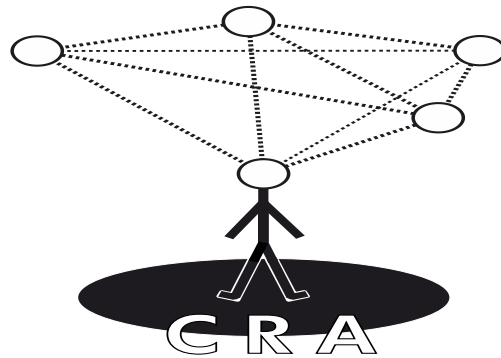


The introduction of new ICT and location of headquarters of MNCs – a Swedish perspective

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INTRODUCTION

Problem and purpose

The geographical pattern of decision-making in central authorities and organizations in Sweden is concentrated in the capital Stockholm (Ahnström 1973). Within the private sector the creation of new concerns also often means location of headquarters (HQs) to the capital. But this geographical pattern is challenged by cross-border mergers and acquisitions (Bandick et al 2010). Furthermore, multinational companies have transformed themselves into flatter and more network-like organizations (Egelhoff 2010). Value chains of global companies are cut into pieces and located in different places (Valne et al 2012).

This development implies more specialization in a world characterized by rapid technological changes. To stay competitive is strongly related to be integrated in innovative environments emphasized by the development and dispersion of innovations as a strategic factor for the multinational enterprise (Bartlett and Ghoshal 1998, Dellestrand and Kappen 2011). Innovative activities are found in clusters located in many places in the world and is dominated by small companies (Saxenian 2010). This observation points to the importance for multinational corporations (MNCs) to coordinate clusters of innovation¹.

The performance of these organizational changes is related to the introduction of new ICTs (Information and Communications Technologies) that during the 1980s changed the prerequisites for location of activities. Both centralization and decentralization of introduction of ICTs at that time were foreseen (Toffler 1981, Naisbitt 1983, Marshall 1984). However, new tools of communication now mean that ICTs in any location are complex sets of different technologies and systems (Wilson et al 2013). This development indicates increasing difficulties to identify the geographical impact of ICT-use even if the creation of worldwide networks is seen as a condition enabling control of activities located all over the world.

¹ Here, MNC is used as concept in spite of the lack of a single conceptualization of the MNC (Andersson and Holm 2010).

The structure and operations of MNCs are also related to environmental changes emerged in the 1960s such as lowering of trade barriers. Companies were often forced to consider the world in a more integrated manner that was reinforced by a new wave of especially Asian competitors (Bartlett et al 1990). Besides, organizations became more permeable as a result of new external vertical and horizontal communication links (Hagström 1990). At the end of 20th century the establishment of these links were supported by the introduction of the commercial jet aircraft enabling rapid individual travel over vast distances (Dicken 2011). Here, the impact of these changes is looked upon with regard to the location of HQs of the largest companies in the world.

The purpose of the study is to throw some light on the connection between the introduction of new ICT and location of HQs. This is accomplished by studying the changes of the location of HQs of the largest companies of the world. The issue is of special interest in Sweden that in relation to the small size of its home market has many large companies. A comparison is also made with Switzerland that has a similar structure as Sweden; many large companies but a small home market.

Approach

Starting point of this study is results of studies of the interplay between ICT-use and location of HQs carried out in Sweden in 1980s (Forsström and Lorentzon 1990). In this Swedish context the unicentral structure of Sweden is observed as a decisive factor at explaining the organization of activities. Functions exercised in the capital are characterized by central administrative governing and the location of HQs of national organizations. This structure may influence the organization of other activities. With regard to the most important surface of contacts decision-making may be transferred both upwards and downwards by integration between dominant and dependent activities. This dependency has been evident in Sweden characterized by tradition of decision-making in the capital. Location to Stockholm has meant easy access to markets controlled by the state.

The influence of information technology on the decision-making and the related geographical impact should also be seen with regard to epoch. The conditions of technology have tended to strengthen or

weaken the different levels. For example, during the 1960s the central level tended to be strengthened, while the development during the 1970s enabled decentralization of computer resources. The development during the 1980s created prerequisites for direct interaction between the central and local levels that made it possible to delegate operative responsibility but also to centralize decisions.

Increasing ICT-support at decision-making indicates that introduction of new ICT facilitates decentralization and delegation of decisions. But the needs of the central level have determined the design of the systems without regard to the needs of coordination at the local level. In this respect ICT can be used to stimulate the building of local and regional nets of contact. Two main streams appear. One of them concerns the many routine decisions that are moved from the top to the bottom of the organizations. The other stream refers to strategic decisions moving in the opposite direction. See figure 1.

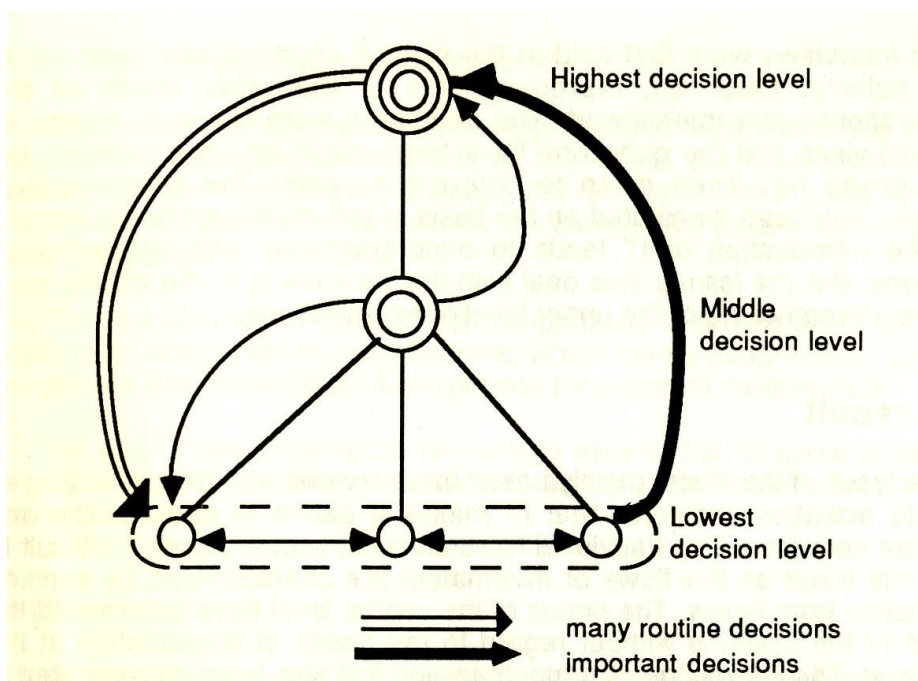


Figure 1 Illustration of how ICT-use enables decentralization and delegation of decisions and how decisions may move upwards, while the middle level is weakened.

Centralization seems to go hand in hand with delegation; important non-programmable decisions are centralized but routine programmable decisions are delegated. A geographical paradox can be

observed. At the same time as the possibilities of transferring information are increasing, the demand for physical transportation networks becomes more pronounced as a consequence of the growing needs for meetings face-to-face.

Another issue concerns the perspectives of ICT-studies. Thus, changes of a city-system from a national to an international angle implicate new positions of the urban units. Regional centres may take positions as local units from an international point of view. These units can be attractive alternatives as places of location for production in MNCs. An important reason for this choice is the need to meet more specialized and quality-oriented demands, which in many cases mean closeness to the customers. See figure 2.

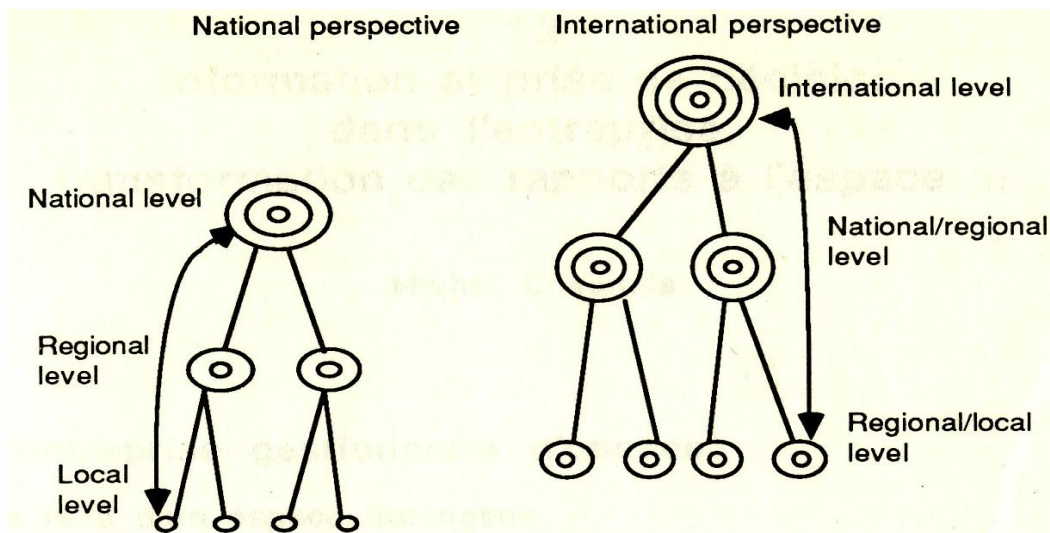


Figure 2 Hierarchical displacement of a national city-system in an international perspective.

The introduction of ICT has enabled governing of units located all over the world. In large companies the possibilities to network and distribute processing of data by new technology was early observed. Investments in administrative data systems were seen as a way towards more efficient activities and increasing overall control by the HQs. This control also meant prerequisites to decentralize decision- and result- responsibility (Eliasson et al 1984). Nowadays challenges such as the opening-up of Asian economies for inward and outward foreign direct investment emphasize the need for knowledge of the spatial distribution of value added (Alvstam et al 2014). These changes indicate demand for technology enabling communication in networks.

This overview focuses the interplay between location of HQs and ICT-use. Attention is also paid to the need of meetings face-to-face at transferring informal unstructured information. This demand of meetings raises issues of the accessibility of places and regions and emphasizes the importance of being reachable in different types of networks. The ability to satisfy information needs influences the design of organizations and the location of activities.

Based on the above, with attention paid to the development of Swedish MNCs, the following assumptions are made:

- The global shift of the economy changes the location of the headquarters of large MNCs of the world.
- The changing role of headquarters and the introduction of new ICT act as a stimulus to integrate functions of large MNCs.
- The use of new ICT and the growth of MNCs tend to broaden the network-systems of especially large cities.
- The demand for face-to-face meetings tends to strengthen the capital of unicentral compared to the capital of multicentral countries independent of the introduction of new ICT.

The structure of the paper is based on these assumptions including a theoretical perspective and attention paid to the changes of location of HQs of large companies in Sweden and Switzerland.

FRAME OF REFERENCE

Global shift of power

After World War II followed strong economic development of Japan and later new Asian economies dominated by China. These changes have also influenced the location of decision-making stressed by the growth of MNCs. In national perspective the power of decision-making tends to be weakened; there are concerns that exert more power than separate nations.

In a world-perspective there are some characteristic functions of corporate and regional headquarters that define particular locational requirements:

- * Both require a *strategic location* on the global transportation and communications network in order to keep in close contact with other, geographically dispersed parts of the organization.
- * Both require access to *high-quality external services* and a particular range of *labour market skills*, especially people skilled in information processing.
- * Since much corporate headquarters activity involves interaction with the head offices of other organizations, there are *strong agglomerative forces* involved. Face-to-face contacts with the top executives of other high-level organizations are facilitated by close geographical proximity. Such high-powered executives invariably prefer a location that is rich in social and cultural amenities (Dicken 2011, p 135).

These locational criteria are met in only a small number of major cities of the world even if new ICT and world-wide organizations have changed the conditions for executing power. Studies of the connections between decision-making and ICT should be seen in this perspective when dealing with the possibilities of wielding power independent of the location of the activities. In this international context Stockholm has a dominating role as centre of financial services among the Nordic countries (Hermelin 2010). But when other activities are at focus new perspectives arise. For example, the Nordic countries have a strong position within ICT. More attention paid to this sector means that Nordic cities would have a stronger position in city-networks of the world (Kellerman 2002, Hermelin 2012).

Sweden was industrialized at a relatively late stage. But in the late 19th century the economy grew fast and became dependent on other countries. This integration of the economy has meant Swedish international involvement such as location of manufacturing plants abroad. In addition foreign businesses influence the international dependence of the Swedish economy. This development is correlated to further division and specialization of work and indicates location of decisional functions to big cities and routine work dispersed to peripheral areas. In Sweden this means more concentration of governing and administrative activities to Stockholm.

Organization, location and communication – theoretical perspective

The interplay of economic, technical and social factors creates new prerequisites to carry on and organize different activities. Here, theories of location are seen in relation to theories of organization.

Scientific methods of governing organizations were launched at the beginning of the 20th century by F. Taylor and A. Weber. Weber (1909) emphasizes the transport costs as decisive for location of economic activities and regards the human being as “an economic man”. Taylor (1917) assumed that the work was best understood by breaking it down in pieces and then aggregate the pieces back to the system.

This “Scientific Management School” was popular to 1930s. But changes of the industrial landscape contributed to the growth of alternative views exemplified by the “Human Relations School” that look at the worker as a “social man”. The influence of the informal working group is most important (Barnard 1938). The connection between this organizational view and the central place theory (launched at about the same time) can be seen in the emphasis of different relations to shape well-functioning organizations or functional geographical areas (Christaller 1933).

The changes towards a service-oriented society stimulated studies of other than industrial activities. The studies of “Systems School” during the 1960s and 1970s were broader than the Scientific and Relations schools and included many types of organizations. “Systems School” was founded in the perspective of general systems theory (Bertalanffy 1956, 1968, Parsons 1960). Thereby, the focus of studies of social systems changed from closed to open systems. Lately, connections are seen between organizational and locational theoretic approaches exemplified by the emphasis on the surroundings.

Another observation regards different needs of communication. In “Scientific Management School” the demand for communication is small and the flows of information go from above to below. The communication is formal, hierarchic and planned. The aim is to get work done, to increase productivity and efficiency. In “Human Relations School” and “Systems School” the flows are more numerous and more complex (Rogers and Agarwala-Rogers 1976).

Type of activity, how it is organised and what and how much is produced are decisive for the needs of information and contacts. The needs of information are also dependent on what part of the activity the issue concerns. For example, the time for planning and control of governing a company varies with regard to level of the company. Thus, managers at the top of the hierarchy spend more time for planning in relation to control than managers at lower levels. In addition, high up in

the hierarchy information concerning external surroundings is broader but less in detail. When the company is looked upon as a pyramid strategic decisions are made at the top of the pyramid, tactical in the middle and operative decisions at the bottom. From a communication perspective it is possible to identify different flows of information; the top of the pyramid can correspond to the concern system, the middle parts to the subsystems of the company and the lowest level to workplace systems (Pousette 1983).

With decision-making in mind other aspects are also relevant. One aspect is to separate between programmed and non-programmed decisions. Repetitive decisions of routine character are defined as programmed, while non-programmed decisions are not known and unstructured (Simon 1960). This shows that with regard to decision problems the process of decision can be formed in different ways. In a spectrum of structured, half-structured and unstructured problems the decision process can be automated if the problem is structured. On the other hand, unstructured problems need to be treated with regard to a lot of uncertain factors. At dealing with structured problems the use of information technology early became more common (Langendorf 1985).

The locational effect on HQs of Swedish MNCs at mergers is hard to identify even if some studies find that foreign acquisitions lead to increasing R&D intensity in acquired domestic MNCs and non MNCs (Bandick et al 2010). Other results indicate that countries will lose activities if domestic firms are acquired by foreign MNCs (Collis et al 2012). There is also a risk of biased conclusions at just looking at the acquisition effect without considering heterogeneity in the impact depending on firm characteristics (Bandick and Görg 2010). The functions of the headquarters vary as the scope of heterogeneity of their global market presence expands. The need for local responsiveness of diverse markets means that MNCs decrease their influence over operating units. A consequence is reduction of the size of their headquarters. But the variety and complexity on managing presence requires proportionately larger staffs for the obligatory tasks. Thereby, the size of the HQs tends to increase at expansion of the geographic scope of the companies. The design of the MNCs is also influenced by the heritage of different countries; American headquarters are large and European are smaller (Collis et al 2012).

The review above identifies some streams of special interest. One concerns the development towards a service-oriented society and the tendency to more knowledge-intensive works. This implies needs for more communication stressed by the increase of transmission of more unstructured informal issues. Another stream is related to the increasing number of mergers. These acquisitions of MNCs lead to issues concerning the role of the headquarters and the impact of the number of employees at different units. A keen question is the risk of losing jobs at acquisition by expanding MNCs.

The connections between organizational and locational changes indicate that new forms of organization also will influence the preferences at location of activities. Unambiguous factors to explain and predict the geographical impact of these changes are hard to find even if some characteristic features are possible to identify. One feature is that the surroundings of the organizations are important to explain the competitive ability of places/regions. These conditions include factors such as living conditions and the supply of culture and leisure. Another feature is that the changes towards more knowledge-oriented work mean that the possibilities to get in contact with different persons are important to explain the competitive power of places and regions.

This section of the global shift of power and theories of organization, location and communication paints a complex picture of the interplay between location of HQs and the introduction of new ICT. Thus, this study is based on theories developed in many disciplines. There is no single theory covering all aspects. But inspiration is found in some studies that build bridges between hitherto separated disciplines such as economic geography and international business (Ström and Schweizer 2012). At the same time, the issue needs delimitation; in this case to the electronic charge focusing communication and the growth of networks.

ELECTRONIC CHARGE AND GROWTH OF NETWORKS

Nowadays satellites and optical fibres compete as transmission channels. Since the mid 1960s carrying capacity of the satellites has grown exponentially. But this technology has for most parts of the world been challenged by optical fibre technology carried within submarine cables. After the introduction of the first commercially

viable optical fibre system in the U.S. in the early 1970s the speed, carrying capacity and cost of optical fibre cables have changed dramatically. A consequence is that more than 90 percent of all international telecommunications now is transmitted by optical fibre cables (Dicken 2011).

Another impressive growth related to the world's telecommunications infrastructure is the use of Internet that dates back to the 1960s under the U.S. Department of Defence. In the 1980s control of the Internet was transferred to the National Science Foundation but was privatized in the 1990s. By the integration of existing telephone, fibre-optic and satellite systems Internet took on a global scale. Thereby, individual messages may be decomposed and the constituent parts transmitted by various channels and reassembled at the destination. Graphical interfaces developed in Europe in the 1990s simplified the use of the Internet, that led to the creation of the World Wide Web (Stutz and Warf 2012).

Economic growth occurs, according to Kondratiev, in a series of waves of more or less 50 years' duration. The present fifth Kondratiev wave is primarily associated with ICTs. In comparison to earlier technologies the current technology is unique by the convergence of communications and computer technologies. Digitization is seen as the most pervasive and influential technological development during recent years. Information can be processed, manipulated and stored by computers and transferred anywhere almost instantly. New ICT generates global effects at all levels including business organizations and especially transnational corporations (Dicken 2011).

The introduction of new communication systems explains the creation of networks and changes the prerequisites of location of places/regions (Hepworth 1989, Roche 1997). Furthermore, the new technologies contribute to economic and social dynamics of the society characterized by global flows of capital and information (Castells 1996). Access to the networks is possible at the nodes even if transmission of messages is so tight that the net can be said to miss nodal property. High accessibility is a strategic factor that increases the possibilities to attract businesses (Langdale 1999).

The development of communication influences the organizations. Thus, coordination of specialized and scattered units may increase the efficiency and contribute to creation of competitive advantages

(Håkansson 1990). ICT-use and changes of organization interplay (Amin et al 1989). Thereby, MNCs can scatter their impact on the world and at the same time keep and even strengthen the governing of their activities (Roche and Blaine 2000). In this international context the big cities of the world are prominent as important centra for processing of information related to growing flows of capital and the performance of financial services. But the human reach decides the extent of the functional areas. Even if transportation and communications technologies have increased the mobility the reach is restricted by the mental condition of man (Törnqvist 1998, Jönsson et al 2000)².

The preferences at location of production of hardware and software are bifurcated. One choice indicates the importance of geographical proximity in clusters, while the use of ICT enables more flexible production systems in networks. Type of activity is decisive for the location. The clusters seem to be competitive by their ability to adapt in local/regional knowledge production (Asheim 2003, Malmberg and Maskell 2003). More circulation of information rather strengthen than weaken established areas of high technology (Saxenian 1994).

Issues related to the place were during early 1990s raised by Krugman and Porter concerning both the operative business level (micro level) and the environmental conditions of the businesses (macro level). How the development and competitive power of businesses are influenced by the place of location and why similar and related businesses agglomerate at certain places exemplify issues raised on the micro level. Why certain places/regions are economic successful and why places/regions are industrially specialised exemplify issues of the macro level. The view of what factors create competitive power and are decisive for the choice of location has moved from minimizing of costs according to Weber to emphasizing e.g. innovative ability and proximity enabling interplay in industrial systems (Malmberg 2000).

Advantages of costs are less important when the competitiveness of business is related to innovative ability and learning. These features are

² The network has during 25 years by many scholars been seen as a more appropriate form for MNCs than the hierarchical organization. But there is also limitations of the network organization for MNCs such as difficulties at trust-building and weak interaction patterns among the subunits. Network organizations tend to be "risk societies" that challenge subunits at the micro level of the firm as well as larger subsidiaries of MNCs (Wolf and Egelhoff 2010).

connected to nets of contacts and patterns of interaction stressing the importance of flows of information. Exchange of information that is decisive for innovative activities is facilitated by proximity of the actors. It is important to be present in environments of good knowledge structure. But it is also important to be included in networks enabling transmission of information for learning and built up of competence (Ivarsson 2002a,b).

The transmission of informal unstructured information needs meeting places enabling face-to-face contacts and creation of social networks. Marshall (1919) observed that agglomerations constituted an archipelago of spread islands that is explained by the creation of a labour market of professional persons. But there are also objections of the creation of specialised areas by the risk of being locked in forms that make it difficult to adapt to new competitive challenges (Malmberg and Maskell 2003). Furthermore, the competitive ability of businesses is linked to the need of cooperation and interplay with leading national and international centres of competence and systems of innovation (Asheim and Isaksen 2003).

The geographical outcome of the formation of clusters and networks varies with regard to function. Within the financial sector concentration to some nodes is prominent linked to extensive flows of information (Daniels 1993, Laulajainen 1998). Large amount of information reflect advantages of the big nodes. On the other hand, clusters of varying size constitute competitive units. At the same time competitiveness means presence in networks enabling observation of changes of the environment that often are related to big cities. For example, Florida (2002) identifies the growth of people working in creative jobs in big urban regions of U.S. But he also observes the growth of people in creative activities in smaller centres.

At focusing the impact of new ICT on the competitiveness of nations at attracting headquarters of MNCs some indications are observed. One is related to changing conditions to transfer information and the distribution of infrastructure for transportation. In 19th century the telegraph as well as the first Atlantic cable were introduced. Since the end of 20th century satellites and optical fibres compete as transmission channels. Furthermore, the development of the telecommunications infrastructure has enabled the use of Internet and mobile telephony. This new technology is generating global effects on business organizations.

STRUCTURE OF GOVERNING AND CHANGES OF THE LOCATION OF HEADQUARTERS

This section focuses the structure of governing and changes of the location of headquarters of MNCs in global and EU-perspectives. Even if the use of ICT stimulates the creation of networks and facilitates contacts decision-making is in need of face-to-face meetings at discussing strategic issues. This implies demand of infrastructure for personal transport and underlines the importance of studying the connections between places enabling meetings. In international context this often means accessibility by air connections.

Global perspective

The economic development of the world is characterized by the growth of earlier American and later Asian economies. Japan had for many years, after U.S., most companies in the list of Fortune Global 500³. In 1994 the Japanese number in the list was 149 and the American number 151. But in 2011 China passed Japan. The number of Chinese companies in the list was 73 compared to 68 in Japan. In 2012 the Chinese number had grown to 89 companies. On the other hand, the number of U.S. companies of the list had decreased to 132 from the peak of 197 in 2001. See figure 3.

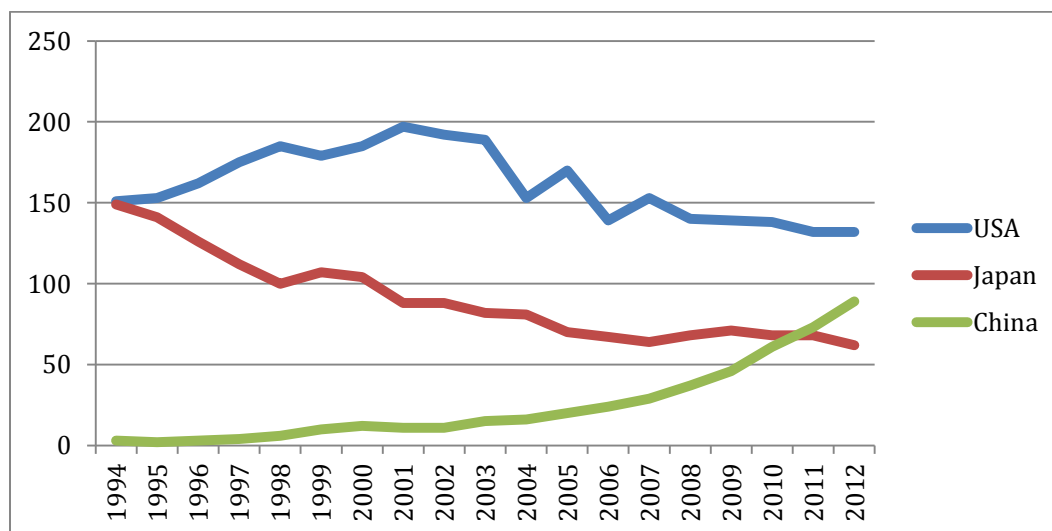


Figure 3 Number of companies in U.S, China and Japan 1994 – 2012 ranked in the Fortune Global 500 list.

Source: Processing of data from Fortune Global 500 (1995 – 2013).

³ In the following presentation MNC and company are used synonymously.

In 1994 60 % of the largest companies ranked on the Fortune Global 500 list were based in U.S. and Japan. In 2012 this share had decreased to 38 % mainly explained by the decline of the Japanese position. On the other hand, the Chinese share had grown to 18 %.

In this comparison the expansion of the South Korean economy, exemplified by Samsung Electronics, should also be mentioned. Samsung Electronics has transformed from “National Champion” to “Global Leader” and advanced to rank 20 of the Fortune Global 500 list (Park et al 2014). In 1994 the number of Korean companies of the list was 8 and jumped to 12 in 1995. Since then this number has varied between 9 and 15 and was 14 in 2012.

Figure 4 shows the changing positions of the largest European economies 1994 – 2012.

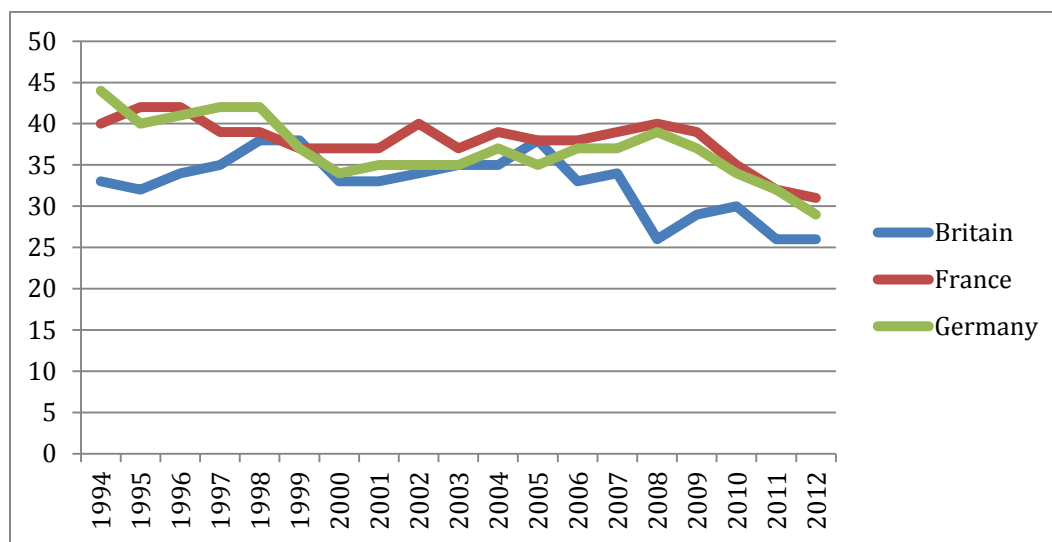


Figure 4 Number of companies in Britain, France and Germany 1994 – 2012 ranked in the Fortune Global 500 list.

Source: Processing of data from Fortune Global 500 (1995 – 2013).

In 1994 Germany had 44, France 40 and Britain 33 companies in Fortune Global 500 list. In 2012 the German number had decreased to 29, the French to 31 and the British to 26 companies. The list is dominated by energy companies and occupy 8 of the top 10 spots. The second largest industry is commercial banks and the auto industry is on the third place (Sagami 2012).

An issue is how many of the companies have their headquarters located in the capital. Table 1 recaps the countries that have more than 5 companies on the list enabling ranking of the countries according to the percentage of companies based in the capital.

Table 1 Countries with more than 5 companies in Fortune Global 500 list with statement of the number of companies based in different cities, the number of companies based in the capital and concentration (%) of companies in the capital in 2011.

<u>Country</u>	<u>Number of comp.</u>	<u>Number diff. cities</u>	<u>Number based in cap.</u>	<u>Concentr. (%) of comp. in cap.</u>
France	32	3	29	90,6
Russia	7	2	6	85,7
South Korea	13	3	11	84,6
Japan	68	12	48	70,6
Great Britain	27	9	18	66,7
Taiwan	6	3	4	66,7
Spain	8	3	5	62,5
China	73	16	44	60,3
Italy	9	4	4	44,4
Switzerland	15	7	6	40,0
Holland	12	7	4	33,3
India	8	3	1	12,5
Brazil	8	4	1	12,5
USA	132	73	6	4,5
Germany	32	16	1	3,1
Canada	11	4	0	0,0
Australia	9	5	0	0,0

Note: The table includes 17 out of a total of 36 countries on the list .

Source: Dial (2012).

The French structure is strong unicentral with more than 90 percent of the headquarters based in or around Paris⁴. The headquarters of Korea and Japan are also concentrated to the capital in contrast to the locational pattern of Australia and Canada⁵. In addition, Switzerland is observed with many companies in spite of its small size.

⁴ Ahnström (1973) defines with regard to the location of governing and administrative activities countries into unicentral and multicentral countries. Here, this definition is also used.

⁵ Dial (2012) has tended to, for capitals with extended neighbouring boroughs, include anything within 30 km of the capital.

EU-perspective

The ranking list of Fortune Global 500 shows the dominance of the big economies of EU; France, Germany and Britain. With regard to the small size of the economy many companies are located to the Netherlands. On the other hand, 13 of the EU-members are not represented. See table 2.

Table 2 The number of companies in EU-countries in Fortune Global 500 list in 2012.

Country	Number of companies	Country	Number of companies
Austria	1	Ireland	2
Belgium	3	Italy	8
Britain	26	Latvia	0
Bulgaria	0	Lithuania	0
Croatia	0	Luxembourg	2
Cyprus	0	Malta	0
Czech Republic	0	Netherlands	11
Denmark	1	Poland	1
Estonia	0	Portugal	0
Finland	1	Romania	0
France	31	Slovakia	0
Germany	29	Slovenia	0
Greece	0	Spain	8
Hungary	1	Sweden	3
Total			128

Source: Fortune Global 500 (2013).

During the period 1994 - 2012 the European position has weakened. This is especially pronounced for Germany (from 44 to 29), France (from 40 to 31) and Britain (from 33 to 26). The number of companies in the Fortune Global 500 list was in these countries 117 in 1994 and 86 in 2012. Thus, the share of the Fortune list of these large European economies had decreased from 23 to 17 %. Sweden had the same number in 2012 as in 1994 (3 companies).

Differences of the governing structures of European countries are to large extent explained by varying historical prerequisites. Thus at the beginning of 18th century *France* was the great European nation by its population, economy, political and cultural influences and its military

power (Noin and Chauviré 1987). Before the French – German war (1870/71) France still cherished the leadership role in Europe. But the Franco-Prussian war administered a severe shock and added domestic political troubles to those of slow economic development. Although on the threshold of great colonial expansion France remained essentially an agrarian country. Besides, France lacked large-scale factory industry. Railway development started late and lagged behind. These unfavourable trends continued in one form or another through the world wars to the transformations post-1945 (House 1978). The population in France was about 40 million in both 1901 and 1946. This development was in contrast to the rapid increase of the population in other west European countries (Clout 1972).

Britain is characterized by its colonies. During the late decades of the 19th century the process of the policy was directed towards expansion and the performance of a common constitution of the empire was in its last big stage. Britain is also observed as the break-through of the industrialization process. Several explanations have been offered concerning the issue "why was Britain first?" The likelihood is that all contain an element of truth and that it is the conjunction of all of them which favoured Britain in such remarkable fashion. These included factors such as a certain standard of income, industrial skills and expanding foreign trade links. Furthermore, Britain had a good internal transport network and excellent harbours and some valuable resources e.g. iron, copper, tin and coal of which coal probably was the most important factor in ensuring a British lead (Pollard 1998).

During the Medieval time *Germany* was just a name across the map where people spoke German. But the fragmented collection of principates had been given some semblance of unity for nearly a millenium by the Holy Roman Empire of the German Nation. This was a vague and ineffectual body whose emperor was seldom able to exert his will. But this changed by the search for political unity in a German nation state driven by Prussia. A powerful state under the Prussian king in the role of emperor ("kaiser") was established after the French – German war 1870 – 1871. After World War I Germany lost about 12 % of its territory and about 7,2 million people. Germany also ceased from the world map of colonial powers. The Weimar Republic was established in 1919 and was followed by the "Third Reich" in January 1933. After World War II remaining German territory was divided into four occupation zones that later formed the western Federal Republic

and the eastern Democratic Republic (Mellor 1978). In 1990 these two states were unified into Germany; a federal state of 16 "Länder".

This overview emphasizes that France and Britain are characterized by long tradition of unified governing. Both countries have also been active as colonial powers extending their functional territories to many parts of the world. A consequence is concentration of political and economic power to the capitals. But the colonial efforts made by the British led to stronger international influence of London in comparison to Paris. London grew to the most important hub for decision-making in international as well as national businesses. Both Britain and France are defined as unicentral countries. On the other hand, the German multicentral structure is an important factor explaining the late unification of Germany⁶.

SWEDISH PREREQUISITES OF GOVERNING

Background

Sweden is a unicentral country with the capital (Stockholm) as leading home of headquarters for the largest manufacturing, bank and insurance companies. Furthermore, centralistic governing concentrated to Stockholm dates back to the foundation of Sweden by King Gustav Vasa in the 16th century. Besides, the regional changes of the Swedish settlement structure after World War II have been characterised by migration from north to south, from country to city and from periphery to centre. This concentration is also related to the expansion of the welfare State services that were organised by new and large municipalities (Pettersson 1991).

But the development of Swedish industry is based on resources such as forest, iron and waterfalls. The forest was at an early stage used to provide fuel or in the refining of iron and as building material. The engineering industries have developed by iron resources and the power of waterfalls has enabled processing of iron and timber. The

⁶ Ahnström (1973) identifies Britain, France, Belgium, Austria, Sweden, Finland, Norway and Denmark as unicentral countries with the capital as leading home office place for the largest manufacturing, bank and insurance companies, while former West Germany, Italy, the Netherlands and Switzerland are identified as multicentral countries.

length of the country is another factor influencing Swedish competitiveness. The development of transport solutions and systems for the transmission of power and messages have been driven by the necessity to overcome the long distance from North to South. These innovations have enabled exploration of raw materials in peripheral isolated areas far away from the markets (Sölvell et al 1991).

The physical resources and related manufacturing also shaped the Swedish settlement structure. Activities were located as islands in sparsely populated areas. The size of the country makes this distribution even more pronounced. Sweden is the third largest country (land area of 407 000 sq km) of Western Europe. The number of inhabitants is about 9,7 million (SCB 2014-06-05). Many small places are spread over a large area. But there are also big urban centres such as Stockholm, Gothenburg and Malmö. Thus, the population density between different parts of the country varies a lot. For example, the number of inhabitants is less than 3 in the county of Norrbotten in the North in comparison to 115 in the county of Scania in the South (SCB 2014).

The growth of the Swedish industry meant an early internationalisation by establishment of production units abroad. Mergers have strengthened this dependence on MNCs. But the impact of the internationalisation has also become an issue of moving headquarters. Thereby, the issue of location of headquarters is observed with regard to aspects like the ability of places to offer advantages at recruiting managers of international high competence (Braunerhjelm 2001).

Here, attention is paid to the importance of infrastructure for transport and communication at the expansion of knowledge-intensive production.

Infrastructure for transport and communication

High accessibility by different means of transportation attracts headquarters. This aspect is underlined by the construction of the railway net. The connections were adapted to the places of headquarters. In unicentral countries like France and Britain the accessibility of the capital is in accordance with the tradition of the power of the king and central governing. In multicentral countries, on

the other hand, many places compete to attract location of decision-making. Thus, the nodes of the railway nets in multicentral countries like Germany and Italy are spread.

In Sweden decisions influencing the living conditions of many people were introduced late. On the other hand, at the establishment of the national state the centralistic structure of decisions soon dominated the development of the society. The state extended its influence by hierarchical decision-systems. This top-governing was decisive for the construction of the railway net during the 19th century. The net was constructed to connect different parts of the country with urban centra to serve all the country mainly concerning defence and production. Thus, the construction of railways influenced the settlement structure (Andersson et al 1984).

The railway connections are directed towards Stockholm. But the construction of the railway net should also be seen in relation to the extraction of resources. For example, the production and export of iron and steel meant transports enabled by railways. Thereby, the railway net in Sweden is spread even if the lines usually connect Stockholm to other parts of the country. The location of the headquarters of industries should also be seen in this perspective of changing prerequisites of transportation such as introduction of jet transport enabling rapid individual travel over vast distance. Thereby, coordination and control of geographically dispersed operations can be performed (Dicken 2011).

Thus, accessibility by air connections is a strategic factor at analysing the attractiveness of places at location of headquarters. Air connections enabling meetings are of special importance for decision-makers in MNCs. Big airports often reflect economic power and many are located to USA and China. Hartsfield-Jackson Atlanta International and Chicago O'Hare Airport were ranked as largest and third largest airports of the world in 2010, while Beijing Capital International Airport was the second largest airport. Big European airports are London Heathrow (ranked place 4), Paris-Charles de Gaulle Airport (place 7), Frankfurt Airport (place 9), Madrid-Barajas (place 12), Amsterdam-Schiphol (place 15), Leonardo da Vinci-Flumicino Airport (place 26) and Munich International Airport (place 30). The number of passengers at the 30 largest airports of the world varied from 89 to 35 milion (IATA 2013-06-12).

In Sweden the air traffic is dominated by Stockholm/Arlanda Airport with 17 million arriving and departing passengers 2010. The second largest airport is Göteborg/Landvetter (4 million passengers 2010)(Trafikanalys 2013-06-12). The intensive traffic to Stockholm reflects the unicentral structure of Sweden.

Companies and location of headquarters

In 1994 and 1995 the list of the 500 largest corporations of the world, presented in Fortune Global 500, included 3 Swedish companies. But, during the period 1996 – 2004 this number increased and reached the peak of 7 companies in 2004. In 2012 the number had been reduced to 3 companies of which Volvo and L.M Ericsson have survived the list during the period 1994 – 2012. See table 3.

Table 3 Swedish companies in Fortune Global 500 list during the period 1994 – 2012.

Year	Number	Company
1994	3	Volvo, Electrolux, L.M Ericsson
1995	3	Volvo, Electrolux, L.M Ericsson
1996	4	Volvo, Electrolux, L.M Ericsson, Skandia Group
1997	4	Volvo, Electrolux, L.M Ericsson, Skandia Group
1998	4	Volvo, Electrolux, L.M Ericsson, Skandia Group
1999	4	Volvo, Electrolux, L.M Ericsson, Skandia Group
2000	5	Volvo, Electrolux, L.M Ericsson, Skandia Group, Skanska
2001	5	Volvo, Electrolux, L.M Ericsson, Skanska, Nordea
2002	6	Volvo, Electrolux, L.M Ericsson, Skanska, Nordea Vattenfall
2003	6	Volvo, Electrolux, L.M Ericsson, Skanska, Nordea Vattenfall
2004	7	Volvo, Electrolux, L.M Ericsson, Skanska, Nordea Vattenfall, SCA
2005	6	Volvo, Electrolux, L.M Ericsson, Skanska, Nordea Vattenfall,
2006	6	Volvo, Electrolux, L.M Ericsson, Skanska, Nordea Vattenfall,
2007	6	Volvo, L.M Ericsson, Skanska, Nordea, Vattenfall, SEB
2008	6	Volvo, L.M Ericsson, Skanska, Nordea, Vattenfall, SEB
2009	5	Volvo, L.M Ericsson, Skanska, Nordea, Vattenfall
2010	3	Volvo, L.M Ericsson, Vattenfall
2011	4	Volvo, L.M Ericsson, Nordea, Vattenfall
2012	3	Volvo, L.M Ericsson, Vattenfall

Source: Fortune (1995-2013).

The HQs are located to Stockholm apart from Volvo with HQ in Gothenburg. But the Swedish presence in the list was much more pronounced at comparison of industrial companies. Table 4 shows the Swedish companies of the list in 1993; the year before the Fortune 500 Global list changed from focusing the largest industrial to the largest corporations in the world.

Table 4 Swedish companies and their headquarters in the Fortune Global 500 list in 1993.

<u>Global Rank</u>	<u>Company</u>	<u>Location of HQs.</u>
89	Volvo	Göteborg
105	Electrolux	Stockholm
190	Ericsson	Stockholm
234	Stora	Falun
318	Pharmacia	Stockholm
340	SCA	Stockholm
314	SKF	Göteborg
400	Investor	Stockholm
456	Astra	Södertälje
479	Nobel Industries	Stockholm
492	Trelleborg	Trelleborg
496	Sandvik	Sandviken

Source: Fortune Global 500 (1994).

Places like Falun and Sandviken reflect industrial locations to physical resources. Furthermore, large forest companies such as MoDo (Holmen) and Stora Kopparberg at an early stage had become involved in the chemical industry (SNA 1995). The companies SKF and Sandvik related to the Swedish special-steel have also been dropped from the list as well as Electrolux and Trelleborg.

In addition, the companies of the Fortune list 1993, excluding Nobel Industries and Pharmacia that have been merged, were in June 2014 registered on the Stockholm stock exchange⁷.

⁷ Nobel Industries have been integrated to Akzo Nobel and traded on the stock exchange of Euronext Amsterdam (Akzo Nobel, Stockholmsbörsen 2013-06-10). Pharmacia has been integrated to Pfizer (Pharmacia, Stockholmsbörsen 2014-05-30).

The survival of the companies on the Stockholm stock exchange indicates weakening competitive power in a world perspective but also strength of survival. The global shift towards more economic activity in Asia in relation to Europe is a challenge. In this competitive context Switzerland is an exception. The number of Swiss companies in the Fortune Global 500 list was the same in 1994 as in 2012; 14 companies.

SWEDEN AND SWITZERLAND – A COMPARISON

Sweden and Switzerland are characterized by small size of their home markets and many large companies. The ranking of the world competitiveness of nations verifies the strong Swiss position; ranked second after US. Sweden is also high ranked (5th position). Thanks to exports, business efficiency and innovation small countries prosper. The list of IMD (2014) includes among the 10 most competitive countries USA, Switzerland, Singapore, Hong Kong, Sweden, Germany, Canada, UAE, Denmark and Norway. Three Scandinavian countries are represented on this top ten list: Sweden, Denmark and Norway. These countries are located in the periphery of Europe. The rank of Sweden is the highest within EU. But with regard to large companies Switzerland has a unique position. See table 5.

Table 5 Swiss companies in the Fortune Global 500 list in 2012.

Company	Global 500 rank
Glencore Xstrata	12
Nestlé	69
Zurich Insurance Group	123
Novartis	162
Roche Group	197
Credit Swiss Group	255
UBS	263
ABB	268
Alliance Boots	309
Swiss Reinsurance	334
Xstrata	360
Coop Group	409
Migros Group	438
Adecco Group	443

Source: Fortune Global 500 (2013).

The Swiss companies are mainly found in industries such as banks, financial services and insurance; pharmacy including health and wellness. But companies in mining and production of goods such as cement and refining of oil are also present at the list as well as companies engaged in production, marketing and distribution of energy, agricultural and metal commodities. Besides, the list includes a company in retailing and a company oriented to issues in human resources.

In Swedish context the Swizz position is of special interest. Both countries have been observed as having a disproportionately large number of companies on the list with regard to population. But, the development of the number of Swedish and Swiss companies ranked in the Fortune's list differs. In 1994 the list included 3 Swedish and 14 Swiss companies⁸. The Swedish presence of the list during the period 1994 - 2012 is peaking with 7 companies in 2004, while Switzerland's peak is 16 companies in 2005. The Swiss presence of the list varies from 11 to 16 compared to the Swedish presence in the interval from 3 to 7. See figure 5.

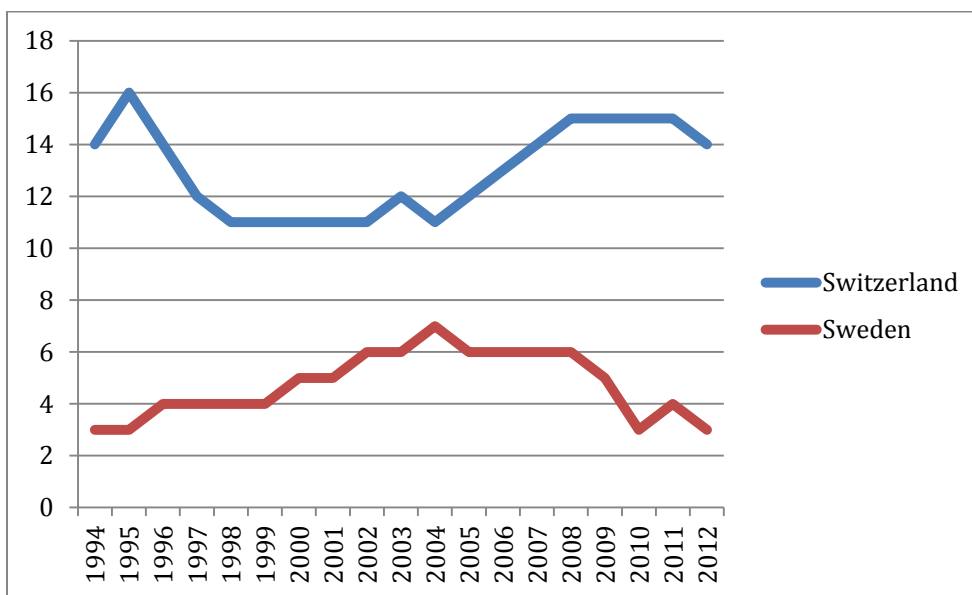


Figure 5 Number of companies in Switzerland and Sweden 1994 – 2012 ranked in the Fortune Global 500 list.

Source: Processing of data from Fortune Global 500 (1995 – 2013).

⁸ At focusing industrial companies the Swedish position has been similar to the Swiss position. Thus, the list of industrial companies in 1993 included 12 Swedish and 9 Swiss companies (Fortune 1994).

The Swiss companies cover a wide spectrum of activities. This deviates from the Swedish situation. Volvo is producer of vehicles, L.M. Ericsson of ICT-services and Vattenfall produces and distributes energy. In average the Swedish are smaller than the Swiss companies; ranking 344 compared to the Swiss average ranking 260 in 2012.

Zurich with surroundings (Zurich, Zug and Baar) dominate the location of the headquarters of Swiss companies. One exception is the location to Basel of the headquarters of Novartis and Roche Group; both pharmaceutical companies. Another exception is Nestlé with headquarter located to Vevey (east of Lausanne). In Sweden Volvo is the only of 3 companies on the Fortune's Global 500 list with headquarter outside Stockholm⁹

CONCLUDING REMARKS

The purpose of this study is to throw light on the connection between location of HQs and the introduction of new ICT. This interplay was in Swedish context a reality 30 years ago exemplified by the implementation of ICT enabling firstly concentration of power by big centralistic computer systems and later decentralization and delegation by small personal computers. But the development of new tools of communication means that ICTs are complex sets of technologies nearly everywhere. Attention should also be paid to the need to meet face-to-face at transferring informal unstructured information. This raises issues of the accessibility of places and regions and emphasizes the importance of being reachable in networks. Here, remarks are made related to the assumptions:

- The global shift of the economy changes the location of the headquarters of large MNCs of the world.
- The changing role of headquarters and the introduction of new ICT act as a stimulus to integrate functions of large MNCs.
- The use of new ICT and the growth of MNCs tend to broaden the network-systems of especially large cities,
- The demand for face-to-face meetings tends to strengthen the capital of unicentral compared to the capital of multicentral countries independent of the introduction of new ICT.

⁹ Ahnström (1973) identifies Switzerland as a multicentral and Sweden as an unicentral country.

The global shift of the economy changes the location of the headquarters of large MNCs of the world. The weakening of European and strengthening of Asian countries verify this assumption. Strong economic development of Asia has meant difficulties for “traditional” economies to stay competitive. Former colonial European states and USA are challenged by growing competition of Asian countries; especially China. Established cities of decision-making are still attractive for location of headquarters of MNCs. But, the shift of industries and decision-making to growing economies of Asia is the dominant tendency.

The changing role of headquarters and the introduction of new ICT act as a stimulus to integrate functions of large MNCs. These changes are related to the development towards a more service-oriented society and more knowledge-intensive works. This development implies more communication underlined by the increase of transmission of unstructured informal issues. Another development concerns the increasing number of mergers that lead to issues of the role of HQs and the number of employees at different units.

But it is hard to find unambiguous factors to explain and predict the geographical impact of these changes. One feature is that the surroundings of the organizations, such as agreeable environment, supply of culture and leisure, are important to explain the competitive ability of places/regions. Another feature concerns the importance of networks enabling contacts and integration in flows of information. However, the relations of the interplay between location of HQs and the introduction of new ICT is complex. In theoretical perspective the most relevant aspect seems to be observation of the changing needs for communication in different types of organization.

The use of new ICT and the growth of MNCs tend to broaden the network-systems of especially large cities. The introduction of new communication systems explains the creation of networks and changes the prerequisites of location of places/regions. New ICT also contributes to economic and social dynamics of the society characterized by global flows of capital and information. Accessibility is a strategic factor at efforts made to attract businesses. To be present in networks enabling conquest of new knowledge has become an even more important competitive factor. At the same time proximity in cluster is emphasized to create and strengthen competitiveness.

The geographical outcome of the formation of clusters and networks are multitudinous and varies with regard to function. An observation is the large flows of information in both structured and unstructured form within the financial sector often performed in network-systems of large cities. This development indicates advantages of big nodes. At stimulation of innovations proximity, interaction and trust are at focus. But the impact of new ICT as a factor influencing city-systems is hard to identify even if ICT-use facilitates creation of worldwide networks and is seen as a condition at governing activities all over the world.

The demand for face-to-face meetings tends to strengthen the capital of unicentral compared to the capital of multicentral countries independent of the introduction of new ICT. Prerequisites to be competitive are related to accessibility enabled by new ICT and infrastructure for personal transport; especially connections facilitating meetings face-to-face. In global perspective this includes airports handling long-distant flights.

In unicentral countries such as France and Sweden investments in infrastructure for transportation often concern traffic corridors linked to the capital. The capital as a market of decision-makers attracts location of HQs. This concentration often means regional imbalances of the economy, traffic congestions and environmental pollution. But the use of new ICT to counteract these disadvantages does not seem to have any decisive impact on the settlement structure.

The multicentral country of Germany is characterized by many cities housing HQs of large companies. Investments in infrastructure for transportation are related to this structure enabling accessibility to many cities. An issue is if these differences between unicentral and multicentral countries also mean different economic development. These studies do not indicate any answer.

Focusing the ability to attract HQs the Swedish situation is problematic as many big companies have merged and HQs have moved abroad. This raises issues of the risk of losing governing functions but also other activities such as R&D and production. But if the analysis of Swedish competitiveness is based on presence of companies of Stockholm stock exchange the pattern looks more stable indicating ability to be competitive also by operating in smaller scale.

Another issue concerns the differences in location of HQs in Sweden and Switzerland. Both countries are characterized by small size of their home markets, many large companies and strong dependence on international businesses. But Switzerland has been able to stay competitive at attracting HQs of big companies, while the Swedish competition tends to weaken. Here, the coverage of a wide spectrum of activities of Swiss companies, the multacentral governing of the state and the attraction of Zurich as a meeting place of decision-makers are observed.

Are there any other factors to notice? One remark is the Swiss tax-system enabling negotiations by the scattered geographic distribution of administrative decisions. Another remark is the ability to satisfy the demand for living in agreeable environments. Thus, the combination of favourable operative factors and living in agreeable environments seem to contribute to the understanding of Swiss competitiveness. The importance of agreeable environments is emphasized by the development of a more service-oriented society and knowledge-intensive works as the ability to satisfy the demands of the human being becomes a more decisive factor at location of activities.

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