Abstract
In the development of modern urban systems we are facing a shift from central cities as the major location of coordination functions, high-order services and innovative activities, to interconnected nodes at some distance in a larger metropolitan area. However, which cities in the emerging new spatial constellation qualify to become such a node is not yet clear, and depends also on the organizing capacity of the municipalities involved. In the present paper we address spread over a larger metropolitan area from the point of view of place-bound versus footloose behaviour of young, innovative firms as the drivers of economic renewal in this area. A theoretical review of location needs and footlooseness is followed by an empirical contribution to identify whether an increased footlooseness of such companies is emerging in the Netherlands. The results prompt the need for a more thorough reflection on related policy issues. The policy part of the paper addresses in particular some evolutionary views to understand why urban policymaking is subject to various systemic constraints, while next some empirical results on weaknesses in the urban organizing capacity to benefit from a shift towards a global metropolitan area are highlighted. In this context we focus the attention specifically on policies dealing with information and communication technology.

Keywords: World cities, agglomeration theory, resource-based theory, footlooseness, urban organizing capacity, ICT.
1. Modern Cities in Perspective

Cities are fireplaces of economic, social and political forces (see Capello and Nijkamp, 2005). They show a rapid dynamics in all regions of our world with a significant change in traditional role functions. As Sassen (1991) pointed out, today’s world cities are concentrations of 1) strategic command points in the organization of the world economy, 2) key locations and marketplaces for the leading industries of the modern age (e.g., finance and specialized producer services), and 3) major sites of production for these industries, including the production of innovations. Sassen (2002) also argued that the concept of centrality - in the core of the world cities’ development in the past decades usually associated with the central business district (CBD) – increasingly refers nowadays to a larger geographical scale, like central cities and a grid of nodes of high level business activity spread over a larger metropolitan area.

There is an abundance of literature that suggests that modern information and communication technologies (ICTs) increasingly act as connecting technologies through which world cities can extend their action radius all over the world, as ‘global command centers’. World cities have clearly reinforced their position as global nodes in electronic grids as is witnessed by the spatial clustering of advanced telecommunication services and infrastructure in various urban areas, as measured e.g. by bandwidth, collocation and switches (e.g. Gorman and McIntee, 2003; Graham, 1999). ICTs are not only a primary “connector” between world cities and their command regions, but also provide the base for new, innovative companies in the metropolitan economy, aside from high-tech sectors such as biotechnology, nanotechnology, optoelectronics, computational sciences and informatics, and various combinations of them. As such these technologies constitute a permanent source of renewal for the metropolitan economy and - in later stages of technology development and diffusion – for parts of the global economy. Against the background of the emergence of new companies (sectors) and of underlying strong agglomeration economies, there is an increasing claim by several researchers that a substantial spread of innovative economic activity from merely the traditional central city (or central cities) to a larger metropolitan area (e.g. van Oort and Stam, 2004; Sohn, 2004). Although there are as yet no conclusive empirical studies that confirm this development as a universal trend, it seems that the spread is both contagious (into adjacent areas) and agglomerated (in larger nodes here). Such a development would also be in agreement with the edge city hypothesis (see Garreau, 1991).
With regard to the type of economic activity concerned, some researchers such as Sassen (e.g. 2000) and Taylor et al. (2002) place much emphasis on advanced business services development as the prime driver of world city development, whereas Scott (1988) and others place more emphasis on manufacturing. In this chapter we include both advanced services and manufacturing, because information processing and the conversion of information outcomes into new strategies are the key activities determining effectiveness and productivity of all steps in complex value chains. Accordingly, this paper seeks to contribute to the world cities debate by addressing the pattern of spread of innovative manufacturing and service activity within extended world cities and by addressing ways in which medium-sized nodes deal with the new opportunities in policymaking, using a blend of both theoretical and empirical arguments.

Processes of geographic spread – be it on a hierarchical basis or on the basis of specialization and complementarity – prompt local policymakers to develop new strategies that anticipate such new opportunities and threats (Musterd, 2003). Whether the cities involved may be able to maintain their initial position (or fail to adjust themselves to new situations) and fall back for a longer time, is largely dependent on effective visionary strategies and organizational capacity of local policymakers and the institutional setting. From an evolutionary perspective, policymaking organizations suffer often from path-dependency, implying that the scope of policy options to decide upon is narrowed down by particular decisions taken in the past and by related limited views on the cities’ development. There is not much knowledge about how path-dependency manifests itself in early stages and how it can be prevented in time (van Twist et al., 2004). This observation calls for more exploratory research.

In this paper we address the above mentioned issues in the context of large and medium-sized cities in the Netherlands through the following two questions:

1. To what extent can an increase be observed in footlooseness in metropolitan areas among young innovative entrepreneurs and which location constraints do still remain? Which factors determine differences in footlooseness?
2. How did the quality of urban policymaking on ICT in the recent past impact on these developments and what can be learned to improve the organizational capacity in order to better respond to the new opportunities of world city development?
The structure of this paper is as follows. First, we reflect concisely on theory that can help us to understand the location behavior of young, innovative entrepreneurs (Section 2). Next, we present the outcomes of an empirical investigation among young, innovative firms to explore whether footlooseness is increasing and location constraints still hold in the larger area of a area in the Netherlands (Section 3). Next, in a policy section, we review evolutionary theory to increase an understanding of some limitations in urban policymaking (Section 4) and then we discuss various shortcomings in recent urban ICT policymaking (Section 5). The paper concludes with a summary and some recommendations to improve the effectiveness of policymaking.

2. Agglomeration Advantages and Footlooseness

In this section we review concisely some theoretical views that may shed light on advantages of agglomeration in business life in large cities. These are derived from: (1) agglomeration theory and related spatial cluster approaching dealing with the supply-side of cities as places of location, and (2) resource-based theory addressing with the needs of companies for specific resources.

According to agglomeration theory, cities provide advantages of knowledge spillover effects and an abundant availability of knowledge workers in the labor market (Acs, 2002). Spatial concentration of activities, involving spatial and social proximity, increases the opportunities for interaction and knowledge transfer, and the resulting spillover effects reduce the cost of obtaining and processing new knowledge. In addition, knowledge workers preferably interact with each other in agglomerated environments to reduce interaction costs, and they are more productive in such environments (Florida, 2002). Some authors claim that knowledge spills over more easily between similar economic sectors - hence in the case of regional specialization - because the knowledge is highly industry-specific (Arrow, 1962; Romer, 1986; Henderson et al., 1995). Others claim instead that a certain diversity contributes to knowledge spillovers (e.g Jacobs, 1969; Glaeser et al., 1992). In addition to this, attention has recently been drawn to advantages of local access to global knowledge – be it with specialized research laboratories or with customers or suppliers abroad - as a significant factor in the competitive advantage of metropolitan areas (Simmie, 2003). This knowledge transfer or interaction may use telecommunication (e-science), particularly in processing large, distributed data bases across the globe (data-mining, monitoring, etc.). It may also work by personal visits using high-speed connections by air.
From the above spectrum of views, we may argue that cities are the cradle of new and innovative industries. Companies in the early stages of the product and company lifecycle – when dealing with a great deal of uncertainty - prefer locations where new and specialized knowledge is abundantly available for free (e.g. Audretch, 1998; Camagni, 1991). It is also widely recognised that the spatial radius of knowledge spillovers may be limited due to geographic barriers, e.g. a daily activity system where people meet easily and where people change jobs in their careers, or a smaller system such as quarters in a central business district or university premises where people see each other by chance (e.g. Rosenthal and Strange, 2001).

However, the need for spatial proximity to enjoy knowledge spillovers seems at odds with the impacts of the recent telecommunication revolution; i.e. the costs of electronic communication have drastically declined, and advanced ICTs allow for long-distance contacts such as videoconferencing, data-mining, virtual design, computer-assisted decision-making, etc. In this context it is often claimed that companies become more footloose, caused by fewer limitations from location constraints of information advantages. The solution for this paradox on localisation of knowledge spillovers seems to be in the type of knowledge concerned (Howells, 2002). On the one side, there is codified knowledge (partly just information) that can easily circulate electronically, like prices determined at a stock exchange and statistical data. On the other, there is tacit knowledge and its context, and these are critical in innovation processes. These types of knowledge are vague and difficult to codify and, accordingly, spread mainly through face-to-face contacts of the persons involved. Tacit knowledge is transferred through observation, interactive participation and practice. Knowledge about context is achieved through longstanding and interactive learning, often in relatively open (unstructured) processes (Bolisani and Scarso, 2000).

According to resource-dependence views, the success of companies in generating profits depends on their capabilities to create opportunities for profit-making and to make resources available, including resources in their production environment (e.g. Barney, 1991), like knowledge, capital and networks. The growth of companies is constrained if there is a shortage or weakness in the available resources, or in the capability to mobilize or generate adequate resources. Young, innovative companies have strong needs for new knowledge, i.e. knowledge about the technology concerned and knowledge to deal with the market (including that for capital), but they cannot generate this knowledge by themselves (e.g. Locket and Thompson, 2001). Reid and Garnsey (1998) distinguish between different stages in growth,
running from achieving access to resources, to the mobilisation of resources and the own generation of resources. For young, innovative companies, using the right combination of resources at the right time enables to undertake a jump in growth into next development stages. A failure in this critical match may cause a delay in growth and even a fall back into previous stages. Quite recently a new emphasis is being placed on the heterogeneity between innovative companies at their start, leading to different needs and capacities to fill these needs (Druilhe and Garnsey, 2004). We might think of a different experience of the entrepreneurs, like between academic and corporate start-ups, and a different risk-profile of the venture, like between service companies and research and manufacturing companies. These differences may cause a different importance of particular agglomeration benefits among companies.

There is not much conceptualisation of the situation in which companies are free from needs for agglomeration economies, or “footloose”. An early use of the term footloose can be found in the work of Klaassen (1967). Accordingly, an industry is footloose if its long run profitability is the same for any location in an economy. This is a quite strict definition that excludes different degrees of footlooseness. We prefer to conceive footloose and, its counterpart, location-bound as each placed at the two ends of a spectrum with various degrees of footlooseness and location-boundness in-between. Note that footlooseness is connected with a particular area or scale. For example, companies may be footloose with respect to their region but not with respect to the national space-economy. A major issue is now of course, whether footlooseness is stimulated through the use of ICT.

3. **Empirical Results on Location Strategy**

The previous observations call for a proper empirical underpinning. In our empirical research we address the question whether young innovative companies become increasingly footloose and prefer to locate in a larger area than the existing large agglomerations; and if so, which location constraints still remain. Further, we try to identify which factors determine footlooseness and whether these factors may increase in importance in the future. The research design employed an inductive approach, using 21 case studies selected on different positions on factors influencing the need for resources and capabilities to satisfy these needs (van Geenhuizen, 2005). The innovative sectors considered in our study are: biotechnology, ICT-services and engineering services, and mechatronics (optronics). Furthermore, all companies hold a low position in the value chain, at a distance from consumers.
Footlooseness in our empirical work was measured based on importance attached by the management of the companies to a set of variables representing agglomeration advantages, i.e. proximity to knowledge institutes, suppliers and customers; a specialized labour market, personal networks in the area, and proximity to high-level ICT nodes and services and to Amsterdam Schiphol Airport. Accordingly, the companies could be classified into those for which various agglomeration economies strongly matter (location-bound) and those for which these economies matter to a small degree (entirely or partly footloose), aside from companies without a conclusive pattern. Conventional statistical analysis, such as multiple regression analysis or discrete choice modeling, could not be applied because of the low level of measurement of some variables and the small sample. Therefore, we made use of a non-parametric technique, i.e. rough set analysis (e.g. Pawlak, 1991; for details, Polkowski and Stoltron, 1998). If a distinction is made between stimuli (condition variables) and response (decision variables), rough set analysis is able to identify causal linkages between classified conditions and decision variables and produces a number of conditional statements of an “if …., then ….” nature (decision rules). Accordingly, we could identify which conditions lead – in a logic deterministic way - to a particular state of the decision variable, i.e. place-bound and somewhat footloose. The condition attributes were selected based on the previously indicated resource-based approach to growth of companies: A1) (in)dependence (corporate position); A2) age; A3) size (employment); A4) activity (manufacturing or services); A5) duration of innovation projects; A6) spatial orientation towards customers/suppliers. Almost all companies attached a high value to ICT-use in business operations; thus, this attribute could not contribute to a clarification of a different degree of footlooseness (note 1).

Our assessment has produced a set of 11 decision rules - that can be interpreted straightforwardly - and data on the coverage of each rule (Table 1). The latter is an indicator for the strength of the rules and gives the percentage of all cases sharing a similar score on the decision variables for which the rule is true. It appears that (in)dependence in terms of position of the company is the strongest determining factor (frequency of appearing in the rules). This holds particularly for the position of spin-offs: young academic spin-offs tend to be place-bound, whereas spin-offs of multinationals tend to be footloose by being inserted into global networks. In addition, a spatial orientation of the company towards suppliers and customers and a focus on network-based relations seem also important. The latter holds for outsourcing relations and for knowledge interaction: companies that employ comprehensive
outsourcing and those that (start to) employ strategic R&D relations with different global partners tend to be footloose.

Table 1. Types of companies as outcomes of the rough set analysis

<table>
<thead>
<tr>
<th>Companies</th>
<th>Strength of rules</th>
<th>Number of companies involved</th>
<th>Generalization</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Rules on place-bound: city agglomerations</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1) Local orientation towards suppliers/ customers</td>
<td>38.5% a)</td>
<td>5</td>
<td>Biotechnology and advanced ICT services; the latter are tied to highest telecommunication nodes and the metropolitan labor market.</td>
</tr>
<tr>
<td>2) Long-lasting innovation projects</td>
<td>30.0%</td>
<td>4</td>
<td>Advanced research companies in biotechnology and mechatronics.</td>
</tr>
<tr>
<td>3) Independent position and short innovation projects</td>
<td>38.5% a)</td>
<td>5</td>
<td>Particular ICT service-companies and biotechnology service-companies (overlap with type 1).</td>
</tr>
<tr>
<td>4) Very young academic spin-offs</td>
<td>15.4%</td>
<td>2</td>
<td>Research companies in ICT and biotechnology in the first life stage (close ties with university of origin).</td>
</tr>
<tr>
<td><strong>Rules on footlooseness: spread over larger areas</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1) Small and employing a network model</td>
<td>20.0%</td>
<td>1</td>
<td>Research companies in risk markets employing a model of comprehensive outsourcing.</td>
</tr>
<tr>
<td>2) Corporate spin-offs engaged in services</td>
<td>20.0%</td>
<td>1</td>
<td>Highly specialized service companies inserted into global networks by multinationals (origin).</td>
</tr>
<tr>
<td>3) Older age and long-lasting innovation projects</td>
<td>40.0%</td>
<td>2</td>
<td>More mature research companies in biotechnology and mechatronics that start to enter global networks (R&amp;D alliances or outsourcing relations).</td>
</tr>
<tr>
<td>4) Medium-sized subsidiary (foreign) in services</td>
<td>33.3%</td>
<td>1</td>
<td>More mature producer service-companies with clients all over the country.</td>
</tr>
<tr>
<td><strong>Ambiguous results</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1-3) Spin-offs (corporate, academic), partly a mix of local and global orientation</td>
<td>33.3%</td>
<td>1 b)</td>
<td>Miscellaneous, but all speculate on (partial) relocation in the near future.</td>
</tr>
</tbody>
</table>

a) Relatively strong rules.
b) Each of the three rules has a coverage of 33.3% and is supported by one company.

By considering changes in footlooseness, we can now identify the following trends from Table 1:

- Companies qualified as *location-bound* tend to be more strongly location-bound in the future, *inter alia* based on a pool of specialized workers and the proximity of customers in the city. This trend is exemplified by service companies in biotechnology, and by customer- and labour market oriented ICT-services. The latter companies are also highly
fixed in place, i.e. they need direct access to the highest level node in the global telecommunication grid. An increase of footlooseness seems only true for research companies (biotechnology) entering global research (alliance) networks.

- Companies qualified as *somewhat footloose* show partly a trend for increasing and partly a trend for decreasing footlooseness. An increase tends to be connected with employing a network model based on a comprehensive outsourcing and with a shift towards a global orientation (customers, knowledge).

We will now interpret the above findings vis-à-vis further empirical evidence. So far we may conclude that the empirical material from the Netherlands does not support the hypothesis of a large scale increase of footlooseness. Only particular segments of young, innovative companies tend to become more footloose, i.e. those that enter global knowledge relations, employ and extend a network model (extreme levels of outsourcing), and enter global markets. These segments may, however, increase in size and kind because there is a move to global knowledge relations (e.g. Simmie, 2003), and the most determining factor of footlooseness (dependence) points to the influence of corporate ownership relations that are also in a process of increased globalisation. Whether a rise in network companies can be expected, is more difficult to assess. Extreme outsourcing is a strategy that matches only high-risk situations including cyclic markets, like in the semi-conductor and related industry. A certain level of footlooseness may, however, be coupled with some specific location constraints. Among the somewhat footloose companies we observe a clear importance attached to: (1) a certain level of agglomeration; (2) a certain level of centrality; (3) access to knowledge and a good knowledge culture; (4) accessibility by car; and (5) access to a well-connected international airport.

In an attempt to identify cities outside the four large ones (i.e., Amsterdam, The Hague, Rotterdam and Utrecht) which broadly satisfy the above constraints, we may arrive at four “candidate” cities due to sheer size of their population, a certain level of centrality, an easy access to Amsterdam Schiphol Airport (within approximately a maximum of 1.5 hour travel time by public transport), as well as access to knowledge through a university and to a first-tier node in the global science and education telecommunication grid SURFnet (Gigaport, 2004). The agglomerations selected are Leiden, Eindhoven, Tilburg, and Nijmegen (Table 2), of which Leiden is the most centrally place located with respect to the four large cities in the Netherlands. In addition, there are three agglomerations without a university, but with higher
educational institutes and connections to the SURFnet grid, i.e. Dordrecht, Haarlem, and Breda. This tentative picture of medium-sized cities illustrates differences in potentials for catching up in world-city development given a spread of agglomeration advantages over a larger metropolitan area in the western part of the Netherlands.

Table 2. Agglomerations as nodes in a potentially larger metropolitan area (a)

<table>
<thead>
<tr>
<th>Large cities</th>
<th>Medium-sized (central)</th>
<th>Medium-sized at a distance (South and East)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amsterdam (1017.050)</td>
<td>Leiden (254.130)</td>
<td>Eindhoven (319.670)</td>
</tr>
<tr>
<td>Rotterdam (1001.450)</td>
<td>Dordrecht (246.490) (b)</td>
<td>Tilburg (221.350)</td>
</tr>
<tr>
<td>The Hague (616.090)</td>
<td>Haarlem (189.930) (b)</td>
<td>Breda (166.035) (b)</td>
</tr>
<tr>
<td>Utrecht (405.470)</td>
<td>Amersfoort (161.960) (c)</td>
<td>Nijmegen (157.470)</td>
</tr>
</tbody>
</table>

a. In brackets: number of inhabitants of the urban agglomeration in January 2004. Only agglomerations larger than 150,000 inhabitants
b. No university; but linked to SURFnet in a second round.
c. No university; not connected to SURFnet in later rounds.


The above sketch of emerging patterns in the Netherlands call for a more thorough interpretation based on a more general methodology. In the next sections we will focus on ways in which medium-sized agglomerations in the Netherlands have coped with the above mentioned new opportunities in policymaking. We will offer an interpretative framework based on an evolutionary view on policymaking.

4. An Evolutionary View on Policymaking

In recent years, evolutionary thinking and principles have become ‘en vogue’ in the social sciences. In the core of this thinking is the long-term development of organizations and their potential to adjust to a dynamic changing and competitive environment. A key role in adjustment processes, such as gaining benefit from new opportunities, is played by the organizing capacity of organizations. This can be seen as the ability to bring relevant stakeholders together based on a vision or goal, and to ensure their commitment to action to work towards the realization of visions and goals (van Twist et al., 2004).

In evolutionary approaches, policymaking may be viewed as a process of selection in a changing environment composed of the market, institutions and the spatial environment. The selection environment works as a kind of filter that allows well adjusted policymaking entities to pass and survive, and less adjusted ones to decline or disappear. For urban policymaking, we may conceive of the market as the one in which new technologies, capital investment and
a creative class of knowledge workers, etc. are attracted (or developed). In daily life this becomes apparent in different competitive positions of cities, for example, concerning the hosting of important conventions, festivals and sporting games, and the presence of clusters of highly innovative companies in specific markets such as medical biotechnology, fashion design and multi-media activity. Very often changes in policymaking are incremental, meaning changes in small steps compared with the current situation. This pattern is based on a type of learning in which actors find solutions based on previous success, i.e. familiar procedures and routines (e.g. van den Bergh and Fetchenhauer, 2001; Nelson and Winter, 1982). The use of such procedures and routines in fact reduces the range of different possibilities and causes a situation in which the next future is very much like the recent past (path-dependency). In more extreme developments, accumulated investments (sunk costs) and strong lobbies add to path-dependency in such a way that organizations remain led by previous success (or failure) and reinforce old trajectories (negative lock-in) (e.g. Magnusson and Otosson, 1997; Maskell and Malmberg, 1999). While the general development trend is one of path-dependency, evolutionary views also recognize that particular high-impact events, such as a simultaneous closure of old manufacturing companies in one municipality, may work as a trigger to quickly open the road to new trajectories. This reasoning may be helpful to better understand the dynamic patterns of economic activity in different types of urban development as described above, against the background of the distance-reducing impact of ICT.

5. Urban ICT Policies

The reason for focusing on ICT policy in this section is the recognition that an improved use of ICT helps cities in attracting young, innovative companies in various ways; for example, to increase the reach of these companies (market, labor, inputs), to improve road accessibility, to create a good knowledge culture (creativity) and to provide access to the highest-speed internet allowing for what is named e-science, including remote and interactive data-mining, experimentation, design, and monitoring. In general, the bottlenecks to an improved use are not in the technology itself but in the organizing capacity. What is new on ICT in municipal policymaking is that ICT impacts manifest themselves in many different fields requiring an integral approach and introduce the need to bring stakeholders together from different organizations and, even more important, to keep them together and committed to arrive at satisfactory solutions. In addition, ICT is a highly dynamic field, witness an
increasingly higher speed of transmission and processing of information, an increasingly
advanced intelligence of the systems (van Geenhuizen, 2004) and a growing number of
applications, including the own municipal organization and the providing of services. In this
section, we summarize and deploy two empirical studies to explore the opportunities for
effective policymaking in the area of ICT in Netherlands, namely findings from a large-scale
empirical research (Cohen et al., 2002) and results from an in-depth case study (van
Geenhuizen, 2000), respectively.

The following observations can be made concerning single roles and goals of ICT as
perceived by policymakers in medium-sized towns (Table 3). Policymakers appear to see an
important role for ICT in developing the city and its opportunities, mainly in terms of
economic development. However, there is no further articulation of such a role, particularly
ICT as a base of new economic activity and ICT as a means to enhance integration into global
relationships. It seems that ICT is not seen as a factor that can improve the economy and
urban social life structurally and speed-up a shift towards a new urban economic trajectory or
a new stage in such a trajectory. It may be that uncertainty in realizing such basic changes is
felt to be too high or the changes not to be realistic. Reactions like these are common in a
frame of path-dependency. What is worrisome is that promoting studies on ICT (use) is not
qualified important.

Table 3. Urban policymakers’ perceptions of ICT

<table>
<thead>
<tr>
<th>Perceived roles and goals</th>
<th>Important</th>
<th>Not important</th>
</tr>
</thead>
<tbody>
<tr>
<td>Role of ICT for the city</td>
<td>Mainly in communication and issues of access to municipal information and services.</td>
<td>Structural changes in power distribution and social inequity issues.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>General goals for ICT policies</td>
<td>Developing the city and its opportunities, mainly economic development.</td>
<td>--</td>
</tr>
<tr>
<td>Direct goals of ICT policies</td>
<td>Supplying of municipal information and services, and promoting ICT use in planning. Improving ICT infrastructure: network and PC availability</td>
<td>Promoting various ICT activities for citizens. Promoting studies about ICT and ICT use.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>No articulation of ICT as a base of new economic activity. No articulation of ICT as a means to connect globally.</td>
</tr>
</tbody>
</table>

Source: Adapted from Cohen, van Geenhuizen and Nijkamp, 2002.

To structure the shortages in policymaking we make use of an analytic frame adapted
from van den Berg et al. (2002) in which external influences, like the spatial-economic
situation and the socio-cultural situation of the cities, are distinguished from internal factors. We confine ourselves to two types of internal factors, i.e. concerning (1) the interaction between relevant stakeholders (from leadership to open learning) and (2) steps in policymaking and implementation (from strategy to policy results) (Table 4). Note that the factors are strongly mutually dependent. The results point to a weak organizing capacity, in terms of leadership, support, strategy and action. Leadership is often missing due to the fact that ICT is not recognized as a relevant area with important opportunities and implications for the competitive position of the city, and this is reinforced by a lack of knowledge (awareness) and a weakly developed learning attitude. By contrast, a few visionary people in a leading or strategic position in the municipal organization could work as a decisive force in creating support for taking new roads. This, alongside a lack of co-operation between relevant stakeholders or counter-action by stakeholders supporting old paradigms, implicates that there is no coherent vision (ambition) on an ICT future, meaning that the single initiatives that are taken, face a relatively large chance to fail because of lack of support and commitment.

Table 4. Missing qualities in a poorly developed organizing capacity

<table>
<thead>
<tr>
<th>Factors (a)</th>
<th>Quality</th>
<th>Consequences</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Leadership</td>
<td>Missing</td>
<td>Difficulty in developing a vision and in creating support</td>
</tr>
<tr>
<td>1. Networks (co-operation)</td>
<td>Weakly developed (or strongly developed to support old paradigm)</td>
<td>No value-added and difficulty in creating support for novel routes</td>
</tr>
<tr>
<td>1. Open learning</td>
<td>Missing (stuck in old frames) No need perceived to study ICT opportunities</td>
<td>Poor awareness on opportunities</td>
</tr>
<tr>
<td>1. Vision</td>
<td>Poor and lack of coherence</td>
<td>Difficulty in developing a strategy</td>
</tr>
<tr>
<td>1. Support</td>
<td>Missing or fragmented</td>
<td>Risk in implementation</td>
</tr>
<tr>
<td>2. Strategy</td>
<td>Missing (only fragmented ideas)</td>
<td>Ad hoc actions with lack of support</td>
</tr>
<tr>
<td>2. Action</td>
<td>Independent from strategy and vision</td>
<td>No value added (synergy) and lack of support</td>
</tr>
<tr>
<td>2. Policy results</td>
<td>Fragmented; incidentally a success</td>
<td>Risk of not exploiting ICT opportunities and loss of competitiveness</td>
</tr>
</tbody>
</table>

 Aside from moderate expectations there is some lack of awareness and imagination about what is possible with modern ICT. A learning attitude towards opportunities of ICT is often missing. Of course, this situation does not mean that each single initiative fails. There are certainly some success stories, but these remain isolated without generating advantages of coherence and synergy.
We may conclude that urban policymaking on ICT in recent years showed a low profile involvement in structural matters, fitting into a wait-and-see attitude. Particularly, the moderate expectations, low awareness and low priority for study on ICT opportunities in the stage at that time, are worrisome. It means that urban policymakers in many medium-sized towns in the Netherlands were facing the risk of not exploiting economic advantages from ICT in a timely manner, and therefore, contributed to a decreased competitive power, potentially leading to relocation of innovative companies to other world cities. This may implicate a stagnation of growth at the level of the individual city, but it may also – given the context of a larger metropolitan area and a certain complementarity between cities – cause a weakening of this area at large in comparison with competing world cities.

What was and still is missing in terms of improving the situation is insight into prescriptive rules and sets of actions leading to a building or strengthening of the urban organizing capacity (van Twist et al., 2004). We may illustrate this with two examples. The need for building networks of stakeholders is beyond doubt, but how should this building take place to derive networks that actively stimulate support and action, and prevent the creation of networks that hamper an active stimulation through a stiffing influence? Likewise, the design of a vision (eventually coupled with ambitions) is necessary, but not all visions provide the inspiration necessary for creating support and for designing innovative strategies. Under which conditions can a vision provide positive impacts and under which conditions are these missing? Of course, new modes of management have emerged providing coherent action approaches to improve the organizing capacity, like transition management (e.g. Rotmans, 2003) and chain (or network) management, but the link between the design of solutions and action-oriented approaches remains weak. The situation around the beginning of the century is, of course, a snap-shot. Currently, various experiments on ICT use in cities have reached completion and are in the stage of evaluation (Note 2). The adoption of an open learning attitude by policymakers is important to prevent path-dependency influencing evaluation and to remain alert in taking the right actions in responding to opportunities of world city development.

6. Concluding Remarks

In this paper we have taken urban dynamics and location patterns in the Netherlands as an example of world city development, and focused on a shift in centrality towards a larger metropolitan area with the western part of the country as its core. In an empirical study of
young, innovative companies we explored empirical signs for such a shift, namely an increased footlooseness. We could identify two types of companies, i.e. (1) persistently location-bound, based *inter alia* on agglomeration factors exclusively in the largest city - immediate access to the highest-level telecommunication node and a pool of young and internationally oriented workers, and (2) somewhat footloose companies that may function profitably in larger parts of the Netherlands. The latter type suggests that some agglomeration factors are available in a larger metropolitan area, like sheer size of medium-sized agglomerations and access to high-level knowledge in local universities. Although the empirical material provided no conclusive ground for a trend towards large scale footlooseness in the near future, we may expect an increase based on determining factors that become stronger in the medium term, based on a growing globalization. This would mean that medium-sized agglomerations at some distance from the large cities are facing additional opportunities for economic growth.

Next, we used ICT policies to illustrate the constraints of municipal organizations to imagine, set goals and anticipate situations which seem to be distant in time, the development towards being part of a larger world city being one of such challenges. We observed a shortage in awareness, visions, strategies and coherent policies, based upon a poor organizing capacity, whereas ICT policies - more than any other policy area – need to bring stakeholders together by crossing organizational boundaries. The design of improved models of policymaking appeared to be hampered by a lack of action-oriented insights into critical success factors at work in different city-specific circumstances. For municipalities this situation would mean first, to invest more in the learning capability of the own organization and attract highly qualified people from outside and, secondly, to take joint initiatives for comparative experiments and for monitoring to generate more action-based knowledge and understanding of critical conditions in world-city development.

**Note 1**
The case study design permits a logic in the sense of “replication”, allowing the case analysis to be treated as a series of independent experiments (Yin, 1994). Note that the interpretation of the rough set analysis results is valid to the extent in which the case studies selected provide a fair representation of young, innovative, companies. Data were derived using semi-structured questionnaires and interviews with corporate managers.

**Note 2**
For example, the municipality of Eindhoven started an experiment in 2001 with providing broadband Internet connections to all inhabitants in particular city-quarters based on the idea
that a favourable ICT climate and ICT-minded population could attract various e-commerce oriented companies and related business (van Winden and Woets, 2004).
References


Rotmans, J., Transition management: key to a sustainable society (in Dutch), Assen 2003, Van Gorcum.


Scott, A. J., Metropolis. From the division of labour to urban form. Los Angeles 1988, University of California Press.


