

Global Networks, Knowledge Management and World Cities

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Abstract

Global markets are revolutionising the basic concepts of research, manufacturing and marketing, and developing corporate networks based on competitive alliances.

In global managerial economics, knowledge management thus becomes the crucial competitive factor, creating knowledge production hubs, particularly in cities with a high level of intangible consumption, where people, capital and ideas are concentrated (consumer hubs).

The level of aggregation of knowledge production and intangible consumption classifies large conurbations with unconventional metrics, establishing new types of scales for 'world cities'.

Keywords: Global Networks; Knowledge Management; Global Competition; Knowledge Hub; Consumer Hub; World Cities

1. Global Networks, Knowledge Assets and Market-Space Competition

Global markets have drastically transformed firms' development strategies, underlining the primary role of the processes of product imitation and innovation, to meet constantly changing demand. As a matter of fact, with globalisation, in order to grow on fiercely competitive markets where demand is stagnating or contracting, companies have revolutionised the basic concepts of the functions of research, development, manufacturing and marketing, creating complex corporate organisations (networks) based on competitive alliances, joint ventures, and the vertical and horizontal integration of operating units, often establishing relationships (even of a temporary nature) with competitors, suppliers and customers.

'Competitive cooperation' is therefore of fundamental importance to survive in a period of slow growth when isolation can compromise a company's future.

Global markets thus bring companies up against competitive marketplaces where:

1. due to the continuous innovation of supply and the instability of demand, a company's competitive conduct is dominated by strategies and policies that are dynamic and changeable;

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2. time-based competition and market-space management have become decisive factors in order to reach competitive advantages, which increase the importance of product intangible assets (typically design, brand name, before-sale services, after-sales services) and global corporate intangible assets (corporate culture, company information system and brand equity).

□ *‘Knowledge assets have been strengthened since the 1980s, both in the U.S. and abroad. Moreover, know-how assets are not just important in the new industries – such as microelectronics and biotechnology - it remains important in pharmaceutical and chemicals and is receiving renewed interest in more mature industries such as petroleum and steel’ (Teece 1998).*

In global markets, time-based competition and market-space management therefore become crucial and determine the development of mega-organisations, whose success is conditioned by the level of sophistication of the corporate intangible assets. In other words the success is determined by the capacity to manage accumulated knowledge (inside-out knowledge resources) and the sum of knowledge that can be acquired externally through network relations (outside-in knowledge resources).

2. Global Networks, Knowledge Production and Cities’ Development Models

Global corporations take advantage of a concept of competition space that underlines the exploitation of outside-in potential, adopting widespread and strongly inter-connected structures. In these complex organisations, relations inside the individual operating structures must be in step with more extensive systems of continuous connections maintained with co-makers and with external organisations. Therefore the culture of the organisation must be transformed into a more competitive vision of the corporate culture (market-driven management).

In ‘enlarged competition space’, global networks aim at overcoming physical competition space (market-space management). Corporate culture plays a central role in the conduction of internal, external and co-makership relations, emphasising a far-reaching concept of corporate belonging without local characterisation or any connotation of the physical space.

Globalisation, lean production, outsourcing, networking, digital ICT and the convergence of technologies combine to substantially modify company management, focusing company policies on the development of ‘knowledge production’.

This process of change, which determines the complex development of network relations and new means of acquiring and transferring specific professional capabilities, involves numerous structures, in particular the large consultancy companies, the state-agencies dedicated to economic promotion and, above all (with a completely new role, which has strengthened significantly in the last 10-15 years of economic globalisation) the ‘world cities’, which have to meet the specific needs of the global networks.

On global markets, new economic paradigms drive the growth of firms that tend to reach their goals by adopting flexible, adaptive strategies, focussing primarily on competition (market-driven management) (Brondoni 2007).

Global networks that operate in enlarged competition spaces (enhancing and exploiting corporate intangible assets: corporate culture, information system, brand equity) have access to very extensive and sophisticated market information, and they often have to compete with the governments of Nation-States to fix the guidelines for short and long-term local development (Brondoni 2004).

Traditional European models of governance – based to a large extent on protecting the prerogatives of the Nation-States – are old and inadequate to meet the corporate needs (central and peripheral) of global networks. As a result, the strategic and management policies of the Nation-States, particularly in European countries in the Mediterranean area, are increasingly often overcome (and often rendered vain) by the global flows of the corporations (of capital, products, services, technologies and communication). Due to a loss of influence in the management of the complex balance between the choices of global networks and the possible socio-economic repercussions for ‘local’ realities the Nation-States gradually lose their power in the defence of competition spaces.

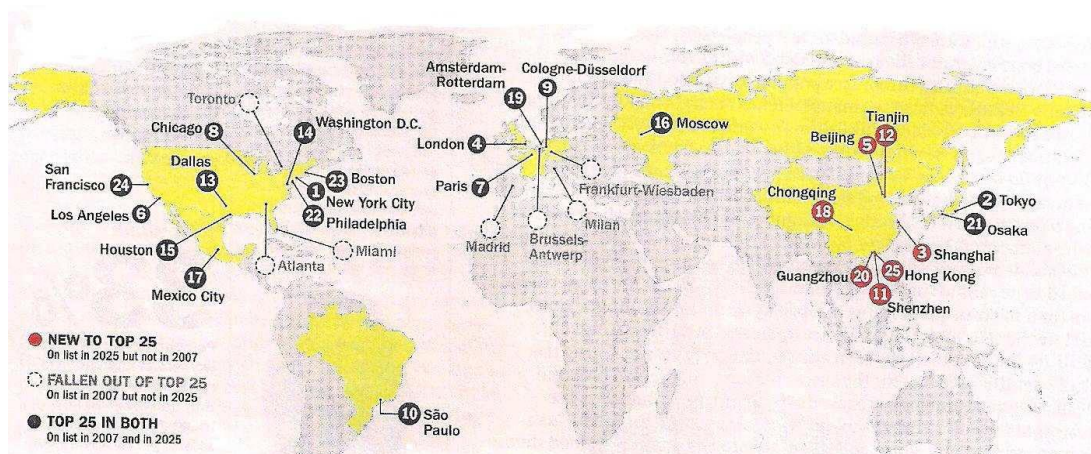
In fact, several exogenous factors (which cannot be effectively governed at a ‘local’ level) force Nation-States to adopt a global vision that focuses on the development of large cities that are leaders in knowledge production (world cities) and, for this distinctive prerogative, destined to accommodate the growth potential of global networks.

In modern economies, urbanisation is strengthening and concentrating. Recent research conducted by the McKinsey Global Institute (Dobbs et al, 2011) regarding the role of cities in the global economy in 2025, reveals that in 2007, 1.5 billion people, or 22% of the global population, were concentrated in the 600 largest cities, generating approximately 60% of global GDP. In 2025, the urbanisation of the first 600 large cities will increase further, reaching 2 billion inhabitants, or 25% of the world population. Moreover, many of today’s large cities, located in developed countries, will no longer be in the Top 25 in terms of wealth produced, having been overtaken by urban conglomerations located primarily in the Southeast and South of the world, in countries currently defined as emerging or developing, like China, India and South America. In particular, the research by McKinsey Global indicates that some of today’s largest European cities (for example Milan, Frankfurt, Brussels and Madrid) will be excluded from the global Top 25 (Figure 1).

The new large conurbations are therefore destined to play a driving role in the socio-economic growth of the Nation-States. These new cities are emerging as leading ‘*global cities*’ (world cities). Their growth (referred to the size of their territory, the number of inhabitants and the type of population that gravitates there) depends on their definition as part of the knowledge economy, in other words, cities where there is a large concentration of people working in immaterial activities (knowledge production). But it is also linked to the presence of consumption with a high level of immateriality (intangible consumption).

‘Global cities’ thus draw together knowledge-based corporate activities, i.e. activities with highly capitalised knowledge. However, we also find urban conurbations that attract masses of individuals looking for goods with sophisticated levels of intangible consumption. In other words, large metropolitan areas of the dematerialised economy that are both knowledge hubs (centres of manufacturing activities based on knowledge) and consumer hubs (places where products and services with a high level of intangibility are consumed).

Figure 1: The World's First 25 Cities. Estimate for 2025



Source: McKinsey Global Institute, March 2011

In its forecasts, McKinsey Global maintains that the large cities, governed as knowledge hubs and consumer hubs, attract companies whose output addresses the knowledge economy, whose products have a high level of intangible components, and manufacturing processes that reflect intense global competition. World cities attract population masses (that reside and in particular gravitate there) with consumption that is very sensitive to the immaterial characterisation of products and services, ranging from working facilities and opportunities to entertainment and urban welfare, from socialising to a variety of products and services, and from work and private safety to available housing.

Today, in the second stage of the global economy, dominated by intangible consumption and by the intangible output of corporations (knowledge production), the growth of the global cities is no longer driven by the 'heavy', polluting products of companies located in the suburbs, but by diversified job opportunities and the quality of life. On the other hand, in world cities, economic well-being no longer depends on the satisfaction of elementary consumption, and even social well-being is no longer measured with simple indices (number of residents, wealth produced, physical structures per inhabitant, etc.). In fact, social-economic well-being in global cities can be calculated by multi-level performance indices, referred to 'private and social intangible consumption' and the comparative attraction of knowledge hubs.

Global cities therefore tend to play a driving role for the growth of Nation-States. This development function determines the new levels of 'local' socio-economic well-being and reflects the relative importance of huge conurbations as the nucleus of innovation for the knowledge economy and the intangibility of consumption.

The competitive position of world cities becomes a strategic lever that outline different development models, which can be roughly defined in relation to the various levels of knowledge production that the governance of cities is able to express.

2.1 Globalisation and Cities' Development: the 'Real Estate Drift' Model (No-Knowledge Production)

A first governance policy for the global cities could be a development model of *no-knowledge production*, i.e. waiving the creation of global networks with production based on the knowledge economy. This behaviour can be found in numerous European cities (like Manchester, Liverpool, Sheffield, Turin, etc.), which are still conditioned by a glorious past of 'heavy' industry. There are several emblematic examples of this attitude in Italy that together seem to outline a model of non-development and that we could call 'cities with a real estate drift'.

The international competitiveness of Italian companies began to decline in the 1970s. Since then there has not been a wide-scale conversion of industrial companies to the more profitable outputs of the knowledge economy. Global competition has brought a severe selection of large industrial companies (in fact these companies have become marginal, with proto-industrial organisations and without a market-driven management culture). The 'Made in Italy' label success was put to an end when Italy joined the Euro because it became impossible to pilot the competitiveness of exports by the repeated devaluation of the Lira. As a result, more recently, small and medium enterprises have found it extremely difficult to survive due to the fragility of the companies and the absence of network relations. (For example the crisis among small and medium enterprises in Brianza and Veneto).

Very briefly, with this 'real estate drift' (*no-knowledge production*) the industrial development of large urban areas opens the door to delocalisation and the conversion to real estate (residential or commercial) of the abandoned areas. There is growing expectation of easy gains through a 'real estate drift', i.e. real estate projects not backed up by any political plan for the development of these areas (town development, social, economic or light and heavy infrastructure), which are therefore allowed 'to drift'. The '*no-knowledge production*' model reveals certain indicators that are typical of the deterioration of an urban area. These are: the closure of local high profile cultural structures (universities, research centres, museums, etc.) the closure of social entertainment facilities (theatres, cinemas, etc.); the downgrading of air, rail and road connections.

□ *'With the service revolution of the Eighties... industrial capitalism... had to come to terms with the rules of conversion to conclude the re-use of large manufacturing plants, from Lingotto to Bicocca. The closure of industrial plants revealed to capitalists the undeserved advantages of real estate capital gains, the simplest way of making money, without having to reckon with the organisation of a manufacturing cycle' (Tocci 2009).*

The 'drift' towards a real estate dominance is also affecting cities that were once pre-eminently agricultural (in Italy, for example, Pavia and Parma), where the historical cultivation of the land is being replaced by real estate development plans (residential, tourist or commercial).

□ *'The profound transformation of the cities is a... worldwide socio-economical phenomenon unlike those which have emerged from the link between income and profit in the last three centuries, i.e. since the*

appearance of modern capitalism... And this diversity is particularly evident in Europe, where there are very few metropolises but a prevalence of towns and cities, and continents where the metropolis is increasingly a fact of life... The role of the creation of demand for goods and services, which cities are able to trigger even after the de-industrialisation of some of them, particularly in Europe, and the activation of potential for the supply of productive and symbolic goods and services, thus becomes essential... Capital appreciation no longer relies on the logic of the purely manufacturing city, but on that of the city of services' (Sapelli 2009).

In recent years, the 'real estate drift' has spread to cities where activities related to tourism were once predominant (reception, accommodation and restaurants).

Italian tourist destinations (there are numerous examples, in the South, in Liguria, and in the Lakes, including what has been call 'wounded' Lake Como) reveal a widespread policy of divestment on the part of national operators. Large foreign operators on the other hand have purchased and promoted the up-market segments of the business, with hotels, tourist ports and equipped areas. Smaller companies have defended their interests, promoting mass real estate tourism, whose goal is to build and sell properties, ignoring local medium/long-term development strategies (as we can see from the 'eco-horrors' and the many environmental scars around the lakes of Lombardy or the Italian coastline).

In the last decade, even mass retailing in Italy has often prostrated itself before the 'real estate drift' (and the related very short-term profitability). Development policies for trade have been extinguished by the illusion of the growth of property values in the 'fashion quadrilaterals' of large cities (Rome and Milan first and foremost), and as a result, a growing number of commercial areas in less central areas are failing to be sold or rented.

In fact, the property value of buildings located in a few streets has grown out of all proportion, but the commercial attraction of the cities is falling due to a lack of planning to promote immaterial consumption. The decision to forgo the mass development of the new consumer brackets is significantly reflected in the lower capacity for political proposals of urban retail associations, which limit themselves to applying to the authorities to request small measures to improve selling conditions, without a medium/long-term 'competitive landscape'.

2.2 Globalisation and Cities' Development: the 'Global Village Town' Model (Low-Knowledge Production)

Cities adopting the model of 'real estate income' for abandoned areas of former economic activity (industrial, agricultural, financial, banking, commercial, tourist) are opposed to metropolis with a development model based on knowledge production. This conduct - in today second stage of economic globalisation - may be summed up in the different models of low-knowledge production and high-knowledge production.

In particular, low-knowledge production identifies a development model that can often be related to a 'global village town', usually associated with large cities that were not able to convert heavy industries, now closed.

In the ‘global village town’ socio-economic development is static and defined by administrative boundaries that clash with policies to develop global manufacturing based on open markets.

Global markets demand a new vision of the system of relations with the community and local civic organisations that is consistent with the needs of corporations. Large corporations (networks) have numerous decision-making centres, which are responsible for local and global results, and have very short competitive action-reaction times. These are ramified organisation in which the single companies in the network pursue specific performance targets, coordinated in a vaster system of operations and profit (market-space management). However, this complex system of global corporate relations cannot take hold where there is a view of socio-economic development based on the defence of a physical space and a corporate control based on administrative boundaries; in other words the governance of local development prevails (typical of a village, passively inserted into a global context).

Today, Milan’s development profile could be seen as a concrete example of a ‘global village town’, or should it be stated that the condition of ‘village town’ seems to represent the primary cause of the gradual decline of the Lombard metropolis in the global competitive scenario, as pointed out by McKinsey Global.

□ *Milan has always had a ‘village culture’ and the values that have made Milan the largest Italian metropolis have certainly not disappeared in recent years due to globalisation and digital information technologies. Global markets and communication have however introduced irreversible changes to the local and national culture, with the mass migration of many populations, an explosion of unprecedented mass consumption and rapid levelling – towards common factors, i.e. ‘downwards’ – of the habits and customs of the population. Overpowering phenomena that reveal themselves and change at a speed never seen before, which the cities with a ‘village culture’ oppose, with methods and reaction times that are very traditional, slow and above all very distant from development policies based on global relations (Brondoni 2007).*

Global markets determine social and economic new boundaries even for the governance of the cities, with profound changes to relations in time and space. In global markets, the new governance of the cities makes it necessary to consider time as a competitive factor (time-based competition), and to abandon decisions related to closed spaces, that coincide with limited physical and administrative contexts (a country, a region, a city, etc.) (market-space competition). As a result, for the large industrial cities of the past (like Milan), the goal of maintaining territorial leadership seems false, pursuing the simple expansion of the physical space of administrative control (as in the case of the so-called *metropolitan areas*). In fact, to maintain a key role in the scenario of global production and consumption, the growth policies of large cities presuppose the need to define *new development contexts* (economic-manufacturing and well-being), based on the competitive frontier of *knowledge production* and the rich and massive profitability of *intangible mass consumption*.

In the scenarios of global growth, ‘village cities’ limit themselves to managing the consensus of residents (the gravitating population is considered external to the

‘village’ economy), with a logic of economic space calculated by the simple linear distance from the ‘base point’ of the downtown. The typical indicators of the global non-vitality of the ‘village town’ are thus concentrated in satisfying the expectations of inhabitants and storekeepers (which tend to be expressed by limitations on access to the city; concessions granted to particular categories of storekeepers; forms of local facilities), designed to affect the operating rules inside the town and to improve the quality of ‘local’ life. However these ‘local policies’ reveal the absence of a high profile socio-environmental development project, particularly by abandoning the importance of the neighbourhood retail, typical of the ‘global village’.

The citizens of a metropolis that is a *knowledge hub* and a *consumer hub* are looking for more complex levels of satisfaction of their primary social needs. They expect solutions to specific needs (residential, infrastructural, commercial and financial services) from their municipal authorities, and express a strong demand for consumption with a high intangible value, particularly safety, a good quality of life, efficient public transport, respect of privacy and the protection of green areas.

2.3 Globalisation and Cities’ Development: the ‘World City’ Model (High-Knowledge Production)

The world city development model suggests a high level of *knowledge production*. The profile of the world city is defined by the variety and level of the job opportunities offered, but it is also characterised by the level and range of facilities enjoyed by the inhabitants (both the gravitating population and residents).

The development models of cities that encourage the presence of global companies oriented to *high-knowledge production*, postulate a new balance between housing, green areas, commercial and financial structures, post-industrial establishments and research activities. The world city development model also favours the particular character of the venues for culture, entertainment and socialising, where consumption tends to embody a high level of qualified, specialist intangibility (for example, in the field of management training, the multimedia library of the London Business School, which is frequented all year round by managers and faculty staff from all over the world) in other words, urban aggregations that have a high level of knowledge production in the territory. This emphasises the prospects for the supply of sophisticated goods by the immaterial consumer economy; an ‘infinite city’ in other words (of the type that seems to emerge from Renzo Piano’s architecture), characterised by weak physical boundaries, and striving to respond to the emerging issues of the market-space competition of global networks.

□ *‘In the 20th century, architecture represented globalisation. This century, on the other hand, it has become clear that... a building conceived as an isolated object that is then placed in the city is wrong: each building helps to create the city’ (Piano 2002).*

For the last twenty years, driven by Nation-States striving for innovation, the large metropolitan areas of the world cities have competed with each other to offer particular factors of attraction for *knowledge-production-based* companies. These key factors of attraction can be attributed specifically to agglomeration economies, targeted at generating synergies and relational dependence between knowledge-production-based companies and ‘external’ knowledge production organisations

present in world cities. These key factors of attraction include higher training institutes, university scientific research structures, applied research in research centres, financial brokerage services, facilities offered by local public institutions, security, access to other global hubs, the quality of life in residential areas, efficient infrastructure and motorway connections, etc.

□ *'Agglomeration economies depend not just on size (a big city or industry) but also on urban interactions. They are traditionally classified as localization economies arising from within-industry economic interactions, and as urbanization economies, arising from between-industry interactions. The reasons for producers to gain from proximity to others depend on the sharing of capital inputs, information, and labour.'* (Fujita, Thisse 2002).

World cities determine the concentration of the resident and gravitating population with high levels of consumption (even very sophisticated, above all for real estate, cultural consumption and entertainment like museums, restaurants, cinemas, theatres, concert halls, etc.). Consumption that is primarily immaterial identifies facilities with high fixed costs that can therefore only be exploited in the presence of significant quantitative demand, and with consumers positioned in the upper reaches of the pyramid of personal income and living, retailing, entertainment and hotel accommodation demand.

The strong growth of world cities and the wide range of consumption offered highlight the role of these large metropolitan areas, even as poles of attraction for immigrants and as places of 'cross-cultural' coexistence. The immigrant population contributes significantly to the production of services with a high level of immateriality (for example, services for the home, catering, retail sales, hotels, restaurants, etc.), i.e. a component that is essential for the identity of the world city. What is more, the high immigration bracket is a formidable catchment basin of workers for the 'living and entertainment global machine', which in turn produces consumption with a low level of immateriality but destined to contribute decisively to the economy of consumption with a high level of intangibility.

The role of the world city as an *intangible consumption hub* is indissolubly connected to that of the *knowledge production city*. World cities are full of high-knowledge workers, who represent the key manufacturing factor of the dematerialised economy and the higher bracket of demand for consumption with a high intangible content. What is more, the consumer hubs of world cities are sustained by the presence of low-knowledge workers, who are employed in manufacturing and services with a low knowledge content, and by no-knowledge workers, who are employed in basic manufacturing and services, whose consumption determines a consistent demand for products and services. As knowledge-production hubs, world cities therefore offer better job opportunities and quality of life, helping to make large global cities increasingly attractive and more competitive than other urban realities.

3. World Cities, Knowledge Production and Competitive Global Networking

In global markets, conditions of market-space competition define the company with particular characteristics, which are very different from those that emerge in the local districts, in markets characterised by limited international competition and physical, natural or administrative boundaries.

□ *'Since the Kennedy round of trade negotiations in the 1960s, markets for goods and services have become increasingly liberalized. Tariff and non-tariff barriers have been lowered...Transportation costs have fallen, and information about market opportunities often diffuses instantaneously... Competition has been sharpened' (Teece 1998).*

In industrial districts, firms tend to maintain production linked to the vocations, traditions and resources of specific geographical areas, and therefore does not usually draw on 'knowledge production'. What is more, when assessing performance, direct controllability and personal assessments prevail. Typical examples of local districts are local manufacturing districts, particularly those defended by natural boundaries and a limited openness to competition, dominated by strong conservatism of production and with limited corporate marketing, communication and finance policies (Brondoni 2002).

□ *'Economists such as Marshall and Chamberlain assume diminishing returns and assign industry participants identical production functions...This theory was useful for understanding 18th century English farms and 19th century Scottish factories and even some 20th century American manufactures...In this century developed economies have undergone a transformation from largely raw material processing and manufacturing activities to the processing of information and the development, application, and transfer of new knowledge. As a consequence, diminishing returns activities have been replaced by activities characterized by increasing returns. The phenomena of increasing returns is usually paramount in knowledge-based industries...The increasing returns phenomena is itself driven by several factors. First, standards and network externalities...Second, customer lock-in...Third, large up-front research, development, and design engineering costs...Fourth, producer learning' (Teece 1998).*

Globalisation forces companies to make competitive comparisons, and as a result communication and information flows, manufacturing decentralisation and operating accountability become critical in global networks. Briefly, global management policies pursue competitive advantage by adopting complex performance assessments, harmonizing strategic tasks (chairman leadership) with operating objectives (management leadership).

On competitive markets in particular, management leadership has the distinctive characteristics of market-orientation and cross-cultural management. In cross-cultural corporate management, management leadership tends to be dominated by managerial skills, which are controlled by criteria of effectiveness, efficiency and

economy. What is more, in a multicultural approach, management leadership is not exhausted inside the organisation (as in the case of companies that operate in closed markets where competition is weak), but tends to establish itself in relation to the dynamics of the open markets, i.e. the variability of demand, the instability imposed by competition and obviously the opportunities offered by the socio-environmental context.

In order to exploit the growing returns deriving from outside-in relations (market-driven management), global networks with a higher level of knowledge production favour relocations in metropolitan areas that simplify the availability, spread and capitalisation of knowledge economy. This is basically what occurred in industrial production in the early 20th century thanks to the availability of manpower, energy and raw materials.

World cities are the large hubs of a global 'network' of large metropolis, which are designed and equipped to host 'global top managers' of leading corporations, in other words the capital-intensive organisations of companies that are strongly *knowledge-production* based.

The location choices expressed by the 'global strategic management' of large *knowledge-production-based* corporations (the headquarters of multinational, high-tech companies, departments of global companies with advanced planning, R&D, marketing, etc. functions) mark the success of the urban development of world cities. *Knowledge-production-based* companies concentrate in certain locations, unlike firms that produce tangible products or operational services, which tend to be dispersed in the territory, according to location logics imposed by demand (Gnecchi, Corniani 2003), or favoured by lower location costs (Garbelli 2002).

Global business networks choose world cities as the location for their strategic coordination structures (global business units) (Zito 2009), or units that coordinate the long-term competitive advantages of knowledge production (for example, the corporate lobbying structures designed to protect innovation). On the other hand, activities linked directly to the operations of the networks and local business activities tend to be positioned in disseminated areas where relocation is inexpensive.

Global markets are thus triggering a drastic transformation of the development policies of large corporations, where product innovation and process imitation play a primary role, contrasting global competition and satisfying demand.

In corporate global economics, *knowledge production* therefore becomes the critical competitive factor that is expressed in *knowledge hubs*, concentrated in urban agglomerations with a global vision and characterised by high profile immaterial consumption, which promote the attraction of capital, ideas, key-knowledge people and different ethnic groups.

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