfully, these elements would together create a service called urban area.

Fig. 10 illustrates this new conceptualisation, which is in accordance with the definition of service used in this study (Section 1.3.4): "A *service as an activity is a process where a set of resources interact with each other and with the customer aiming at supporting the customer's processes in a value-generating way.*"

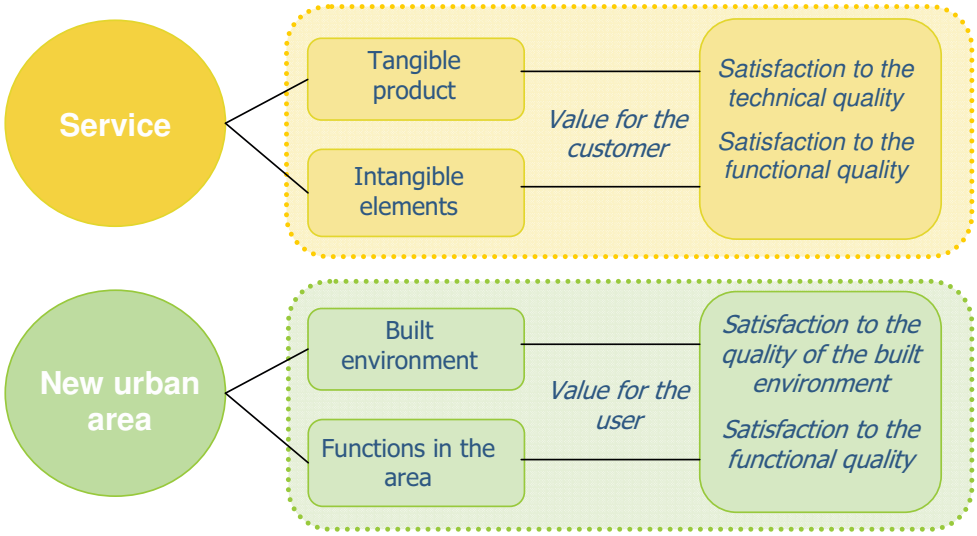

Figure 10. New urban area conceptualised as a service (Väyrynen & Smeds 2008)

In a new urban area, the combination of these elements would necessarily be new to the local market, thus the result can be described as a service innovation. More precisely, new urban areas conceptualised as service innovations mean the combination of physical, social, environmental, economic, technological, architectural, aesthetic, etc., configurations that support the customers (i.e. residents and other users of the area) in their daily living and enable their manifold activities.

When a new urban area is conceptualised as a service innovation, its development process can be considered as a new service development process. This definition diversifies the role of residents and other users accordingly, in the course of the process: in the planning phase they co-develop, and when

living or acting in the area, they co-produce and consume the services provided by the new area. The built environment, houses, roads, parks etc., constitute the physical element of the service and living, moving, playing, working etc., represent the immaterial elements. In practice, innumerable smaller streams of service development together form the urban development process.

In terms of **quality**, a service can be divided into elements of technical quality and those of functional quality. The quality of a new urban area can be conceived as a composition of the same main elements. Likewise, Grönroos's notions concerning the total perceived quality of a service can be applied to new urban areas. A good level of perceived quality in respect of an area requires that the experienced quality meets the expectations of the resident.

The methods of expectations management used by Ojasalo (2001) certainly find an echo in urban planning and urban development. The three types of expectations identified in the professional services context are all present also in the context of urban development, namely, fuzzy, implicit, and unrealistic expectations. Ojasalo has, in addition, emphasised the importance of long-term quality management in order to reach customer satisfaction. The environment resulting from urban planning is intended to last for decades, and the residents generally plan to stay in their new homes for several years, so the quality of an urban area should definitely be understood as long-term quality.

The conception of urban quality as a result of a collaborative and coherent process of planning and implementation is supported by Soudunsaari and Hentilä (2009). They point out the need to secure the achievement of the expected quality through the evaluation of the progress in the development process, at regular intervals. The tools and methods used for the quality assurance may vary according to the stages. Soudunsaari and Hentilä refer to experiences in the Netherlands which support the view that when the practices of quality assurance remain sufficiently uncomplicated, they are applied in an effective manner.

Urban development and NSD

When the theories of process management and new service development (NSD) are applied to the development process of a new area, and the users of the new area are considered as customers, we can assume that findings concerning interaction in NSD processes could also be relevant in this new

context. In NSD, successful design and the timing of customer involvement enhance the quality of a service innovation and help manage the complex user expectations thus increasing customer satisfaction.

Process innovations would certainly be needed to promote this kind of networked co-development in the development of an urban area. In the following, urban development is compared to NSD emphasising the customer perspective.

In the course of an urban development process customers do not form one single group but a rather ambiguous set of groups. Already in the 1970s, Friedmann referred to the planner and the client who learn from one another - "*the planner from the client's personal knowledge, the client from the planner's technical expertise*" (Friedmann 1973, 185). But the planner's client may be, for example, a future resident, a developer, or a company aiming to settle in the planned area. To complicate the issue further the different operational units of a city may today have a customer relationship with each other. In this study, 'customer' in the development process for a new urban area refers to the end user, i.e. residents or other users of the area, over a long time period. This is connected to the need for long-term quality, underlined by Ojasalo (2001), and also to the need for societal quality, introduced by Kivisaari & Lovio (2000, see also Section 4.3.4).

The conventional process for urban planning, as part of the urban development, is aimed at achieving a document called the local detailed plan, and the processes of building design and construction are then aimed at achieving the physical environment consisting of buildings, streets and parks. None of these processes is given the explicit task of considering the service concept or the service process of a new urban area (see Section 3.2).

Seen from this point of view, two features of the NSD process are of particular interest to the urban development process: Firstly, the importance of developing and testing the service concept in the early phases of the collaborative NSD process, along with the service process. And secondly, acquiring knowledge about customer needs throughout the NSD process to support service innovation

When striving to develop new services that match customers' needs, most attention should be paid to customer input in the idea generation stage of the

development process (Alam & Perry 2002). Furthermore, De Jong and Vermeulen (2003) advise that the creation of a climate supportive for innovation requires concentrating on both people-related and structural factors in the NSD process. Customer involvement is often claimed to be time-consuming. Related to time saving, Alam and Perry (2002) however remind us that the stages of idea screening, concept development, concept testing, and business analysis can be carried out in parallel.

Customer needs are seldom studied systematically in the course of an urban development process. These studies have been claimed, just as in NSD, to be overly time-consuming and even impossible. However, many appropriate techniques can already be found for the study of customer needs during all process phases. These include e.g. Internet-based surveys and discussion forums (cf. Rantanen & Nummi 2009) and GIS-based participatory techniques like SoftGIS (see e.g. Kahila & Kyttä 2008), as well as traditional face-to-face methods of interaction.

In a process of urban development the network of actors consists of a challenging variety of actors: e.g. the municipal authorities, elected officials, land owners, developers, consultants and service providers, as well as residents and other users of the area. Interaction in this kind of networked process is not a simple task.

Based on Valkeapää et al. (2006, see also 4.4.1), the process of urban development is examined here by structuring in a new way the interaction required during the process. Instead of two companies in Fig. 8 (in 4.4.1), two main groups of key actors in urban development have been inserted into the model (Fig. 11). Group 1 consists of public actors: municipal authorities (e.g. urban planners) and elected officials. Group 2 includes private actors: developers, construction companies and service providers together with consultants (e.g. architects and engineers). Following the model set out by Valkeapää et al. (2006), these groups should practise interaction both within the group and between the groups. In addition, they should regularly interact with their customers, i.e. the future residents or other users of the new urban area. Bearing in mind the difficulties in defining who the customer actually is in the various phases of the process, an important element for both groups is the creation of a shared view of their customers.

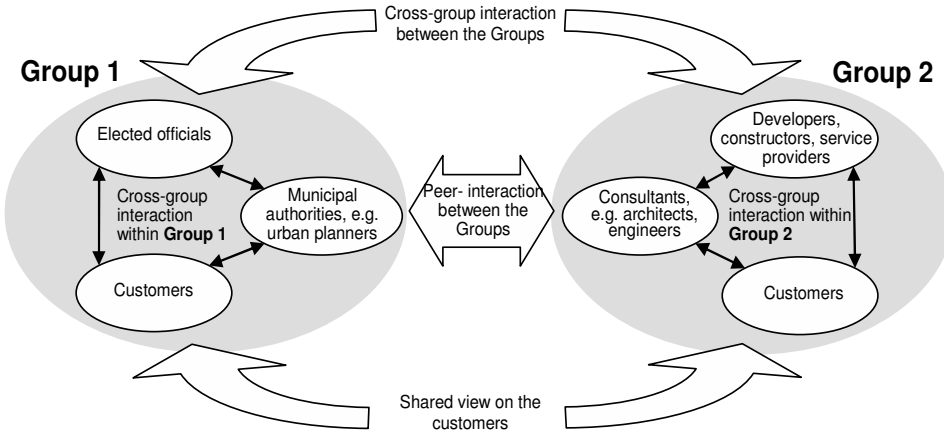

Figure 11. Interaction between the key groups in urban development (Väyrynen & Smeds 2009b, modified from Valkeapää et al. *2006)*

Visions are usually created within Group 1 and are implemented by Group 2. It can be supposed that cross-group interaction between the groups is essential for a successful implementation of the visions, and this interaction should be initiated from the early phases of the process - even from the idea generation and joint visioning itself.

ICT and customer involvement

In the service management literature a current discussion theme considers the influence of information and communication technology (ICT) on service innovations and particularly on the related reconfigurations of service concepts and service processes (e.g. Van der Aa & Elfring 2002). Besides the influence on the production and delivery of new services, innovations in information technology can be used to solve many of the management problems in service firms, for example the need to overcome the constraints of time and space.

A significant feature of ICT in service development is that it helps redefine the co-producing role of the customer (Van der Aa & Elfring 2002). New ICT applications provide opportunities for customers to change their role to co-developers or co-producers of services and to integrate themselves into the development and delivery processes of service companies, illustrating that the borderline between the production and consumption of services is by no means fixed.

In the development of the built environment new technologies are currently opening up huge new possibilities to involve more actors in the process and in a substantially more efficient and successful way than in the conventional procedure. According to the principles found successful in a NSD process (e.g. Valkeapää et al. 2006, Alam & Perry 2002), the residents and other future users of the area should be involved in the process from its earliest phases, preferably already in the idea generation phase.

New technologies enabling citizen involvement in the process of urban development have recently been studied by e.g. Rantanen and Nummi (2009). They have developed virtual knowledge building environments, called OPUS forums, for a participatory and interactive urban planning process, designed to be used by both the local communities and experts. These forums build up new links between residents and their local knowledge, and official actors with their expert knowledge[28]. In fact, the various stakeholders in local planning processes may today hold expertise and knowledge that in many fields is superior to that of the planner (Rantanen & Nummi 2009).

Recent studies indicate that current planning practices do not fully utilise the potential of ICT, which implies that urban planning is still quite far from the ideal bound up in the notion of the future knowledge society. This not only concerns the technical systems and operating practices but also the attitudes towards new knowledge producers. Staffans et al. (2010) point out that this development sets the question of whether the strong expert institution would really be willing to open itself up to genuine public debate on what types of cities and environments should be planned and constructed.

[28] In the OPUS project, a concept of Internet-based forums is applied to urban areas, divided into three groups according to the different stages of urban development (Rantanen & Nummi 2009, Staffans et al.2009b):

An inventory forum is suitable for assessing the public opinion of residents before the actual planning process starts. It combines formal expert knowledge with residents' local knowledge.

A planning forum is current once the environmental assessment and inventory stage moves to the active planning stage. The planning forum follows up the planning process, and the core content includes presentations of the plans. Interaction takes place through debate and commentary, which can be linked to published articles and locations on a map.

A development forum is a knowledge building environment which serves the local developer network and residents in an existing urban area. It is a platform for interactive planning, and clearly focused on land use and development projects, as distinct from a traditional areal web portal. Though unofficial, the development forum benefits from the support of, and collaboration with, the municipal authorities.

The inescapable impact of ICT in urban planning is expressed by Staffans et al. (2010, 19) in an outspoken manner: "*Planning institutions cannot become enclosed in their own information systems any longer. Internet-based participative applications will operate to an increasing extent on the principle that the information is gathered from databanks produced by several different actors and organisations. The planners will eventually get familiar with online interaction with the citizens: municipal interaction in local and other forums will be understood as part of the openness and transparency of governance as declared in the municipal strategies*".

Summary: Framework for service development and urban development

As a summary of this section, Table 6 presents a framework of central elements in service development theories and relates them to the application potential in respect of urban development.

Table 6. Service development theories and urban development

Theory elements in service development		**Potential application to urban development**
s1 Combination of tangible and intangible elements creates value for the customer	New service development generally includes the development of both the product and the service process. (Grönroos 1988)	In urban development, the built environment constitutes the tangible part, and the functions in the area form the intangible part. These should be considered together during the development process, to produce value for the users.
s2 Importance of customer involvement in the development efforts	The simultaneity of production and consumption make it important to involve customers in the development efforts. (Grönroos 2000, 2006, V.d. Aa & Elfring 2002, Alam & Perry 2002.	As the residents co-produce services in their living area they should also be involved in their development. Involving the residents as co-developers also helps reveal their expectations.
s3 Major attention directed to the idea generation phase	When the goal is to develop services that match customers' needs, most attention should be paid to the idea generation stage (Alam & Perry 2002).	The early phases of the planning process correspond to the idea generation in service development. However, in urban development, idea generation can also be useful at the beginning of the other phases.
s4 Long-term quality management to attain customer satisfaction	Long-term quality management and management of expectations, are needed to attain customer satisfaction (Ojasalo 2001). Customers' perception of service quality is influenced by both technical and functional quality (Grönroos 1988).	The urban environment is built for decades; long-term quality, related both to the outcome and to the process, may be reached through careful planning that pays attention to future use and maintenance of the built environment and the corresponding services.

PART II

5 CASE STUDY RESEARCH

The practical problem identified in this study, in Section 3.3, is not unknown to the practitioners in the field of urban development. It is therefore assumed that this problem has been tackled, at least to some extent, in the everyday practices and the development efforts to achieve new innovative urban areas.

Four case studies in urban development are thus selected and designed to reveal the existence of innovative methods and practices that have been used with the aim to solve the deficiencies of the conventional process of urban development discussed in Section 3.4. The data from the case studies is analysed, and the findings are examined through the lens of the four theoretical approaches presented in Chapter 4. The results are interpreted as propositions, that give the answers to the research questions:

RQ1: What characteristics of the process approach can contribute to the creation of a coherent process of urban development?

RQ2: What characteristics of the network approach can contribute to the coherence of a networked urban development process?

RQ3: What characteristics of the innovation approach can contribute to an innovative urban development process and to an innovative outcome of the process, the urban area itself?

RQ4: What characteristics of service development could be applied to enhance the coherent process of urban development?

5.1 Selection of the cases

A case study is defined by Yin (1984/2003) as an empirical inquiry that investigates a contemporary phenomenon within its real-life context, especially where the boundaries between phenomenon and context are not clearly evident. In this study, the phenomenon

investigated through case studies is a set of innovative methods and practices within the urban development process in Finland while the context is the Finnish urban development system.

5.1.1 Selection criteria for the cases

This study examines a phenomenon based on the Finnish urban planning legislation. Thus, only Finnish urban areas have been selected as case studies. Moreover, in order to ensure that interviews with the principal actors were possible and that all of the necessary documents would be available, only recent cases were considered for inclusion.

Further criteria for the selection of the cases included the following:

- Potential innovativeness in the development process
- Clearly expressed but different visions for the new area
- A variation in the initiators of the planning process. In practice this refers to the issue of land ownership: state, city, developer, or private land owner
- A variation in the underlying trends that the planning of the area manifests
- The cases represent different phases in the development process, so that they together cover the full process.

Based on the above-mentioned criteria, the following four housing areas with potential innovative features have been chosen as case studies. Their visions have been formulated as slogans, mainly for image building and sales purposes: (1) *Suurpelto*, “Garden city of information age”, (2) *Viikki*, “Ecological city”, (3) *Vuores*, "Small town in the midst of nature", and (4) *Nupuri*, "Individual design for a coherent community". The main characteristics of the four cases appear in Table 7.

Table 7. Main characteristics of the selected cases

Case	Special emphasis / innovative ness	Vision or slogan for the area	Administrative driver / initiator	Underlying trends	Process phases 2006-2009
Suur-pelto	Linking the vision to the land use agreement	'Garden City of Information Age'	City with private landowners	Public-Private Partnership, amendment of legislation concerning land use agreements	Urban planning, building design, start of construction
Viikki	Ecological goals, fulfilling of specific criteria	'Ecological City'	State and city	Rise of ecological thinking, technological development	Use and maintenance
Nupurin-kartano	Residents as co-developers	'Individual design for a coherent community'	Private landowner, developer company	Privatisation, segregation of preferences	Visioning and goal setting, urban planning
Vuores	Collaborative planning	'Small town in the midst of nature'	Two municipalities	Population growth in the region, speeding up land use planning	Visioning, urban planning, building design

The four cases allow for the development of a meaningful research design. The Viikki area has already been constructed and taken into use, in the Suurpelto and Vuores areas planning is underway and initial construction work has started while Nupuri is still in its early planning phase. By analysing and comparing these four cases longitudinally over time from a development process perspective it is possible to empirically cover the full process from the vision of a future area to its realisation and use, although the cases differ in their contexts. The time period analysed in the case studies begins in the early 1990s and ends in the year 2009.

The set of four cases is expected to reveal numerous new **innovative features** for further examination. Compared to the established and conventional ways of proceeding in urban development (cf. model M1, Fig. 5, in Section 3.2), these innovative features should introduce new methods or practices, new actors or networks or even new processes.

The objective of the case analyses is to gain an understanding of how these innovative features complement the conventional process and why they have

been developed. This sample will not allow for the direct generalisation of the results as such but it is anticipated that, when analysed theoretically, the results will contribute to the definition of the characteristics required for the creation of a new model for an innovative process of networked development for new urban areas. The model is by nature hypothetical and has to be further tested. However, with careful consideration of the case contingencies, the model can also have normative use.

5.1.2 Framework for the presentation of the cases

Each of the selected cases will be presented in Chapter 6 applying the following framework. In this way, the case contingencies can be considered.

The case
- location
- size
- timetable
- vision

Context
- Land ownership
- Key actors involved
- Economic and social context

Driving forces
- Underlying trends
- Administrative drivers, key initiators
- Institutional dynamics
- New ways of thinking

Innovative features
- New actors or networks
- New methods or practices
- New processes

Procedure
- Planning
- Citizen participation

5.2 Data collection and data analysis methods

In this study, the data collection methods applied in all four cases consist of thematic and semi-structured interviews, literature research and archival document research. In addition to published material, certain unpublished reports and presentations related to these cases have also been used as additional sources of information (see Appendices 1 to 4).

In addition to the above-mentioned methods a special method has been applied to collect empirical research data in the Suurpelto case. The method, described in detail in the next section, is called the SimLab™ process simulation. The use of this method requires more extensive resources than conventional data collection methods , and it also presupposes a heavier level of commitment on the key actors' involved. Thus, the SimLab™ process simulation method, which provides an exceptionally rich database, could only be applied in one of the cases.

This situation causes a setting where Suurpelto can, in some respects, be considered the 'main case', while the three others are 'complementary cases'. It can of course be argued that the application of a special method in one of the cases may cause a bias between the cases. On the other hand, the reason for choosing a multiple case study approach, instead of a study based on a single case of Suurpelto, has been the intention to increase the diversity of the data and to shed light - from multiple perspectives - on the questions addressed. Thus, to avoid biased interpretations, the data collection methods for each case are presented in connection with the case descriptions in Chapter 6. The presentation of each case through the use of the framework laid out in Section 5.1.2, also contributes to ensuring that the analysis of the cases is undertaken on an equal basis despite the variations in the data collection methods.

5.2.1 The SimLab™ Process Simulation Method

The SimLab™ Process Simulation Method for business process development (e.g. Smeds et al. 2005) provides an interactive learning environment and functions as a platform for the building of common understanding and the promotion of innovative development ideas. This method enables the conversion of the participants' tacit process knowledge into shared explicit knowledge and helps to achieve an organisational learning spiral (Nonaka &

Takeuchi 1995). The SimLab method creates a "*ba*" for inter-organisational learning (Nonaka & Konno 1998), or a virtual "community of practice" (Wenger 1998).[29]

The method is usually applied in successive simulation projects, each lasting for 3 to 6 months. A typical simulation project is illustrated in Fig. 12. Researchers first formulate, together with the case organisation, the objectives for the simulation project. Thereafter they conduct intensive interviews with all of the key actors in the selected cases. Based on the interviews, the researchers design and validate the visual process model, and prepare the manuscript for the simulation day. The process model depicts either an "as-is" process or a future "to-be" process for the selected case.

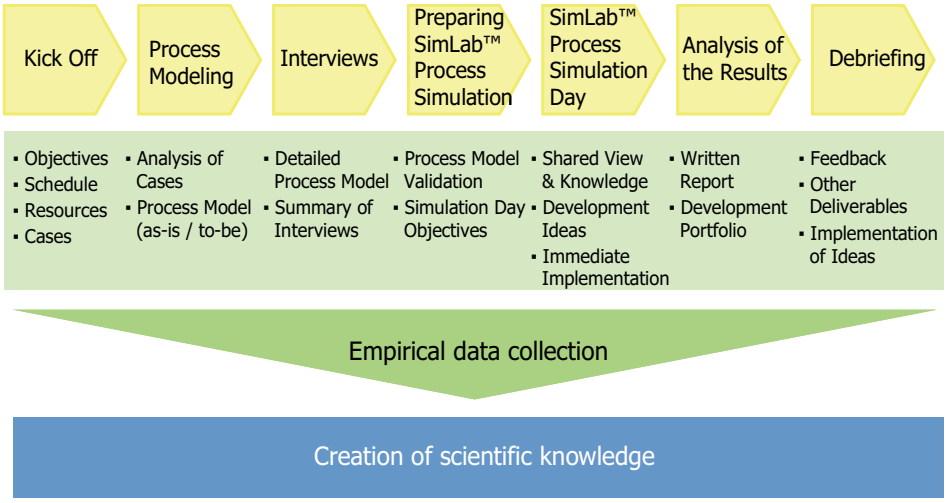

Figure 12. The SimLab™ Process Simulation Method (Smeds et al. 2005)

[29] The model of dynamic knowledge creation by Nonaka and Takeuchi (1995) is based on Polanyi's (1958, cited by Grant 2007) theories on tacit and explicit knowledge. In the ongoing discussion on misinterpretations of Polanyi's work, Grant (2007) reminds us that Polanyi's basic percept is that tacit and explicit knowledge form a continuum, and all knowledge has a tacit component. For Polanyi, the tacitness/explicitness of knowledge is something personal, but it is Nonaka and his co-authors who have extended this view to a new field of organisational knowledge, though not without appropriate explicit statement, as Grant notes.

Even if Grant shows that many misinterpretations of Polanyi's work have affected the research and practice of knowledge management, he is favourable to the concept of *'ba'* as a shared space for emerging relationships, proposed by Nonaka and Konno (1998): "There would seem to be a solid argument to associate this idea of space creation with Polanyi's view of how individuals and groups develop the relationships, trust and agreement that allow complex knowledge to be shared" (Grant 2007, 178). Grant also points out the obvious similarity of Wenger's (1998) communities of practice to the part of Polanyi's continuum model identified as "explicit to experts", often through an implicit shared understanding.

The core of the participative group simulation is a carefully prepared and facilitated discussion about the process in front of a visual process model. All stakeholder groups involved in the process are present during the simulation day. A true customer-driven process development also however requires the inclusion of the end customer in the simulation. During the simulation day, mutual understanding of the roles and activities in the process is build up, and development ideas start to emerge (cf. Smeds & Alvesalo 2003).

The simulation session is audio- and video-recorded and a feedback questionnaire is filled in by the participants immediately after the simulation. The data is then analysed by the researchers both from a practical development viewpoint and for scientific research. Typically the data contain many well-grounded process improvement ideas and challenges and often also strategic questions concerning business models. The practical development ideas are categorised and presented in a final report, addressed to the organisation studied in the case.

Collaborative process simulations have been widely and successfully used in process development projects of many Finnish organisations and their networks (e.g. Forssén & Haho 2001). The results repeatedly show that the simulations create a holistic process understanding, promote many well-grounded process improvement ideas and help to create the motivation for further process development and change. New business ideas can also often develop during the simulation project. The participants can, in the context of their own work, immediately utilise some of the learning produced. In addition to other results, long-lasting organisational learning is achieved, and the lead-time for process innovations is shortened (see e.g. Smeds et al. 2005, Smeds & Alvesalo, 2003).

The SimLab process simulation method supports collaborative knowledge construction in inter-organisational processes. Knowledge is conceptualised from a pragmatist social constructivist perspective: knowledge cannot be shared directly but it has to be re-produced by each individual or collective. Communities of practice produce a shared understanding of their collaboration process by accumulating and organising experience, and also by re-producing it in a continuous process of the negotiation of its meaning in the wider organisational context. Process simulations produce a virtual, inter-organisational community of practice for collective reproduction and creation of process knowledge (Smeds et al. 2006).

From the data collection point of view, a simulation project provides various types of case-specific data: archival documents, questionnaires, individual and group interviews, discussions and collaborative workshops, with audio and video recordings and observations related to these events. The simulation day itself can be considered an extensive group interview (Smeds et al. 2006).

In the Suurpelto case, three simulation projects were carried out. When applied in a case of urban planning the SimLab method includes extensive process models to visualise the complex and networked urban planning process and to facilitate interaction in a large and dispersed network of actors (Lemmetty et al. 2005).

5.2.2 Data analysis

On the basis of the data collected, the urban development processes of the cases are analysed. Special emphasis is placed on finding innovative methods and practices that aim to solve the practical problem and its root causes identified in the current urban development process (model M1, see Fig. 6, in Section 3.3).

A clear distinction between data gathering and data analysis is common in quantitative research. Myers (2009, 165) however notes that such a distinction is often problematic in qualitative research. There is always some iterative activity between the data gathering and analysis phases: The analysis affects the data and the data affects the analysis. Concordantly, Miles and Huberman (1994, 10) have defined an interactive model of qualitative data analysis which connects data collection to three concurrent flows of activity: data reduction, data display and conclusion drawing with verification. Representing a qualitative research approach, this thesis follows in its case data analyses the model of Miles and Huberman, presented in the following.

Data reduction

Data reduction occurs continuously throughout a qualitatively oriented study. Anticipatory reduction starts even before the data is actually collected, as the researcher decides which conceptual framework, which cases, which research questions, and which data collection methods to choose. The data reduction and transforming process then continues, in fact, until a final report is completed.

In this thesis, the innovative features of the case processes are first described. Thereafter, they will go through four data reduction rounds (cf. Miles & Huberman 1994):

1) **The practice-based analysis** (Section 6.5) will categorise the innovative features in the cases showing how they contribute to the elimination of the root causes of the initial practical problem suggested previously in Chapter 3 through the model M1.

2) **In the theoretical analysis** (Sections 7.1 to 7.4), the innovative features will be analysed using the four theoretical frameworks developed in Chapter 4. This analysis will provide answers for the research questions. The answers are formulated as propositions for a coherent and innovative urban development process. Cross-case comparisons are conducted, and critical contingencies discussed.

3) **In the theoretical interpretation of the results** (Chapter 8), the propositions are merged into cross-theory hypotheses to eliminate the root causes of the practical problem.

4) **In the practical interpretation of the results** (Chapter 9) the cross-theory hypotheses are further synthesised into the form of practical process design principles to be included in the model of an innovative process of networked development for a new urban area, aimed to solve the practical problem. Model M2 is a normative, but hypothetical model, to be further tested in new urban development cases in practice, and researched for its effects and contingencies.

Data display

The most frequent form of display for qualitative data is extended text. Extended text can in many cases however overload the researcher's information-processing capabilities and this is why more simplified configurations are useful. Designing displays also has clear data reduction implications. In this study information is organised in the form of tables, matrices, process charts and other graphs and models. With these more compact forms of display it is possible to move on to the next step of the analysis or, in the end, draw justified conclusions.

Conclusion drawing and verification

In qualitative analysis conclusions begin to take shape from the start of the data collection process though final conclusions do not emerge until data collection

and analysis is over. Miles & Huberman (1994, 11) note that conclusions are not only drawn but are also verified as the analyst proceeds either briefly or through more thorough and elaborate efforts. The meanings emerging from the data thus need to be continuously tested for their plausibility. In this thesis, the reasoning process is carefully described and followed in the text, to draw and verify the conclusions.

Interactive model of data analysis

The qualitative data analysis can be represented as an interactive and cyclical process formed by the three types of analysis activity described above (data reduction, data display and conclusion drawing and verification), and by the activity of data collection, as a fourth node (Fig. 13). The researcher moves among all four nodes during data collection, and after this phase, mainly among the triangle of analysis nodes.

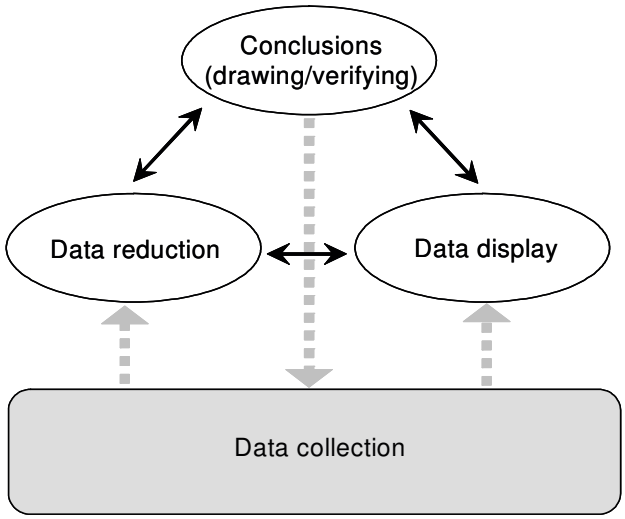

Figure 13. Interactive model of data analysis (Modified from Miles & Huberman 1994)

In the context of this thesis, the data analysis phase has been a continuous and iterative enterprise. Data reduction has led to new ideas for data displays which have, in turn, required further data reduction. Preliminary conclusions have led to amendments in respect of the displays and sometimes even in the search for new data to be included in the analysis. The reasoning logic depicted in Fig. 2 (Section 1.4.1) gives, however, a clear overall structure to the data analysis and conclusions.

6 CASE STUDIES

The four selected case studies are presented in detail in this Chapter. Each case is presented in the form a table applying the framework created in Section 5.1.2. The data collection methods are introduced separately for each case because they are case-specific due to inherent differences in the cases.

The innovative methods and practices revealed in the case studies are then described. At the end of this chapter these innovative features are categorised with reference to the possible root causes for the practical problem identified in Section 3.3.

6.1 Case Suurpelto

Figure 14. Suurpelto in the urban structure of Espoo (www.suurpelto.fi)

The area of Suurpelto, in the city of Espoo, will be one of the largest development areas in the Helsinki region. It is situated in the Metropolitan region, 10 km west of Helsinki, along Ring Road II. The location of the Suurpelto area in the urban structure of Espoo is indicated in Fig. 14.

Suurpelto is a 'greenfield' development area. The area under development consists mainly of fields with small wooded patches (Suurpelto in English = 'wide field'). In terms of floor square metres, Suurpelto is estimated to become the biggest single work and residential area in the Helsinki Metropolitan Area. An illustration of the core area of Suurpelto is displayed in Fig. 15.

The planning of Suurpelto is divided in several phases. The Suurpelto Case in this study includes the phases Suurpelto I and II.

Figure 15.Illustration of the core area of Suurpelto (Arkkitehdit Tommila, www.suurpelto.fi)

With reference to the conventional process for the development of a new area (Model M1, Fig. 5, in Section 3.3), the study of the Suurpelto case covers the phases indicated in Fig. 16.

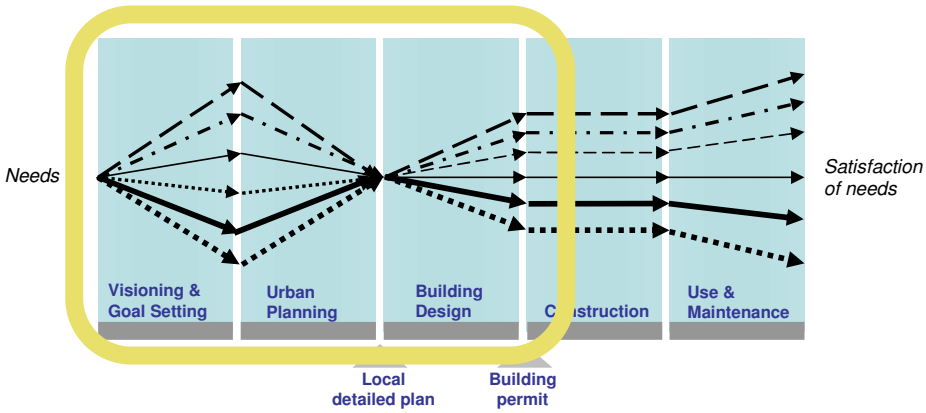

Figure 16. The phases covered by the study of the Suurpelto case, with reference to Model M1

The Suurpelto case is presented in detail in the next section, in Table 8.

6.1.1 Presentation of the Suurpelto case

Table 8. Presentation of the Suurpelto case

The case	
- Main characteristics (location, size, timetable)	Suurpelto is located in the City of Espoo, near the crossing of Ring Road II and Helsinki-Turku motorway. The total area of Suurpelto is 325 hectares, of which 89 hectares will be dedicated to parks. The built floor area will reach one million square metres. It is estimated that within 10-15 years the number of inhabitants will amount to 10 000 with several thousand workplaces in office blocks. The workplaces will be located in the vicinity of the Ring Road II. When the plans for the first residential areas, Suurpelto I and II, were confirmed, the construction of the first apartment houses started in the summer of 2009. The local detailed plans for the rest of the Suurpelto area are under preparation.
- Vision	The Suurpelto vision was originally prepared in 2002-2003. According to this vision, Suurpelto will be a distinctive garden city for the information age where housing, work, learning, leisure and services are combined in a novel way. The traditional borderlines between different functions will be blurred, and interaction between the public and private sectors will be encouraged.

	A reformulated vision appears in the Espoo Strategy 2006-2008[30]: "Within the next 10 years, Suurpelto will grow to an innovative environment for living, education and business life, being also successful in the international competition to attract companies and R&D institutions." The main themes in the development of Suurpelto are: 1. Life-long learning 2. Internationality 3. Families first 4. New service concepts 5. Sustainable development In 2008, these themes had been actualised as follows: 1. Opinmäki project is underway 2. Decision of the International School ; Inclusion of Suurpelto in the area of international competitiveness in Espoo (earlier area Otaniemi-Keilaniemi-Tapiola) 3. Starting with housing for families 4. Suction waste system; Home delivery system connected to e-commerce 5. Low-energy housing
Context	
- Land ownership	Initially, the land was owned by four major private landowners, and the City of Espoo (owning one third of the surface area). The city of Espoo first attempted to purchase the undeveloped ´raw land´ without success. The legislation provides the city with the right of redemption but the city of Espoo has not been willing to use this right. The City has preferred to proceed through negotiation and agreement.
- Key actors involved	In addition to the City of Espoo, the actors include e.g. private landowners, their lawyers and architects, and the residential developers Asuntosäätiö Foundation and VVO. In the visioning phase, several private companies as well as Espoo-Vantaa Institute of Technology, Helsinki University of Technology, and VTT Technical Research Centre of Finland have been involved.
- Economic and social context	Planning started in 2000 in favourable economic conditions. Demand for both residential and office blocks in the metropolitan area remained at a high level up to 2008. Just as the first local detailed plans were confirmed however the construction business started to fall into recession. This will have a major delaying impact on the timetable of office building and a minor impact in terms of residential building.

[30] Translation by the author

	The Suurpelto area was one of the last open field landscapes in the city of Espoo with the Green Party in particular coming out initially against its transformation into a suburb area.
Driving forces	
- Underlying trends	Competitiveness of cities: Espoo, as the home city for the Nokia company's headquarters, wants to ensure that it is capable of attracting the so called 'creative class' by offering an attractive living environment with all the services required by international experts.
- Administrative drivers, key initiators	**Private key initiators**[31] At the end of 1990s two of the major landowners of Southern Suurpelto entrusted two lawyers to represent them in the future development of the area. The lawyers commissioned a well-known architect to prepare the first vision for the new area. The architects' office, Arkkitehdit Tommila, was able to persuade powerful actors such as Nokia and Asuntosäätiö Foundation, to join the developer network. Before entering the network Asuntosäätiö did however consult the City of Espoo. The developer network presented its ideas to the top management of the City administration. The beginning of the preparation process for the local master plan was announced in 1999. The objective was "to create a new urban area in Suurpelto that encompasses a business park, residential quarters with services, as well as leisure and park areas; The area should respect the culturally and historically valuable environment and take use of the existing infrastructure of Ring Road II, and also increase the service level of the neighbouring areas." In 2000, the two landowners of Northern Suurpelto joined the developer network. Their expert in urban planning was another architects' office, Eriksson Arkkitehdit. In 2001, Nokia and Asuntosäätiö made an agreement with the two landowners on the right to represent the landowners in the planning process, and also on the use of building rights provided through the planning process. Asuntosäätiö's interest here is clear: it expects to be a major developer in the implementation of the future Suurpelto area. The basic intentions of Nokia have however remained rather less evident. Nokia had, however, expressed its interest in locating some of its functions to the future Suurpelto area. In order to complement the objectives of the local master plan for Suurpelto, the City Manager of Espoo set up a working group consisting of parties interested in the development of Suurpelto: Asuntosäätiö, Helsinki University of Technology TKK, VTT Technical Research Centre of Finland, Nokia Corporation, Senate Properties, EVTEK Polytechnic, and several city officials. The

[31] Main source: Lemmetty 2005.

	working group made an excursion to the Netherlands in order to acquire information on the latest trends in urban development. The group also referred to many scientific studies in their creditable report. The vision for Suurpelto is based, to a large extent, on this report. **Partnership agreements** At the beginning of 2003 the City Council approved a partnership agreement with Nokia Asset Management and Asuntosäätiö, termed the "Cooperation agreement for the development of an area for high level expertise and knowledge, as well as for high quality dwelling, in the vicinity of Ring Road II". It is noteworthy that the landowners were not direct contracting parties with the City. In 2004, one of the landowners in Northern Suurpelto arranged a competition to find partners for the development of its land area. Asuntosäätiö and VVO won this competition, and they then entered into a cooperation agreement with the landowner. During the local master planning and the local detailed planning phases the role of construction companies was very limited. **Land use agreements** Amendment of the Land Use and Building Act, concerning land use agreements between the landowner and the local authorities, took place in 2003, ensuring that landowners who derive considerable benefit from a local detailed plan must contribute to the costs of implementation in respect of the local infrastructure. The land use contract of Suurpelto I and II between the city of Espoo and the four private landowners was signed 14.6.2006.
- Institutional dynamics	The implementation of Suurpelto has been an integral part of the Strategy of the City of Espoo since 2005. Objectives have been set for Suurpelto each year with detailed outcomes and defined indicators. The idea of Partnership in the provision of services is emphasised in the Strategy of the City of Espoo. The realisation of Suurpelto is also linked with the idea of partnership: each stakeholder will offer its own expertise to the project. For the first time in Espoo a community development project of this scale is being carried out in the context of a broad co-operation effort.
- New ways of thinking	The architects' office Arkkitehdit Tommila has prepared a **Design Manual** for Suurpelto. It is the document that explains the essential features of the visions and plans for Suurpelto but in such a way that is easy to understand avoiding the traditional buzzwords of planning professionals. The idea here has been to complement the official plans and increase the understanding of the original goals set for Suurpelto.

Innovative features	
- What is new compared to established/ conventional ways of proceeding? (Described in detail in 6.1.3)	**New actors or networks:** 1. Project director as coordinator 2. Suurpelto Marketing Ltd. Owned by the City of Espoo, Asuntosäätiö and VVO 3. Suurpelto Waste Management Company (*Suurpellon Jätehuolto Oy*) providing a new suction waste system **New practices and processes:** 4. Land use agreement with functional objectives to be fulfilled by the parties 5. Reinforcing of the status of the plans for neighbourhood and quarter areas 6. Tentative development plan and Quality assurance process 7. Completion of the street environment prior to the construction of the first residential blocks 8. Home delivery system connected to *e*-commerce 9. Cooperation network for Opinmäki integrated learning neighbourhood
Procedure	
- Planning	The City Board approved the objectives of the local master plan for Suurpelto 28.3.2000 which were complemented on 26.11. 2002 by the proposal of the working group. The City planning department cooperated with Arkkitehdit Tommila in the preparation of the local master plan. Both prepared first a draft master plan, and the ideas were then combined in a new version. The local detailed plan for the Southern part of Suurpelto was also prepared in cooperation with Arkkitehdit Tommila. The local detailed plan of the Northern part of the area was prepared in cooperation with Eriksson Arkkitehdit. The local master plan was approved by the City Board 24.5.2005. The local detailed plans for the first two quarters were confirmed by the City Council 11.9.2006. It is noteworthy that these plans were not appealed unlike many other current plans in Espoo. This is probably due to the extensive interaction with the citizens (see below). The land ownership of these areas was shifted to Asuntosäätiö and VVO who immediately started the building design on the plots. When the architectural design was initiated, several needs became however apparent to amend the local detailed plan, which had been prepared with the most careful consideration. Thus, the City Planning Department restarted the work to prepare the amendment of the local detailed plan, paying however particular attention to the preservation of the original goals and ideas. The amendment was approved by the City Planning Council 26.3.2008.

- Citizen participation	Citizens' participation in the planning of Suurpelto has been extensive, mainly because of the active role played here by Asuntosäätiö. The City of Espoo organised the official events required by the Land Use and Building Act. In addition, the City has arranged for an Internet survey and set up several meetings for information and discussion purposes. Asuntosäätiö began unofficially collaborating with the residents of the neighbouring areas as early as 2002. The objective was to promote the development of a new area, planned in the middle of existing residential areas, through voluntary collaboration at an early stage of planning. Asuntosäätiö organised an event almost every month together with local neighbourhood associations, moving from one neighbourhood to another. The draft plans were presented by both city officials and private architects. The guest speakers included representatives of e.g. Nokia, Espoo Chamber of Commerce, and the Local Association of Enterprises in Espoo.

6.1.2 Data collection through SimLab process simulation projects

The data on the Suurpelto case was collected in the years 2004-2009. My role in the Suurpelto research project was that of an action researcher and a research team leader. Most of the data was acquired through the three SimLab process simulation projects in the years 2004, 2005 and 2006. Altogether 63 thematic, semi-structured interviews were carried out. The three simulation day sessions gathered together 130 participants. The results of all projects were validated by the main actor, the City of Espoo, and then reported to the City in written reports. A summary of the Suurpelto simulation research was published in a university publication series (Väyrynen et al. 2007).

One of the main concerns of the City of Espoo in respect of Suurpelto has been how to sustain the original vision through the planning and construction phases that will span at least a decade. Suurpelto provides a good opportunity to study how the planning goals are shaped and how they will be embedded in the implementation network. In this case, action research and the SimLab method are particularly suitable for studying the actors and their roles in the networked process.

The first simulation project of the Suurpelto case was carried out in spring 2004, as a feasibility study of the OPUS project. The objective was to provide new insight for the City of Espoo in the ongoing local planning activities

concerning in the main the needs of future residents. The simulation project began with interviews of a family with two children, representing future residents, and 15 key actors representing various sectors of the city administration as well as the service and consultant companies.

The theme of the simulation day was 'One day in Suurpelto'. The daily activities of seven characters living, studying or working in Suurpelto, had been modelled beforehand as processes. The service needs revealed by these daily processes where then discussed by the participants. The participants (40) were persons involved in the visioning and planning of the area, together with representatives of service and ICT companies and future residents.

One of the main findings of the feasibility project was that the SimLab method of business process development is also applicable to urban planning processes (Lemmetty 2005).

The second simulation project of the Suurpelto case was carried out in autumn 2005. Being a case of innovation action research it had two main objectives. The practical objective was to find new ideas and tools to ensure the implementation of visions and plans for Suurpelto area. The research objective was to collect data contributing to a better understanding of the phenomena in question, the process of development of a new urban area.

In the preparation of the simulation 31 interviews were carried out with key actors, representing several operational units of city of Espoo, other public units, consultancies, construction companies, associations and other stakeholders. Additionally, a survey was conducted with political decision-makers. The material was analysed and then visualised and the planning process modelled by multiple process charts. The simulation day session gathered together 40 participants.

Research and development themes discussed during the simulation day included: urban planning process in Suurpelto area, functional visions of Suurpelto and their implementation, the main quality factors for residents and companies, quality assurance from visions to built environment, and gaining success and a good reputation in the construction phase.

The main results of these facilitated discussions included e.g. the following:

- The quality assurance process of a construction project, embedded in the Suurpelto area development process, was developed as a collaborative effort. The present building control process was enlarged into a process that began much earlier and included a new 'tentative development plan'.

- The need for completion of the street environment with the plants in public spaces prior to actual construction was emphasised. It is general practice is to wait until the last site is constructed, and only then complete e.g. the sidewalks and rows of trees.

The feedback collected after the session confirms that interaction and shared experiences have enhanced understanding about the vision of Suurpelto and its implications; the tasks of different actors in the network and in the process were clarified. The visualisation provided a holistic view of the process and helped jointly develop the process already during the simulation day.

The third simulation project, in autumn 2006, was based on the results of the previous project. The main objectives were steering the network from vision towards implementation and searching for possibilities for new business models and 4P-based collaboration in the process.

Interviews were conducted with 16 persons in the network of Suurpelto actors. In the simulation day, 41 participants were gathered together, mainly from the City of Espoo and from private sector companies.

The network of actors in Suurpelto was identified, and during the simulation day methods were discussed to commit this network to the vision and its implementation. As a result, propositions were made for activities to follow the implementation of the vision. A common understanding was reached of the revision and updating of the vision on a regular basis by a community forum, that would consist of the representatives of all stakeholders in Suurpelto.

Possibilities for 4P-based collaboration were identified, in addition to the local planning process, in the creation of the vision, in the creation of the service concept, and in the development of public services. The search for new business models did not however bring about the concrete results expected. The companies involved found it difficult to generate ideas at this stage when local planning was underway and no construction work had started. In addition, an open discussion of new business models in a public project may also be

hindered, in part, because of the fear that competitors might catch the emerging new ideas.

Other methods of data collection

In addition to the extensive data collected through the simulation projects, the data used consisted of numerous official documents of the City of Espoo including local master plans and local detailed plans with the corresponding reports. Certain recent presentations by the key actors in the development of the area have been used to update the information of the current stage of the development. The data collection in the Suurpelto case is presented in Appendix 1.

6.1.3 Description of innovative features in the Suurpelto case

The nine innovative features identified in the Suurpelto area development process are now described, numbered from Suurpelto 1 to Suurpelto 9. Their estimated relations to the three possible root causes with reference to the Model M1 (see Fig 6, in Section 3.3) are indicated in Fig 17.

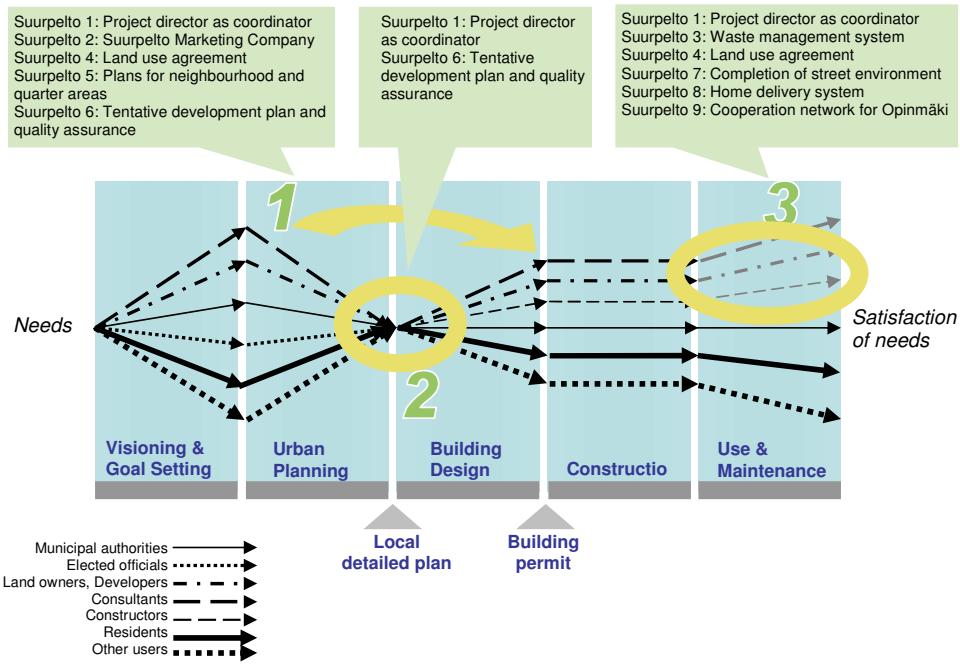

Figure 17. The relation of the innovative features in Suurpelto to the three root causes in Model M1

Suurpelto 1: The Suurpelto development, which dates from 2005, is a project, with an appointed **project director**, organised by the City of Espoo under the Section for Technical and Environment Services. The project has its own independent budget *(taseyksikkö)* which includes the land use fees paid by the landowners on the basis of the land use agreement (see Suurpelto 4 below). This provides a more responsible but also a more independent role for the project director than is usually the case in the city administration.

The task of the project director is to coordinate the manifold network of actors operating in the area of Suurpelto to proceed in the direction indicated by the vision and other decisions in respect of both the planning and the implementation. This network includes e.g. landowners, developers, consultants, elected officials and citizens, as well as the media. A particular challenge for the project director is to promote internal cooperation within the city administration between the various sections of the city organisation. This is something that is urgently required for the successful implementation of the Suurpelto development. The project manager is supported by a steering group consisting of representatives from the City and the landowners.

Suurpelto 2: Marketing of the new area has gained such significance in Suurpelto that a special company, **Suurpelto Marketing Ltd.** was set up to deal with this issue. It is owned by the City of Espoo in conjunction with Asuntosäätiö and VVO .

Suurpelto Marketing advertises the future area quite eloquently: "A completely new cityscape concept is being built in Espoo, Finland. Suurpelto, the city of parks for the information age, will further strengthen Espoo's competitiveness as Finland's wealthiest and fastest growing city. Together with Tapiola, Otaniemi, and Keilaniemi, it forms an area of innovative business, high technology, rich culture, and life that can be lived close to nature. Ecology, innovativeness, and internationality are the starting points for the planning of Suurpelto" (www.suurpelto.fi, 12.12.2009).

Suurpelto 3: **Waste management** in the future area of Suurpelto is organised in a new way. Suurpelto Waste Management Company (*Suurpellon Jätehuolto Oy*) owned initially by the landowners (City of Espoo, Asuntosäätiö and VVO), will gradually be transferred to the real estate owners (estimated from 60 to 100) in the area. The company will own and coordinate the new **waste suction system** that will run under the streets. This automatic waste collection system

will be the first on this scale in Finland. The system includes three feed chutes - one each for organic waste, wastepaper and mixed waste - from which the waste travels through an underground vacuum piping system to the waste terminal. The objective is that waste sorting becomes easier, and traditional dustcart traffic significantly reduced. As a consequence, the safety, image and attractiveness of the area should be improved.

Suurpelto 4: The land area in Suurpelto is mostly privately owned. The main tool for cooperation between the City of Espoo and the landowners is the new **land use agreement**. According to this "*agreement of land use, collaboration and development*", the infrastructure of the development project, including the implementation of municipal technical systems and facilities, schools, day care centres and green areas, should be financed by the sale of new construction rights, which means that the area will be able to carry the financial burden for itself. The challenge here has been to make a deal which benefits all the related parties and to make sure that the income will cover the entire development project for at least 15 years.

An important new feature in the land use agreement is that it includes not only technical objectives but also the **functional objectives** to be fulfilled by the parties. "*Our common functional objective is to construct in the area agreed upon a high-level urban centre which provides new means for the combination of work, family, lifelong learning and leisure activities on an individual basis*"[32]. The parties also agreed that the dwellings, working places and services will be situated within walking distance of each other and the latest technologies will be used in the implementation of the area. The commitment of the parties also includes the creation of the infrastructure and the implementation of the services in the area in accordance with the previously set out objectives.

Suurpelto 5: An important new feature is the **reinforcing of the status of the plans for neighbourhood and quarter areas**[33] *(lähiympäristö- ja korttelisuunnitelmat)*. These plans complement the local detailed plans by presenting more detailed principles for the design of the cityscape, with the aim to ensure the coherence and the functionality of the area as a whole. Usually

[32] Source: The agreement on land use, collaboration and development between the City of Espoo and the private landowners of Suurpelto, signed 14.6.2006 (translation by the author)
[33] The term 'neighbourhood areas' refers here to the public areas, such as streets, squares, pedestrian areas, parks, and playing fields, while the term 'quarter areas' refers here to the blocks surrounded by the streets and other public areas.

these carefully prepared plans are merely optional guidelines for the developers, but in Suurpelto these documents are appended to the land use agreement, and thus they have obtained a legally binding status which guarantees the quality of the realisation. This in turn should lead to increased user satisfaction. This new procedure guarantees a certain quality level for planning and construction but it does not, however, necessarily encourage those who the realise the plans to produce further innovation.

Suurpelto 6: The land use agreement includes additional new ideas to enhance the quality of the built environment in Suurpelto, namely the '**tentative development plan**' *(kehittämissuunnitelma)*. This practice brings the private companies and their consultants in interaction with the city authorities at an earlier stage than before. The developer presents a tentative plan to an assessment group consisting of representatives from the local planning and building control authorities, a traffic planning expert and representatives of the Suurpelto project. The group would assess how well, and in what ways, the plan fulfils the vision and themes defined for Suurpelto. The plan would then be further elaborated so that it fits with the vision, prior to the application for the building permit. The need to prepare a tentative development plan has also led to a new practice where all the architects working with design projects in this area are regularly gathered to a meeting[34].

Through the tentative development plan, the conventional building control process is broadened into a **quality assurance process** where the plans would accumulate over time into a development portfolio. In this new process, the plans maintain conformity with the vision until implementation, irrespective of the fact that, when issuing building permits, the building control department only verifies whether the plan fulfils the legal regulations and is in compliance with the local detailed plan.

Suurpelto 7: Construction of the infrastructure in Suurpelto began already in summer 2007. The **completion of the street environment** prior to the actual construction of the first residential buildings is quite a new practice in Finland. The significance of a ready made public space, with pavements and plants, for the first residents and for the image of Suurpelto was strongly emphasised during the simulation projects.

[34] Source: Pekka Vikkula, Project director of the Suurpelto project, presentation 29.5.2008

Suurpelto 8: **A home delivery system connected to e-commerce,** with reception facilities in the buildings, represents an idea that has persisted from the very first discussions concerning the realisation of Suurpelto. An important step here was the inclusion of this idea in the report of the local detailed plan. The report[35] states that in the architectural design of dwellings, attention shall be paid to the requirements of mobile technology and to the possibilities of making living easier through this technology. According to the report, the dwellings can include a refrigerated and locked space where foodstuffs from electronic shops, as well as mail and laundry and other services, can be delivered even if the resident is absent. The same idea is mentioned in the plans for the neighbourhood (see Suurpelto 5).

The objective is that the functional concept presented for Suurpelto in the report of the local detailed plan would encourage new creative service providers to start operating in the area. In fact, the first e-grocery store has already started to serve the area (www.seulo.fi). Another objective is to reduce the use of private cars in the area. Research on the effects of *e*-commerce on greenhouse gas emissions has indicated that it is possible to reduce carbon dioxide emissions generated by grocery shopping significantly (up to 87%) through *e*-commerce home delivery [36].

Suurpelto 9: **The cooperation network for the Opinmäki** campus in Suurpelto is designing a new type of learning-neighbourhood which integrates into and interacts with the surrounding community. Opinmäki will be a seat of learning and leisure activities for citizens of all ages. The first multi-purpose facilities are planned for opening in 2013.

The Opinmäki campus will include a Finnish comprehensive school (classes 1-9), a Swedish comprehensive school and an International school educating in English. Also day care facilities will be offered in the three languages. Together, these will provide an innovative learning environment for 1450 pupils and for 120 day care children. Teaching in Opinmäki is based on the concept of

[35] The report of the local detailed plan of Suurpelto II, The City Planning Department of Espoo, 18.2.2005.

[36] Result from a study carried out in the Ecomlog (Supply Chain Solutions for Electronic Commerce) and Climtech (Technology and Climate Change) programmes of TEKES, by researchers from Helsinki University of Technology, Department of Industrial Engineering and Management: Siikavirta, H., Punakivi, M., Kärkkäinen, M. & Linnanen, L 2003. Effects of e-Commerce on Greenhouse Gas Emissions; A case study of Grocery Home Delivery in Finland. 2003 MIT Press. Journal of Industrial Ecology, Vol. 6, No. 2, pp. 83-97.

inquiry-based learning.[37] The same concept is applied to life-long learning which is one of the activities supported by Opinmäki (www.opinmaki.fi).

The cooperation network for Opinmäki is exceptionally broad. It includes the representatives of several sections of the city administration as well as the multidisciplinary research team of the InnoSchool project[38]. The findings of the InnoSchool project are being used in the design of the Opinmäki campus such that the facilities and the learning environment will support the concept of inquiry-based learning.

6.2 Case Viikki

Ecological urban planning and architecture constitute an example of a new idea introduced with lots of enthusiasm but, unfortunately, in several cases with a success level much below expectations. Nevertheless, the ecological housing area in Viikki, Helsinki, also called Eco-Viikki has been rather successful in meeting many of its original targets which makes it an interesting case to follow. Eco-Viikki has also attracted criticism, particularly in its early planning phases. The critique pointed out the lack of consideration of such fundamental questions as the relation of the area to the general urban structure of Helsinki, the absence of rail connections and the neglect of the nature protection area of Vanhankaupunginlahti in the vicinity (see also Lapintie 1996, in Section 2.1.1).

Viikki is the largest sustainable building site in Finland with a strong experimental character. It is a suburban area for nearly 2000 inhabitants, constructed mainly in the years 2000-2003. The location of Viikki in the urban structure of Helsinki appears in Fig. 18. The landscape in Viikki is characterised by large and mature fields spotted by small forest-clad rocky hills. One of the central goals of the landscape planning of the area has been to preserve the features typical of such a cultivated landscape, particularly the

[37] Inquiry-based learning is driven by curiosity and inspires learners of all ages to develop and to improve themselves instead of being handed ready-made answers (From Kristiina Erkkilä, Director of Development for Education and Culture of the City of Espoo, Leader of the Opinmäki project.)

[38] The InnoSchool project (2007-2010), principally funded by the Spaces and Places programme of Tekes, is studying and developing the school of the future. The purpose of the project is to explore how the school of the future should be designed and built so as to best support learning. The project is carried out by a multidisciplinary research team focusing on learning environments, pedagogies, services, and on the architecture of learning spaces (www.tekes.fi, www.innoschool.tkk.fi, 26.8.2009).

sequences of open spaces and forest 'islands'. To the south, Viikki is limited by the Viikki-Vanhankaupunginlahti nature protection area, which is a bay on the Baltic sea, populated by numerous islands and spotted with reed beds.

The planning solutions in Viikki include a wide range of environmental and energy aspects that have received particular attention from the very beginning of the planning process. The main objective in Viikki has been the reduction of overall energy consumption by 50% compared to conventional residential buildings. In addition, innovative solutions have been pursued in respect of the efficient use of water and other natural resources.

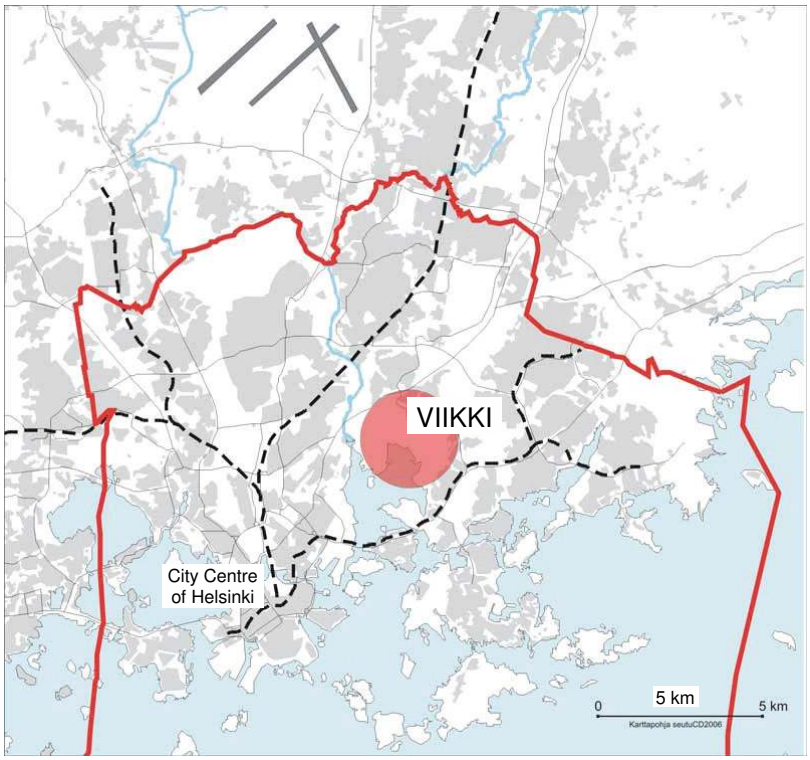

Figure 18. Viikki in the urban structure of Helsinki (www.hel.fi)

With reference to the conventional process for the development of a new area (Model M1, Fig. 5, in Section 3.3), the study of the Viikki case covers the phases indicated in Fig. 19.

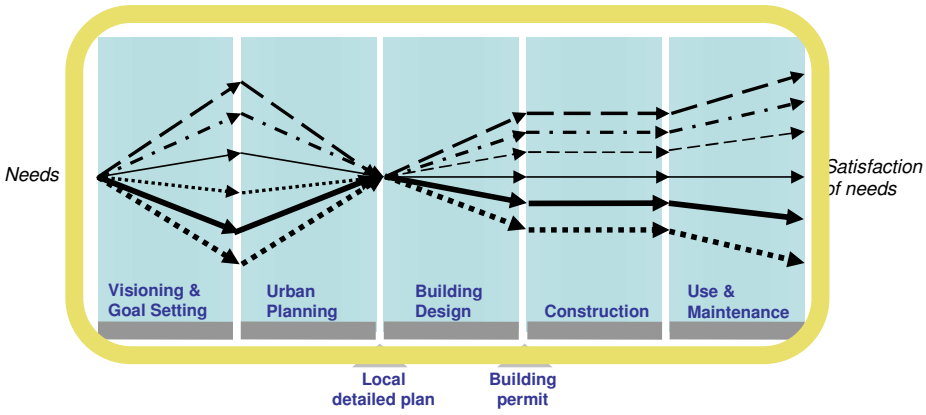

Figure 19. The phases covered by the study of the Viikki case, with reference to Model M1

The Viikki case is presented in detail in the next section, in Table 9.

6.2.1 Presentation of the Viikki case

Table 9. Presentation of the Viikki case

The case	
- Main characteristics (location, size, timetable)	The Viikki area is situated in Helsinki about 8 km from the city centre. The total area of Viikki suburb is planned for 15000 residents, 6000 students, and 6000 working places, in 2015. The Eco-Viikki area with 2000 residents covers 24 hectares and ca. 63 000 square metres of floor area. Planning for the site was mainly carried out between 1994 and 1999. The first residents moved into Eco-Viikki in 2000 and the area was completed in 2004. The first follow-up project covered the years 2000-2003 (Rodriguez et al. 2004) while a further follow-up project covers the years 2003-2006 (Motiva 2008).
- Vision	No explicit vision was formulated for the Eco-Viikki area. Planning competition in 1994: The aim was to find a basic solution for an ecological housing area designed to work with the natural

	environment and save on natural resource usage. It should be of high architectural quality, versatile in its social and functional milieu, and should also be technically realisable and economical in terms of life-cycle cost. The design competition in 1996 provided a method of identifying the first plots to be implemented using solutions which follow the principles of sustainable development and which could be generally applicable. The competitors were asked to create a truly ecological overall solution.
Context	
- Land ownership	In 1994: The City of Helsinki, the State, the Parish Union of Helsinki. In 1993 the City of Helsinki and the State came to an agreement on the issue of land exchange which ensured that the land areas indicated in the local plan for housing would be transferred to the ownership of the City. The State would receive, in exchange, land for the needs of the University of Helsinki.
- Key actors involved	The City of Helsinki, The University of Helsinki, Ministry of the Environment, The Finnish Association of Architects SAFA, The Eco-Community Project, National Technology Agency Tekes
- Economic and social context	At the beginning of the 1990s Finland was deep in economic recession after the extended business boom of the 1980s. In this financial environment the construction sector was not willing to undertake experimental building without subsidies. Given the general suspicion of the 'strings attached' to any financial support package, even a temporary subsidy system proved difficult to implement. It was presumed that such support would distort competition and affect prices (Eco-Viikki 2005, 8).
Driving forces	
- Underlying trends	**The rise of ecological thinking** The rise of ecological thinking among architects at the beginning of the 1990s was promoted by a number of important events. Coinciding with the famous Rio Conference[39], in 1992, The Finnish and Swedish Associations of Architects arranged the EcoLogical Conference which acted as something of an awakening for a large section of the profession in both countries. In 1993, the International Union of Architects UIA arranged a world

[39] The United Nations Conference on Environment and Development (UNCED) was held in Rio de Janeiro, Brazil, 3-14 June 1992. This 'Earth Summit' resulted in the following significant documents: Agenda 21, the Rio Declaration on Environment and Development, the Statement of Forest Principles, the United Nations Framework Convention on Climate Change, and the United Nations Convention on Biological Diversity (www.un.org/geninfo/bp/enviro.html).

	congress in Chicago with the theme 'Architecture at Crossroads - Designing for a Sustainable Future'. This congress presented a Declaration of Interdependence for a Sustainable Future[40] where UIA members committed themselves to placing environmental and social sustainability at the core of their practices and professional responsibilities. The declaration included an extensive list of principles and practices to be adopted by all architects. In several countries so called 'eco-villages' started to emerge. Excursions to visit these villages were increasingly popular among architects in the 1990s. The concepts of the eco-communities were generally very tightly connected to the personal ideas of the originators, and consequently, rather difficult to adopt in different circumstances. The early eco-villages have thus usually remained 'unique' examples with little potential for generalisation. **The green profile of Viikki** The University of Helsinki had an important role to play in Viikki because the large field areas belonged to the University's research farm established in the 1930s. The Faculty of Agriculture and Forestry had been established after the war in a location adjacent to the farm. In fact, Viikki was for a long time a synonym for this Faculty. The University wanted to extend the University area and develop a much needed new campus area. The idea of a science park specialising in bio-sciences and bio-technology had been launched as early as 1986. This project was called 'The green Valley of Viikki'. It is obvious that this project contributed to the early image creation of a green Viikki area. Such a green profile was also supported by the proximity of the nature conservation area Viikki-Vanhankaupunginlahti bordering the coastline. Already in the draft version of the local master plan, from 1992 mention of Viikki was made as a possible experimental area for environmentally-conscious building (Eco-Viikki 2005, 6). On the other hand, a rather more critical view could also be heard claiming that the proposed residential area was situated too close to the nature conservation area potentially impacting it. As such, it was argued by the opponents that this could not be considered to be very ecological.
- Administrative drivers	**The Government** Signalling a general awareness of ecological threats the aim of sustainable development was first included in the Finnish Building Act in 1990[41]. Its inclusion represented quite a prompt reaction to the Brundtland Commission report of 1987. Although the message

[40] Declaration of Interdependence for a Sustainable Future, presented by UIA/AIA World Congress of Architects in Chicago, 18-21 June 1993 (www.uia-architectes.org/texte/england/2aaf1.html).

[41] The Building Act was amended 1.9.1990. The renewed 1 § stated: "The use of land and water areas has to be planned and prepared in a way that promotes sustainable development" (translation by the author)

	of the legislation was clear the changes in planning and construction practices were however rather slow. The public sector, instead, seemed to more fully embrace the signal given by new legislation and both the state and municipal authorities initiated numerous studies and discussions on this topic. In 1991 the new Finnish government placed two ministers in the Ministry of the Environment rather than the usual one as was the case in the previous government. One of the benefits of this renewal was that the two ministers were not as overloaded as their predecessor had been. This gave them more time for new ideas. The new Minister of Environment was personally very interested in ecological construction and lively discussions thus commenced in the Ministry on the subject of experimental ecological housing. **The City of Helsinki** Helsinki City participated in the Sustainable Municipalities Project in 1991-1993, and the Helsinki City Planning Department carried out a study "Sustainable Development in Urban Planning - Case Viikki" in 1992. **Research** The lack of accurate environmental knowledge which was now increasingly required by both public and private actors in their decision-making tasks was soon acknowledged and several significant research activities were initiated. The Finnish Academy launched the Research Programme for Sustainable Development (1991-1995) and the Research Programme for Ecological Construction (*Ekologisen rakentamisen tutkimusohjelma* EKORA) in 1995-1999. The National Technology Agency of Finland Tekes funded the Programme for Energy Use in Construction (*Rakentamisen energiankäyttö* RAKET) in 1993-1998 followed by Environmental Technologies in Construction (*Rakentamisen ympäristöteknologia*) in 1994-1999. **Experimental building** At the same time the need to test ecological principles in practice was also raised. The Viikki area was at a suitable planning stage: Preparation of a local master plan for Viikki had already commenced but was still at a relatively early stage and thus additional ecological objectives could easily be introduced into the project.
- Institutional dynamics, key initiators	In 1993, discussions began between the Ministry of the Environment and the Finnish Association of Architects (SAFA) over the creation of a project aimed at producing a new housing area that would test ecological principles in practice. The Eco-Community Project was thus established at the end of 1993.

	In August 1994 it was decided that Viikki would become the pilot area for the Eco-Community Project. This selection was based on the following criteria[42]: - The area is sufficiently urban - The area is connected to the existing community structure - The area is easily accessible by public transport. - The local planning of Viikki is at an open stage - Other activities planned for the area support the aims of the project. The executive group of the Eco-Community Project was exceptional in its composition. It consisted of representatives of the following interest groups: City of Helsinki, Ministry of the Environment, the Finnish Association of Architects SAFA, the National Technology Agency Tekes, Ministry of Trade and Industry, and the Confederation of Finnish Construction Industries. The project was coordinated by a smaller project group chaired by SAFA. The idea was that the commitment of this extensive network of actors would ensure that the project aims would be implemented. Meanwhile, public opinion had also clearly begun to favour ecological thinking. In the official comments on the local master plan of Viikki, positive attitude towards the ecological objectives was expressed by the Regional Water Administration, The City of Helsinki Youth Committee and the Helsinki Region Chamber of Commerce.
- New ways of thinking	**Architectural competition as education** Significant interest was displayed in the 1st planning competition with 91 proposals being received. In evaluating the proposals, the competition jury was supported by a wide multi-disciplinary expert group. The jury realised that this evaluation provided an exceptional possibility to gather material for educational purposes. It was thus decided that the evaluation report was to be written in an unusual form: In addition to the general evaluation of each proposal the statements and thematic articles of all the experts were included in the report. This resulted in the production of a publication on ecological planning and construction usable as a ready-made set of educational materials. **Architectural competition as a stimulator of the construction business** The 2nd architectural competition also demonstrated in its programme a penchant for totally new thinking: The programme emphasised that the competition 'strives for an important developmental step to be taken in ecological building, both nationally and internationally'. The participants were reminded that the aim was to stimulate the entire construction sector in its search for new ‘know-how’ related to ecological construction thereby acquiring a competitive advantage in an emerging business field.

[42] Eco-Community Project, Memorandum 1.2.1994

Innovative features	
- What is new compared to established/ conventional ways of proceeding? (Described in detail in 6.2.3)	**New actors or networks:** 1. The Eco-Community Project **New practices and processes:** 2. New type of architectural competition 3. Set of ecological criteria 4. Linking up ecological criteria with plot assignment 5. Viikki follow-up project
Procedure	
- Urban planning	The local master plan was prepared by Helsinki City Planning Department in 1989-1994 and was confirmed by the City Council in May 1995. The draft local detailed plan was prepared by Helsinki City Planning Department based on the winning entry of the 1st architectural competition, in 1995-1996. The draft local detailed plan was revised by Helsinki City Planning Department in order to make it applicable for the proposals of the 2nd architectural competition, in 1996-1997. The local detailed plan was ratified by the Ministry of the Environment in June 1998. Based on new legislation (from 1994) an environmental impact assessment was carried out along with the local detailed plan for the Eco-Viikki area. **Role of planners** The architects of the City Planning Department had a central role in the planning process in spite of the two architectural competitions. The manager of the Viikki project, in the City Planning Department, was a member in each group preparing the programmes for the competitions as well as in the project group for the Eco-Community Project. The ideas generated by the competitions were applied to the local detailed plans by the architects of the City Planning Department. It is worth to mention that pursuing planning activities in the form of a project was quite new at the beginning of the 1990s. This also entailed a closer cooperation between the City Planning Department and the Development Unit of the Economic and Planning Centre, which proved useful during the planning process.
- Citizen participation	At the time of the preparation of the local master plan and the local detailed plan for Viikki (1990-1998) the Finnish Building Act did not include any regulations concerning the participation of citizens and other stakeholders in the planning process. Interestingly enough, the draft programme for the 1st architectural competition (1994) includes a mention of residents' participation in planning, but the final programme only 'encourages residents' spontaneous activities for the environment'.

Data collection

In 1999-2000, I carried out a study entitled "Ecological building in Viikki; the development of public objectives". The aim of the study was to describe how the public objectives set for Viikki were developed in the course of the planning process. The study included thematic interviews with 11 of the key actors of the Viikki project and an extensive archival research, with the programmes and reports of the two architectural competitions (see Appendix 2).

The more recent literature includes reports from the Helsinki City Planning Department and Ministry of the Environment covering the implementation and follow-up of the Viikki Area, as well as certain specific follow-up reports (see Appendix 2).

6.2.2 Description of innovative features in the Viikki case

The five innovative features identified in the Viikki area development process are described below, numbered from Viikki 1 to Viikki 5. Their estimated relations to the three possible root causes with reference to the Model M1 (see Fig 6, in Section 3.3) are indicated in Fig 20.

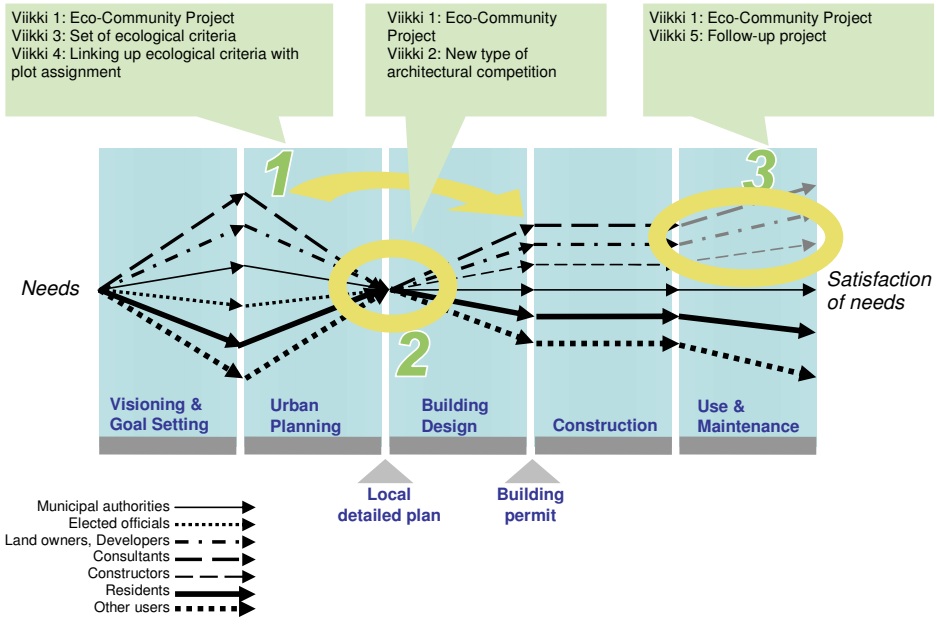

Figure 20. The relation of the innovative features in Viikki to the three root causes in Model M1

Viikki 1: **The Eco-Community Project** introduced a new mode of cooperation as a network in urban planning, bringing together public and private sectors as well as the third sector. The project originated from discussions between the Ministry of the Environment and the Finnish Association of Architects (SAFA) in 1993, about creating a project aimed at encouraging ecological building in practice. The Finnish Association of Architects prepared a project plan, indicating the aim to create good practical examples of sustainable urban housing. Another aim was to test and develop construction and design methods as well as building regulations.

The Eco-Community Project was established by the Association of Architects, the Ministry of the Environment and the National Technology Agency Tekes at the beginning of 1994. The financing of the Eco-community project was solved when it became a part of the Tekes research programme Environmental Technology in Building which aimed to develop environmentally conscious techniques and methods for the building sector. The Eco-Community Project collaborated closely with the City of Helsinki particularly in the organisation of two architectural competitions for Viikki[43]. The 1st planning competition was opened in October 1994 in a seminar arranged by the Project entitled 'Towards a sustainable city'. Almost 400 experts representing various fields attended the seminar and discussed the future of the cities. This fulfilled one of the objectives of the Project, namely, to arrange multidisciplinary and co-operational training forums.

The task of the Eco-Community Project was accomplished in 2004 when the first follow-up report was published (see Viikki 5).

Viikki 2: A new type of architectural competition in two phases was developed for the planning process in Viikki. In the first competition, i.e. the planning competition for an ecological housing area in Viikki, in 1995, the competitors had to form multi-professional working groups, for example architects, landscape architects, specialists in heating, ventilating, and air conditioning (HVAC), ecologists, building economists etc. This kind of teamwork is quite unusual in Finnish architectural competitions. Altogether 91 teams submitted proposals to this open competition.

[43] The Eco-Community Project also had another pilot area Ristinummi, in the west-coast city of Vaasa, where the focus was placed on sustainable renewal of a typical suburban area built in the 1970s.

The second competition, the design competition for an ecological neighbourhood in Viikki, in 1996, was a competition by invitation. It was again organised in cooperation with the Eco-Community Project and the City of Helsinki. The innovative feature in this competition is the requirement of a new team coalition. Teams wishing to enter the competition were required, in addition to representing multiple professions, to also be capable of implementing development projects. The minimum team was composed of following experts: an architect, structural, HVAC, and electricity engineers, an expert in ecology, and a developer. The aim was to ensure that the group not only designs innovative ideas in their proposal but is also able to realise these ideas if they won. The registration included, in addition to a description of the team's range of 'know-how', a presentation of its central ideas and its concept of planning and implementation[44]. A total of 29 multi-professional teams registered and of these six were invited to participate in the competition.

The proposed designs were expected:

- to consume a considerably smaller amount of non-renewable forms of energy and of scarce materials than is currently the case
- to cause minimal damage to the natural function and the biodiversity of ecological systems (soil, climate, waters, flora, fauna etc)
- to diminish the amount of harmful pollution, noise, and garbage
- to create a healthy indoor climate by using structures and materials which function correctly with regard to building physics
- to design an area which has a long life-span, is flexible, and has a residential diversity. Such structures and materials were to be used which are durable, repairable, and recyclable
- to facilitate and encourage environmental initiatives and actions by the inhabitants.

The model of a multi-professional team that bears the responsibility from planning to implementation proved to be very fruitful in terms of the ecological nature of planning solutions and their cost-efficiency. The follow-up reports

[44] Report of the design competition jury for an ecological neighbourhood in Viikki, Helsinki, 1996.

recommended that this practice should become more prevalent due to its evident advantages (Rodriguez et al. 2004, 55).

Viikki 3: The third innovative feature is the development of a set of ecological criteria to assess the environmental quality of the building projects in the planning phase.

Ecological Criteria for Viikki is a method commissioned by Helsinki's City Planning Department and the Ministry of the Environment to define minimum ecological levels for construction and to assess the ecological degree of various development projects. The purpose was also to create an open and transparent model for steering experimental building which would be supplemented by more comprehensive data at a later time.

The criteria were particularly tailored to suit Viikki's conditions. Minimum ecological levels for construction have been defined in a way that enables the implementation of residential buildings at a reasonable additional cost. Through fulfilling the ecological criteria, cost savings will also be achieved during the use period. The so called PIMWAG[45] criteria examine building projects from the perspectives of pollution, natural resources, health, natural diversity, and food production. The partial factors have been weighted according to their operative significance.

Viikki 4: **Plot assignment stipulations**[46] *(tontinluovutusehdot)* play an important role in Viikki. The ecological criteria and the PIMWAG scores are included in the detailed guidelines concerning the quality of building which, in Viikki, is appended to the plot assignment stipulations. This inclusion makes the criteria binding with regard to the plans and their implementation, which is a process innovation introduced into the administrative practice of urban development of the City of Helsinki.

The building plans were then assessed by an official assessment group, consisting of representatives from e.g. the City Planning Department, the Development Unit of the Economic and Planning Centre, and the Building Regulation Department. This kind of cooperation across the sectors also created

[45] Acronym derived from the initials of the consultants who developed the criteria.
[46] An instrument used by the local authority to give detailed binding instructions about building and the use of the environment for private developers in cases where the local authority as a landowner assigns the plot to a private developer for building (www.commin.org)

a new practice in the city administration. All residential buildings assessed by this group met the requirements of the minimum acceptable levels set in the plot assignment. In fact, the average of the PIMWAG scores, received by the building projects, corresponded to the level of 'excellent ecological quality'. Compared to conventional residential buildings, the buildings in Viikki were calculated to consume only half of the heating energy, and the consumption of water was one third lower. In total, the production of waste and emissions of carbon dioxide were estimated to be reduced by up to 50% during the next 50 years, as compared to conventional buildings (Pekkarinen-Kanerva & Hakaste 2000).

Viikki 5: The Eco-Community project stated already in its original plan that the solutions utilised in the Viikki ecological area were to be evaluated by a follow-up project. **The Viikki follow-up project** is the first of its kind in Finland. It has thus far included two larger projects and several thematic surveys.

The follow-up project identified several discontinuities in the transfer of information during the process of planning and implementation in respect of ecological objectives (Rodriguez et al. 2004). The ecological criteria and the related calculations functioned well in increasing understanding about the objectives, particularly among developers, from the early planning stage until the plot assignment. Thereafter, the building design proceeded in a more conventional way with the benefits of multi-professional teamwork ignored, to a large extent. According to the follow-up report, this has had a negative effect on the realisation of many innovative ideas, e.g. integration of solar energy in HVAC-systems.

Another discontinuity has been observed in the building contracts. The developers, who have been well aware of the PIMWAG criteria, have not included this information in the contracts with construction companies. Therefore, subcontractors and their employees often remained almost totally unaware of the special conditions pertaining in the construction of Viikki. As a consequence of this, the costs related to all those special actions and equipment required for the fulfilling of the ecological criteria have not been specified separately making it practically impossible to trace them afterwards. The calculations of cost-effectiveness in respect of new ecological solutions would, however, be essentially important if the experiences garnered in respect

of experimental building should be taken into use in other areas (Rodriguez et al. 2004, 54).

One observation of the follow-up project has been that the organisations responsible for maintenance in the new quarters, i.e. property management and maintenance companies, have been surprisingly unaware of the special features of the technical equipment in these buildings. This would be unfortunate in the case of a normal building but it is even more so in the case of an experimental building with ecological objectives. The follow-up report stresses the importance of an unbroken chain of information transfer from planning to implementation and maintenance. [47]

The follow-up process showed that there is still a lot to improve on in respect of the monitoring of the buildings. Collecting information about the use and the performance of the buildings is a complicated and time-consuming task. Currently there are no measurements available for the eco-criteria that would be simple or reliable enough (Eco-Viikki 2005, 19).

The second follow-up study focused on the energy-efficiency of the buildings and on the factors influencing energy consumption in residential buildings. The level of energy consumption in Viikki is significantly lower than in other areas built at that time. The variation between different buildings is, however, quite wide. The study thus set out to discover the reasons for the differences between the targets and the energy audit results in Eco-Viikki.

The results indicate that the actual level of energy consumption was increased by construction defects leading to uncontrolled air infiltration and heat loss, but above all by deficiencies in maintenance and use such as unnecessary overheating, for instance.

[47] One example of a broken information chain is the system of water measurement. It is general practice in Finnish blocks of housing that each person pays the same water fee irrespective of the amount of water used. In order to support water saving individual water meters were installed in Eco-Viikki in every apartment. When the follow-up project wanted to check the water measurement results they found, however, that the individual meters had not been used for defining the correct water fee in any of the buildings, and in most of the buildings these meters had not been taken in use at all. The innovative idea had survived through the planning, building design, call for bids, construction, and installation phases, but no-one had told the property manager or the residents about the new practice which could have enhanced their ecological thinking by encouraging savings in a concrete way.

The main message of the follow-up report was that the distance between theory and practice in ecological sustainability is still too large. It is thus important to ensure that the quality and energy efficiency targets set during the planning and construction phases are transferred to building use and maintenance. The report also raises the question of the use of more binding regulations, or even of economic sanctions, to strengthen the significance of ecological objectives and the role of performance criteria (Motiva 2008)

6.3 Case Nupurinkartano

Nupurinkartano is a new residential area under planning, in the city of Espoo. The area is located along the Helsinki - Turku motorway, north of Ring Road III (Fig. 21).

Figure 21. Nupurinkartano in the urban structure of Espoo(www.suurpelto.fi)

The main parts of the area are unbuilt, and the northern part is at present used as a golf course. A small lake in the middle of the area is the central visual element and forms an essential part of the area's identity (Fig. 22).

Figure 22. Illustration of Nupurinkartano (Arkkitehtitoimisto Petri Rouhiainen Oy, 2006)

With reference to the conventional process for the development of a new area (Model M1, Fig. 5, in Section 3.3), the study of the Nupurinkartano case covers the phases indicated in Fig. 23.

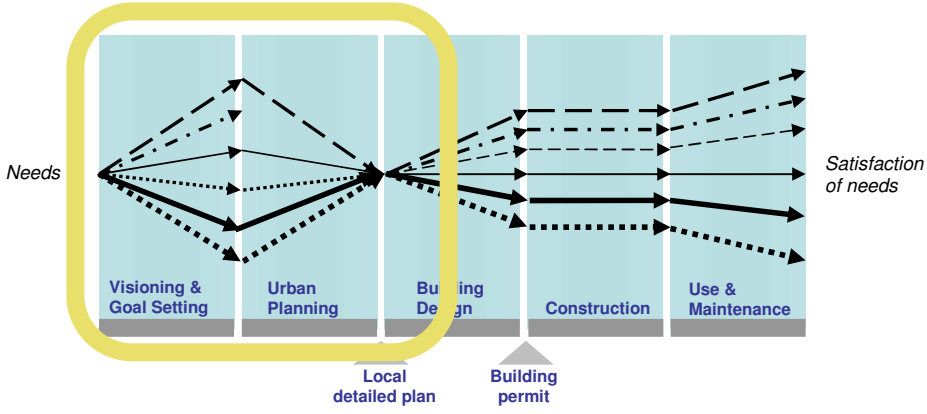

Figure 23. The phases covered by the study of the Nupurinkartano case, with reference to Model M1

The Nupurinkartano case is presented in detail in the next section, in Table 10.

6.3.1 Presentation of the Nupurinkartano case

Table 10. Presentation of the Nupurinkartano case

The case	
- Main characteristics (location, size, timetable)	Nupurinkartano is a new residential area under planning in the city of Espoo, situated 25 km northwest of Helsinki city centre. The area of 54 hectares includes mainly detached and semi-detached houses and when complete will house approximately 600 people. Total floor area is 35 000 sq. metres, of which 28 000 sq. metres are allocated for residential use. The planning of the area was initiated in 2005, with construction estimated to start in 2009.
- Vision	The vision of Nupuri is to create a unique area where individual design results in a coherent community.
Context	
- Land ownership	The land is privately owned.
- Key actors involved	YIT Corporation as developer and main contractor (building systems and construction services), City of Espoo, private landowners
Driving forces	
- Underlying trends	**Participation in planning** The participation of future inhabitants in the planning of a new residential area has always been problematic, and it has been difficult to find methods to satisfy all needs and all expectations. The development of IT has aroused optimistic hopes of creating new methods of participation. In the OPUS research project, several methods were tested, including new types of internet based surveys. The developer YIT calls this pilot project an 'open innovation process'. **Individual choices** The need for individual choices has been identified as one of the new trends in residential building. Traditionally, the resident's choice has been restricted to some surface materials and their colours. The development of IT programs, particularly in visualising plans, has provided new possibilities for future inhabitants to influence the plans. Until now, developers have not been so enthusiastic about this possibility due to the expected loss in cost-efficiency. **Sustainability in marketing** In the 2000s, companies have learned to justify their actions by referring to sustainable development. The expectation is that

	gradually the market will be more favourable for products bearing an ecological label. In energy production the trend is to decrease the carbon footprint. Up to now consumers have mainly been interested in the price of the energy. The companies involved in Nupurinkartano obviously believe that the future residents are also interested in the way energy is produced.
- Administrative drivers	Nupurinkartano is the southernmost part of the Hista-Siikajärvi-Nupuri area. The local master plan of Hista-Siikajärvi-Nupuri has been under planning in the City Planning Department of Espoo since 2001. The planning process has been characterised by the conflicting views of the land owners and the various political parties in the City of Espoo. When the report for new railway lines (*Ratalinjaselvitys*) was presented in 2002, the City Planning Council decided to defer the preparation of the local master plan[48]. Therefore, only some preparatory work was undertaken in 2003-2004. The planning restarted in 2005, and it is still underway. Preparation of the local detailed plan for Nupurinkartano was started in 2005, in spite of the fact that the master plan was unfinished. EU energy policy urges the member states to renew their building codes in terms of energy efficiency. Energy regulations have, and will continue to be, amended in Finland, first 1.1.2010, and then 1.1.2012. As such, developers and equipment suppliers have to be prepared in time for the new stricter levels of energy performance in buildings. This has spurred the actors in Nupurinkartano to search for innovative energy solutions.
- Institutional dynamics, key initiators	Being the southernmost part of the Hista-Siikajärvi-Nupuri area, Nupurinkartano is closely connected to already existing built up areas. Thus, planning and implementation in respect of Nupurinkartano have been able to proceed regardless of the impediments to the planning of the larger master planning area. The YIT Corporation actively supported the local detailed planning by commissioning a private architect to draft plans for Nupurinkartano. Nupurinkartano was one of the case areas studied in the OPUS project. The YIT Corporation was engaged in this study e.g. in the development of new methods for resident participation in the

[48] The construction of a new railway line is viewed as a prerequisite for the realisation of the Hista-Siikajärvi-Nupuri area. On the other hand, the building of new housing areas beyond Ring Road III is resisted because it is claimed that this would create an ever more scattered structure for the City of Espoo. It is considered preferable, at present, to first plan and implement the areas available inside the Ring Road III, and only thereafter to proceed with the areas along the future railway line.

	planning process. The broad research collaboration has encouraged YIT to develop new solutions for the area.
- New ways of thinking	The YIT Corporation has developed jointly with Fortum (energy company) and Uponor (plumbing and heating systems) a new model for the regional production of bedrock heat for residential areas. The model will be first implemented in the Nupurinkartano single-family house area in Espoo. The companies operating in Nupurinkartano (YIT, Fortum and Uponor) are satisfied with the cooperation and interested in joining forces again in similar future projects.[49] All houses in the area will be low-energy houses built by YIT.
Innovative features	
- What is new compared to established/ conventional ways of proceeding? (Described in detail in 6.3.3)	**New actors or networks:** 1. Nupuri developer network **New practices and processes:** 2. Interactive planning forum 3. Palette of optional elements 4. New ways of searching innovative ideas 5. Cooperation for regional bedrock heating
Organisation	
- Planning	The local detailed plan for Nupurinkartano was confirmed by the City Council on 23.2.2009.
- Citizen participation	In addition to the participation procedure required by Land Use and Building Act, the citizens have been able to participate and present their opinions via the Internet in various stages of the process.

Data collection

The data collected in the Nupurinkartano case consists mainly of archival data, including local detailed plans and their reports and other official reports of the City of Espoo. Certain recent presentations by the key actors in the development of the area have been used to update the information of the current planning stage. (see Appendix 3)

[49] "The Nupurinkartano business model, based on collaboration, will bring significant benefits for both the developers and residents". (www.yitgroup.com, Ilari Aho, Vice President of Uponor's Indoor Climate business unit. 26.1.2009)

Nupurinkartano was one of the case areas studied in the OPUS research project, with the focus on interactive urban planning and design, and web-based participation. Thus, additional information has been provided by two master's theses prepared at the Helsinki University of Technology, Department of Architecture, as part of the OPUS research project.

6.3.2 Description of innovative features in the Nupurinkartano case

The five innovative features identified in the Nupurinkartano area development process are described below, numbered from Nupurinkartano 1 to Nupurinkartano 5. Their estimated relations to the three possible root causes with reference to the Model M1 (see Fig 6, in Section 3.3) are indicated in Fig 24.

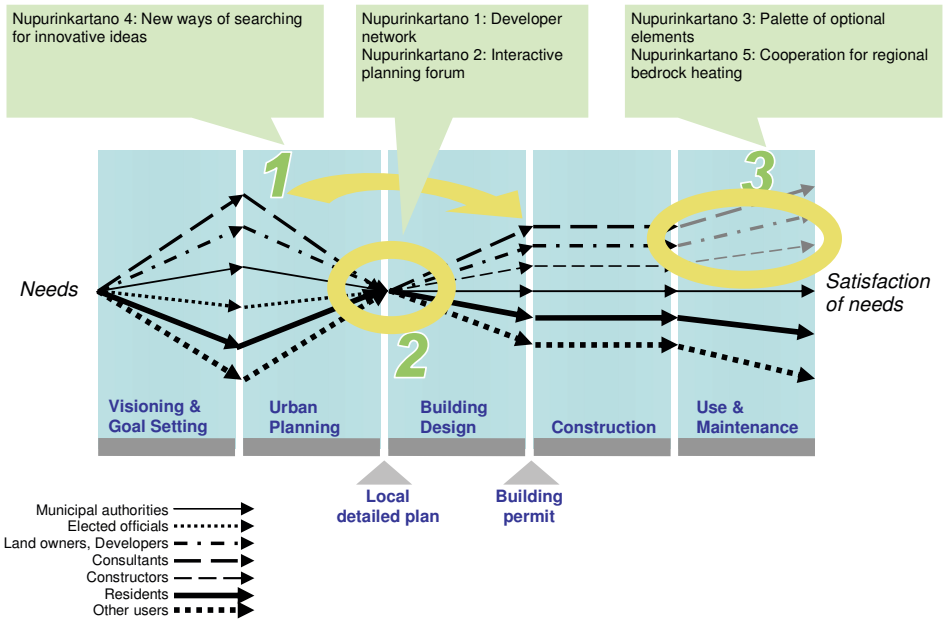

Figure 24. The relation of the innovative features in Nupurinkartano to the three root causes in Model M1

Nupurinkartano 1: The goal in Nupuri is to develop methods for an interactive and learning planning process. To achieve this goal, close cooperation between the public and private planning processes is required. A special '**Nupuri developer network**' has been established to provide interaction in planning between actors from all sectors. The network includes future and neighbouring

residents as well as decision makers such as land owners and members of the city planning board, supported by different kinds of expertise, from city planners and building inspectors to planning consultants and construction companies.

Nupurinkartano 2: An additional new tool to enhance the participatory process is an **interactive planning forum** established in the Internet. In addition to the presentation of current plans in an illustrative manner, the website includes special tools enhancing the participation process, such as an interactive map for the submitting of comments on the planned environment. The innovative feature in this planning forum is the cooperation model created as part of the OPUS project with the planning authorities of the City of Espoo (Nummi 2007). The cooperation model links the web-based participation to the different stages of the official planning process. This linking is generally neglected in other web-based planning forums.

Another innovative feature of the planning forum is the **content management system**. This system ensures the ability to maintain the content and material related to the planning projects for many years in a user-friendly form. This specifically benefits the citizens who, through access to this stored content, are able to obtain a better understanding of the planning process. It is noteworthy moreover that not only the official documents are stored but also the conversations and comments related to the process in its various stages.

Nupurinkartano 3: One of the main intentions in Nupuri is to raise the level of participation and to accord future residents with the status of co-developers. The Nupuri network has created a palette of optional elements for the residents to be used in the forthcoming co-development process. These optional elements will be further developed to cover the whole range from area planning to individual houses and their characteristics. The options are defined separately for each planning level (whole area, block of houses, individual building). The options may refer to tenure, type of house, method of construction, degree of finishing (exterior & interior), and the possibility of building extensions (e.g. greenhouse, patio, warehouse). The selection also takes into account different lifestyles and allows for various degrees of social interaction and ecological choices (Melama 2007). In order to strengthen the status of the optional elements they are also mentioned in the local detailed plan.

Nupurinkartano 4: Innovative ideas have been propounded in various new ways in Nupurinkartano. These include the co-operative planning with a **children's architectural school** as well as a two-phase **internet survey** directed at the potential future residents of Nupurinkartano. In the cooperation with the Architecture School for Children and Youth (ARKKI), the students first explored the site of Nupurinkartano with their teachers and then made written proposals, drawings and models for the area. The children's' perspective produced several fresh and useful ideas for further development of the area and its housing (Majamaa 2008, 44).

The 'Signals-survey' in the internet was a completely new participation method in urban development processes in Finland, consisting of an open, unstructured, two-phase internet questionnaire (Majamaa 2008). The results highlighted the need to provide possibilities for future residents to select different options. The palette of optional elements (see Nupurinkartano 3) has been developed on the basis of this survey. The ideas presented in the survey were also brought forward to the planning of the area and to the housing design (Kuronen 2008, 36).

Nupurinkartano 5: **Finland's first regional bedrock heating** system will be installed in Nupurinkartano. The technology for ground and bedrock heating has existed for a long time. The innovative feature here is that three private companies have together generated a solution that serves the entire residential area. This creates a novel business model, allowing heating and cooling systems to be optimised at both area and building levels.

Geothermal energy, i.e. solar energy stored in the bedrock can be harnessed without creating carbon dioxide emissions. The indoor cooling of the houses will also be environmentally friendly, using the natural coolness stored in the bedrock. The companies providing this solution promise that "residents will be able to enjoy an excellent indoor climate in their homes economically and in an environmentally friendly manner" (www.yitgroup.com, 26.1.2009).

6.4 Case Vuores

Vuores is situated in the Tampere area which is the second largest urban region in Finland.. An interesting feature is the fact that Vuores falls within two local authorities: Vuores is situated partly in the City of Tampere (67 percent) and partly in the municipality of Lempäälä (33 percent). This brings additional challenges both to planning and development and to the future provision of services in the area. The location of Vuores in the Tampere region appears in Fig. 18.

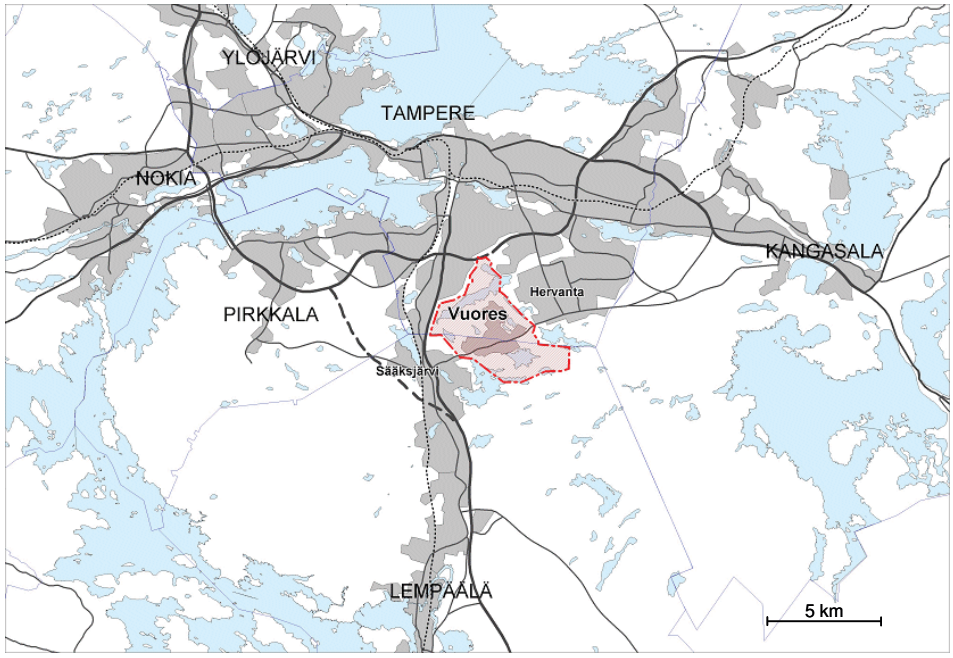

Figure 25.. Vuores in the Tampere region (www.tampere.fi/vuores)

The natural environment is an essential part of the area's identity. The planned area is currently practically un-built, and all environmentally valuable areas, such as several small lakes, shall remain protected. Fig. 26 provides an aerial view of Mäyränmäki, the first area to be built in Vuores.

Figure 26. Aerial view of Vuores, Mäyränmäki (www.tampere.fi/vuores)

With reference to the conventional process for the development of a new area (Model M1, Fig. 5, in Section 3.3), the study of the Vuores case covers the phases indicated in Fig. 27.

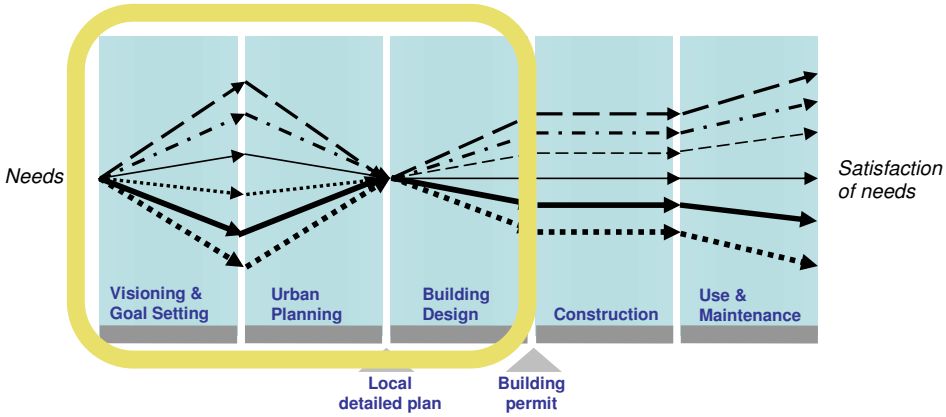

Figure 27. The phases covered by the study of the Vuores case, with reference to Model M1

The Vuores case is presented in detail in the next section, in Table 11.

6.4.1 Presentation of the Vuores case

Table 11. Presentation of the Vuores case

The case	
- Main characteristics (location, size, timetable)	The distance from Vuores to the city centre of Tampere is 7 kilometres, and to Lempäälä it is 14 km. The area for development encompasses 1256 hectares Vuores is situated between Ring Road I, Ring Road II and the Helsinki-Tampere motorway. The traffic system plan for Vuores emphasises public transport, walking, and cycling. The planning of Vuores is still under way and the planning stage should last until 2012. The aim is to build homes for some 14 000 residents and premises for 3 000-5 000 jobs, by 2020. The total floor area will be 750 000 sq. metres. Construction work started in July 2009, with the first residents moving to Vuores (Mäyränmäki and Vuores Centre) in 2010. The Case Vuores dealt with in the context of this study includes the first pilot areas in Vuores, situated in Tampere.
- Vision	The vision for Vuores aims at the combination of nature, creativity and high technology in an ambitious way. The main goal is to create a 'small town' that is active throughout the day and provides high-quality services and a variety of residential options as well as attractive work premises to serve the needs of commerce and trade. Central elements also include creativity and art in its various forms.
Context	
- Land ownership	The city of Tampere owns the land of the planned areas. As the local detailed plans are approved, the building sites will be either sold or leased out to companies. Part of the Vuores area belongs to the municipality of Lempäälä.
- Key actors involved	The City of Tampere, developers and construction companies
- Economic and social context	The positive economic situation pertaining at the beginning of the 2000s increased demand for new dwellings and office buildings in growing regions like Tampere. This led to a rise in

	the price of building sites. The municipalities have reacted to this development by accelerating their own urban planning activities. According to various forecasts the population in the Tampere region, currently 340 000, will continue to grow over the next two decades by some 90 000 inhabitants. Vuores is one of the main areas where the flow of new residents will be directed.
Driving forces	
- Underlying trends	In the context of urban planning a prevailing trend has been the desire to increase both the amount and the exactness of details in the local plans in order to ascertain the quality of the future implementation. As a consequence, the developers and constructors complain about these binding regulations. They claim that these regulations restrict their ability to create innovative solutions in response to customer demand. The sequential process of planning, building design and construction offers many interesting possibilities to develop the process further. If the separate phases could proceed, at least partially, in concurrence this would apparently shorten the duration of the overall process. This observation has stimulated a number of projects, including the Vuores project, in the search for new models for urban development and for collaboration between public and private actors.
- Administrative drivers	**Legislation** The Land Use and Building Act that came into force at the beginning of 2000, launched the possibility of municipalities making joint master plans in cooperation with other municipalities. Tampere and Lempäälä were among the first who seized upon this opportunity initiating joint master planning for Vuores. **Amendments of local detailed plans** As local plans are increasingly filled with minute details the need for amendments increases correspondingly. These amendments, or deviation decisions as an alternative, are time-consuming processes. All stakeholders in urban development would benefit if these were avoided without at the same time compromising the quality of the resulting environment.
- Institutional dynamics, key initiators	Vuores is one of the main strategic projects of the City of Tampere. Through the experience generated in the context of the Vuores project Tampere aims to renew its urban development process. Therefore, several research projects have been carried out to examine e.g. the new criteria for urban planning (EcoCity) and new collaborative planning models (Beyond Vuores) as well as wireless service (Wireless Vuores).

	Research The aim of the EU funded EcoCity project (2002 - 2005) was to develop criteria for urban sustainable development with a special focus on integrating them with transport issues. Vuores was the Finnish pilot among seven other countries. The 27 planning concepts and guidelines created by this project were included in the programme of the architectural competition for the Vuores Centre. Beyond Vuores (2004-2007) is a project carried out by VTT Technology Research Centre of Finland, and financed by Tekes with 13 companies in the building sector as well as Tampere and Lempäälä. The City of Tampere and the Municipality of Lempäälä set the following goal for the Beyond Vuores project: To develop new steering models for the management of the urban development process instead of only using approved local detailed plans. Consequently, the main hypothesis for the study was that the collaboration between the city and private companies, starting from the initial phase of the planning, creates more added value than the conventional planning process carried out by the city on its own. The City of Tampere provided the pilot case areas in Vuores for the development and experimentation of the collaborative planning model. In order to meet the vision of combining nature and high technology, The City of Tampere commissioned several studies from Tampere University of Technology. E.g. the project Wireless Vuores (2004-2005) has evaluated the potential of wireless technologies to enable various services to be delivered, and then developed a neighbourhood server concept, to be followed by a server demonstration.
- New ways of thinking	According to conventional practice, the city first prepares and approves the local detailed plan, and after that the plot division is prepared. In cases where the land is owned by the city, the first moment contact can be made with private developers is only when the plot assignment is undertaken. Thus, there are no obligations for the city to cooperate at an earlier stage. In the context of the Vuores project Tampere has striven to change this practice by beginning the collaboration process earlier than usual. The city expects e.g. the following benefits (Nykänen et al. 2007): - The planning resources of the city are complemented by the planning resources of private companies thus providing better results. - The process proceeds more swiftly and the plots can be assigned and constructed without the usual delays

	- Quality-based competition can be increased - Companies can develop new products and services simultaneously with the planning
Innovative features	
- What is new compared to established/ conventional ways of proceeding? (Described in detail in 6.4.3)	**New actors or networks:** 1. Collaborative planning network **New practices and processes**: 2. New type of architectural competition 3. Performance-based quality criteria 4. Visioning process
Organisation	
- Planning	The preparation of the **joint master plan** of The City of Tampere and the municipality of Lempäälä started in February 2000. The joint body of the two local authorities approved the joint master plan in November 2003. The Ministry of the Environment ratified the joint master plan of Vuores in January 2005. This decision was appealed to the Supreme Administrative Court; All appeals were dismissed as of 27.9.2006. **The local detailed plan** for Mäyränmäki was approved by the City Council in March 2007. This decision was appealed to the Administrative Court of Hämeenlinna and the appeals were dismissed 1.2.2008. This decision was appealed to the Supreme Administrative Court with the appeal finally being dismissed on 24.9.2008. The local detailed plans for Vuores Centre were approved by the City Council in September 2008 (western part) and August 2009 (south-eastern part). **Architectural competitions** of the first areas in Vuores: The Vuores Centre, results in December 2004 Mäyränmäki residential area, results in December 2005.
- Citizen participation	The Vuores project included the statutory participation as part of the urban planning process. To facilitate the interaction between the city and the citizens, a special web application called “Arkkikone” was developed collaboratively between the City of Tampere and the University of Art and Design Helsinki. Arkkikone was used in connection with the architectural competition for the Vuores Centre.[50]

[50] When the user of Arkkikone evaluates the competition proposals, the application produces a profile of the user and illustrates the result with entertaining figures. Arkkikone also compares the user's opinions with experts' opinions and presents the difference through colourful diagrams. (Lahti *et al*. 2006)

Data collection

The data collected in the Vuores case consists mainly of archival data, including the local master plan, the programmes and reports of the architectural competitions, and other official reports of the City of Tampere. Certain recent presentations by the project director of the development of the area have been used to update the information of the current planning stage. (see Appendix 4)

6.4.2 Description of innovative features in the Vuores case

The four innovative features identified in the Vuores area development process are described below, numbered from Vuores 1 to Vuores 4. Their estimated relations to the three possible root causes with reference to the Model M1 (see Fig 6, in Section 3.3) are indicated in Fig 28.

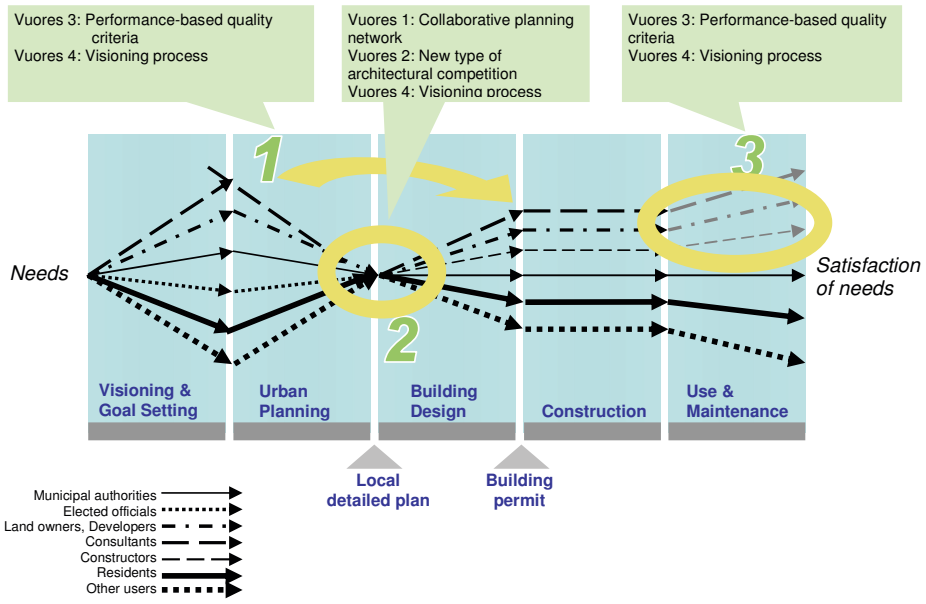

Figure 28. The relation of the innovative features in Vuores to the three root causes in Model M1

Vuores 1: In the collaborative planning model in Vuores, the city selects partner companies already at the initial stage of planning in order to create a **collaborative planning network**. The objective is to enable concurrent interactive cooperation between the city planning units preparing the local

detailed plans and private companies developing their project plans. This partnership should deliver benefits and added value for both the municipality and the companies involved. The municipality can also profit from the design resources of companies before finalising the local detailed plan while companies are motivated to invest more resources in design when they have the opportunity to implement an area clearly larger than the usual single plot (Nykänen *et al*. 2007).

"The experience in Vuores indicates that private companies can participate in the urban planning process in a controlled way even without a local detailed plan. In collaborative planning, the local detailed plan appears as an intermediate result of an interactive planning process" (Nykänen et al. 2007, 93).[51]

In addition to questions relating to urban planning and building design the city and partner companies have the possibility, during the collaborative planning process, to discuss several other topical issues of urban development. These include e.g. infrastructure networks, area marketing and time schedules for public services.

Vuores 2: The goal in Vuores has been to develop new partnership models to be used in the implementation of the project. The first of these models is a **new type of architectural competition** set up to help prepare the first residential areas in Vuores. The competition is arranged in two phases. First, the participating teams are selected to enter the competition on the basis of certain preliminary criteria, such as previous references. The multifunctional teams include developers and construction companies, architects and engineers as well as other specialists, including artists. In the second phase, the chosen teams produce their proposals which are then evaluated through a special set of performance-based quality criteria, developed for Vuores (see Vuores 3 below). The idea of the competition is, on the one hand, to increase the commitment to quality among the developers and constructors and on the other, the aim is to involve the actors of the implementation phase already in the early phase of the planning process thus achieving a more efficient process. Therefore, the winner of the competition has to make a commitment to implement the winning proposal.

[51] Translation by the author.

Vuores 3: A new system of **performance-based quality criteria** has been elaborated by VTT Technical Research Centre of Finland for evaluating the entries of the architectural competition in Vuores (Huovila et al. 2007). The criteria are also needed for the selection of partner companies and in steering the building design process. When construction is completed, the criteria will also contribute to the assessment of the result. In addition, the criteria could be used to define the desired properties and quality levels when creating the vision for the area. The criteria consist of six main categories: general characteristics, housing, services, outdoor areas, traffic and parking, and building qualifications. Altogether there are 28 weighted criteria (Nykänen et al. 2007).

Vuores 4: A new practice, created by VTT as part of the Beyond Vuores project, is a framework for the **visioning process** of an urban area (Riihimäki & Vanhatalo 2006). According to this framework, all tools for planning, developing and implementation should be linked to the local vision. An open visioning process stimulates potential actors to participate in the process in the early phases of the development activities and increases their commitment to the results pursued. The goals and visions set initially by the municipality may be complemented by ideas suggested by partner companies and other stakeholders.

Riihimäki and Vanhatalo point out that a strong vision can help the planning across its entire trajectory up to and including implementation and use. In order to be effective the content of the vision has to be approved by the decision-making body of the municipality. The participants in the visioning process in Vuores included municipal authorities, consultants, developers and other private companies. The future residents were not represented in the process. Riihimäki and Vanhatalo remind us, however, that it is important that the actors change in the course of the visioning process, and the role of residents should increase as the process proceeds.

6.5 Categorisation of the innovative features

In Section 3.3, three possible root causes for the practical problem, faced in the conventional process for the development of a new urban area (model M1), were identified. The formulation of the practical problem was: "In the urban development process, innovative ideas often do not reach implementation" (see Section 3.3). The root causes were defined as the following:

Root cause 1. Visions do not steer the process until implementation

Root cause 2. Discontinuities exist in the knowledge transfer across the various phases in the process

Root cause 3. There is lack of attention given to use and maintenance of the new area

The innovative features identified in the development processes of the four cases are now empirically categorised in Table 12. This data reduction round demonstrates how the innovative features contribute to the elimination of the three root causes. The categorisation thus follows from the potential of each innovative feature to:

a) help steer the process towards the vision and goals

b) increase the transfer of knowledge across various phases

c) increase the attention given to use and maintenance of the area during the process

It is assumed here that a positive contribution to a, b, or c to the studied case processes implies at least a partial elimination of the respective root cause 1, 2, or 3.

In Table 12, the innovative features are located in three categories, based on the author's empirical assessment whether they have had a positive effect of type a, b, or c, in the studied case processes. Each innovative feature may refer to one or more categories[52].

Table 12 shows that the innovative features identified in the four case studies are divided quite evenly across all three categories. In each category there are features from all four cases.

[52] Initially, there was a fourth category 'others' for those innovative features that would not fit any other category. During the categorisation process it became evident that there was no need for this fourth category.

Table 12. Innovative features identified in the cases, categorised with reference to the root causes.

Categories referring to root causes	***Innovative features identified in the cases***
a) Steers the process towards the vision and goals	Suurpelto 1: Project director as coordinator Suurpelto 2: Suurpelto Marketing Company Suurpelto 4: Land use agreement Suurpelto 5: Plans for neighbourhood and quarter areas Suurpelto 6: Tentative development plan and quality assurance Viikki 1: Eco-Community Project Viikki 3: Set of ecological criteria Viikki 4: Linking up ecological criteria with plot assignment Nupurinkartano 4: New ways of searching for innovative ideas Vuores 3: Performance-based quality criteria Vuores 4: Visioning process
b) Increases the transfer of knowledge across various phases	Suurpelto 1: Project director as coordinator Suurpelto 6: Tentative development plan and quality assurance Viikki 1: Eco-Community Project Viikki 2: New type of architectural competition Nupurinkartano 1: Developer network Nupurinkartano 2: Interactive planning forum Vuores 1: Collaborative planning network Vuores 2: New type of architectural competition Vuores 4: Visioning process
c) Increases the attention given to use and maintenance of the area	Suurpelto 1: Project director as coordinator Suurpelto 3: Waste management system Suurpelto 4: Land use agreement Suurpelto 7: Completion of street environment Suurpelto 8: Home delivery system Suurpelto 9: Cooperation network for Opinmäki Viikki 1: Eco-Community Project Viikki 5: Follow-up project Nupurinkartano 3: Palette of optional elements Nupurinkartano 5: Cooperation for regional bedrock heating Vuores 3: Performance-based quality criteria Vuores 4: Visioning process

The empirical categorisation in Table 12 will be employed in Chapter 8 in terms of the interpretation of the results of the theoretical analyses conducted in the next Chapter 7.

PART III

7 THEORETICAL ANALYSIS OF THE CASE STUDIES

After the empirically based data reduction undertaken in Chapter 6, this chapter presents the second theoretical data reduction round (see Section 5.2.2). The findings of the four case studies are now analysed through the lens of the four theoretical approaches selected for this research: *process approach*, *network approach*, *innovation approach*, *and service approach*, reviewed and elaborated into four frameworks of theory elements in Chapter 4.

The four frameworks include five theory elements for process management, five for network management, four for innovation management, and four for service development. These frameworks, presented in the form of tables, are now applied to analyse and evaluate the innovative features in each of the four cases.

The innovative features of each case are cross-tabulated with the theory elements. The explanatory power of each theory element is evaluated for each innovative feature. The levels used in the evaluation are: ***** *High*, *** *Medium*, * *Low*. The evaluations are based on the author's subjective estimates of the innovative features in their case contexts. When an innovative feature is not explained by a theoretical element, it does not appear on the respective row in the table. The numbering of the innovative features refers to the descriptions in Chapter 6.

Each analysis section is followed by a summary including all four cases, which provides the basis for answering to the corresponding research question. The answers are then presented as a set of propositions within each theoretical approach.

All of the innovative features (23) identified in the four cases and described in Chapter 6, are listed in Table 13.

Table 13. Innovative features in the four cases

Case	***Innovative features identified in the case***
Suurpelto	Suurpelto 1: Project director as coordinator Suurpelto 2: Suurpelto Marketing Company Suurpelto 3: Waste management system Suurpelto 4: Land use agreement Suurpelto 5: Plans for neighbourhood and quarter areas Suurpelto 6: Tentative development plan and quality assurance Suurpelto 7: Completion of street environment Suurpelto 8: Home delivery system Suurpelto 9: Cooperation network for Opinmäki
Viikki	Viikki 1: Eco-Community Project Viikki 2: New type of architectural competition Viikki 3: Set of ecological criteria Viikki 4: Linking up ecological criteria with plot assignment Viikki 5: Follow-up project
Nupurinkartano	Nupurinkartano 1: Developer network Nupurinkartano 2: Interactive planning forum Nupurinkartano 3: Palette of optional elements Nupurinkartano 4: New ways of searching for innovative ideas Nupurinkartano 5: Cooperation to create regional bedrock heating
Vuores	Vuores 1: Collaborative planning network Vuores 2: New type of architectural competition Vuores 3: Performance based quality criteria Vuores 4: Visioning process

7.1 Process approach

7.1.1 Analysis of the cases

The innovative features of the cases are evaluated here in the light of the theory elements of the process approach (p1 - p5). The theory elements, together with the innovative features they explain and the extent of their explanatory power, are listed for each case separately, in Tables 14 - 17 below.

Table 14. Evaluation of the process approach in Case Suurpelto: theory elements linked to the innovative features

Theory element in process management	Case Suurpelto: Innovative feature explained by the theory element	Explanatory power in the case
p1 Continuity of the process through organisational boundaries	1. Project director	*****
	4. Land Use Agreement with functional objectives	***
	6. Tentative development plan and quality assurance	***
	8. Home delivery system	*****
	9. Cooperation network for Opinmäki	*****
p2 The process starts from customer needs and ends with their satisfaction	8. Home delivery system	***
	9. Cooperation network for Opinmäki	***
p3 Elimination of suboptimisation	4. Land use agreement with functional objectives	*****
	6. Tentative development plan and quality assurance	***
p4 Maintaining the goals through measurement of performance	5. Reinforcing the status of the plans for neighbourhood and quarter areas	*
	6. Tentative development plan and quality assurance	*****
p5 Naming of process ownership	1. Project director	*****
	2. Suurpelto Marketing Ltd	***
	3. Waste management	*****

Table 15.. Evaluation of the process approach in Case Viikki: theory elements linked to the innovative features

Theory element in process management	Case Viikki: Innovative feature explained by the theory element	Explanatory power in the case
p1 Continuity of the process through organisational boundaries	1. Eco-Community Project 5. Viikki follow-up project	***** *****
p2 The process starts from customer needs and ends with their satisfaction	5. Viikki follow-up project	***
p3 Elimination of suboptimisation	3. Set of ecological criteria 4. Linking up ecological criteria with plot assignment	***** *****
p4 Maintaining the goals through measurement of performance	3. Set of ecological criteria 5. Viikki follow-up project	***** *****
p5 Naming of process ownership	1. Eco-Community Project	*****

Table 16. Evaluation of the process approach in Case Nupurinkartano: theory elements linked to the innovative features

Theory element in process management	Case Nupurinkartano: Innovative feature explained by the theory element	Explanatory power in the case
p1 Continuity of the process through organisational boundaries	1. Nupuri developer network 2. Interactive planning forum	* ***
p2 The process starts from customer needs and ends with their satisfaction	3.Palette of optional elements 4. New ways of searching for innovative ideas	*** *
p3 Elimination of suboptimisation		
p4 Maintaining the goals through measurement of performance		
p5 Naming of process ownership		

Table 17. Evaluation of the process approach in Case Vuores: theory elements linked to the innovative features

Theory element in process management	Case Vuores: Innovative feature explained by the theory element	Explanatory power in the case
p1 Continuity of the process through organisational boundaries	1. Collaborative planning network	*****
p2 The process starts from customer needs and ends with their satisfaction	4. Visioning process	*
p3 Elimination of suboptimisation	2. New type of architectural competition 3. Performance based quality criteria	*** *****
p4 Maintaining the goals through measurement of performance	3. Performance based quality criteria	*****
p5 Naming of process ownership	4. Visioning process	***

7.1.2 Summary of the process approach and answers to RQ1

RQ1: What characteristics of the process approach can contribute to the creation of a coherent process of urban development?

Table 18 summarises the findings of the previous four tables related to the process approach in the case studies. It can be observed that each of the five theory elements of process management (p1-p5) explain several innovative features in Suurpelto, Viikki and Vuores, while in Nupurinkartano only two theory elements explain them. In most of the innovative features that are explained by process management theory, the explanatory power is evaluated as being high.

***Table 18**. Summary of the process approach in the four cases: the theory elements (p1-p5) linked to the innovative features of the cases and to the corresponding level of explanatory power*

Theory element in process management	Suur-pelto	Explan atory power	Viikki	Explan atory power	Nupu-rinkar-tano	Explan atory power	Vuores	Explan atory power
p1 Continuity of the process through organisational boundaries	1. 4. 6. 8. 9.	***** *** *** ***** *****	1. 5.	***** *****	1. 2.	* ***	1.	*****
p2 The process starts from customer needs and ends with their satisfaction	8. 9.	*** ***	5.	***	3. 4.	*** *	4.	*
p3 Elimination of suboptimisation	4. 6.	***** ***	3. 4.	***** *****			2. 3.	*** *****
p4 Maintaining the goals through measurement of performance	5. 6.	* *****	3. 5.	***** *****			3.	*****
p5 Naming of process ownership	1. 2. 3.	***** *** *****	1.	*****			4.	***

(The numbering of the innovative features refers to the descriptions in Chapter 6.)

The answer to the research question RQ1, related to the process approach, is provided below as a set of propositions P1 – P5, supported by the case study results.

P1 A coherent urban development process ensures continuity through organisational boundaries

Ensuring the continuity of the process through organisational boundaries is the most important element of process management on the basis of the cases studied. The coherence of the process is achieved in the cases by various means. These include, in the Suurpelto case, a land use agreement with functional objectives that concern several sections in the city administration. The common objectives challenge the various sections and encourage them to cooperate and raise their level of ambition in process-orientation (Hannus 2004). As part of the land use agreement in Suurpelto, a tentative development plan is requested in order to assess the fulfilment of the visions and themes at the start of a building project. This enables the steering group of the area to

manage projects as portfolios (Cooper et al. 1998, Elonen and Artto 2002), and thus to ensure continuity in the process.

Another significant feature associated with Suurpelto was the naming of a project director from outside the city planning department, thus supporting the continuity of the development process by providing a broader process view (cf. Ittner & Larcker 1997) and an enhanced ability to collaborate with all interested sectors. The project director has certain responsibilities of a process owner (Davenport 1993, Hammer and Champy 1993, Smeds 1994, Hannus 2004), although not concerning the whole urban development process.

One example of the benefits brought by the continuity of the process is the realisation of a home delivery system connected to e-commerce. This idea has persisted through the process, due to the perseverance and motivation of some key actors in the network in respect of the further planning and implementation of the idea (cf. Markus & Keil 1994).

The follow-up project is an essential part of the continuous urban development process in Viikki. The follow-up has demonstrated its importance by, for example, revealing several discontinuities in the process. Based on this, the follow-up report stresses the importance of an unbroken chain of information transfer from planning to implementation and maintenance.

In Nupurinkartano, the continuity of the process was supported by an interactive planning forum linking the web-based participation to the different stages of the official planning process.

The continuity of the process can also be achieved by organising a special network committed to promoting the development of the area, including actors originating from different organisations and representing different stages of the process. This is indicated in all the cases studied: In Suurpelto, the cooperation network for the Opinmäki campus; In Viikki, the Eco-Community Project network; In Nupurinkartano, the Nupuri developer network; In Vuores, the Collaborative planning network. One of the main challenges as regards process management in this kind of network lies in the fact that the organisations involved are often at different levels in their evolution from functional to process-oriented organisation (cf. Smeds 1996).

P2 A coherent urban development process starts from customer needs and ends with their satisfaction

In this study, 'customers' have been defined as residents and other users of the area. The identification of their needs is considered essential in several cases, which follows the principles of process management (e.g. Davenport 1993, Hammer & Champy 1993, Hannus 2004). In this regard, various practices have proven useful. In Nupurinkartano, a palette of optional elements is offered for the residents. Other methods for searching ideas and identifying needs include co-operative planning with a children's architectural school and a two-phased internet survey directed at potential future residents of Nupurinkartano. In Vuores, the visioning process has gathered together ideas from municipal authorities, consultants, developers and other private companies with the aims of increasing the role of the residents as the process proceeds.

The problem faced thereafter is how to maintain the ideas gathered during the process. One solution is to include the ideas not only in unofficial reports but also in official documents. In this way the ideas are consciously stored, and they can then later in the process be retrieved and applied to use (cf. Zack 1999). The home delivery system in Suurpelto is a good example of an idea starting from the needs of future residents, which is then included in the report of the local detailed plan. As a result of this coherent process, implementation of the idea has currently started.

The Opinmäki network in Suurpelto has begun the development process for a new campus area by identifying the needs of its customers. In this case the 'customers' include, in addition to future residents, potential students as well as current and future teachers for both the Finnish, Swedish and International schools. Satisfying the needs of this large group of actors has proved to be quite a challenging task. The role of Opinmäki campus as a case study in the large InnoSchool research project (e.g. Pöyry et al. 2008) has entailed numerous collaborative workshops, which have provided an additional forum for discussions of the needs of the various groups.

In the Viikki case, customer needs were not identified at the start of the process, and consequently, the process has not explicitly been oriented towards the satisfaction of these needs. In the Viikki follow-up project the users' role is instead brought up. The follow-up project also includes a survey of the residents' experiences in Viikki.

P3 A coherent urban development process eliminates suboptimisation

The elimination of suboptimisation is one of the central elements in process management. When the number of actors in the process increases, the risk of suboptimisation increases accordingly. The process of urban development, divided into several processes and phases, and implemented through separate projects, is very vulnerable in this respect, and thus the risk of suboptimal results is high.

The practices uncovered in the cases studied indicate that new forms of collaboration are not sufficient as such for the elimination of suboptimal results (cf. Markus & Keil 1994). Of the wide variety of process management and development techniques available, it is the definition of performance criteria that has been adopted in two of the cases, Viikki and Vuores. In Viikki, the set of ecological criteria utilised has proven to be a useful tool in transferring the original targets across the stages. Consequently, the criteria have contributed to the optimisation of the development process in Viikki. The follow-up then assesses whether the optimisation of the total process has succeeded.

The prevention of suboptimisation has however required, in addition to the performance criteria, the use of some rather forceful legal tools, e.g. binding agreements in Suurpelto or the linking of the criteria to plot assignments in Viikki. In Suurpelto, the land use agreement is written in such a way that it has succeeded in steering the network of actors in the direction of its objectives - at least thus far. The tentative development plan is intended to be a tool to guide the separate projects towards the vision as a portfolio.

In Viikki, it has been of the utmost importance that the set of ecological criteria was appended to the plot assignment stipulations, and they thus received a binding status. All the building projects exceeded the minimum levels of the criteria, while the project teams did their best to surpass their competitors in terms of PIMWAG scores.

In Vuores, the new type of architectural competition including performance-based quality criteria has also acted to prevent suboptimal outcomes.

P4 A coherent urban development process maintains its goals through measurement of performance

The measurement of performance has been rather uncommon in the tradition of the Finnish urban development (Kyttä & Kahila 2006). The set of ecological criteria to measure the ecological performance of the building process in Viikki thus represents a pioneering example in this regard. A clear goal setting in Viikki has been the prerequisite for the use of defined criteria. This is consistent with the view of e.g. Ersson (2007).

The successful experience of Viikki has however generated only a few emulators. In one of them, Vuores, the performance criteria have been elaborated further. This set of criteria has avoided the dangers, pointed out by e.g. Townley et al. (2003), of only focusing on easily quantifiable objects. The connection of performance measurement to quality assurance is also emphasised in Vuores. The setting of clear criteria contributes additionally to the follow-up of the planned areas, something which still remains a neglected issue. Viikki is the only case that is already entirely built and where a follow-up has been performed.

The plans for neighbourhood and quarter areas set a certain quality level for planning and construction. In Suurpelto, the reinforcing of their status by appending them to the land use agreement, guarantees that this level is reached.

The tentative development plan in Suurpelto does not measure the performance of the projects but it is a tool for assessing whether the original visions and goals have been taken into account in the plan and, more precisely, by what means.

P5 A coherent urban development process names a process owner

The naming of a process owner is not usually a very complicated task when business processes are concerned. The tasks of a process owner partly overlap with the tasks of process coordination, via the traditional organisational coordination mechanisms of standardisation, planning, and mutual adjustment (Thompson 1967). But in complex networked processes, these mechanisms are insufficient.

In the context of urban development, the situation is highly ambiguous. The process of urban development consists, in fact, of a variety of processes that should be managed in such a way that they proceed in the direction set by the vision and the related goals. The 'sub-processes' are generally defined by the city administration or by private companies and, consequently, they often have a named process owner. The total process remains, however, very often without process ownership in explicit terms, which may have a negative impact on the coherence of the urban development process (cf. Hammer & Champy 1993, Davenport 1993, Smeds 1994).

Those cases which were organised as projects with an appointed project director who had sufficient power over the various process phases, clearly demonstrated an efficient process management and development procedure (Suurpelto, Viikki, and Vuores). An essential factor in this respect was that the recruitment of the project directors had been successful in the studied cases (cf. Markus & Keil 1994).

In Suurpelto, in addition to the Project Director, a Marketing Director was also appointed to lead a special company, laying specific emphasis on the marketing of the whole area. The issue of waste management has also been viewed as demanding the attention of its own company. The Suurpelto Project Director also acts as Managing Director for the waste management company, which underlines the need for a broad process ownership.

7.2 Network approach

7.2.1 Analysis of the cases

The innovative features of the cases are evaluated here in the light of the theory elements of the network approach (n1 - n5). The theory elements, together with the innovative features they explain and the extent of their explanatory power, are listed for each case separately, in Tables 19 - 22 below.

Table 19. Evaluation of the network approach in Case Suurpelto: theory elements linked to the innovative features

Theory element in network management	Case Suurpelto: Innovative feature explained by the theory element	Explanatory power in the case
n1 Value creation in collaboration, combining each partner's core competence	4. Land use agreement	***
n2 Commitment to common goals throughout the network	3. Waste management system	***
	4. Land use agreement	*****
	7. Completion of the street environment	***
	8. Home delivery system	*****
n3 Coordination is essential in the management of a network	1. Project director	*****
	9. Opinmäki network	***
n4 Encouragement of collaboration	1. Project director	***
n5 Interaction is a prerequisite for learning in the network	1. Project director	***
	6. Tentative development plan and Quality assurance	***
	9. Opinmäki network	*****

Table 20. Evaluation of the network approach in Case Viikki: theory elements linked to the innovative features

Theory element in network management	Case Viikki: Innovative feature explained by the theory element	Explanatory power in the case
n1 Value creation in collaboration, combining each partner's core competence	1.The Eco-Community Project	*****
	2 New type of architectural competition	***
n2 Commitment to common goals throughout the network	3. Set of ecological criteria	*****
	4. Linking up ecological criteria with plot assignment	*****
	5. Viikki follow-up project	*
n3 Coordination is essential in the management of a network	1. The Eco-Community Project	*****
n4 Encouragement of collaboration	1. The Eco-Community Project	*****
	2 New type of architectural competition	***
n5 Interaction is a prerequisite for learning in the network	4. Linking up ecological criteria with plot assignment	***

Table 21. Evaluation of the network approach in Case Nupurinkartano: theory elements linked to the innovative features

Theory element in network management	**Case Nupurinkartano: Innovative feature explained by the theory element**	**Explanatory power in the case**
n1 Value creation in collaboration, combining each partner's core competence	1. Nupuri developer network 5. Cooperation for regional bedrock heating	*** ***
n2 Commitment to common goals throughout the network		
n3 Coordination is essential in the management of a network		
n4 Encouragement of collaboration	1. Nupuri developer network	*****
n5 Interaction is a prerequisite for learning in the network	1. Nupuri developer network 2. Interactive planning forum	*** ***

Table 22. Evaluation of the network approach in Case Vuores: theory elements linked to the innovative features

Theory element in network management	**Case Vuores: Innovative feature explained by the theory element**	**Explanatory power in the case**
n1 Value creation in collaboration, combining each partner's core competence	1. Collaborative planning network 2. New type of architectural competition	*** ***
n2 Commitment to common goals throughout the network	3. Performance based quality criteria 4. Visioning process	***** ***
n3 Coordination is essential in the management of a network	1. Collaborative planning network	*****
n4 Encouragement of collaboration	2. New type of architectural competition	***
n5 Interaction is a prerequisite for learning in the network	4. Visioning process	*

7.2.2 Summary of the network approach and answers to RQ2

RQ2: What characteristics of the network approach can contribute to the coherence of a networked urban development process?

Table 23 summarises the findings of the previous four tables related to the network approach in the cases studied. All five theory elements of network management (n1-n5) explain the innovative features in Suurpelto, Viikki and Vuores, but only three are relevant for Nupurinkartano.

***Table 23**. Summary of the network approach in the four cases: the theory elements (n1-n5) linked to the innovative features of the cases and to the corresponding level of explanatory power*

Theory elements in network management	Suur-pelto	Explanatory power	Viikki	Explanatory power	Nupu-rinkar-tano	Explanatory power	Vuores	Explanatory power
n1 Value creation in collaboration, combining each partner's core competence	4.	***	1. 2.	***** ***	1. 5.	*** ***	1. 2.	*** ***
n2 Commitment to common goals throughout the network	3. 4. 7. 8.	*** ***** *** *****	3. 4. 5.	***** ***** *			3. 4.	***** ***
n3 Coordination is essential in the management of a network	1. 9.	*** ***	1.	***			1.	*****
n4 Encouragement of collaboration	1.	**	1. 2.	***** ***	1.	*****	2.	***
n5 Interaction is a prerequisite for learning in the network	1. 6. 9.	*** *** *****	4.	***	1. 2.	*** ***	4.	*

(The numbering of the innovative features refers to the descriptions in Chapter 6.)

The answer to the research question RQ2, related to the network approach, is provided below as a set of propositions N1 – N5, supported by the case study results.

N1 A coherent urban area development process combines each partner's core competence for collaborative value creation.

The notion of value creation, though frequently used in business networks, is rather unfamiliar to the actors of networks for urban development. The straight economic value of land use planning becomes evident in the land use

agreement in Suurpelto while the land use fee is determined in exact terms. The basic idea of networking in urban development is however, also linked to types of value creation other than those concerning direct economic benefits. The new model of planning competition in Viikki has been developed further in Vuores. These competitions have proven to be a suitable setting for the renewed definition of value activities and competences required in the network. In the Vuores case, referring to Möller and Rajala (2007), the current business nets have evolved in the direction of business renewal nets.

In the Viikki Eco-Community project, the core competences of the network members have been combined in a profitable manner. The Finnish Association of Architects was the motivational driver for ecological planning, the City of Helsinki was prepared to allocate an area for experimental building, and the Ministry of the Environment was willing to give support to the first project utilising the new legislation introducing sustainable development, and the National Technology Agency of Finland, Tekes, contributed decisively to the project through its funding role.

The Nupuri developer network is an example of a broad network that also includes the residents (Majamaa 2008, Staffans 2009). It has created value by providing the means of interaction between the actors in all sectors (Staffans 2004).

The cooperation of three private companies in respect of the establishment of a regional bedrock heating system in Nupurinkartano represents a value network as defined by Möller et al. (2005): it is formed by organisations collaboratively producing value for customers, and each organisation adds value to the collaboration by operating in the field of its own core competences. The same definition applies to the collaborative planning network in Vuores, although it also displays the characteristics of a public-private partnership.

N2 A *coherent urban area development process is characterised by commitment to common goals throughout the network.*

The importance of attaining the necessary level of commitment to common goals throughout the network (e.g. De Man 2004) is quite apparent in three of the studied cases (Suurpelto, Viikki, and Vuores). The practices that support this commitment include both 'hard' tools, such as land use agreement (Suurpelto) and the use of detailed criteria with measurements (Viikki, Vuores),

and 'softer' methods like collaboration across the network for a goal that is expected to yield common benefits (e.g. the implementation of the new waste management system and the completion of the street environment before the construction of the residential blocks begins, in Suurpelto).

The implementation of the home delivery system in Suurpelto has necessitated a long-term commitment to the common goal. The Vuores case signals that a well managed visioning process can also be an effective method for enhancing the commitment to common goals.

N3 The management of a networked urban development process necessitates coordination.

In the network context, the role and the tasks of the coordinator differ from those required in a process of only one organisation. The dispersed resources for development, in particular, call for coordination (Möller & Rajala 2007). The coordinator should also create new relationships and ways of collaboration already at the early stages of the process.

The network coordinator's role in realising the vision is crucial (e.g. Möller & Rajala 2007). Thus, the need for coordination of the network has been manifested throughout the case studies. Good solutions are nevertheless difficult to find, mainly due to the complexity and heterogeneity of the networks. In the Suurpelto case, coordination of the network was one of the duties assigned to the project director. The other cases did not present any explicitly named coordinator, but the project directors carried out many tasks related to the coordination of the network.

The Viikki case corresponds to the general feature of successfully coordinated networks, namely that the common goal and the procedure leading to it is clearly expressed (e.g. De Man 2004). The practice in the networks of the studied cases has demonstrated that their coordination benefits from credible personalities with good negotiation skills (cf. Smeds 1994).

N4 In the management of a networked urban development process, collaboration is encouraged.

According to the principles of network management, collaboration should be encouraged in the network, even if the actors do not share the same set of values

(e.g. Hannus 2004). On the basis of the case studies in Viikki and Vuores, the new types of planning competitions encourage collaboration at an earlier stage than in the conventional urban development processes.

The Eco-community Project in Viikki has demonstrated that the organisation of the project in groups and teams can also create favourable preconditions for collaboration. This has created mutual support and trust with open sharing of information, which are the main prerequisites for collaboration (Möller & Rajala 2007).

The Nupuri developer network encouraged for collaboration in several ways. It is a 4P-network (Lemmetty et al. 2005, Majamaa 2008, Staffans & Väyrynen 2009) in which the members represent their own separate interests but, at the same time, they share a common interest to develop the future area. The explicit presentation of the various interests has clearly contributed to the collaboration within the network (cf. Lubatkin et al. 2001).

N5 A network of urban development is capable of learning when the interaction of its actors is supported.

It is well known in network management that interaction and learning improve the performance of the network (e.g. Lubatkin et al. 2001). Nevertheless, the cases indicate that interaction between the various actors often requires external facilitation (c.f. Huhta and Smeds 2009). Related to three of the cases (Suurpelto, Nupurinkartano, and Vuores), major research projects were carried out in parallel to the planning processes. As part of their studies, the researchers were actively involved in organising network interaction.

In Suurpelto and Nupurinkartano, in particular, the researchers also acted as facilitators in the interactions between the network actors. The methods used included interactive collaborative workshops in Suurpelto, and both face-to-face interaction and web-based interaction in Nupurinkartano. The researchers also produced written reports and analyses of the interaction for the network members. This feedback has enabled organisational learning among the actors in the networks (Knight 2002).

In Suurpelto, one example of learning in the network is provided by the development of the quality assurance process during the collaborative simulation projects (See Section 6.1.2). In the Viikki case, there were no

accompanying action research projects, but the development of the whole area was organised as a focused project with several follow-up studies, which supported the learning process of the involved actors.

7.3 Innovation approach

7.3.1 Analysis of the cases

The innovative features of the cases are evaluated here in the light of the theory elements of the innovation approach (i1 - i4). The theory elements, together with the innovative features they explain and the extent of their explanatory power, are listed for each case separately, in Tables 24 - 27 below.

Table 24. Evaluation of the innovation approach in Case Suurpelto: theory elements linked to the innovative features

Theory element in innovation management	Case Suurpelto: Innovative feature explained by the theory element	Explanatory power in the case
i1 Broad idea generation and systematic screening		
i2 Development strategy to steer idea processing	6. Tentative development plan 9. Opinmäki network	***** ***
i3 Inter-organisational learning to promote process innovations	6. Tentative development plan	*****
i4 Empowerment of actors is crucial in promoting process innovations	8. Home delivery system	***

Table 25. Evaluation of the innovation approach in Case Viikki: theory elements linked to the innovative features

Theory element in innovation management	**Case Viikki: Innovative feature explained by the theory element**	**Explanatory power in the case**
i1 Broad idea generation and systematic screening	1. The Eco-Community Project 2. New type of architectural competition	***** ***
i2 Development strategy to steer idea processing	2. New type of architectural competition 3. Set of ecological criteria 4. Linking up ecological criteria with plot assignment	*** *** *****
i3 Inter-organisational learning to promote process innovations	4. Linking up ecological criteria with plot assignment 5. Viikki follow-up project	*** ***
i4 Empowerment of actors is crucial in promoting process innovations	1. The Eco-Community Project	***

Table 26. Evaluation of the innovation approach in Case Nupurinkartano: theory elements linked to the innovative features

Theory element in innovation management	**Case Nupurinkartano: Innovative feature explained by the theory element**	**Explanatory power in the case**
i1 Broad idea generation and systematic screening	2. Interactive planning forum 4. New ways of searching for innovative ideas	* *
i2 Development strategy to steer idea processing		
i3 Inter-organisational learning to promote process innovations	2. Interactive planning forum	*****
i4 Empowerment of actors is crucial in promoting process innovations	2. Interactive planning forum 3. Palette of optional elements 4. New ways of searching for innovative ideas	*** *** ***

Table 27. Evaluation of the innovation approach in Case Vuores: theory elements linked to the innovative features

Theory element in innovation management	Case Vuores: Innovative feature explained by the theory element	Explanatory power in the case
i1 Broad idea generation and systematic screening	2. New type of architectural competition 3. Performance based quality criteria	*** *****
i2 Development strategy to steer idea processing	1. Collaborative planning network 4. Visioning process	***** ***
i3 Inter-organisational learning to promote process innovations	1. Collaborative planning network	*****
i4 Empowerment of actors is crucial in promoting process innovations	4. Visioning process	*

7.3.2 Summary of innovation approach and answers to RQ3

RQ3: What characteristics of the innovation approach can contribute to an innovative urban development process and to an innovative outcome of the process, the urban area itself?

Table 28 summarises the findings of the previous four tables related to the innovation approach in the cases studied. One general observation here is clearly that the theory elements of innovation management (i1 - i4) receive scores quite evenly across the cases.

***Table 28**. Summary of the innovation approach in the four cases: the theory elements (i1-i4) linked to the innovative features of the cases and to the corresponding level of explanatory power*

Theory elements in innovation management	**Suur-pelto**	**Explan atory power**	**Viikki**	**Explan atory power**	**Nupu-rinkar-tano**	**Explan atory power**	**Vuores**	**Explan atory power**
i1 Broad idea generation and systematic screening	.		1. 2.	***** ***	2. 4.	* *	2. 3.	*** *****
i2 Development strategy to steer idea processing	6. 9.	***** ***	2. 3. 4.	*** *** *****			1. 4.	***** ***
i3 Inter-organisational learning to promote process innovations	6.	*****	4. 5.	*** ***	2.	*****	1.	*****
i4 Empowerment of actors is crucial in promoting process innovations	8.	***	1.	***	2. 3. 4.	*** *** ***	4.	*

(The numbering of the innovative features refers to the descriptions in Chapter 6.)

The answer to the research question RQ3, related to the innovation approach, is provided below as a set of propositions I1 – I4, supported by the case study results.

I1 An innovative urban development process applies broad idea generation and systematic screening.

In urban planning, new ideas have traditionally been gathered through planning competitions. This remains a viable method for idea generation and screening, provided that the competition programme supports a broad range of ideas and the process includes a systematic screening procedure (cf. Wheelwright & Clark 1992). The organisation of the planning competition in two phases can be viewed as an efficient screening procedure. To be successful, this entails the use of specific criteria, as indicated in the studied cases of Viikki and Vuores.

Ideas can now also be generated through the use of web-based tools, such as internet questionnaires in the Nupurinkartano case, enabling the participation of totally new actor groups in the idea generation phase. Web-based tools can also provide methods for the screening of these ideas. In the Nupurinkartano case, ideas were also gathered from the Internet through the use of interactive

maps and forums. This kind of information, when abundant, often however becomes difficult to manage (Staffans et al. 2010). In Nupurinkartano, the information received through the web-based participation was handled manually by the research project. The information was then transferred to the city planning officials in a form that was easier to digest.

I2 An innovative urban development process has a development strategy to steer idea processing.

In the context of private companies, business strategies are generally complemented by a development strategy in order to steer the process from new ideas to new products or services (Wheelwright & Clark 1992, Smeds 1994 and 1996). Strategic thinking has been broadly adopted by the municipal governance, thus the development aspect is now quite central to the strategies laid out recently by many Finnish cities. Nevertheless, specific development strategies for idea processing remain rare. The strategy of the City of Espoo (2010-2013) is quite typical in this regard in mentioning that "*the feedback from the residents is taken into account in the development of services and other activities*[53]".

Despite the lack of an explicit strategy, several methods are used to steer idea processing in the practice of urban development. When the fulfilment of the vision and the related goals is tightly controlled already in the early stages of the planning process, as in the Suurpelto case, through the tentative development plan, this procedure can without doubt be considered as the steering of the development of ideas. The ideas can also be developed in accordance with the common vision through the provision of goal-oriented collaboration in the context of networks, as in Suurpelto and Vuores.

Skilfully formulated performance criteria can also serve as tools for idea processing. In Viikki, the linking of the ecological criteria with the plot assignment may be viewed as part of the city's strategy to steer idea processing and ensure that the ideas will eventually be implemented. Referring to the development funnel by Wheelwright & Clark (1992), this equates to market introduction in a product development process.

[53] Translation by the author.

The visions of Suurpelto and Vuores acted as an overall strategic umbrella (Mintzberg 1985, Smeds 1996), under which the ideas could be gathered and steered by the strategic guidelines (Smeds 1996, 1997). In Suurpelto, the guidelines were provided by the goals and themes connected to the vision and supported by the tentative development plan, while in Viikki, the ecological criteria gave guidelines for innovation.

I3 An innovative urban development process fosters inter-organisational learning to promote process innovations.

As far as process innovations are concerned, their implementation will not succeed without learning throughout the whole network, i.e. inter-organisational learning (Smeds et al. 2006). This applies both to the business processes and to the processes of urban development. Learning, in turn, requires knowledge sharing and joint knowledge creation in the network (e.g. Smeds et al. 2005). This became apparent in the Suurpelto case where a collaborative process simulation method was employed. Gathered together and assisted by facilitators, the actors of the network for the development of the new area could create a better understanding of the total process and, in consequence, raise important development ideas. Among the main results were the tentative development plan and the quality assurance process for the construction projects in Suurpelto, jointly developed in the collaborative simulation sessions.

In Viikki, significant process innovations occurred as a result of the intensive collaboration between the partners of the Eco-Community Project, such as the new type of planning competition arranged in Viikki. It is worth noting that the cooperation of the different administrative sectors of the city also was unprecedented. A process innovation produced through this cooperation was the inclusion of the ecological criteria to the plot assignment stipulations, which proved to be crucial for the success of the development of the Eco-Viikki area.

The broadening use of web-based tools in urban development also implies process innovations (Staffans et al. 2010). The Nupurinkartano case demonstrated the importance of inter-organisational learning in creating a process innovation, where web-based participation was linked to the different stages of the official planning process.

In addition, inter-organisational learning creates motivation for change which is a precondition for the implementation of innovations (Kanter 1983, in Smeds 1996; Smeds et al. 2006). In Viikki, the follow-up project provides important support for inter-organisational learning by introducing its results from several different perspectives, directed both at professionals in the construction industry and at the project administration (Rodriguez et al. 2004).

The collaborative planning network in Vuores implements a process innovation, namely the new collaborative planning model created especially for Vuores. In fact, the model is not a rigid process model, but is continuously evolving, developed through and by the network itself. A prerequisite for the functioning of this model is the inter-organisational learning that takes place in the network.

I4 An innovative urban development process empowers its actors to promote process innovations.

In private companies, the empowerment of actors usually signifies the empowerment of the personnel, which is considered an essential prerequisite for process innovations (Smeds 2001). In urban development, the most noteworthy group calling for empowerment is the residents, but also other groups of local actors can be identified. Residents can be empowered, as in the Nupurinkartano case, by offering them the status of co-developers and providing them with appropriate tools, which itself establishes a process innovation.

Those actors of the network who usually obtain a role only in the implementation phase, can be further empowered by including them considerably earlier in the visioning process, as occurred in the Vuores case. The Eco-Community Project in Viikki also relied on large groups of experts representing various fields in order to shape such a planning process that would be able to better attend to the goals set for a new type of residential area.

7.4 Service approach

7.4.1 Analysis of the cases

The innovative features of the cases are evaluated here in the light of the theory elements of the service approach (s1 - s4). The theory elements, together with

the innovative features they explain and the extent of their explanatory power, are listed for each case separately, in Tables 29 - 32 below.

Table 29. Evaluation of the service approach in Case Suurpelto: theory elements linked to the innovative features

Theory element in service development	**Case Suurpelto: Innovative feature explained by the theory element**	**Explanatory power in the case**
s1 Combination of tangible and intangible elements creates value for the customer	3. Waste management system 9. Cooperation network for Opinmäki	***** *****
s2 Importance of customer involvement in the development efforts	8. Home delivery system 9. Cooperation network for Opinmäki	*** *****
s3 Major attention directed to the idea generation phase	8. Home delivery system 9. Cooperation network for Opinmäki	*** ***
s4 Long-term quality management to attain customer satisfaction	3. Waste management system 4. Land use agreement with functional objectives 9. Cooperation network for Opinmäki	*** ***** *****

Table 30. Evaluation of the service approach in Case Viikki: theory elements linked to the innovative features

Theory element in service development	**Case Viikki: Innovative feature explained by the theory element**	**Explanatory power in the case**
s1 Combination of tangible and intangible elements creates value for the customer	3. Set of ecological criteria	***
s2 Importance of customer involvement in the development efforts		
s3 Major attention directed to the idea generation phase	2.New type of architectural competition 3. Set of ecological criteria	* *****
s4 Long-term quality management to attain customer satisfaction	5. Viikki follow-up project	***

Table 31. Evaluation of the service approach in Case Nupurinkartano: theory elements linked to the innovative features

Theory element in service development	**Case Nupurinkartano: Innovative feature explained by the theory element**	**Explanatory power in the case**
s1 Combination of tangible and intangible elements creates value for the customer		
s2 Importance of customer involvement in the development efforts	1. Nupuri developer network 2. Interactive planning forum 3. Palette of optional elements 4. New ways of searching for innovative ideas	*** ***** ***** ***
s3 Major attention directed to the idea generation phase	4. New ways of searching for innovative ideas	***
s4 Long-term quality management to attain customer satisfaction	3. Palette of optional elements 5. Cooperation for regional bedrock heating	*** ***

Table 32. Evaluation of the service approach in Case Vuores: theory elements linked to the innovative features

Theory element in service development	**Case Vuores: Innovative feature explained by the theory element**	**Explanatory power in the case**
s1 Combination of tangible and intangible elements creates value for the customer		
s2 Importance of customer involvement in the development efforts	4. Visioning process	*
s3 Major attention directed to the idea generation phase	2. New type of architectural competition 3. Performance based quality criteria	*** ***
s4 Long-term quality management to attain customer satisfaction	1. Collaborative planning network 4. Visioning process	*** *

7.4.2 Summary of service approach and answers to RQ4

RQ4: What characteristics of service development could be applied to enhance the coherent process of urban development?

Table 33 summarises the findings of the previous four tables related to the service approach in the cases. Suurpelto is the only case where innovative features are explained by all the theory elements of service development (s1-s4).

***Table 33**. Summary of the service approach in the four cases: the theory elements (s1-s4) linked to the innovative features of the cases and to the corresponding level of explanatory power*

Theory elements in service development	Suur-pelto	Explan atory power	Viikki	Explan atory power	Nupu-rinkar-tano	Explan atory power	Vuores	Explan atory power
s1 Combination of tangible and intangible elements creates value for the customer	3. 9.	***** *****	3.	***				
s2 Importance of customer involvement in the development efforts	8. 9.	*** *****			1. 2. 3. 4.	*** ***** ***** ***	4.	*
s3 Major attention directed to the idea generation phase	8. 9.	*** ***	2. 3.	* *****	4.	***	2. 3.	*** ***
s4 Long-term quality management to attain customer satisfaction	3. 4. 9.	*** ***** *****	5.	***	3. 5.	*** ***	1. 4.	*** *

(The numbering of the innovative features refers to the descriptions in Chapter 6.)

The answer to the research RQ4, related to the service approach, is provided below as a set of propositions S1 – S4, supported by the case study results .

S1 A coherent urban development process combines tangible and intangible elements to create value for the customer.

On the basis of the case studies, the basic idea in the service approach, i.e. the combination of tangible and intangible elements, is not yet well adopted in the current practice of urban development. This is slightly surprising because the benefits of considering the built elements and the functional elements in a simultaneous process seem obvious from the perspective of value creation (e.g. Vargo & Lusch 2004, Grönroos 2006).

Despite this overall view, some of the features highlighted in the cases do, however, favour the service pattern of thought. One example is the incorporation of a waste management system, launched as a new residential service into the planning and development process of Suurpelto. Another method of enhancing service thinking is the use of appropriate performance criteria. In the Viikki case, certain ecological criteria have encouraged the development of new approaches to energy production for individual housing blocks as part of the building design, resulting in value creation for the residents.

The cooperation network for Opinmäki campus in Suurpelto is the best application of service development in the cases studied. This network includes both actors whose main purpose is the design of the facilities for the new types of schools, and actors who are responsible for the development and implementation of the concept of an inquiry-based learning environment (e.g. Huhta et al. 2008, Pajunen and Smeds 2009). Together they are developing a totally new service for the community of Suurpelto.

S2 A *coherent urban development process involves customers in the development effort.*

The Nupurinkartano case indicates clearly how new practises can be created at different stages of the development of a new area when the focus is squarely on customer involvement (cf. Alam & Perry 2002). Future residents have, in Nupurinkartano, been involved in the development process as co-developers, and have also been provided with the appropriate tools for this role. These kinds of tools may be both conventional and based on new technologies (Van der Aa & Elfring 2002). The Nupurinkartano case also confirms the importance of including future users in the broader developer network. This has enabled direct interaction between residents, planning officials, land owners and the developer of the area (cf. Valkeapää et al. 2006).

The home delivery system in Suurpelto is an example of an emerging new service that cannot be developed further without customer involvement. In this case, the customers are defined in conventional terms. In the cooperation network for Opinmäki, instead, the customers include, in addition to future residents, future students as well as the current and future teachers of all the three schools. The network has attempted to involve representatives of all these groups in the development efforts.

Future residents have not been involved in the visioning process of Vuores, though the private companies participating in the process can in some sense be considered as 'customers' of the city. The role of the residents should, however, increase as the construction of the area proceeds.

S3 A *coherent urban development process directs major attention to the idea generation phase.*

In the new service development efforts in private sector companies, the idea generation stage is of major importance (Alam & Perry 2002, Smeds et al. 2005). This conforms with the approaches adopted in the various innovation management theories (see e.g the theory element I1 Broad idea generation and systematic screening, in 7.3.2). In urban development, according to the case studies, attention is not however so heavily directed towards idea generation. This may be due to the fact that, contrary to new service development in companies, ideas can be generated at several stages of the process, not only in the early planning stage.

The use of performance criteria and planning competitions has proven effective in idea generation in the cases of Viikki and Vuores, also viewed from the service development perspective. The Nupurinkartano case demonstrated that innovative ideas can be searched for in quite new ways: the children's school of architecture certainly provided a new perspective into urban development.

S4 A *coherent urban development process applies long-term quality management to attain customer satisfaction.*

Long-term quality management, with reference to urban development, can be understood as maintaining the residents' satisfaction after the completion of a new area (cf. Ojasalo 2001). In the studied cases this perspective has been taken into account, at least to some extent. The innovative features that bear the character of long term quality in the Suurpelto case are, for example, the development of the waste management system and the cooperation network for Opinmäki campus.

The land use agreement in Suurpelto binds current and future landowners to the fulfilment of the functional objectives mentioned in the agreement. The tentative development plan is a new tool for quality management that assesses the plans from the perspective of the adoption of the visions and themes for

Suurpelto. This is essential for quality assurance purposes because it does not belong to the duties of the normal building control procedures.

An non-judicial approach has been applied in the Nupurinkartano case where the residents were able to act as co-developers by selecting optional elements to shape their future environment. These activities can be viewed as part of management of expectations, as described by Ojasalo (2001). The method of co-development has the potential to enhance the commitment of both the developer to quality in construction and the residents to careful use and maintenance of their future homes.

Long-term quality management can also be associated with the collaboration between service partners, as indicated by the development of the regional heating system in the Nupurinkartano case. It is noteworthy here that the environmental consciousness of the future residents, revealed through their involvement in the various participatory efforts, has had an important effect encouraging private companies to begin development of the heating system (Kuronen 2008).

The Viikki case reveals the importance of follow-up actions as part of the quality management process when the new area has been taken into use (cf. Grönroos 1988, Ojasalo 2001). The collaborative planning network in Vuores is directed at long-term cooperation. This is supported by the fact that the network members are also involved in the visioning process for Vuores which encompasses the use and maintenance phases for the area.

7.5 Cross-case analysis and case contingencies

The cases addressed in this study were selected on the basis of several criteria laying stress on the variation between the cases (see Section 5.1.2). This has enabled us to gain a broad view of the innovative methods and practices currently applied in the urban development context in Finland. The differences in the cases and their contexts entail, however, the need to examine their relation to the 18 propositions presented in Sections 7.1 - 7.4 through a cross-case analysis and a consideration of the case contingencies.

Suurpelto

In the Suurpelto case, the number of the identified innovative features is higher (9) than in the other three cases. This is partly due to the fact that the database for Suurpelto was larger than those for the other cases because of the special data collection methods employed (e.g. simulation projects, 6.1.2). On the other hand, the development of Suurpelto is guided by an ambitious vision and the city is firmly committed to the fulfilment of this vision, which has led to the use of a variety of new practices.

In the comparison of the explanatory power of the theories, the *process approach* is strongly emphasised in Suurpelto. All the propositions P1-P5 show high relevance with regard to the innovative features in Suurpelto. The large dimensions of the planned area may be one factor that has affected the methods of management and directed them towards process orientation.

P1 A coherent urban development process
- ensures continuity through organisational boundaries

P2 - starts from customer needs and ends with their satisfaction
P3 - eliminates suboptimisation
P4 - maintains its goals through measurement of performance
P5 - names a process owner

The network and service approaches appear to be equally important in Suurpelto: the levels of explanatory power are assessed as high or medium with regard to all theory elements of these approaches. This provides support for all the related propositions.

The significance of the *network approach* in Suurpelto is evident. The case study shows that the main method of cooperation in Suurpelto is based on networked collaboration and that the network actors have reached a common understanding of the common goals through frequent and active interaction. This highlights, in particular, propositions N2 and N5. In Suurpelto, the commitment to common goals has been attained, to a large extent, through the land use agreement.

N2 A coherent urban area development process is characterised by commitment to common goals throughout the network

N5 A network of urban development is capable of learning when the interaction of its actors is supported

The *innovation approach* has the lowest explanatory power in Suurpelto, both compared to other approaches, and also in comparison with the other cases studied. This implies that the innovative features in the development of Suurpelto do not result from purposeful innovation management activities, such as broad idea generation. Instead, most of the innovative features originate from the ideas within the Suurpelto network, elaborated further by enthusiastic key persons.

Compared to the other cases, particularly to Viikki and Vuores, the *service approach* in Suurpelto is quite deeply incorporated into the development process. Of the propositions related to the service approach, S1 and S4 are worthy of note here because Suurpelto is the only case where these propositions receive significant support. It is therefore unfortunate that the realisation of the central idea of service thinking, the simultaneous development of the built environment and of the services functioning in them (cf. S1) has, however, somewhat suffered from the recession since 2008.

S1 A coherent urban development process
- combines tangible and intangible elements to create value for the customer

S4 - applies long-term quality management to attain customer satisfaction

It is noteworthy that the propositions P2, N5, S1 are mainly related to the Suurpelto case. Suurpelto is the most extensive of the cases and has an appointed project director, which can be considered important because the implementation of these propositions necessitates a well-organised development project with sufficient resources allocated for process management.

Viikki

In the Viikki case, five innovative features were identified. With regard to these features the *process approach* displays a high level of explanatory power with, however, one exception: the needs of the residents and other users of the area have not constituted a significant driving force in the planning of the area. One explanation here can be that, contrary to Suurpelto, Nupurinkartano and Vuores, the Eco-Community project of Viikki was not accompanied by such research projects that would have supported the network interaction. Organising the end-user involvement and interaction is a huge task in itself, and urban development projects do not always have the necessary resources required for this.

Propositions P1 and P3-P5 are thus supported here by the Viikki case. The clear process orientation relies on the central role of the Eco-Community project and its commitment to the use of the ecological criteria throughout the development process. The emphasis laid at an early stage of the process on the importance of executing a follow-up project also contributes to the process thinking manifested in the Viikki case.

P1 A coherent urban development process
- ensures continuity through organisational boundaries
P3 - eliminates suboptimisation
P4 - maintains its goals through measurement of performance
P5 - names a process owner

The *network approach* appears to be nearly as important as the process approach in Viikki. Therefore, propositions N1-N4 are applicable in relation to the Viikki case.

N1 A coherent urban area development process
- combines each partner's core competence for collaborative value creation
N2 - is characterised by commitment to common goals throughout the network
N3 The management of a networked urban development process necessitates coordination
N4 In the management of a networked urban development process, collaboration is encouraged

As with the Suurpelto case, the networked model of cooperation is typical in the development in Viikki. In both of these networks, the commitment to common goals has been of the utmost importance. In Viikki however, the developers have not played the same significant role in the network as in Suurpelto, mainly due to the difference in the nature of landownership. In Viikki, the city is the sole landowner while in Suurpelto most of the land is privately owned (N1). In both of these networks, the commitment to common goals has been of the utmost importance (N2). In Viikki, the commitment has been promoted by the use of the ecological criteria and further by their inclusion in the plot assignment stipulations, as opposed to the land use agreement applied in Suurpelto.

It is worth noting that proposition N5, calling attention to the capability for learning in the network, is only weakly sustained by the features in the Viikki case. Interaction in the network has been active throughout the process, and joint knowledge creation has taken place. The follow-up reports confirm, however, the occurrence of discontinuities in the chain of essential knowledge

sharing in the implementation and maintenance phases (see 6.2.2, Viikki 5), which may explicate the small number of observations on learning in the Viikki case. The work of the assessment group checking the building plans and their conformity with the ecological criteria, required by the plot assignment stipulations, showed that considerable learning occurred, however, in the planning phase of the process. The explanatory power of the *innovation approach* remains at a medium level in Viikki, but is however higher than in Suurpelto. The elements of innovation management in Viikki concentrate on idea generation and idea processing, which reflects the central role of the two planning competitions together with the ecological criteria in the development process. This articulates the relevance of propositions I1 and I2.

I1 An innovative urban development process
- applies broad idea generation and systematic screening

I2 - has a development strategy to steer idea processing

In the Viikki case, inter-organisational learning has been fostered by the intensive collaboration of the administrative sectors responsible for the observance of the ecological criteria. As an outcome of this learning, significant process innovations have emerged, such as the inclusion of the ecological criteria to the plot assignment stipulations. This gives support to the proposition I3.

I3 An innovative urban development process fosters inter-organisational learning to promote process innovations

The *service approach* displays a very low level of explanatory power in the Viikki case. The only proposition that can be appropriately linked with Viikki is S3. It can be assumed that at the time of the planning of the Viikki area, in the middle of the 1990s, the role of residents as customers or co-developers was not yet an issue afforded to general consideration.

S3 A coherent urban development process directs major attention to the idea generation phase

Viikki is the only case where the proposition N1 shows major relevance. This proposition is derived from the network approach where collaborative value creation is considered focally important. The support gained for this proposition expressly in Viikki may arise from the fact that the network operated continuously for ten years as a major project with follow-up studies. This period was sufficiently long, and the collaboration intensive enough, to support inter-

organisational learning and to create trust among the collaborating actors, which is a precondition for the combining of the core competences (cf. Möller & Rajala 2007).

Nupurinkartano

The Nupurinkartano case also identifies five innovative features. Contrary to the experiences of the two previous cases, Suurpelto and Viikki, the *process approach* has the lowest explanatory power of all approaches in Nupurinkartano. This can potentially be explained by the relatively small size of the area, which may lead to its development being viewed merely as a project rather than as a process.

The *network approach* and *innovation approach* each score the same medium to low level of explanatory power in Nupurinkartano. As regards network management, proposition N4 gains support, mainly through the Nupuri developer network which undoubtedly encourages collaboration.

> N4 In the management of a networked urban development process, collaboration is encouraged

In this light, it is worth noticing that proposition N2, commitment to common goals, does not however receive any support, contrary to the situation in all the other cases studied. This lack of commitment is probably linked to the fact that there is also a lack of sufficient coordination (N3) in this case, again unlike the other cases. The nonexistence of the explanatory power of the propositions N2 and N3 can partially be explained by the central role of the private developer company and by the occurrence of certain changes in key personnel in this company during the development process. The commitment to common goals in a network usually requires time to be afforded to the creation of common understanding.

In relation to innovation management only propositions I3 and I4 are echoed in the Nupurinkartano case. The use of the Internet in the participatory stages of the planning process provided for inter-organisational learning and promoted process innovations (I3). In addition, the idea of residents as co-developers was brought into practice and in consequence process innovations emerged both in the planning and in the design of the area (I4).

I3 An innovative urban development process
- fosters inter-organisational learning to promote process innovations
I4 - empowers its actors to promote process innovations

Nupurinkartano is the only one of the four cases in which the *service approach* attained the highest explanatory power. Thus, the propositions S2-S4 are supported here. Four of the five innovative features are related to proposition S2, clearly characterising the Nupurinkartano case by means of its involvement of residents in the development effort.

S2 A coherent urban development process
- involves customers in the development effort
S3 - directs major attention to the idea generation phase
S4 - applies long-term quality management to attain customer satisfaction

Notwithstanding the overall stress on the service approach, proposition S1, representing one of the basic elements of service thinking, i.e. the combination of tangible and intangible elements in customer value creation, has not however gained a foothold in the Nupurinkartano case. The small size of the area under development may again account for this situation. However, also the phase of the urban development process, studied here, might affect the situation. The palette of optional design elements for the residents, for example, may later in the building design phase of the process become a major vehicle for combining the tangible and intangible dimensions, and thus contribute to the creation of customer value.

The propositions I4 and S2 show high explanatory power only in Nupurinkartano. These propositions are related to the involvement of customers in the development and their empowerment in the process, which have been explicitly selected as principal ways of action in the development of Nupurinkartano. In the other cases, the involvement of the residents has not been considered equally important. These two propositions do not seem, however, to have any particular connection with the size, location or landownership of the area.

Vuores

The number of innovative features identified in the Vuores case is four, the lowest across all the cases. The process, network and service approaches each have, on average, the same explanatory power in Vuores, with their levels ranging from high to medium.

In relation to the *process approach*, propositions P1, P3 and P4 gain support in Vuores. The activities of the collaborative planning network create continuity through organisational boundaries in the development process (P1). The performance-based quality criteria have in Vuores been elaborated further and, hence, they provide an appropriate tool to reduce the risk of suboptimisation (P3), in addition to their primary function of performance measurement (P4).

P1 A coherent urban development process
- ensures continuity through organisational boundaries
P3 - eliminates suboptimisation
P4 - maintains its goals through measurement of performance

The *network approach*, as well, benefits from the performance criteria, thus stressing the significance of the proposition N2. This can be compared to the situation in Viikki, where the ecological criteria also promoted the commitment to common goals. Proposition N3 is present in Vuores through the coordinative activities in the collaborative planning network.

N2 A coherent urban area development process is characterised by commitment to common goals throughout the network
N3 The management of a networked urban development process necessitates coordination

Propositions I1-I3 demonstrate the relevance of the *innovation approach* in the Vuores case. All the innovative features are explained by one or more of the elements of innovation management. The only proposition with a week relation to the Vuores case is I4, which follows from the fact that empowerment of the future residents has not been included in the development process thus far.

I1 An innovative urban development process
- applies broad idea generation and systematic screening
I2 - has a development strategy to steer idea processing
I3 - fosters inter-organisational learning to promote process innovations

In Vuores, support for the propositions related to the *service approach* remains at a low level. The case study thus suggests that the development in Vuores is not characterised by service thinking. The reason assumed for this in part resembles that provided above for I4: In Vuores, the residents have not been involved in interaction or co-development during the development process.

General observations

In the cross-case study above, only one of the 18 propositions gains significant support across **all the cases**, namely the proposition N2 (A coherent urban area development process is characterised by commitment to common goals throughout the network). This proposition is thus independent of the variations in the cases studied.

Four propositions can be identified that are well supported by **three of the cases**:

- P1 (A coherent urban development process ensures continuity through organisational boundaries) by Suurpelto, Viikki, and Vuores
- P3 (A coherent urban development process eliminates suboptimisation) by Suurpelto, Viikki, and Vuores
- P4 (A coherent urban development process maintains its goals through measurement of performance) by Suurpelto, Viikki, and Vuores
- I3 (An innovative urban development process fosters inter-organisational learning to promote process innovations) by Suurpelto, Nupurinkartano and Vuores.

The set of the supporting cases for the three propositions related to process management indicate that these are considered significant in the context of Suurpelto, Viikki, and Vuores but not in Nupurinkartano. This can possibly be connected to the relatively small size of the Nupurinkartano area which did not lay particular stress on process management.

The propositions that are sustained by **two cases** are the following:

- P5 (A coherent urban area development process names a process owner) by Suurpelto and Viikki
- N3 (The management of a networked urban development process necessitates coordination) by Viikki and Vuores
- N4 (In the management of a networked urban development process, collaboration is encouraged) by Viikki and Nupurinkartano
- I1 (An innovative urban development process applies broad idea generation and systematic screening) by Viikki and Vuores
- I2 (An innovative urban development process has a development strategy to steer idea processing) by Viikki and Vuores

- S3 (A coherent urban development process directs major attention to the idea generation phase.), by Viikki and Nupurinkartano
- S4 (A coherent urban development process applies long-term quality management to attain customer satisfaction) by Suurpelto and Nupurinkartano

Certain propositions receive significant support with regard to only **one of the cases**:

- P2 (A coherent urban area development process starts from customer needs and ends with their satisfaction) in Suurpelto
- N1 (A coherent urban area development process combines each partner's core competence for collaborative value creation) in Viikki
- N5 (A network of urban development is capable of learning when the interaction of its actors is supported) in Suurpelto
- I4 (An innovative urban development process empowers its actors to promote process innovations) in Nupurinkartano
- S1 (A coherent urban development process combines tangible and intangible elements to create value for the customer) in Suurpelto
- S2 (A coherent urban development process involves customers in the development effort) in Nupurinkartano

With regard to 12 (of 18) propositions, the cases of Viikki and Vuores show the same level of explanatory power. This underlines the similarities in these cases: They are both large new areas where the land is owned by the city. The planning of both areas is enhanced through a two-phase architectural competition, and in both areas, measurable criteria have been applied to ensure quality. Residents have not acted as co-developers in either of the cases.

8 INTERPRETATION OF RESULTS

The thesis started with a practical problem in the conventional process of urban development, and three root causes for this problem were presented (model M1, in Section 3.3). In Section 6.5, the innovative features in the four cases were categorised, with reference to the three root causes of the practical problem.

In Chapter 7, the innovative features identified in the case studies were analysed through the four theoretical approaches that had been elaborated in Chapter 4 into 18 theory elements relevant for the research problem. The explanatory power of the theory elements in each case was assessed. Answers to the research questions were presented in the form of 18 propositions for a coherent and innovative urban development process. Five of the propositions were based on the process management approach, five on the network management approach, four on the innovation management approach, and four on the service development approach. The propositions were examined across the cases, in Section 7.5.

In this chapter, the 18 theory elements and the corresponding propositions are first related to the original root causes of the practical problem. The propositions are then clustered into **cross-theory hypotheses to solve the practical problem**. The contingencies of the hypotheses are considered in the conclusions of the thesis.

8.1 Clustering of the results

The innovative features were categorised in Section 6.5 (Table 12), demonstrating how they contribute to the elimination of the three root causes of the practical problem. The categorisation followed from the potential of each innovative feature to:

a) help steer the process towards the vision and goals (eliminating root cause 1)

b) increase the transfer of knowledge across various phases (eliminating root cause 2)

c) increase the attention given to use and maintenance of the area during the process (eliminating root cause 3)

The evaluations of the theory elements linked to the innovative features in each case (the tables 14-33 in Sections 7.1-7.4) are now grouped with reference to the above categorisation into three **cross-case, cross-theory clusters** (tables 34, 35 and 36). In the data analysis process of the thesis, this step represents the third data reduction round (Section 5.2.2).

Each clustering table includes only those innovative features that have been assessed by the author in Section 6.5 to have a positive contribution to the elimination of the specific root cause 1, 2 or 3. The numbering of the innovative features follows the same notation as in the earlier chapters. Each innovative feature is accompanied by the scores received for the explanatory power of the theory elements in the evaluation tables 14-33 in Chapter 7. The clustering is not exclusive; the innovative features may appear in several clusters.

Those theory elements that explain an important number of innovative features in the cluster, summarised over all cases, will be grouped together and considered relevant in eliminating the corresponding root cause. These groups form the basis for synthesising the final hypotheses. The cross-case, cross-theory clustering enables the linking of the 18 elements, and the corresponding 18 propositions, to the root causes, and thus allows to synthesise cross-theory hypotheses aimed at solving the root causes.

It is emphasised here that the evaluation of the relevance (***** *High*, *** *Medium*, * *Low*) is qualitative and does not follow any given arithmetic scale. Hence, the score in one case or cluster cannot be directly compared to those of the other cases. In the interpretation of the tables, the distribution of the scores can however be considered indicative of the relative importance of the theoretical elements in the context of the studied cases.

Table 34. Cluster A: Clustering of the evaluations of theory elements, linked to the innovative features eliminating the root cause 1.

Cluster A. Steering effect of visions and goals (cf. root cause 1)												
Theoretical approach	**Theory elements**	**Explanatory power of the theory elements for the innovative features in Category a** (***** High, *** Medium, * Low)										
		Suurpelto					**Viikki**			**Nupurinkartano**	**Vuores**	
		1	**2**	**4**	**5**	**6**	**1**	**3**	**4**	**4**	**3**	**4**
Process management	p1 Continuity of the process through organisational boundaries	*****		***		***	*****					
	p2 Process from customer needs to their satisfaction									*		*
	p3 Elimination of suboptimisation			*****				*****	*****		*****	
	p4 Maintaining the goals through measurement of performance				***	*****		*****			*****	
	p5 Naming of process ownership	*****	***				*****					***
Network management	n1 Value creation in collaboration			***			*****					
	n2 Commitment to common goals throughout the network			*****				*****	*****		*****	***
	n3 Coordination of the network	*****				***	*****					
	n4 Encouragement of collaboration	***					*****					
	n5 Interaction for learning	***				***			***			*
Innovation management	i1 Broad idea generation and systematic screening						*****			*	*****	
	i2 Development strategy to steer idea processing					*****		***	*****			***
	i3 Inter-organisational learning to promote process innovations					***			***			
	i4 Empowerment of actors						***			***		*
Service development	s1 Combination of tangible and intangible elements creates value for the customer							***				
	s2 Importance of customer involvement in the development effort									***		*
	s3 Major attention directed to the idea generation phase							*****		***	***	
	s4 Long-term quality management to attain customer satisfaction			*****								*

Table35. Cluster B: Clustering of the evaluations of theory elements, linked to the innovative features eliminating the root cause 2.

Cluster B. Transfer of knowledge across stages (cf. root cause 2)										
Theoretical approach	**Theory elements**	**Explanatory power of the theory elements for the innovative features in Category b** (***** High, *** Medium, * Low)								
		Suurpelto		**Viikki**		**Nupurin-kartano**		**Vuores**		
		1	**6**	**1**	**2**	**1**	**2**	**1**	**2**	**4**
Process management	p1 Continuity of the process through organisational boundaries	*****	***	*****		*	***	*****		
	p2 Process from customer needs to their satisfaction									*
	p3 Elimination of suboptimisation								***	
	p4 Maintaining the goals through measurement of performance		*****							
	p5 Naming of process ownership	*****		*****						***
Network management	n1 Value creation in collaboration			*****	***	***		***	***	
	n2 Commitment to common goals throughout the network									***
	n3 Coordination of the network	*****	***	*****				*****		
	n4 Encouragement of collaboration	***		*****	***	*****			***	
	n5 Interaction for learning	***	***			***	***			*
Innovation management	i1 Broad idea generation and systematic screening			*****	***		*		***	
	i2 Development strategy to steer idea processing		*****		***			*****		***
	i3 Inter-organisational learning to promote process innovations		*****				*****	*****		
	i4 Empowerment of actors			***			***			*
Service development	s1 Combination of tangible and intangible elements creates value for the customer									
	s2 Importance of customer involvement in the development effort					***	*****			*
	s3 Major attention directed to the idea generation phase				*				***	
	s4 Long-term quality management to attain customer satisfaction							***		*

Table 36. Cluster C: Clustering of the evaluations of theory elements, linked to the innovative features eliminating the root cause 3.

Cluster C. Attention given to of use and maintenance (cf. root cause 3)												
Theoretical approach	**Theory elements**	**Explanatory power of the theory elements for the innovative features in Category c** (***** High, *** Medium, * Low)										
		Suurpelto						**Viikki**		**Nupurin -kartano**		**Vuo-res**
		1	**3**	**4**	**7**	**8**	**9**	**1**	**5**	**3**	**5**	**3**
Process management	p1 Continuity of the process through organisational boundaries	*****		***		*****	*****	*****	*****			
	p2 Process from customer needs to their satisfaction					***	***		***	***		
	p3 Elimination of suboptimisation			*****								*****
	p4 Maintaining the goals through measurement of performance								*****			*****
	p5 Naming of process ownership	*****	*****					*****				
Network management	n1 Value creation in collaboration			***				*****			***	
	n2 Commitment to common goals throughout the network		***	*****	***	*****			*			*****
	n3 Coordination of the network	*****					***	*****				
	n4 Encouragement of collaboration	***						*****				
	n5 Interaction for learning	***					*****					
Innovation management	i1 Broad idea generation and systematic screening							*****				*****
	i2 Development strategy to steer idea processing						***					
	i3 Inter-organisational learning to promote process innovations								***			
	i4 Empowerment of actors					***		***		***		
Service development	s1 Combination of tangible and intangible elements creates value for the customer		*****				*****					
	s2 Importance of customer involvement in the development effort					***	*****			*** **		
	s3 Major attention directed to the idea generation phase					***	***					***
	s4 Long-term quality management to attain customer satisfaction		***	*****			*****		***	***	***	

In the following analysis of Tables 34, 35 and 36, the theoretical approaches are assessed separately in all three clusters, on the basis of the scores given for the explanatory power of the theory elements with regard to each innovative feature, summarised over all cases (see Chapter 7).

Cluster A. Innovative features that help steer the process towards the vision and goals (cf. root cause 1, Table 34)

The process management approach appears to be the most relevant in explaining the innovative features in cluster A. Based on the scoring, the most important elements of process management in Table 34 are: 'p3 Elimination of suboptimisation' and 'p4 Maintaining the goals through measurement of performance'. In addition to these, 'p1 Continuity of the process through organisational boundaries' and 'p5 Naming of process ownership' also received high scores.

Second in relevance is the network approach, particularly 'n2 Commitment to common goals throughout the network' and 'n3 Coordination is essential in the management of the network'.

The explanatory power of the innovation approach is at the same level as that of the network approach. 'i2 Development strategy to steer idea processing' and 'i1 Broad idea generation and systematic screening' are the elements most related to the innovative features.

The service development approach, in general, appears to have little in the way of explanatory power regarding the innovative features in cluster A. The theory element 's3 Major attention directed to the idea generation phase' is the only to receive high scores.

The propositions that correspond to the theoretical elements showing the highest explanatory power in cluster A, are thus the following: P1, P3, P4, P5, N2, N3, I1, I2, S3.

Cluster B. Innovative features that increase the transfer of knowledge across various phases (cf. root cause 2, Table 35)

All the elements of innovation management explain the features in cluster B, with most weight on 'i3 Inter-organisational learning to promote process innovations' and 'i2 Development strategy to steer idea processing'.

In network management, three elements receive scores equally, 'n1 Value creation in collaboration', 'n3 Coordination is essential in the management of the network', and 'n4 Encouragement of collaboration'.

In process management, the only element that appears to be relevant for the theme of category B is 'p1 Continuity of the process through organisational boundaries'.

Among the elements of service development, 's2 Importance of customer involvement in the development effort' is the element with the highest scores

The propositions that correspond to the theoretical elements showing the highest explanatory power in cluster B, are thus the following: P1, N1, N3, N4, I2, I3, S2.

Cluster C. Innovative features that increase the attention given to use and maintenance of the area during the process (cf. root cause 3, Table 36)

Process management is the approach with the greatest explanatory power in cluster C, according to Table 36, and 'p1 Continuity of the process through organisational boundaries' attains the highest scores. 'p5 Naming of process ownership' also explains several features.

In network management, 'n2 Commitment to common goals throughout the network' is the most significant element.

The service development approach appears to be more relevant in cluster C than in either A or B. 's4 Long-term quality management to attain customer satisfaction' receives the highest scores here. 's2 Importance of customer involvement in the development efforts' also shows explanatory power in respect of several features.

The explanatory power of innovation management is rather low in this category, with 'i4 Empowerment of actors' being the most relevant element.

The propositions that correspond to the theoretical elements showing the highest explanatory power in cluster C, are the following: P1, P5, N2, I4, S2, S4.

8.2 Hypotheses to solve the root causes

The three solution clusters A, B, and C allow to synthesise **cross-theory hypotheses** with a view to solving the root causes (see Section 3.3). The hypotheses are formulated as a synthesis from those propositions that were found to be relevant for each solution cluster in the previous section.

Cluster A. Innovative features that help steer the process towards the vision and goals (cf. root cause 1)

The relevant propositions in cluster A are the following:

P1: A coherent urban development process ensures continuity through organisational boundaries

P3: A coherent urban development process eliminates suboptimisation

P4: A coherent urban development process maintains its goals through measurement of performance

P5: A coherent urban development process names a process owner

N2: A coherent urban area development process is characterised by commitment to common goals throughout the network.

N3: The management of a networked urban development process necessitates coordination

I1: An innovative urban development process applies broad idea generation and systematic screening.

I2: An innovative urban development process has a development strategy to steer idea processing.

S3: A coherent urban development process directs major attention to the idea generation phase.

These propositions in Cluster A can be summarised into three cross-theory hypotheses, with the primary aim of enhancing the steering effect of visions and goals, thus contributing to the elimination of root cause 1:

In a coherent and innovative urban development process,

1. *commitment to common goals is achieved without suboptimisation, and these goals are maintained through the measurement of performance. (P3, P4, N2)*

2. *a development strategy steers the processing of ideas, which entails that ideas are broadly generated but screened systematically. (I2, I1, S3)*

3. *the coherence of the process is secured even if changes in actors or activities occur, and process owners are named. (P1, P5, N3)*

Cluster B. Innovative features that increase the transfer of knowledge across various phases (cf. root cause 2)

The relevant propositions in cluster B are the following:

P1: A coherent urban development process ensures continuity through organisational boundaries

N1: A coherent urban area development process combines each partner's core competence for collaborative value creation.

N4: In the management of a networked urban development process, collaboration is encouraged.

I2: An innovative urban development process has a development strategy to steer idea processing.

I3: An innovative urban development process fosters inter-organisational learning to promote process innovations

S2. A coherent urban development process involves customers in the development effort.

The propositions in Cluster B can be summarised into two hypotheses, with the aim of increasing the potential for knowledge transfer across the different stages of the urban development process, and thus contributing to the elimination of the root cause 2:

In a coherent and innovative urban development process,

4. *collaboration of the network of actors is encouraged, and customers (i.e. residents and other users of the area) are involved in the development efforts, also from the point of view of their contribution to value creation. (N1, N4, S2)*

5. *the ideas and knowledge created in the process are developed further through learning across organisational boundaries. (P1, I2, I3)*

<u>Cluster C.</u> Innovative features that increase the attention given to use and maintenance of the area during the process (cf. root cause 3)

The relevant propositions in cluster C are the following:

P1: A coherent urban development process ensures continuity through organisational boundaries

P5: A coherent urban development process names a process owner

N2: A coherent urban area development process is characterised by commitment to common goals throughout the network.

I4: An innovative urban development process empowers its actors to promote process innovations.

S2: A coherent urban development process involves customers in the development effort.

S4: A coherent urban development process applies long-term quality management to attain customer satisfaction.

These propositions in Cluster C can be summarised into one hypothesis, aiming to increase the attention given to use and maintenance in the process of urban development, thus contributing to the elimination of the root cause 3:

In a coherent and innovative urban development process,

6. *the network of actors is committed to the realisation of the common goals and to long-term quality in order to achieve satisfaction among the users of the area. This requires process owners as well as the empowerment of all relevant actors(P1, P5, N2,I4, S2, S4)*

The interpretation of the results, based on the clustering by the three root causes of the practical problem, produced six hypotheses to solve the root causes. In the comparison of the hypotheses it can be observed that both hypotheses 2 and 5 deal with the development of ideas and knowledge, respectively, in the context of processes and networks. They are thus combined and replaced with a new hypothesis 2, based on the same propositions:

In a coherent and innovative urban development process,

2. *A development strategy steers the processing of ideas, which entails the broad generation of ideas with a systematic screening. The ideas and knowledge created in the process are developed further through learning across organisational boundaries (P1, I1, I2, I3, S3)*

Hypothesis 6 is renumbered to hypothesis 5. **The hypotheses developed in this thesis** are thus the following:

In a coherent and innovative urban development process,

1. *commitment to common goals is achieved without suboptimisation, and these goals are maintained through the measurement of performance. (P3, P4, N2)*

2. *a development strategy steers the processing of ideas, which entails the broad generation of ideas with a systematic screening. The ideas and knowledge created in the process are developed further through learning across organisational boundaries (P1, I1, I2, I3, S3)*

3. *the coherence of the process is secured even if changes in actors or activities occur, and process owners are named. (P1, P5, N3)*

4. *collaboration of the network of actors is encouraged, and customers (i.e. residents and other users of the area) are involved in the development efforts, also from the point of view of their contribution to value creation. (N1, N4, S2)*

5. *the network of actors is committed to the realisation of the common goals and to long-term quality in order to achieve satisfaction among the users of the area. This requires process owners as well as the empowerment of all relevant actors (P1, P5, N2, I4, S2, S4)*

Table 37 illustrates the relation of the theoretical approaches to the five hypotheses. This manifests the cross-theoretical nature of the hypotheses.

Table 37. The relation of the four theoretical approaches to the five hypotheses

Theoretical approach	Proposition	Hypothesis				
		1	2	3	4	5
Process management	P1		■	■		■
	P2					
	P3	■				
	P4	■				
	P5			■		■
Network management	N1				■	
	N2	■				■
	N3			■		
	N4				■	
	N5					
Innovation management	I1		■			
	I2		■			
	I3		■			
	I4					■
Service development	S1					
	S2				■	■
	S3		■			
	S4					■

9 CONCLUSIONS

In this concluding chapter, the contributions of the four theoretical approaches used in this research are assessed, with a view to their explanatory power in the selected four case studies, and to their capacity to promote urban development on a more general level. As a practical conclusion, the cross-theory hypothesis, formulated on the basis of the propositions, are further reduced to a set of practical design principles, aimed at solving the identified three root causes. These principles are included in the new model M2 of an innovative process of networked development for a new urban area. In addition, the critical characteristics of the process are indicated, and practical guidelines are recommended for the process.

9.1 Theoretical contribution of the four approaches to urban development

This research examined urban development through the lenses of four theoretical approaches justified as applicable to urban development. The choice of the four theoretical approaches was based on a thorough contextualisation of the problem, partly based on the literature of urban planning theories, i.e. empirical contextualisation,, partly on the practical experience of the author, i.e. subjective categorisation (see Ketokivi and Mantere, 2010). The four theoretical approaches were: process management, network management, innovation management, and service development. For each of the four theoretical approaches, a specific research question was formulated, with regard to their applicability in urban area development. Based on a literature review, the research questions were further elaborated into a framework of theory elements relevant to the research on urban development.

Case studies of the development processes of four urban areas provided the empirical data for the research. In the case studies, 23 innovative features were identified. The innovative features were linked to the theoretical approaches, and more specifically, to the 18 theory elements selected for the further

analysis. The explanatory power of each theory element with regard to the innovative features was evaluated.

The theoretical results of this research were achieved at two levels. Firstly, the answers to the research questions related to each theoretical approach were provided as a set of 18 propositions for a coherent and innovative urban development process. Secondly, to attain the objective of constructing a theoretical framework for an innovative process of networked development for a new urban area, a set of cross-theory hypotheses was formulated. For this purpose, the 18 propositions were clustered and synthesised into five hypotheses by linking the propositions and the underlying theory elements to the three root causes of the practical problem. These hypotheses, consisting of characteristics suggested for a coherent and innovative urban development process, are the main theoretical result of the thesis. They need to be tested further in relation to new cases in practice and researched for their effects.

The urban areas selected for case studies were different in many respects. The effects of the case contingencies to the interpretation of the results were assessed through a cross-case analysis. On the basis of this analysis, certain overall observations can be made with regard to the explanatory power of each theoretical approach in the cases studied.

The cross-case analysis indicates that in the Suurpelto case, the process approach is emphasised and the innovation approach shows the lowest relevance. In the Viikki case, the process and network approaches are the most significant, while the service approach appears to have the lowest explanatory power. Contrary to the Viikki case, in the Nupurinkartano case the service approach is the most important and the process approach shows only minor relevance. In the Vuores case, the process, network and service approaches display the same level of significance whereas the support for service approach remains at a low level.

The differences across the cases may be explained by various underlying factors. The contingencies observed in the cases include e.g. the landownership, the size of the area, the phase of the process during the time period analysed (ending in 2009), and also the connection of the urban development to action research projects.

In what follows, the contribution of each of the theoretical approaches is assessed in the general context of the urban areas selected as case studies.

Process approach

The approach indicating the highest overall explanatory power with regard to the innovative features raised in terms of the cases is the process approach which is clearly superior to the three other approaches. This may be considered self-evident because all the innovative features in the case studies are associated with the process of urban development. A closer examination of the innovative features reveals, however, that process management has not been explicitly applied in urban development practice. Nevertheless, this result can partly be explained through the general raising of awareness in respect of the process management principles.

The case studies demonstrate that one of the central elements in process management, performance measurement (Evans 2004, Townley et al. 2003), has been elaborated further in the context of urban development. The use of well-defined performance criteria could become a new general practice of performance measurement in urban development (cf. Ersson 2007). The connection of performance measurement to quality assurance should also be emphasised here (e.g. Kaplan & Norton 1996).

The identification of customer needs (cf. Hammer & Champy 1993, Hannus 2004), or even the identification of customers, is not part of general practice in urban development. The cases demonstrate that the needs of the residents, when identified, should be articulated in a manner that is recognisable by the official process. This implies that the identified needs and their context should be explicitly mentioned in the local detailed plans or in the plans for the neighbourhood.

In the cases studied, several practices were developed to eliminate suboptimisation in the process (cf. Markus & Keil 1994), such as the use of specific performance criteria for the assessment of plans and construction projects. The case studies indicate, however, quite clearly that the length and complexity of an urban development process additionally necessitate the use of binding legal agreements in order to ensure, across the different stages, the optimisation of the total process. The follow-up is generally an inherent part of

process management, and it should become a necessity in the urban development process, as well.

Portfolio management (Cooper et al. 1998) is one of the methods provided by process management that has remained underused in terms of urban development. The advantage of portfolio management would be that it offers the tools to help accumulate a balanced set of urban development projects in the planned area (cf. Elonen & Artto 2002). This could also contribute to a lower risk of suboptimal results.

Network approach

The relevance of network theories for urban development is high because of the incontestably networked nature of urban development activities. If we want to benefit from the network approach in the development of an urban area, the identification of the network members with their roles and relations is only a start, providing a platform for mutual information exchange. The profits of network thinking only emerge when the network is managed towards a common goal creating value for the members of the network (Möller & Rajala 2007).

The case studies demonstrate that networks are likely to encounter continual changes both in their structure and operational environment. In addition, the value-creation system of the network evolves in the course of the process (Möller & Rajala 2007). This accentuates the role of the coordinator of the network. In most cases of urban development, the municipality is the most suitable coordinator because, also according to the legislation, it has the greatest potential to influence the other actors in the network. In addition, it is the municipality that also has the greatest interest in realising the vision and the goals set by its decision-makers (Hänninen et al. 2008). Nevertheless, a typical feature in networks is that the managerial duties can be shared, and the responsibility for management, as well as for coordination, can change from one actor to another over the course of time (cf. Gulati 1998, Möller et al. 2005).

The concepts of network coordination and process ownership (Davenport 1993, Hammer and Champy 19993, Hannus 2004, Smeds 1994) are interestingly overlapping in urban development. A process owner in a network context is a new and still undefined role, containing managerial, developmental and coordinative tasks. This implies that the challenges of both network

coordination and process ownership have to be met in urban development. Knowledge on this topic is difficult to find in current literature, and thus, network coordination should be studied more in depth on the level of collaborative development processes, such as the urban development process.

The input from the residents in the network should also be seen from the perspective of value creation (cf. Gulati 1998, Möller & Rajala 2007). The core competence of the residents (e.g. the possession of local knowledge, see Staffans et al. 2010) would be a welcome complement to the competences in the network, provided it is recognised.

Interaction and collaboration are essential elements for the success of a network in action (e.g. Gulati 1998, Knight 2002). The networks in urban development present additional challenges when compared to networks in the traditional business context. In urban development, the networks are constantly in a process of change, and extensive interaction is required far beyond the boundaries of the core network, for example in the direction of the political decision-makers. This complex situation has not yet been thoroughly researched in organisational studies or within the research on urban development. Certain recent studies suggest that the increasing use of information and communication technologies in the promotion of interaction and collaboration in urban development provides new tools for the management of knowledge in the network, but the organisations involved are not yet prepared to adapt their practices and services to meet the new demands (Staffans et al. 2010).

Innovation approach

Compared to the other approaches, the innovation approach presented the lowest explanatory power when assessed as an average across the cases studied. This should not conceal the fact that certain elements of innovation management were however discernable in several cases. These related mainly to the generation, screening and further processing of new ideas.

In respect of idea generation, the Internet provides an ever widening 'mouth of the funnel', as described by Wheelwright and Clark (1992). A substantial increase in the number of ideas, gathered by web-based and mobile tools, requires novel methods for the screening of these ideas. These kinds of methods are still under development but remarkable progress is seen on the horizon,

providing new application possibilities for use in an urban development setting (e.g. Staffans et al. 2010).

The processing of ideas into innovations and bringing them to the market is a long process, also in product development (e.g. Smeds 2001). In urban planning, this process is even longer and undoubtedly more complicated. The idea has to be generated, screened, processed and stored in a way that the process understands it (cf. Zack 1999). In the practice of urban development, this entails a written description in an official document. When the process proceeds, the idea has to be retrieved from the document in order to be developed and finally implemented (Zack 1999). This process necessitates a climate supportive of innovation which is best attained through open interaction between all the actor groups (De Jong and Vermeulen 2003). With regard to urban development, the success of innovations in this process should be evaluated by the long term societal quality of the resulting environment (cf. Väyrynen et al. 2002).

Service approach

The development of an urban area through the application of service development methods is a novel approach, both theoretically and in practice. The case studies do however provide suggestive support for the view that a service-oriented urban development process would enhance collaboration and customer involvement.

It has to be underlined here that in the context of urban development, 'customers' need to be defined separately for each development effort. In addition to residents, the users of the new area may include, for example, teachers or students of the future school, or providers of the services intended for the area. Therefore, a shared view of the customers should be created among all actors in the network (cf. Valkeapää et al. 2006).

The emphasis on customers and their involvement is shared with the other three approaches. Process management is interested in customers' needs and their satisfaction, network management attempts to include customers in the collaboration, and innovation management attempts to gather their new ideas. It can also be assumed that a shared view of the customers is a prerequisite for both public and private actors to understand the importance of creating and maintaining the satisfaction of the end users of the new area. Furthermore,

based on the case studies, it is to be expected– that the successful design and timing of customer involvement is not possible without process innovations.

Despite the lack of broad support in the case studies, the benefits of considering the development of the built elements and the functional elements simultaneously in the development process seem significant from the perspective of value creation (cf. Grönroos 2006). Attention should also be paid to the formulation of the service concept as a substantial part of the development process (cf. Valkeapää et al. 2006).

The four theoretical approaches, though assessed above separately, have important synergic implications in the process of urban development. The innovative features identified in the case studies were explained through a broad variety of theory elements. The analysed theory elements proved to be, in several instances, partially overlapping. This indicates that the phenomenon studied in this thesis is an entity difficult to resolve into theoretical components in an unambiguous manner. Through the five hypotheses, synthesised of propositions originating from the four theoretical approaches, new cross-theory combinations were formed (see Table 37). This makes explicit the potential benefits of using multiple perspectives in the research of urban development. In the future research, new additional theoretical perspectives, relevant in this respect, will probably emerge.

9.2 Practical conclusions: New process design principles and Model M2

In this thesis, the empirical findings in the four case studies were analysed through four rounds of data reduction, producing five hypotheses. The five hypotheses can further be translated into practical **process design principles**. These process design principles are aimed at solving the root causes and, in consequence, the practical problem presented in this thesis: "In the urban development process, innovative ideas often do not reach implementation".

As a practical conclusion of this thesis, it is recommended that the model for an innovative process of networked development for a new urban area should include the following five process design principles:

1. *The process is committed to common goals throughout the network*
2. *Ideas are systematically processed and developed through inter-organisational learning*
3. *The coherence of the process is secured*
4. *Collaboration within the network is encouraged*
5. The network is committed to long-term quality in the realisation of its goals

The model for an innovative process of networked development for a new urban area (Model M2) is visualised in Fig. 29 in a simplified schematic manner, comparable to Fig. 5 illustrating Model M1, in Section 3.2.

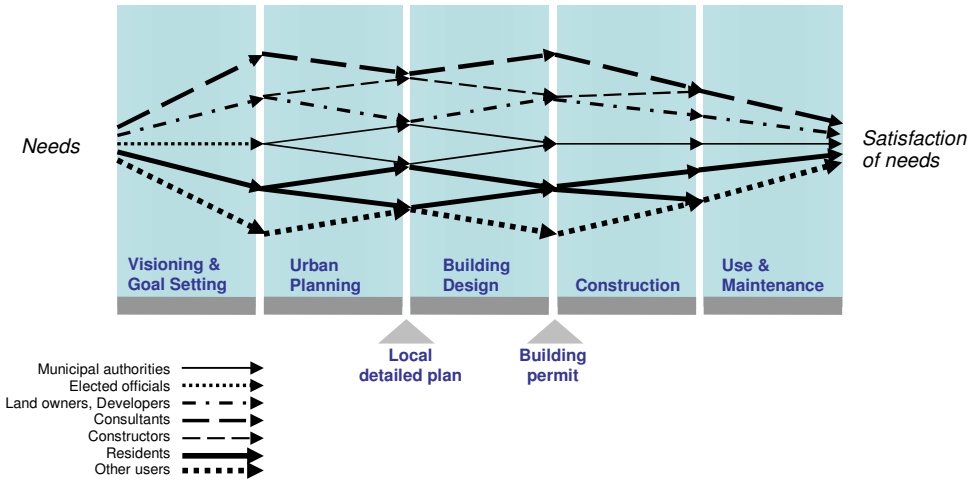

Figure 29. Model M2 for an innovative process of networked development for a new urban area

The process design principles included in the model are presented and evaluated in the next sections. Their potential to be used to enhance the general process of urban development is also assessed. The typical characteristics of each principle with regard to Model M2 are illustrated in Fig. 30 - 34.

9.2.1 The process is committed to common goals throughout the network

Concrete targets, defining the performance level intended for the new area, should be derived from the vision and goals in a way that enables and promotes innovative solutions. It is important that the targets are set both with regard to the technical performance (how well the built environment is constructed and how well it operates) and to the functional performance (how well the various functions and services reside in the new area). It is only the combination of these two elements of performance that creates value for the residents and other users of the new area.

The targets however risk remaining at a too vague a level if they are not concretised through measurable criteria. The use of well defined criteria increases understanding of the targets in the development network and, consequently, commitment to the original goals. Another prerequisite for this commitment is the clear and explicit communication throughout the network of the joint objective and the process leading to it. The orientation of the network towards the common goal is highlighted in green in Fig. 30.

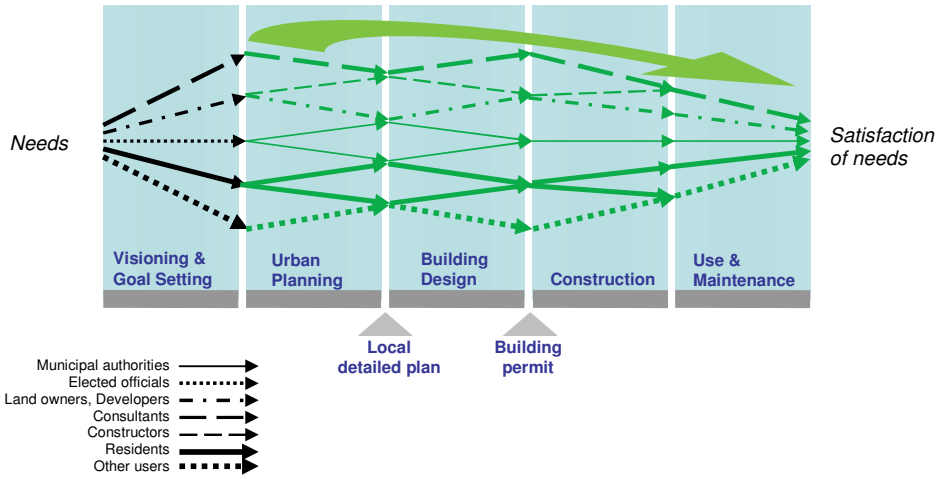

Figure 30. Model M2: The process is committed to common goals throughout the network

The case studies ultimately demonstrate that the commitment to the goals has to be additionally reinforced by establishing procedures that bind the performance criteria to the building control procedure.

9.2.2 Ideas are systematically processed and developed through inter-organisational learning

A broad approach to idea generation is attained when residents and other users of the future area are included in the idea generation. The methods for gathering ideas may include both traditional and new web-based methods. The essentially important stage here is that of the systematic screening of the ideas, which is highlighted in yellow in Fig. 31. This should preferably follow an explicit development strategy, in order to discover the most feasible among the diversity of ideas received.

Inter-organisational learning between the actors should be enhanced by providing suitable tools and methods of interaction. Learning in a network is an essential prerequisite for the development of innovations. This necessitates active knowledge sharing, but above all, joint knowledge creation in the network.

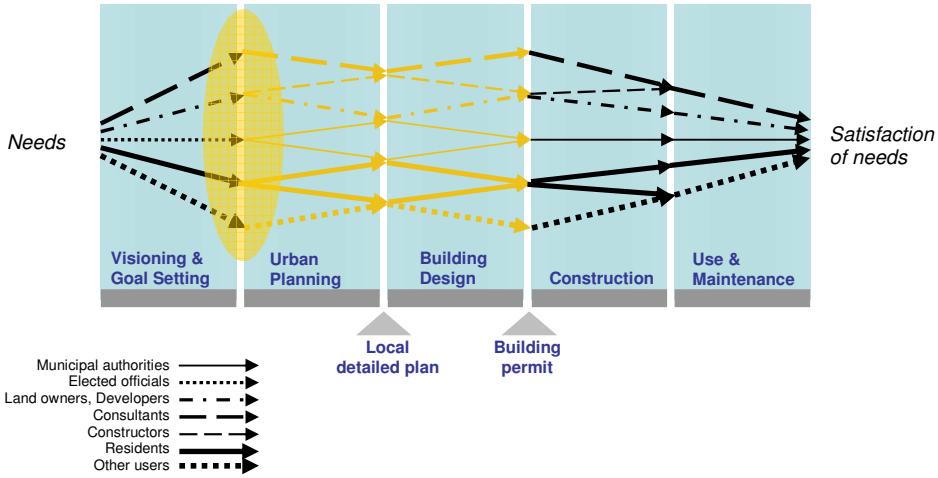

Figure 31. Model M2: Ideas are systematically processed and developed through inter-organisational learning

The diversity of ideas produced by all actors can be, when properly recorded and managed, exploited throughout the process. It is of central importance for the survival of the ideas that new practices are used to urge developers and constructors to examine carefully the information produced in the visions and plans for the area. In this way, the developers and constructors become a part of

the learning network, which provides them with motivation for the further development of innovations.

9.2.3 The coherence of the process is secured

To ensure that the plans and actions in later phases of the urban development process are in accordance with the vision and goals, new practises should be embedded in the process, acting as bridges across the different phases. The following potential discontinuities necessitating particular attention in Model M2 are highlighted in orange in Fig. 32: From urban planning to building design and implementation, from implementation to use and maintenance, and from use back to the vision. The feedback loop from the experience of all stakeholders, accumulated during the use of the area, to the vision is important because it enables the updating of the vision which may prove necessary over the course of time.

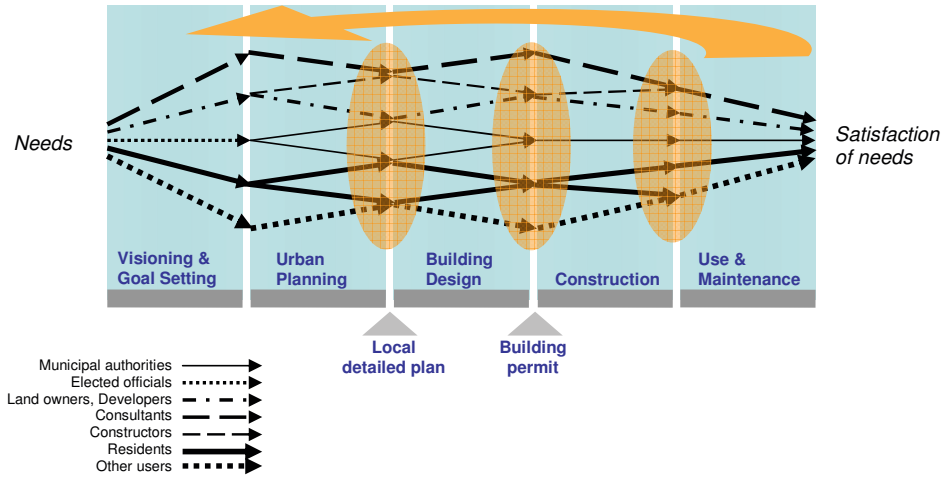

Figure 32. Model M2: The coherence of the process is secured

The continuity of the urban development process across the phases requires the adoption of a systematic process view, irrespective of the changes of actors in the network or in the subprocesses. Hence, the naming of a process owner is a central appointment in the development of a new area. The process owner is not only responsible for the management of the total process towards its goals, but also for the development of the process.

Instead of being organised in a sequential way, as is usually the case, the development process may contain overlapping and parallel stages, which can shorten the duration time of the process. In the case of urban development where the life-cycle of the output of the process, i.e. the built environment, is exceptionally long and evaluated by its long-term societal quality, it is suggested, however, that a sufficient time period should be afforded to each stage of the process.

9.2.4 Collaboration within the network is encouraged

The benefits of the collaboration depend to a large extent on the coordination of the network. Prior to the implementation phase, the coordination of the network is generally the task of the municipality, which is highlighted in red in Fig. 33. Thereafter, the coordinating role may be taken by some other actor with a long-term interest in the new area. In relation to the success of the collaboration, the timing and the combination of the participants of the various interactions have to be adjusted to the different stages of the process.

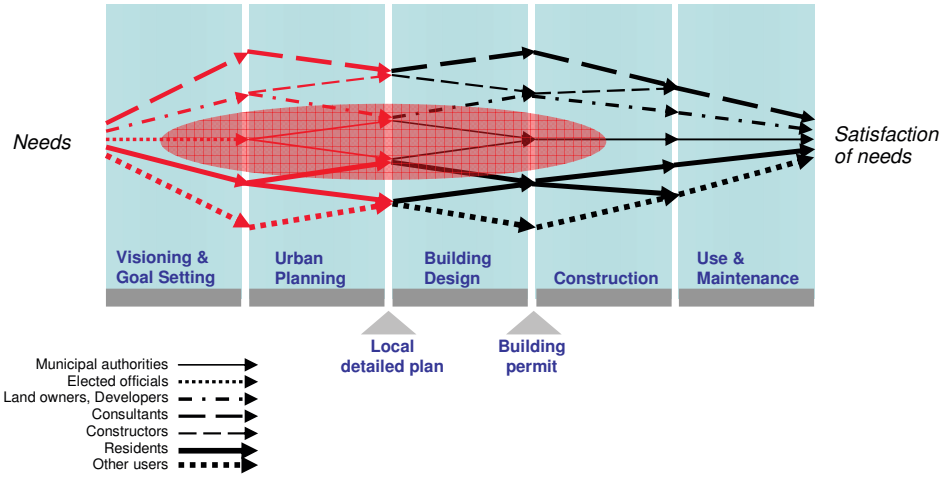

Figure 33. Model M2: Collaboration within the network is encouraged

If the collaboration between the actors begins during the early phases of the process, their commitment to the vision and goals is likely to be strengthened. In addition, the future residents and other users of the area have to be included in the network of actors. Their inclusion broadens the spectrum of competencies, which has to be recognised throughout the network. The

collaborating actors are, however, reluctant to communicate and share their capabilities without an atmosphere of trust within the network.

Collaboration within the network is enhanced when the two main interacting groups, the private and public sectors, are able to identify their customers in the process and, when possible, create a shared view of the customers[54]. Methods of acquiring knowledge about customer needs can also be developed in collaboration.

9.2.5 The network is committed to long-term quality in the realisation of the goals

With reference to Section 9.2.1 above, it is important that the quality of the new area is assessed both with regard to technical and to functional performance. Satisfaction among the residents and other users of the area is achieved through the combination of these two elements of performance.

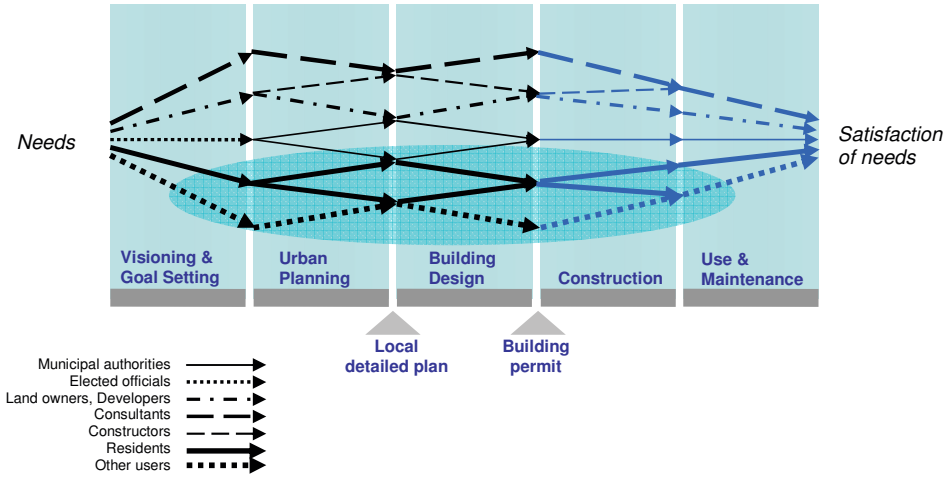

Figure 34. Model M2: The network is committed to long-term quality in the realisation of the goals

The application of the service development perspective to urban development highlights the satisfaction of end users as a main goal of the process. This implies that the new urban area should provide a good physical environment that enables all the activities needed for satisfactory living, working, moving etc. Fig. 34 emphasises in blue the procedure, in which the co-development of the

[54] In this thesis, the term 'customer' in the development process for a new urban area is defined to include the residents and other users of the area (see also Section 4.4.3).

corresponding services is initiated during the planning stage, but the co-producing and consuming of these services really only takes place when construction is completed and the long phase of use and maintenance begins. This is the moment of truth, when the expectations of the users, raised during the previous phases, really are met – if they are.

The user needs in the new urban area have initially to be revealed so that the development can be targeted towards the satisfaction of these needs throughout the process. When the gap between expected and experienced quality is eliminated, this should result in long-term user satisfaction. Consequently, when the area is completed this necessitates an appropriate measurement of the quality and satisfaction experienced, with an additional feedback loop to the actors in previous phases of urban development to ensure learning in the network. As such, the development of an urban area following the principles of a customer-oriented service development and production process is likely to lead to the satisfaction of all stakeholders in the process. The stakeholders include the municipality that has thus created a sustainable area with high, long-term societal quality.

9.3 Characteristics of Model M2 and practical guidelines for the process

As recommended above, the five process design principles are included in the model M2 for an innovative process of networked development for a new urban area. The model is elaborated and described more in detail in Table 38, where the **critical characteristics of the process** are indicated with regard to each process design principle.

Based on the data collected in all the four case studies and on the empirical data collected through interviews and collaborative development workshops in the Suurpelto case, **practical guidelines** are also identified for the process (Table 38).

Table 38. Critical characteristics of Model M2 for an innovative process of networked development for a new urban area

Model M2 for an innovative process of networked development for a new urban area	
1. The process is committed to common goals throughout the network	
Characteristics of the process	**Practical guidelines for the process**
Concrete targets with measurable criteria - Concrete targets are derived from the vision, for both the technical performance and the functional performance of the area. - The goals are set in a way that increases the motivation for innovation. - The commitment to the goals is reinforced by incorporating the performance measurement into the official procedures.	- All plans and their performance are assessed by well-defined measurable criteria derived from the common goals, at an accuracy level fit for each stage. - The pursued quality is a combination of technical and functional properties. - The performance criteria should be linked to legal instruments, e.g. land use agreements, plot assignment stipulations, and building control procedures.
2. Ideas are systematically processed and developed through inter-organisational learning	
Characteristics of the process	**Practical guidelines for the process**
Broad idea generation - Residents and other users of the future area are included in the broad idea generation. - The ideas are systematically screened, preferably following a strategy agreed upon in advance. ***Interaction and knowledge transfer integrated in the process*** - Inter-organisational learning between the actors is promoted by providing them with the knowledge gathered in the process in a suitable form. Learning in the network also necessitates interaction for joint knowledge creation. - The diversity of ideas, originating from all actors, is exploited throughout the process.	- Actors from all sectors are gathered together to participate in collaborative forums and interactive workshops during the development process, in order to produce ideas and enhance learning in the network. - Interaction between residents and the service providers of the area is promoted by using web-based tools and forums. - Information relevant to executive authorities, produced by the above mentioned methods, is communicated to the authorities in order to have an immediate effect on their actions. - The results of the interaction are followed up and reported. When the knowledge and ideas gathered are reported in a user-friendly form, it is possible to transfer this knowledge even to the actors emerging in the later phases of the process (e.g. developers, constructors, property

	management and maintenance companies). - Web-based participation is linked to the official planning process and the material is stored. - The development of the participation process with the corresponding tools and methods has to be user-centred.
3. The coherence of the process is secured	
Characteristics of the process	**Practical guidelines for the process**
Building bridges across different phases - **From urban planning to building design and implementation**: New modes of action prior to the building design stage support the concordance of implementation with the vision and original goals. - **From implementation to maintenance:** Maintenance is considered as an integral element of planning and building design. - **From use to vision:** The vision of the area is updated regularly, utilising the experience of all stakeholders accumulated during the use of the area. ***The process ownership is clearly appointed*** - The process owner oversees the total process and manages it across the phases towards the goals. ***Ensuring the optimal duration of each phase*** - A sufficient time period should be afforded to each phase in the process, because in urban development, both the process and the output are evaluated by their long-term societal quality.	- The development process has a full-time manager, a process owner, who is responsible for engaging the network in action. - All service development processes (both public and private) are interlinked with the development process of the area. - The stages in the process may be organised as partly overlapping or running in parallel. - The speed of the process should not, however, be shortsightedly prioritised. The phases of planning and building design are central in attaining long-term quality in the built environment.
4. The collaboration of the network is encouraged	
Characteristics of the process	**Practical guidelines for the process**
Involving actors in the process as early as possible - The vision and goals are developed and implemented in collaboration with the	- The future residents and other users are included in the development effort in the network, and their competencies are recognised.

stakeholders of the future area. - Actors are involved in the early phases of the process, which supports their commitment to the vision. ***Encouraging to collaboration*** - The collaborating actors have to trust each other and be able to communicate and share their capabilities. An atmosphere of trust also enables learning and problem-solving in the network. ***Coordination*** - The coordination gathers the dispersed resources of the network. - Through coordination, common understanding is created about the capabilities available in the network and those needed in the process.	- The role of elected officials is emphasised in the early stages of the process: in the creation of the vision as well as in the prioritisation of goal setting for new urban areas. - The implementation of the vision is steered by a steering group representing the main actors of the process; the members of the group may vary according to the phase of the process. - An active coordinator enables the actors to create new relationships and ways of collaboration. - The timing of interaction and the combination of participating actors have to be adjusted to the different stages of the process, in order to avoid exhaustion among the actors of the network.
5. The network is committed to long-term quality in the realisation of the goals	
Characteristics of the process	**Practical guidelines for the process**
User satisfaction as a common target for the network throughout the process - The anticipated user needs in the new area are made explicit and, throughout the process, the development is targeted towards the satisfaction of these needs. - The service concepts of the future area are developed early enough to be considered in the building design. ***Long-term quality*** - User satisfaction is pursued in all fields of service quality issues: the technical quality, the functional quality and the image of the new area. - The expectations of the users are considered in order to eliminate the gap between the expected and experienced quality and to achieve long-term user satisfaction. - The sustainable use and maintenance of the area are included in the planning objectives. - After the implementation, the use and maintenance of the area are regularly followed, and feedback is provided for the stakeholders.	- Planning and selection tools offering easy visualisation are introduced to the residents in the idea generation and service design phases. - In addition to facilitating communication and interaction with the stakeholders, the visualisation of the different alternatives also contributes to the management of their expectations. - Web-based and mobile interaction is provided for residents and other users of the area, to mediate their expectations to the service providers of the area, and to provide them with immediate feedback. - The web-based and mobile channels of interaction also create potential for new modes of maintenance services. - The fulfilling of targets is followed and measured in the new area according to the criteria previously agreed upon. The results of the follow-up are communicated to all relevant actors.

The model M2 for an innovative process of networked development for a new urban area, described in Table x, presents recommendations for a generic process of urban development. Each urban development project will shape the process in its own particular way. Thus, the application of the model to different cases of urban development always requires an adjustment according to the various case contingencies.

The functioning of the model of the innovative process of networked development also requires, in addition to the adoption of the new principles for the process itself, practical methods and tools incorporated in the process. The guidelines above should encourage the continuous development of these new methods and tools.

The model M2 recommends that customer needs should be identified at an early stage, and a shared view of the customers should be maintained during the long process of the planning and implementation of a new area. The developers and the construction companies should be involved in a collaborative innovation process together with their public counterparts as well as with the customers. This new practice may support the motivation for innovation in the construction sector which is usually considered quite conservative when it comes to the generation and implementation of new ideas.

The other service providers who aim to operate in the new urban area should also gain access to the development process, something which may again, potentially, help them adjust their service offerings to the needs of the future residents and to the physical premises earlier than in the conventional process of urban development. In addition, following the new process model, the construction companies and service providers will be brought to interaction in the early phases of the process, which presents them a welcome possibility to develop innovations in the course of the process. Moreover, when this collaboration also encompasses the municipal sectors, systemic innovations may emerge in urban development.

10 EVALUATION OF THE RESEARCH

This research has striven to uncover and define the critical characteristics of an innovative process of networked development for a new urban area which is able to mediate knowledge and new ideas through the different phases of the process. The underlying motivation of this study has been to promote procedures which help actors of urban development respond to future challenges by providing new and innovative means of shaping our physical living environment.

This research demonstrates the application of a cross-disciplinary approach, defined to represent a coordinated effort to cross disciplinary boundaries to explain one subject in terms of another. In this thesis, urban development has been explained in terms of four theories originating from the business management realm, namely the theories of process management, network management, innovation management, and service development

The answers provided to the research questions, corresponding to each of the theoretical approaches and formulated as a set of 18 **propositions**, clearly indicate the relevance of these four theoretical approaches in the urban development context. The variety in the ways in which these propositions were combined to create the final **five hypotheses** pursuant to elimination of the root causes of the practical problem, testifies to the need for cross-disciplinary research in urban development. In the light of the results, we can say that in many respects the process management view integrates the others.

This thesis applies management theories to a completely new area, the complex and dynamic networked process of urban development. The results of the thesis indicate interesting overlaps in the theoretical approaches, and rise new hypotheses to urban development research, and possibly also to other complex, public-private networked processes.

The practical overall objective of this thesis was the provision of new and innovative means for use in the process of shaping our living environment. New procedures have been sought, in particular, to mediate knowledge and new

ideas through the process of urban development, from the generation of the vision for a new area, ending up with the implementation of the built environment, with all its houses, streets, parks, and infrastructure.

Through the application of four theoretical approaches to four case studies, this research pursued the solving of a practical problem, observed in the conventional urban development process (model M1). Three root causes in respect of the practical problem were discovered. The practical result of the thesis, a set of process design principles, is further included the **model M2 of an innovative process of networked development for a new urban area,** accompanied by a set of practical guidelines. The design principles are derived as normative principles from the five hypotheses, and the practical guidelines are drawn from case study data. The model M2 is a generic process model for urban development, and its application is contingent upon each separate urban development project.

The research and its results will now be evaluated, followed by the assessment of the validity and reliability of the research (cf. Yin 1984/2003, Lincoln and Guba 1985).

10.1 Validity

Internal validity deals with the consistency of the research process (e.g. Yin 1984/2003). In qualitative research, such as this thesis, internal validity is assured by defining and following a consistent reasoning process throughout the written thesis.

In the introductory chapter, I carefully described the logic of the abductive reasoning process followed in this thesis, with ten clearly defined steps (Fig. 2, in Section 1.4.2) The proceeding of the research, from one step to the next, has been presented in detail in each chapter. The reasoning process is presented anew in Fig. 35, with reference to the corresponding sections of the thesis.

The practical problem in this research was first formulated subjectively, based on my personal observation and experience as a professional in urban planning. The context of this research was further described through a review of ongoing discussions in the field of urban development and planning theories. This laid the background for my understanding of the challenges related to the research

problem, while also highlighting the gap between the current status of urban planning theories and the practical problem. This empirical contextualisation strategy (Ketokivi and Mantere, 2010, p. 323-325) was also applied in the abductive reasoning process (see Fig. 2, in Section 1.4.2), which has important implications for the reliability and generalisability of the results (cf. Sections 10.2, 10.3).

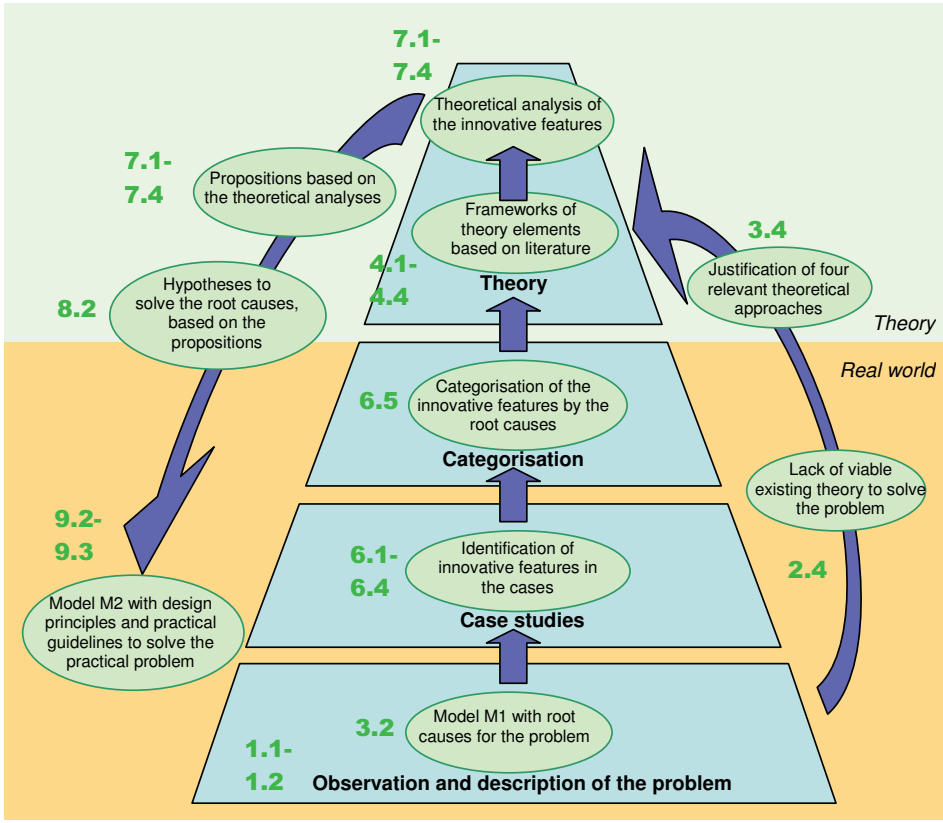

Figure 35. The reasoning process, with reference to the corresponding sections of the thesis

The management sciences include a wide spectrum of interesting theories which could have been used for this research problem. The choice of the specific four theoretical approaches was built up as my research proceeded and as my understanding of the theoretical dimensions of the problem grew (see table X, in 1.5.2). The selection of the theories was justified based on the literature review, reflected in the context of urban development. The selected theoretical approaches corresponded well to the practical problem and its root causes while also providing new perspectives to the solution of the problem.

The use of multiple theoretical approaches enriched the research perspectives which increased its validity. (c.f. theoretical triangulation, Flick 2004).

Research questions were formulated separately for each theoretical approach, to first guide the literature review and then the empirical analysis in the case studies. The analysis went through an elaborate categorisation process of case data and corresponding theory elements. The answers to the research questions were formulated into 18 propositions. After a contextual clustering of the propositions, they could be merged into five cross-theory hypotheses. The reasoning process through the different categorisation and clustering tables is described in the thesis with great care, so as to ensure its consistency.

The selection of the cases to be studied was based of several explicit criteria. The new urban areas to be selected as cases were to show potential innovativeness in their development but also sufficient variation in their visions, drivers and current phases of development. In addition, the cases also had to be accessible for research. In the last respect, the relation of the author to the cases and their data varied according to the cases. In Suurpelto, the author had the maximum access to the case data as an action researcher and research team leader for the urban process development project. With regard to the Viikki case, the access to various forms of data was also particularly good, whereas in the Nupurinkartano and Vuores cases, the author had a usual access to archival data.

The credibility (cf. Lincoln and Guba 1985) of the research was enhanced by the use of multiple sources and methods of data collection. The data was qualitative, and collected mainly through archival documents and, in the Suurpelto and Viikki cases, through interviews of key actors, and in the Suurpelto case, additionally through action research and collaborative workshops including intensive interaction with the research team. The Suurpelto and Viikki cases thus included both secondary and primary data, while in the Nupurinkartano and Vuores cases, the data used was secondary. In the two last-mentioned cases, the interpretations of the secondary data of were, however, based on extensive discussions with colleagues carrying out research related to these cases, which contributed to the validity of the research.

The four selected cases provided an interesting research setting with rich variation, covering the whole span of the development process. The presentation of the cases and their contexts laid the basis for the further

assessment of the innovative features identified in the cases. The data analysis included four data reduction rounds: The practice-based analysis, the theoretical analysis, the theoretical interpretation of the results, and the practical interpretation of the results. To proceed from one round to the next, the data was organised in the form of tables and matrices.

Mixing of the different methods of analysis and the use of both primary and secondary data, together with the different theoretical approaches, enabled multiple triangulation (Flick 2004) The data used in the research is presented in the appendices of the thesis, for potential further use of other researchers.

The role of the researcher in qualitative case study research is always crucial, and should be described in sufficient detail to build reliability and generalisability into the research. I have described my background knowledge and experience carefully in the beginning of the thesis (Sections 1.1.1-1.1.2). My role in the four case studies differed, as presented in the respective sections 6.1-6.4. In Suurpelto, my role was to act as an action researcher and a research team leader. In respect of Viikki, my active research period dates from the planning phase of the area in 1999-2000. Since then, I followed the implementation of the area for five years as an interested professional. In 2005, I restarted the research with Suurpelto, Nupurinkartano and Vuores, as new case areas. Despite the differing roles, I assume that my long professional experience in architecture and urban planning, both as a practitioner and as a researcher, help in viewing the cases from a broader perspective.

External validity refers to the logical relationship between the empirical data and the conclusions and to the generalisability of the results. As this study uses qualitative research methods, the case characteristics, the contexts, the administrative drivers and underlying trends were presented thoroughly and in detail. This enabled comparison of the cases from the perspective of the four approaches with attention given to the case contingencies.

In the strictest interpretation of generalisability, the design principles and the guidelines are not transferable to any other cases than the ones that they stem from. The detailed description of the cases studied, including their processes and contexts, allows however to draw some generalisations to other urban development processes in similar contexts. The design principles of the model M2 are, because of the careful, triangulated theoretical grounding and the

empirical analyses, by nature more general than the practical guidelines that are directly induced from the case data.

The hypotheses, on the other hand, are theoretical generalisations for further research in the field of urban development.

It is also suggested, that the knowledge acquired of the development process of innovative urban areas can also contribute to research in other complex and networked systems, in particular since the question of interlinking planning and implementation is fundamental to all process and innovation research. Thus, the hypotheses formulated in this research could possibly also be tested in development processes in other fields of application.

10.2 Reliability

Reliability addresses the repeatability of the study. It is evident that my background and experience as an urban planning and design professional affected the formulation of the research problem and also had an influence on the whole research process. My interpretations were undoubtedly connected to my thinking, deeply rooted in the prevailing planning culture in Finland. In order to enable an unbiased evaluation of this research, I have presented my background and role in the research, and described my research process in a consequential manner.

In this research, the context of the study, the research methods, the research process, and the reasoning logic were openly and extensively described. The data collected for the case studies was documented on a detailed level. This reinforces the reliability of the research, and gives in principle the possibility for another researcher to use the same data to address a new research problem – or to try to replicate the interpretation.

The set of four cases proved to be sufficient to reveal numerous (23) innovative features in urban development for further examination. The quality of the data was ensured by the extensive use of official documents and by the wide variety of other documents consulted. In the Suurpelto and Viikki cases, interviews were conducted with numerous key actors.

In the Suurpelto case, action research was conducted. As an action researcher, I participated actively in the development effort, and simultaneously, collected data for scientific analysis. It is thus important for an action researcher to carefully document the research process and evaluate the results. The results from the simulation projects were discussed and evaluated in workshops with both researchers and practitioners in order to check the accuracy of the interpretations. In addition, the written reports of the simulation projects were confirmed by the key persons of the Suurpelto development project.

The influence of the differences between the cases and the variation in the case-specific data to the interpretation of the findings was carefully considered. The potential bias with regard to the results was explicitly discussed in connection with the case contingencies.

The research process has also been illustrated as a sequence of publications, providing the possibility to follow the development of the theoretical base of this thesis over time. The publications have been co-authored by several other researchers, which clearly shows that the first interpretations of the results were provided in dialogue. This decreases the subjectivity of this research and its results.

The conclusions of this research have been drawn on the basis of the consistent and explicit research procedure documented in all its details.

10.3 Limitations

Limitations to this research are posed by its nature of being a case study, and by the theories selected.

The research is conducted as a case study with four Finnish new urban areas as the selected cases. This limitation suggests that the results are applicable only in the Finnish context, both geographically and judicially. The hypotheses were derived from findings related to the four selected cases, which limits their accuracy solely to these cases.

The research concentrated only on the process of urban development in new areas. It is suggested that the practical implications may, to some extent, also be

applicable to the development of existing urban areas. This necessitates, however, further research including case studies of existing urban areas.

The selection of the theoretical approaches was limited to four approaches originating from the management sciences field. This has also limited the perspectives used in the research. Additional theoretical perspectives, relevant with regard to the research objective in this thesis, undoubtedly exist. The essential differences between urban development processes and business processes were highlighted and addressed, but sufficient similarities were nevertheless found in these activities to justify proceeding with these theories, and to achieving fruitful results.

11 DISCUSSION AND FUTURE RESEACH

The original problem that triggered my thesis research was the following observation: *In the urban development process, innovative ideas often do not reach implementation.* This observation stemmed from my professional experience, supported by numerous discussions with key actors in the field of urban development. In the course of the research process, new and more refined questions emerged, and, along with new theoretical approaches from the management sciences, they were formulated into the research questions of the thesis. The results of the research shed light on the problem and its solution, but at the same time new research needs inevitably appear.

Each of the three levels of results, the propositions, the hypotheses, and the design principles, offer different elements to the discussion concerning urban development, with a variety of topics for further research in this area. The 18 propositions for a coherent and innovative process of urban development introduce four theoretical approaches and their potential to be applied to a new field. The propositions can be elaborated in further studies, and additional theory elements may be selected in the vast literature of management sciences.

The hypotheses developed in this research to solve the research problem, allow for new and interesting future research paths. The first and most evident future research issue is the testing of the developed five hypotheses further, in multiple case studies, in different contexts. The practical design principles presented in this thesis should also be tested, preferably in cases where a complex network of actors pursues a challenging overall goal. This is the case, for example, when the vision of the urban area development is oriented towards a sustainable community. All the design principles could be applied and tested in such a case. The sustainability goals for a community are not only attained through new planning and building regulations, but also by paying increasing attention to the whole process, including the use and maintenance of the urban areas.

The transition management approach has sought to deal with the role of experiments in the transition towards sustainability. With reference to transition management in urban development, an interesting research topic would be:

What are the necessary features in an urban development process that could mediate the learning obtained in the experimental niches of innovative areas to the system level of urban development?

Energy efficiency is one of the major objectives of sustainable urban development. The current incremental model of planning and decision making has not been able to support this target. This raises a further question for future research: How could the model of the innovative process of networked urban development be applied to ensure that this type of major development objective is incorporated into all phases of the process and adopted across the network?

By studying multiple cases of urban development in a sequence, the inter-organisational learning from one case to another could be made explicit, together with the feedback loops of learning from one phase to another. These loops are often drawn as lines in theoretical process charts, but their implementation into the urban development processes in practice has remained insufficient, if not totally nonexistent.

The balance between technical regulation and collaboration in the new model for an innovative process for networked urban development presented here poses a challenging question. This model does not provide an unambiguous answer to this question. It does however suggest that regulation cannot be totally replaced by intensifying interaction and collaboration in the network of actors, and by providing tools for inter-organisational learning. The nature of the network in urban development being one of constant change, the commitment to common goals has to be additionally attained through well-timed regulatory measures. Future research topics in this respect could be the correct timing of these measures, and the potential incentives in the process to fulfil the visions and goals, even without the tightening of regulatory measures.

An interesting research topic, moreover, relates to the discussion of the competitiveness of cities. Could the competitiveness of a city be enhanced through networked planning and implementation processes empowering its citizens? Answers to this question could only be provided by means of extensive case studies in different contexts.

The new model for an innovative process for networked urban development entails both new actors and new roles for existing actors in the process. The functioning of the process necessitates, in addition to an enthusiastic process

owner, the collaboration of the old and new experts to create the desired new value in this process. The capabilities of architect-planners, urban managers, mediators, and facilitators, as well as citizens and their organisations are all welcome in the pursuit of new and innovative means of shaping our physical living environment. The formation of and requirements for these new roles is as such an interesting topic in the research of complex networks.

In addition to new tools for the management of the urban development process, also existing tools should be utilised in a more effective manner. I refer here, in particular, to the report of the local detailed plan that has remained regrettably underused as compared to its potential to mediate knowledge across the planning and building design phases. The application of appropriate management tools would require more action research carried out in urban development processes: the implementation of any organisational tool requires organisational learning and process innovation.

The model for the innovative process of networked urban development provides support for the use of the competencies of both the professionals and the citizens in this process. The methods appropriate to this collaboration, however, require further research and continuous practical development work. The development of the new web-based and mobile techniques is rapid and incessant, and the adoption of these methods in urban development practices is a fundamental requirement. It has to be emphasised that the new methods of interaction and collaboration in urban development inevitably entail changes in the corresponding processes. Thus, further research is needed to search and co-develop with the users the most effective and user-friendly methods and processes in this respect.

The managerial principles in process innovation, in the business context, usually emphasise the quality of both the process and the product, as well as the speed of the process. In the case of urban development, the process and its outcome, i.e. the built environment, are evaluated by their long-term societal quality. Thus, it can be argued that the speed of the process in urban development should not be prioritised in a similar way to business processes. On the contrary, the processes of planning and building design should be conducted with the utmost care and reflection to ensure the quality of the future environment, including its construction and its durability in use.

My intention in this thesis was to demonstrate that the professional discussion in the field of urban development would greatly benefit from a multi- and cross-disciplinary dialogue with the selected management theories. This research and its results demonstrate that, in fact, various elements of process management, network management, innovation management, and service development are already present in the current practice of urban development. The propositions and hypotheses derived through the analyses of innovative urban areas are intended to provide new material for the professional discussion, new fruitful multidisciplinary research in the field of urban development, as well as a novel and rewarding application area for the management theories and, hopefully, also new insights in respect of further innovations in the urban development field.

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: The Finnish Funding Agency for Technology and Innovation (called until 2006 The National Technology Agency, earlier known as the Technology Development Centre)

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www.uia-architectes.org
International Union of Architects

www.un.org/geninfo/bp/enviro.html
UN Earth Summit

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YIT Corporation

www.ymparisto.fi
Ministry of the Environment

APPENDICES

Appendix 1. Data collection in Case Suurpelto

Interviews in 2005:

The City of Espoo, representatives of the Central Management, Technical and Environment Services, and Education and Cultural Services (15 persons)

Private developers and consultants participating in the planning of Suurpelto (6 persons)

Other actors in the planning of Suurpelto (4 persons)

Private developers and consultants not participating in the planning of Suurpelto (4 persons)

Research partners (1 person)

Representative of the landowners (1 person)

Interviews in 2006:

City of Espoo:	
Marketta Kokkonen	City Manager
Olavi Louko	Director of Technical and Environment Services
Kristiina Erkkilä	Development Manager, Education and Cultural Services
Aulis Majuri	Administrative Manager, Social and Health Services
Kari Ruoho	Elinkeinojohtaja
Matti Kokkinen	Project Director, Suurpelto project
Satu Lehtonen	Project Engineer, Suurpelto project
Anja Mäkeläinen	CEO, Asuntosäätiö
Jorma Peltomäki	CEO, Asuntosäätiön Rakennuttaja Oy
Björn Melén	Senior Research Scientist, Oy L M Ericsson Ab
Esa Turtiainen	Technology Manager, Oy L M Ericsson Ab
Anne Koskinen	Director, Sodexho Oy
Merja Laine	Account Manager, TeliaSonera Finland Oyj
Harri Suokko	Director, Business Management, Information Society Structures and Services, TeliaSonera Finland Oyj
Taina Koskelo	Development Manager, Vahanen yhtiöt
Matti Kuronen	Project development engineer, YIT Rakennus Oy

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Presentation 6.11.2009 by Leena Manner, Managing Director of Suurpelto Marketing Ltd.

Appendix 2. Data collection in Case Viikki

Interviews in 1999:

Jalkanen, Riitta, Project Manager, Helsinki City Planning Department
(Viikki-Kivikko -project from 1992 -)

Korpivaara, Aila, Senior Architect, Ministry of the Environment

Lindroos, Markus, Architect SAFA

Lukkari, Anna-Maija, Technical Director, University of Helsinki

Luoto, Ritva, architect, Helsinki City Planning Department

Paloheimo, Eero, Professor, Helsinki University of Technology

Pekkarinen, Pirjo, Project Manager, Eco-Community Project

Pietikäinen, Sirpa, Member of Parliament
(Minister of the Environment during 1991-95)

Rajajärvi, Tuomas, Head of Helsinki City Planning Department (Project Manager of the Viikki-Latokartano -project during 1989 - 1992)

Räty, Harto, M. Sc. (Eng.), Finnmap Partners Oy
(Programme Manager of the technology programme 'Environmental Technologies in Construction' 1994 - 1999)

Vatilo, Matti, Building Counsellor, Ministry of the Environment
(Secretary General for the Finnish Association of Architects SAFA until 1.6.1998)

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Eko-yhdyskuntaprojekti. Tutkimussuunnitelma 20.12.1993. Suomen arkkitehtiliitto SAFA. (Research plan for the Eco-Community project, The Finnish Association of Architects)

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Report of the jury of the planning competition for an ecological housing area in Viikki, Helsinki, 19.5.1995. (In English)

Report of the jury of the design competition for an ecological neighbourhood in Viikki, Helsinki, 8.10.1996. (In English)

Rodriguez, A., Jaarto, P., Vikström, K. & Aho, I. 2004. Eko-Viikki Seurantatutkimuksen loppuraportti (Eco-Viikki, Final follow-up report). Motiva Oy. Publications of Helsinki City Planning Department 2004:10. (In Finnish)

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Viikin osayleiskaava, selostus 17.5.1995. Helsingin kaupunkisuunnitteluviraston julkaisuja 1995:13. (Report of the partial local master plan for Viikki, Helsinki City Planning Department)

Viikin osayleiskaavaehdotus, vastineet annettuihin muistutuksiin ja lausuntoihin 1.12.1994. Helsingin kaupunkisuunnitteluvirasto, kaavoitusosasto, Viikki-Kivikko -projekti. Muutettu 8.1.1994, kaupunkisuunnittelulautakunta. (The partial local master plan for Viikki, Response to the objections to the plan, Helsinki City Planning Department)

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Viikki - Latokartano osayleiskaava / 2158, Ksv:n työryhmän muistiot 2/90, 10/90, 11/90, 1/91 ja tavoiteseminaari 14.10.1991. (Partial local master plan for Viikki-Latokartano, working group memorandums 1990-1991)

Viikki - Latokartano osayleiskaavaluonnoksen selostus. Helsingin kaupunkisuunnitteluviraston julkaisuja 1990:17. (Report of the partial local master plan for Viikki - Latokartano, Helsinki City Planning Department)

Väyrynen, E. 2000. Viikin ekologinen rakentaminen. Tavoitteiden kehityksen kartoitus ja arviointi. Julkaisematon käsikirjoitus. (Ecological building in Viikki; Assessment of the development of public objectives. Unpublished)

Appendix 3. Data collection in Case Nupurinkartano

Archival research /Documents and publications:

Espoon kaupunki, Kaupunkisuunnittelukeskus. Nupurinkartano. Asemakaavan selostus, joka koskee 25.7.2006 päivättyä, 5.11.2007 muutettua, 28.4.2008 tarkistettua Espoon kaupunkisuunnittelukeskuksen laatimaa asemakaavakarttaa, piirustusnumero 6192. (Report of the local detailed plan for Nupurinkartano, amended 5.11.2007 and 28.4.2008, Espoo City Planning Department)

Espoon kaupunki, Kaupunkisuunnittelukeskus. Nupurinkartano. Asemakaavakartta ja määräysosa. Piirustusnumero 6192. Tarkistettu 28.4.2008. (The local detailed plan for Nupurinkartano, Espoo City Planning Department)

Espoon kaupunki ja YIT Rakennus Oy. Hista – Siikajärvi – Nupuri 2020: Osayleiskaava-alueen maankäyttövaihtoehdot ja niiden ympäristövaikutukset. Jaakko Pöyry Infra, Maa ja Vesi Oy. 30.5.2005. (Partial local master plan for Hista - Siikajärvi - Nupuri, Land use alternatives and their environmental impacts)

Kaukonen, H. 2006. Nupurinkartanon alue; Asukkaiden osallistuminen toteutukseen. (Residents' participation in Nupurinkartano).

Kuronen, M. 2008. ”Kyllä kansa tietää” – tulevien asukkaiden osallistaminen asuin-alueiden suunnitteluun. (Participation of future residents in planning). In: Lammi, M. & Timonen, P. (eds.) Koti - tehtävistä uusiin ihanteisiin (Home - from functions to new ideals). pp. 31-39. Kuluttajatutkimuskeskuksen kirjoja 4. Tampereen yliopistopaino.

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Uudenmaan liitto. 2002. Lohja-Vihti-Espoo –ratalinjan selvitys maakuntakaavoitusta varten. Sito-konsultit Oy. (A new railway line Lohja - Vihti - Espoo, Report for Uusimaa regional land use planning)

Presentations

Presentation 15.9.2009 by Ilari Aho: Uponor's indoor climate strategy.
Presentation 26.1.2009 by Matti Kuronen, YIT Corporation.

Appendix 4. Data collection in Case Vuores

Archival research /Documents and publications:

Vuoreksen osayleiskaava, ehdotus 11.8.2003. Tampereen kaupunki, Ympäristötoimi, Kaavoitusyksikkö. Lempäälän kunta, Kaavoitustoimi. (Joint Master Plan of Vuores, City of Tampere, Municipality of Lempäälä)

Valkama, P., Marja-aho, M. & Siitonen, P. 2004. Kaupunginosan palvelujen järjestämisen vaihtoehdot. Kuntien yhteisen kaupunginosan palvelujärjestelmä – esimerkkinä Vuores. Acta nro 169. Suomen Kuntaliitto. Helsinki (Service provision options in city districts - Case Vuores, the Association of Finnish Local and Regional Authorities)

Vuoreksen Mäyränmäen kilpailuohjelma 15.8-14.10.2005Tampereen kaupunki. Vuores-projekti. Kiinteistötoimi. (Programme for the architectural competition of Mäyränmäki, Vuores Project, City of Tampere).

Vuoreksen Mäyränmäen korttelikilpailu. Palkintolautakunnan arvostelupöytäkirja 1.12.2005Tampereen kaupunki. Vuores-projekti. Kiinteistötoimi. (Report of the jury of the planning competition for Mäyränmäki residential area, Vuores Project, City of Tampere).

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Presentations

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