



SCHOOL OF ECONOMICS
AND MANAGEMENT

Lund University

Department of Business Administration

Master thesis

June 2005

The Knowledge City Concept

The Ideal Conditions of a Knowledge City

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SAMMANFATTNING

- Titel:** Kunskapsstadskonceptet – De ideala förutsättningarna för en kunskapsstad
- Datum:** 2005-06-09
- Kurs:** FEK 591 Magisteruppsats i Strategisk ledning, Ekonomihögskolan, Lunds universitet, 10 poäng (15 ECTS)
- Författare:** Mathias Dackheden, Andreas Nilsen
- Handledare:** Professor Leif Edvinsson
- Nyckelord:** Kunskapsstad, kultur, geografisk närhet, kunskapsutbyte, intellectual capital
- Syfte:** Syftet med den här uppsatsen är att undersöka konceptet kunskapsstäder och företags preferenser och krav på en sådan stad. Dessutom ges förslag på ideella förhållanden i en kunskapsstad.
- Metod:** Uppsatsen har genomförts med en kvalitativ ansats där det deduktiva tillvägagångssättet har tillämpats. Barcelona har undersökts överskådligt, då staden är ett tidigt exempel på en kunskapsstad, medan en mer djupgående undersökning har gjorts på Köpenhamn.
- Teori:** Eftersom konceptet kunskapsstad är ett relativt nytt fenomen, utgörs det teoretiska ramverket av modeller från flera discipliner som till exempel knowledge management, sociologi, intellektuellt kapital och organisationsteorier.
- Empiri:** Uppsatsens empiriska data har insamlats genom personliga intervjuer samt telefon- och e-postintervjuer av respondenter med expertkunskap om fenomenet eller med anknytning till antingen företag eller stadsförvaltning.
- Slutsats:** Majoriteten av deltagarna i undersökningen hade mest kommentarer om den samhällsliga framgångsfaktorn. Alla respondenter betonade vikten av mänskliga resurser som den mest tongivande faktorn vid bedömning av en kunskapsstad. Detta beror troligen på att mänskliga resurser har en direkt påverkan på kunskapsintensiva företags prestationer – den kreativa och innovativa styrkan som finns hos människor är essentiell för dessa företag.

ABSTRACT

- Title:** The knowledge city concept—The ideal conditions of a knowledge city
- Date:** 2005-06-09
- Course:** FEK 591 Master Thesis in Strategic Management, School of Economics and Management, Lund University, 10 credits (15 ECTS)
- Authors:** Mathias Dackheden, Andreas Nilsen
- Advisor:** Professor Leif Edvinsson
- Key words:** Knowledge city, culture, geographical proximity, knowledge exchange, intellectual capital
- Purpose:** The purpose of this thesis is to look into the knowledge city concept and the preferences and requirements of companies on such a city. Furthermore, suggestions of ideal conditions in a knowledge city are proposed.
- Method:** The thesis has been conducted through a qualitative approach where a deductive procedure has been implemented. In order to examine knowledge cities, Barcelona has sketchily been looked at as an early example of a knowledge city, whereas a more exhaustive observation of Copenhagen was conducted.
- Theory:** Since the concept of knowledge cities is a rather new phenomenon, models from several disciplines constitute the theoretical framework. Such areas are knowledge management, sociology, intellectual capital, and organizational theories.
- Observations:** The empirical data was gathered through personal interviews as well as telephone and electronic mail interviews with respondents having expert knowledge of the phenomenon or having affiliation to companies and municipalities.
- Conclusions:** The majority of the participants in the empirical context had most comments and opinions on the societal key success factor. All respondents did in a credible way label the human resources as the main requirement characterizing a prominent knowledge city. This is possibly because human resources in an exceptionally direct manner influence the performance of knowledge-intensive firms—the creative and innovative power embedded in humans is essential to these firms.

ACKNOWLEDGEMENTS

Considerable gratitude is shown towards each person that has contributed to this thesis, especially advisor Leif Edvinsson, who has provided useful contacts and ideas being crucial for the study. Appreciation must not only be given to the expert respondents Christer Asplund, Jan Annerstedt and Kjell Cronert, but also to the following companies: Sandvik, Electrolux, Genmab, and an anonymous company, referred to as Respondent A. Finally, a lot of gratefulness is directed towards Danny Christophersen at Copenhagen Capacity.

Lund, June 15, 2005

Mathias Dackheden, Andreas Nilsen

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1 INTRODUCTION

In this chapter, an overview of the treated topics is presented, and the purpose of this thesis is also determined. The introduction chapter contains a brief discussion of the theoretical framework used to highlight the problem discussion of this study, and in the end, a disposition is displayed, explaining the further structure of the chapters.

1.1 Background

In recent years, many industries have migrated from developed countries to countries providing cheap labor, especially low-tech industries and manufacturing industries. The new trend of migrating companies results in massive unemployment as well as a stagnation or even regression of economic development. If no measures are taken, the former manufacturing regions in industrialized countries risk becoming unattractive for resource allocation by firms. 'European cities need to reinvent themselves or they will die' (KBS-Cities, 2005). Major industrialized cities have responded and taken action to attract knowledge-intensive firms by improving and nurturing the infrastructure and the conditions for an efficient region characterized by knowledge at every level. In order to adapt to the new competitive landscape, traditional European industrial areas and cities can shift their profile towards intellectual capital, a transformation into what can be conceptualized as a knowledge city.

There are several distinctions of the term knowledge city according to contemporary research and these distinctions derive from many parts of the world. One characterization of a knowledge city directs attention to 'a regional economy driven by high value added exports created through research, technology and brainpower' (SGS Economics, 2002). Furthermore, 'knowledge cities invest significantly more of the community's income (GDP) in education, training and research', compared to ordinary cities in advanced economies (ibid.). Consequently, the main feature that distinguishes a knowledge city is the level of education and research culture.

Another description in Henley (2003) by Edvinsson states that a knowledge city is purposefully designed 'to encourage the nurturing of knowledge'. Edvinsson's viewpoint is focused on activities that mainly different authorities control, with

regard to the architecture of cities. The local authorities decide on the allocation of resources that facilitate knowledge creation and management. This process works as an incentive for companies to locate their knowledge-intensive activities—as opposed to manufacturing activities—in the knowledge city.

1.2 Problem Discussion

In view of the fact that large companies have certain demands and preferences regarding facilities that a city offers, it is important that these requirements correspond to the opportunities provided within the knowledge city. If a firm decides to invest considerable amounts of resources on new offices or other structures in a potential knowledge city and the region turns out to be a disappointment in terms of knowledge access, financial losses may be substantial.

One illustrative case of a disappointment and a massive investment that failed, causing losses of several billions of yen, is the NASDAQ venture in Osaka, Japan. ‘The second-biggest stock market in the United States said it would withdraw from its operation on the Osaka securities exchange on October 15 [2002], crushing the company's plans to establish a 24-hour global equities trading system’ (Watts & Miller, 2002-08-17). NASDAQ Japan targeted 150 companies, but only two-thirds of these were attracted. Not only can these types of ventures have vast financial implications, but they might as well require immense amounts of time and resources. As for NASDAQ, the wasted time in Japan amounts to approximately two years.

Arthur & Arrow (1994) illustrate the properties and difficulties of path dependency and increasing returns. Considerable investments can make a company, city or country locked-in because of these costly ventures, which leave the organization with no other option. Path dependency has also been described as small historical events largely affecting the final impact of ventures (Shilling, 1999). The investment leads the organization into a path on which the organization becomes dependent due to lack of financial resources. Thus, major investments in an appropriate location are essential for any company.

Therefore, companies that intend to relocate their activities to certain cities carefully have to evaluate different available city options with regard to level of education, geographical position, access to trained workforce etc. The scope of research performed within the city is also a critical factor to be estimated.

An organization is locked-in regardless of whether the outcome of the investment is positive or negative. Furthermore, industries that are based on resources such as agriculture, bulk-goods production and mining have a diminishing return since the resources are physical and scarce, whereas knowledge-based industries like

pharmaceuticals, aircraft and automobiles have increasing returns (Arthur & Arrow, 1994). Because of the unconstrained nature of knowledge, the accumulated knowledge will increase when it is transferred to other people, a phenomenon also described as positive feedback. A knowledge-intensive industry is characterized by ‘large initial investments in research and development, and tooling, but once sales begin, incremental production is relatively cheap’ (ibid.). Once a location has been set into operation by a firm, the already existing companies act together in a cluster, an effect involving an increasing self-reinforcing procedure in which even more firms are attracted by the identified achievements of competitors or complementary firms in the region.

As noted above, it is imperative that the municipal administration and investing companies visualize the concept of a knowledge city in the same way since each party has small opportunities to create a successful intellectual city without shared ideas or visions. As Ergazakis, Metaxiotis and Psarras (2004) note, the development of a knowledge city requires ‘a coherent strategy, starting with an examination of the city’s strengths, local government’s political will’ as well as factors such as resources. Thus, the strategy of authorities of knowledge cities must not deviate too much from the expectations generated by firms that invest capital in the cities.

As a foundation of this thesis, different theories elucidating the difficulties that afflict various and sometimes contrasting strategies of companies and municipal administrations towards a knowledge city are used. Knowledge cities are not only examined through Ergazakis’, Metaxiotis’ and Psarras’ model ‘Towards knowledge cities: conceptual analysis and success stories’, but also through their theory of six key success factors related to the knowledge city concept. Several other articles and works have been written about the idea of knowledge cities, including Wheatley’s (2005) ‘Transforming a city’, which lays focus on the European city Barcelona and what other cities can learn from this dynamic metropolis.

Furthermore, the notion ‘Ba’ described in relation to knowledge cities by Baqir and Kathawala (2004)—originally from Nonaka et al. (2000)—is an illustrative model with certain relevance for this subject. Ba refers to a place or a platform, in which different parts meet and create or exchange knowledge. These platforms can be a town hall, a meeting room or an assembly hall (Baqir & Kathawala, 2004). Additional theories in this study are written by Chen and Choi (2004), Torre and Rallet (2005), and the model of city branding.

Especially Barcelona has frequently been discussed in the context of knowledge cities, and is often regarded as a leading example when it comes to areas with a high degree of development:

It's been called the Barcelona Model. Across Europe, a clutch of dynamic cities are following the Catalan capital's lead and reinventing themselves as hot new destinations for holiday tours, international conferences and team-building trips. (Wheatley, 2005)

European cities like Lisbon, Malaga and Copenhagen now use the Barcelona Model in order to emulate or even replicate the rapid success of the Catalan capital (ibid.). Hence, it would be of interest to look at the Scandinavian city Copenhagen from a knowledge city perspective.

Companies that occupy a significant number of employees may constitute the backbone of a knowledge city, and therefore their point of view has to be studied too, together with the efforts of the local authorities. Being a strategically important city in Scandinavia, Denmark's capital Copenhagen is an emerging knowledge city (Bonfour & Edvinsson, 2005; Wheatley, 2005) with an excellent infrastructure, e.g. an international airport, a harbor, as well as a bridge to Sweden and its knowledge-intensive region in the south.

1.3 Problem

One central difficulty is to encircle the knowledge city concept, and to determine the ideal conditions of such a city. The issues that companies need to consider before locating in a city is also a major problem discussed in this thesis.

1.4 Purpose

The purpose of this thesis is to look into the knowledge city concept and the preferences and requirements of companies that locate there for doing business. In order to do this, Barcelona has sketchily been looked at as an early example of a knowledge city, whereas a more exhaustive observation of Copenhagen was conducted. In addition, a list of ideal conditions in a knowledge city that companies can benefit from is put forward.

1.5 Delimitations

Data has been collected from three expert respondents, from Copenhagen Capacity in Copenhagen as well as from three companies in Copenhagen and one in Barcelona. As companies located in knowledge cities are observed in this study, one necessity has been to explore firms with a high degree of competence and skills, i.e. knowledge-intensive companies. As opposed to businesses involving basic products

(like toothpicks) or simple services (like cleaning), the companies studied in the empirical base make and invent complex products that require significant levels of expertise and many well-educated employees. This delimitation enables a better focus on the studied topic, as uncomplicated firms with low levels of total knowledge are less relevant for a knowledge cities study. Therefore, such companies have been excluded.

The purpose is not to compare Barcelona with Copenhagen, but rather to use Barcelona as an illustrative frame of reference because of its early success that other cities look at. Barcelona is applied as a source of inspiration and idea generation in this thesis. Together, Copenhagen and Barcelona constitute the basis of empirical data, from which a description of the knowledge city concept is derived.

A final delimitation excludes the financial key success factor from the main model mentioned briefly above, as this field encompasses a much too vast set of information, which in itself would constitute an entire study. As the nature of financial information of companies—other than annual reports—is sensitive, it would be difficult to obtain such data in a short period of time.

1.6 Disposition

In order to explain the forthcoming structure applied in this study, the disposition is described here. Firstly, following this chapter, the methodology can be found, including for instance the chosen approach and an exposé of the interviewed respondents. Additional components discussed are e.g. the choice of theory and the interview procedure.

Secondly, the theory is exhibited in the third chapter, which is a logical sequence enabling a stringent continuance, as the main ideas and concepts are clearly separated from the empirical findings and analysis. In the theoretical framework, a summarizing figure, which visualizes the connections between the theories used, has been inserted. The most central component in the theoretical foundation is a key success factor model together with the intellectual capital dimensions.

Thirdly, empirical findings derived from the interviews are presented in the forth chapter directly after the theoretical framework. These empirical observations can be dissected into the categories company respondents, expert respondents as well as a representative from Copenhagen Capacity. In addition, two tables compare the most important observations from the interviews, and thereby a summary is provided.

The fifth chapter—the analysis—encompasses a comparison between the theoretical framework and empirical findings, which follows the structure obtained from the key

success factor model. After the assessment of each factor, different interpretations are given in order to enlighten certain noteworthy circumstances from the analysis, closely followed by the backbone of intellectual capital.

Lastly, summarizing the entire study, the concluding discussion with respect to the key success factors is to be found. Here an illustrative figure is also presented, depicting the importance of each factor derived from the theory, the empirical observations and the analysis. The internal structure of chapter six consists of a theoretical outcome and an array of suggestions of ideal conditions in a knowledge city, respectively. The ideal conditions cover ways in which a city can elevate its stature in comparison with other cities. As a last part of the ending discussion, suggestions of further research and studies have been worthwhile to propose, as this thesis is focused on a specific topic of a wider issue.

2 METHODOLOGY

This methodology chapter consists of reflections concerning methodological approaches and interview procedures, as well as a discussion about the choice of theory. Furthermore, all respondents who participate in this study are portrayed here. Finally, considerations regarding the reliability and validity of the thesis conclude this chapter.

2.1 Choice of Perspective

This thesis has been written using a perspective from business administration as the nature of the subject studied deals with companies in the business sector and its context. In particular, the problem discussion is treated by means of an organizational and a sociological viewpoint, as well as by using knowledge management and intellectual capital.

2.2 Methodological Approach

In this study, a deductive approach has been applied. The deductive methodology is essentially based on existing theories and models and tries to find situations in the reality that can be explained by means of these theories. One of the reasons not to apply an inductive approach is the methodology's unrealistic research ideals (Jacobsen, 2002). When using the inductive methodology, the scientist observes the reality and tries to discover patterns that subsequently are formulated into theories (Rienecker & Jørgensen, 2002). However, since the prejudices of scientists unquestionably affect how the selection of information is carried out, the inductive approach can be unrealistic. The deductive approach has a limitation too, as one unconsciously might discard collected information that does not confirm the chosen theory. Andersen (1998) notes that in social sciences, the deductive and inductive procedures are rather difficult to separate from one another, especially during field studies, since the methods are imbedded in each other and go on throughout the entire study.

In the hermeneutical spiral (Andersen, 1998), the researcher's work of gathering data, analyzing and interpreting the data is a continuous process where the researcher is open to new information—the interpretation process is not separated from data collection (ibid.). The researcher's interpretation of the object studied is based on a pre-understanding consisting of previous experience, education and prejudices (Holme & Solvang, 1997). Prejudices are an important factor in the interpretation of data; they are based on social subjective perceptions of the phenomenon studied (ibid.). By being aware of this dilemma, one can try to apply the theories for the study as unbiased as possible, not rejecting ideas that appear to be unreasonable at first sight. The researcher builds up and tests assumptions and ideas that will be modified and generate new ideas and new collection of data. This process will go on through the research and the research material will be very different in the beginning compared to the end, which is also true for this study. As the study pursued, several additional questions did arise and the research material changed. When interpreting the research object, the researcher has a dialogue with the research object in order to gain understanding of the research object's world. The researcher interprets the dialogue, gets a better understanding and is able to continue the dialogue with a new level of understanding. The interpretation process then continues in this spiral pattern (Andersen, 1998).

2.3 Choice of theory

As the concept of knowledge cities is a rather new phenomenon, models from other disciplines within business administration constitute the theoretical framework too. Such areas are knowledge management, sociology, intellectual capital, and organizational theories. A brief overview of the theories being applied in this study follows below, whereas an in-depth description of these theories is provided in the next chapter.

Intellectual Capital

An initial theory originating from Edvinsson & Malone (1997) is the intellectual capital concept, which is used to give a structure of the further components of the theoretical framework in this study. The intellectual capital approach consists of relational capital, human capital and organizational capital, dimensions that later on in the analysis are integrated with the key success factors described below.

The Knowledge City Concept

Most central in this thesis is the theory presented in an article called 'Towards knowledge cities: conceptual analysis and success stories', by Ergazachis, Metaxiotis

and Psarras (2004). The model virtually covers the entire spectrum of the distinctive features one can expect from a knowledge city, from the political key success factor to the technological key success factor. Thus, the choice of this theory is based on its clarifying qualities in respect of several other theories that explain the most important aspects of a knowledge city. In turn, the knowledge city distinctions used by the abovementioned authors derive from Leif Edvinsson (Henley, 2003) and a research project (SGS Economics, 2002), sources that can be regarded as a theoretical starting point for this thesis as well.

As Ergazachis', Metaxiotis' and Psarras' (2004) model covering the success factors of the knowledge city is particularly new, it has even more value for the topic studied in this paper. The theory's novelty is especially positive when discussing the technological traits of the knowledge city.

Creating a Knowledge-Based City

Apart from the focal theory 'Towards knowledge cities [...]', a study written by Chen and Choi (2004) has been appropriate to make use of, since it illustrates how tacit knowledge is transferred and how companies share the same infrastructure, resulting in a cluster with a shared pool of skilled labor. Thereby, a self-enforcing process is created, and the market attracts more suppliers and skilled labor. Moreover, Chen's and Choi's article explores the necessity of constituents like physical and human resources, and support from the hosting government, etc., as a set of criteria of a knowledge city. This standpoint is imbedded in the central model by Ergazachis, Metaxiotis and Psarras (2004), along with the additional theories.

The Creative City

A third framework in the theory chapter is Charles Landry's (2000) picture of the creative city, which encompasses a pronounced view of the culture as a driving force for a knowledge city. Landry's culture discussion would be fruitful to study when looking into Copenhagen and Barcelona, since one can anticipate a rather wide range of attitudes towards the importance of culture. Key words being brought up by Landry (ibid.) are especially culture and its social cohesion, and the strong connection culture has to tourism in a city.

Ba

A platform or a place designed to provide people with a knowledge exchange forum is called Ba (Nonaka, Toyama & Konno, 2000; Baqir & Kathawala, 2004). The concept is applied in this thesis partly because of its technological guidelines that

would add possible characteristics to the knowledge city, partly because of the interesting analysis that the theory would end up in. At a superficial glance, Baqir's and Kathawala's (ibid.) Ba theory from a knowledge city perspective is very aligned towards IT and technology, a focus which to some extent limits the use of the Ba study.

City Branding

The city branding theory constitutes another part of the central framework for this study, and covers six different categories, with which a knowledge city can enhance its achievements in terms of attractiveness. These categories include municipal policy and external relations; private sector and institutions; tourism, conventions and events; investments and settlement; culture, heritage and landmarks; and people (Placebrands Ltd., 2005-05-25). Many of these requirements overlap the previous theories, but some perspectives add further dimensions, for instance heritage and landmarks, which not is emphasized in the other used literature. Both the overlapping theories and the new dimensions are valuable to assess.

Proximity and Location

Among the main concepts applied, the final theory—covering proximity and location—is of great importance, since it argues that geographical proximity between companies in an advanced city not is as important as believed earlier (Torre & Rallet, 2005). The authors of the article propose that the meaning of geographical proximity diminishes with time, but the negotiation procedure, the necessity to share equipment and so forth all require a close proximity. This is also one of the theoretical conditions that would be relevant to examine.

2.4 Procedure

2.4.1 Empirical Data Collection

The character of this paper makes a qualitative approach more suitable than a quantitative when examining the subject. The primary purpose of a qualitative approach is to gain a deeper understanding of a complex problem rather than explaining cause and effect with a mathematical approach (Andersen, 1998). Especially noteworthy is that qualitative methods offer rich information about few examined units, and thereby the research becomes more thorough and comprehensive (Holme & Solvang, 1997). The variables studied in this thesis are values, attitudes, opinions and other non-quantifiable data (Lundahl & Skärvad, 1992). Therefore, the

collection of information to this study has been characterized by a close relation between the researchers and the source of information (Bryman, 1995). Since it is difficult to be familiar with the circumstances and conditions for companies in knowledge cities in advance, the focus on directness that comes with a qualitative approach is compatible with the purpose, and furthermore, the qualitative method lays few limitations on the respondent's replies (Jacobsen, 2002). Additional advantages of the qualitative approach are the rather nuanced data collected during the interviews and the high degree of flexibility. The researcher is able to adjust or modify the problem discussion and purpose of the study gradually, as the data collection advances (ibid.).

One disadvantage related to the qualitative method is the considerable requirements of resources, due to the extensive interviews that must be noted and memorized (ibid.). In order to mitigate this issue, the data from the interviews were not only put down in notebooks, but also digitally recorded. This procedure is described below. Yet another shortcoming related to a qualitative method can be the flexibility, since a problem discussion and purpose constantly might be altered (ibid.)—the research can end up entirely different from what was desired initially. This problem has been counteracted by specifying the topic of discussion at a rather early stage, which resulted in a reasonable time span for the thesis and not continually prolonging it.

2.4.2 The interview procedure

While this paper in part is based on contact with companies that are operating in Barcelona and Copenhagen, the possibilities to visit the cities and collect data, especially in Barcelona, have been limited, which is why the company interviews have been performed through e-mail. The three Swedish respondents with expertise on knowledge cities were interviewed through telephone, e-mail and a personal meeting, respectively, whereas the discussion with Copenhagen Capacity took place at a personal meeting in Copenhagen.

A positive aspect with the e-mail interviews carried out with respondents on a distance is the physical absence of the interviewer. According to Groves & Kahn (1979), the interviewer effect is created by the presence of the researcher and results in unusual behavior and answers by the respondent. However, this effect is eliminated when the respondent replies per e-mail or is interviewed via telephone. With e-mail inquiries, possible misinterpretations or problems arising because of different vocal pitches and intonation related to telephone interviews could be eliminated as well.

A main disadvantage that is related to the use of e-mail in a research is that the respondent is unable to express the fine distinctions desired in an answer, and furthermore, the interviewer lacks the opportunity to ask additional questions, as

other interesting topics arise. In order to cope with this problem and complement interviews, several further questions have been asked afterwards when it was considered necessary.

Holme and Solvang (1997) give some guidelines regarding interviews. When designing a questionnaire, the researcher must estimate the level of commitment on the respondent's part. Very long interviews will lead to less serious answers and dropout will increase dramatically (*ibid.*). Thus, the magnitude of the questionnaire was not more than 18 questions, and the telephone interviews and personal meetings did not exceed 90 minutes. The researcher must also design the questionnaire so that controversial questions do not appear in the beginning—it might make the respondent uneasy and reluctant to answer any further questions. The interview should start with formal and easy questions, and then proceed with more controversial questions about values and opinions. The interview is finally rounded off with simple questions to neutralize the tension. Consequently, the questionnaires in this thesis were designed accordingly. Furthermore, a question intended to suggest a specific answer is affected by the structure of the question but also in what context it is placed (*ibid.*). The question alone might give one answer, while in context of other questions it might suggest a different answer. Finally, the questions must be in cohesion with the theoretical framework to be of any value to the research.

Moreover, in this research, it has been important to let the respondents finish their arguments during the discussions instead of abruptly interrupting conversations, and one must be familiar with the fact that respondents sometimes are unwilling to disappoint the researcher (Holme & Solvang, 1997). Consequently, he or she might exaggerate or change answers in order to please the interviewer. This phenomenon was tried to be counteracted by acting as an understanding interviewer. One more interview recommendation that had to be applied was to not force the respondent on more information than he or she is willing to give (*ibid.*).

After an interview has been performed, the time issue is a factor that influences how good the recollection of the content and answers is. If a dialogue over telephone or in person is put together two weeks after it occurred, much of the information might disappear. People forget things fast, and if a journalist has made an interview and not immediately takes notes, he might become misled by his memories (Lundgren et al., 1999). Therefore, thorough notes were taken during the interviews in this study and furthermore, the conversations over telephone and in person were recorded using digital voice recorders (two of them). Finally, the recorded dialogues were written down into something similar to a 'transcript', without unfinished sentences or any meaningless information.

Since the concept of a knowledge city, as mentioned earlier, is wide and many distinctions exist, the structure most appropriate to the interview questions would

here be a semi-structured approach. This method enables some guidelines and main questions to the researcher, but there is room for unforeseen digressions from the topic, if something interesting is said during the face-to-face interview. A strictly structured interview would most likely yield less informative answers as the researcher's own perception of the situation would dominate the procedure, and the unstructured interview, on the contrary, would not cover every desired topic. Therefore, questions that are more precise were used.

2.4.3 Choice of Interview Respondents

Since this research encompasses topics like the desired environment and conditions for companies operating in Copenhagen and Barcelona, it has been necessary to examine viewpoints from different firms with business activities in the cities. In addition, three expert respondents give their viewpoints of the questions regarding knowledge cities. The contact with experts enabled more impartial attitudes towards the problem discussion, and these accounts give additional observations, with which parallels to the theories and replies from companies can be drawn.

Basically the same questions were asked to the companies and experts, save specific company-related issues and questions concerning academic theories, of which the expert respondents in general had a better understanding.

Due to the focus on Copenhagen when looking into the knowledge city concept, a third type of interview object was consulted. This respondent is Copenhagen Capacity, which—in contrast to the expert respondents—has a very direct contact with companies in the Copenhagen metropolitan area as the organization assists firms in several ways. Copenhagen Capacity is financed by the public and has numerous congruent traits with the municipal administration in a city. The content of the questions were more adapted to what a city can do for companies and interactions between cities and firms.

2.4.4 Interview Respondents

A common problem with interviews is when the researcher interviews people of high rank—the interviewer is often of a lower social rank (Andersen, 1998). These people are difficult to interview since they are used to be in control and thus tend to reformulate the questions and in an evasive manner slide into subjects they prefer to talk about (ibid.). Furthermore, people in leading positions are often articulate as well as accustomed to interviews. They know what to answer and often do so in a very diplomatic manner. There is no unambiguous answer to this problem but there are some things the interviewer can do to improve the situation (ibid.). One way is to be

well-prepared and have knowledge about the subject the study concerns. The researcher should also gain the initiative in order to be in control of the interview, and finally it is easier to be two persons conducting the interview, taking notes, keeping an overview of the interview and support one another during the interview (ibid.).

With this in mind, most of the measures above were applied, for instance being well-prepared and conducting the interviews in pair. The difficulty associated with evasiveness and eloquence of respondents was partly avoided throughout the e-mail interviews, as the respondents had limited abilities to rephrase or circumvent the questions.

2.4.4.1 Companies

All of the representatives of the companies in this study possess either a managing or a leading position, which indicates that they have a multifaceted and holistic insight in the respective organizations. Only one company wished to be anonymous in this study, and is therefore referred to as Respondent A (as in anonymous).

Respondent A

Operating within the pharmaceutical industry and providing different products, Respondent A has an important function not only for other pharmaceutical organizations but also for the innovative region called Medicon Valley, situated in Copenhagen and Skåne, Sweden. Medicon Valley is a joint endeavor between Position Skåne and Copenhagen Capacity, and the region ranks no. 3 in Europe within biomedicine research. The total pharmaceutical exports of Medicon Valley are very high, and numerous companies do business related to biomedicine in this area. These involved companies are depicted in Figure 1 below (<http://www.mediconvalley.com/>, 2005-05-17).

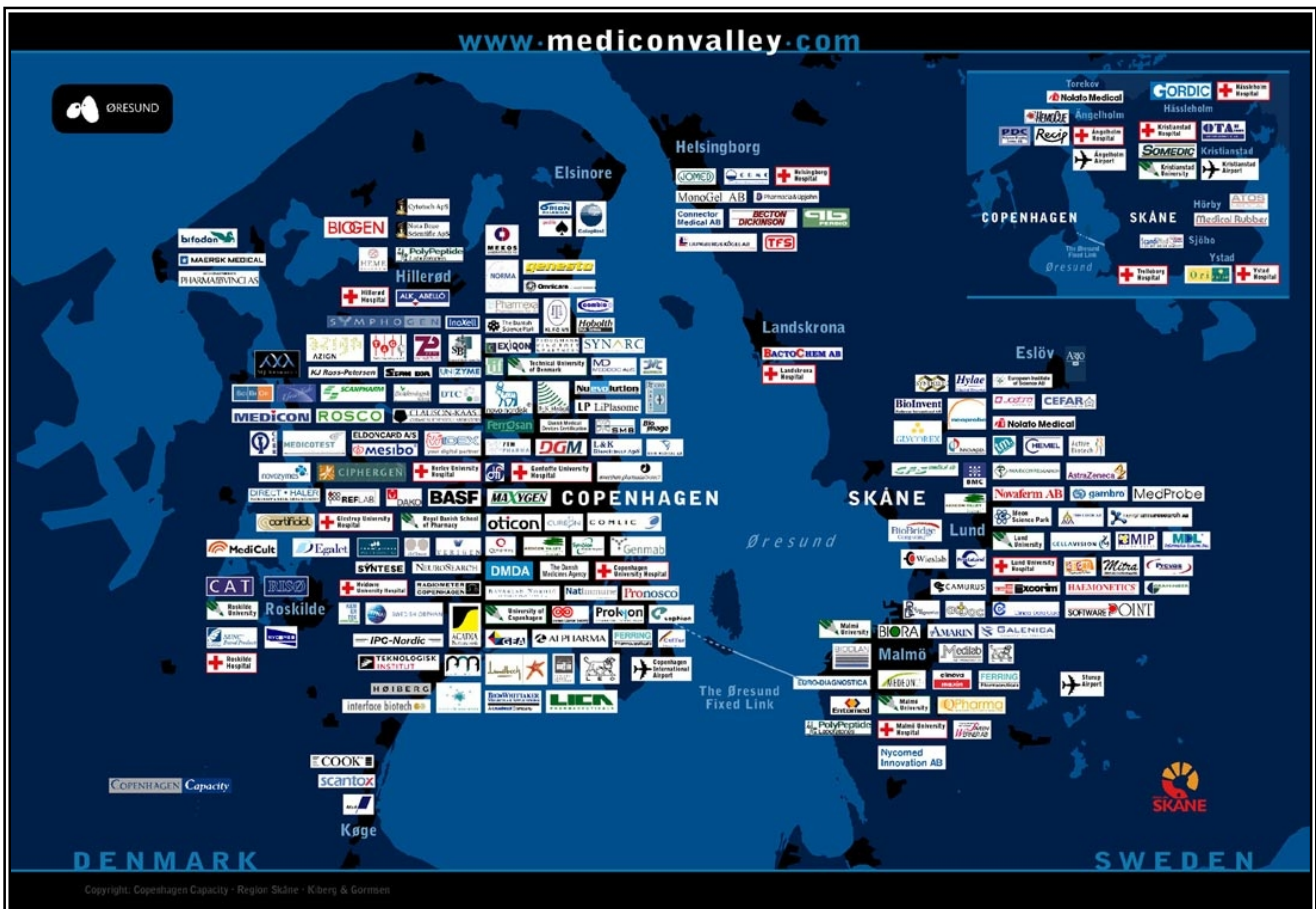


Figure 1: A map of Medicon Valley, illustrating major biomedicine companies in the Copenhagen region and Region Skåne in Sweden. www.mediconvalley.com (2005-05-17).

Respondent A is a relatively knowledge-intensive company, and its products are used as an ingredient in other medicines. Less than 150 people are employed at Respondent A in Copenhagen, which makes it rather small, compared to the major pharmaceutical firms. Respondent A was created after 1975 (company homepage, 2005-05-17).

The interviewed respondent from the company works with quality in the Copenhagen region, a position that requires a skillful overview of the entire production and the company, so that the risk for mistakes by the company is minimized. The initial contact was made by telephone, and thereafter the interview object was interviewed through e-mail.

Genmab

Similar to Respondent A, Genmab is a biotechnology company located in Medicon Valley on the Copenhagen side of the innovative region. The number of employees is approximately 200, and the company has been active since 1999. As Genmab creates and develops human antibodies for the treatment of life-threatening and debilitating diseases (<http://www.mediconvalley.com>, 2005-05-19), the accumulated knowledge within the organization is especially intense. Another area in which Genmab executes research and develops products is cancer treatment. In addition, the biomedicine company studies for instance organ transplant rejection, a field where a new product is on its way.

Correspondence with Genmab was carried out using e-mail, and no telephone contact took place, since the respondent was occupied by meetings in London and other cities. The respondent, Helle Husted, is director of investor relations and public relations, which makes her field of competence, among other things, strategy issues of the company as well as superior connections to investors.

Sandvik

Sandvik is an international company initially founded in 1862 in Sweden, and the Sandvik Group has approximately 38 000 employees in about 130 countries. Its business areas are high-technology engineering and advanced products, and three core competences include high-speed steel tools for metalworking applications; machinery, equipment and tools for rock-excitation; and stainless and high-alloy steels as well as process systems (<http://www.sandvik.com>, 2005-05-17).

The studied division called Sandvik Materials Technology offers a wide range of high-technology stainless steels, special alloy materials, and advanced value-added products, and is located in Barcelona. The company has constantly grown in the city, as it has acquired several other skilled companies in the industrial sphere, and in Spain the division provides work for about 370 people. Ulf Melin is the manager of Sandvik Materials Technology in Barcelona, a position that comprises responsibility and certain knowledge about the organization. The respondent was first contacted in Spain via telephone and subsequently he replied to the questions through e-mail.

Electrolux

The world's largest producer of appliances and equipment for kitchen, cleaning and outdoor use—Electrolux—has located some of its businesses in Copenhagen. From a historical viewpoint, Electrolux established its activities about 80 years ago, initially

producing vacuum cleaners. From then on, the company has made several innovations and acquisitions, which is why the Electrolux Group has more than 80 000 employees today (<http://www.electrolux.com>, 2005-05-17).

Electrolux Laundry Systems is in the spotlight of this research, as the division has the headquarters located in Copenhagen, controlling over 1 500 employees, who also work in Sweden and France, apart from Copenhagen. The company not only provides professional laundry solutions to individual businesses (*ibid.*), but also to a global customer base. Peter Andersen, who is the communications and brand manager of Electrolux Laundry Systems at the headquarters in Copenhagen, took his time to answer the questions for this research study by e-mail. No telephone contact preceded the interview in this case.

2.4.4.2 *Experts*

In order to obtain a profound as well as an extensive description of knowledge cities, their characteristics and other associated topics that were examined through interviews, the number of expert respondents was settled on three. With this rather wide range, the collected data will include more perspectives than a single interview with one specialist on the subject.

Christer Asplund

The interview with Christer Asplund was carried out over telephone. Asplund has written several books and articles on regional branding, innovations, information technology and so forth. He is the former managing director of Economic Development Agency in Stockholm as well as managing director of Business Arena Stockholm. He is a leading consultant with profound experience in fields like building attractive infrastructure at different locations, innovative cluster-building as well as place-marketing strategies. Furthermore, 'Christer Asplund is currently the Chairman of the Swedish Inventors Association as well as a senior advisor to the City of Stockholm' (<http://www.livinglabs-europe.com/>, 2005-05-19). He has worked for EuroFutures (a research and consulting company) for 10 years, and written his latest book together with the well-known marketing expert professor Phillip Kotler.

With this kind of background, the expertise of Asplund is very appropriate for this thesis, especially due to his knowledge about information technology and branding of regions. There is a strong connection between Christer Asplund's field of competence and the theories that are being used in this research, such as IT and city branding, etc.

Therefore, it is easier in the analysis to contrast the expert opinion with what the theories emphasize as important.

Jan Annerstedt

The second expert respondent in this study, Jan Annerstedt, has a strong academic background, as he works as a professor at the Department of International Economics and Management at Copenhagen Business School. He holds the UNESCO Chair in Communication there (<http://www.livinglabs-europe.com/>, 2005-05-20). Certain research topics that Annerstedt studies are regional economics and urban development as well as organizational intelligence, which all to some extent have relevance for this research. Furthermore, Jan Annerstedt has consulting expertise from projects in the private industry including companies like Ericsson and Telenor etc., as well as tasks for governments and international organizations (ibid.). The interview with Jan Annerstedt was arranged by means of a personal meeting in Lund.

Kjell Cronert

The third respondent functioning as an expert (however with less academic background than the other experts) is Kjell Cronert, who works as chairman of the board for the Enterprise Agency ('NyföretagarCentrum') in Helsingborg, Sweden. He has genuine knowledge on the subject of company start-ups and the ideal conditions for companies that are about to establish themselves in cities. The Enterprise Agency provides assistance in the start-up phase of firms, often the most critical stage of survival.

In addition, Cronert has experience from the advertising field as a managing director of the advertising firm Bates Cronert. Because of this position, he has competence related to the promotion of companies and cities. Kjell Cronert was interviewed by e-mail.

2.4.4.3 *Copenhagen City Representative*

Copenhagen Capacity

Copenhagen Capacity is the official investment agency for the greater Copenhagen region, and its mission is to assist companies with the consulting, facts and networking needed to make the investments and localizations successful. The services that Copenhagen Capacity provides are free of charge and the organization provides interested firms with for instance tailor-made visit programs to the region,

information on investment opportunities, and detailed analysis and decision-making support.

The representative from Copenhagen Capacity was Danny Christophersen, employed as an analyst at the organization. He has a rather long experience of assisting companies that intend to open offices or headquarters in the Copenhagen region, as he has worked for over five years at Copenhagen Capacity. The analyst position involves compiling reports concerning the development of the region and taking care of enterprises that need assistance. The interview was made face-to-face during a visit at the Copenhagen Capacity office in Copenhagen.

2.5 Validity and Reliability

The two concepts validity and reliability are central when determining the academic credence of a treatise. Thus, a high degree of both variables is worth striving for. A study can examine a very relevant topic but using inappropriate measures, so it is not enough if merely one measure is considered high.

The validity 'of a measure raises the issue of whether it really relates to the concept that it is claimed to measure' (Bryman, 1995). Another aspect is how much of the object being studied is explained by the measurement, i.e. an intelligence test that measures memory capacity, which is an important aspect of intelligence but not the only one (Eriksson & Wiedersheim-Paul, 2001). Reliability measures to what extent the results are affected by coincidence or chance, and how exact the measurements are over time. With a high reliability, independent researchers studying the same phenomena will reach the same results or at least in the proximity of the original result (Holme & Solvang, 1997).

Validity consists of internal and external validity, where internal validity refers to the appropriate measures to assess the objects studied, whereas external validity refers to the generalizability of the results (Jacobsen, 2002; Bryman, 1995).

One technique applied to ensure that the internal validity of this thesis was fully adequate was to prepare the respondents for the discussion topics by sending them the questions ahead of time. During this period of time, the respondents had the opportunity to reflect upon the questions. This procedure was put into operation before the telephone and face-to-face interviews took place, whereas the respondents who replied through electronic mail could answer the questionnaires whenever they wanted. The internal validity was also taken into account in the choice of respondents, who are in managerial positions and have a close relation with the phenomenon studied.

A way to compose valid questions was to screen trial questions through a number of skilled consultants. The screening was performed before the real interviews took place, which sorted out superfluous questions. The external validity ought to be high since as many as three expert respondents were conferred with, and if Danny Christophersen at Copenhagen Capacity is sorted into this group, there are four experts in this category. With a total of four companies that explained the knowledge city concept, the external validity among the companies should be sufficient. Yet again, the qualitative approach does not have the same properties as the quantitative, and hence the results cannot be generalized to the same extent: 'Qualitative researchers usually recognize that they cannot provide a definitive account of their subjects' perspectives' (Bryman, 1995). The results are specific to each case, hence not very representative for other industries.

The reliability of the data collection is high because of the interview procedures that included both digital voice recorders and written notes. Thereby, the risk of coincidence when reproducing the data is minimized. With respect to the data's stability over time, the long experience of the respondents plays a major role, as one can expect their accumulated knowledge to be relatively stable, which increases the reliability. Another aspect of the reliability originates from the companies' concerns regarding their own business interests. The respondents might have incentives to respond in a manner that does compromise their own agendas. However, the nature of the questions about knowledge cities were in a sense not very controversial, which minimizes the dilemma associated with sharing of sensitive information.



Figure 2: An overview of the knowledge city Barcelona.
<http://tswww.epfl.ch/~steiger/album/images/icip2003/tn/barcelona.jpg.html> (2005-05-30).



Figure 3: An overview of the Ørestad region (encircled in red) in the knowledge city Copenhagen.
http://www.orestad.dk/luftfoto_orestad_stor.jpg (2005-06-14)

3 THEORY

In this chapter, a theoretical framework is presented, making use of previous research. In the beginning of the chapter, the intellectual capital theory is discussed, followed by a model illustrating six key success factors—this model is used as a main model. The consensus of the other researchers' studies is illustrated from a viewpoint of the main theory. The theories are categorized under the various key success factors of the main model. Among the available theories explaining the nature of knowledge cities and selection of a city for business, certain models are more pertinent than others, and therefore the selection of models has been narrowed into a more focused range, excluding more general approaches that lack an obvious link to the this topic.

3.1 Intellectual Capital

As an introducing perspective, the theory of intellectual capital clarifies some important concepts, and these are used to add a central dimension to the study. The intellectual capital dimension lies beyond all the other theories that follow, in the sense that intellectual capital is more general and applicable in a much wider perspective. One can use the intellectual capital concept in additional types of studies, whereas the specific theories subsequently described are less pertinent to other discussions, not involving the knowledge city aspect. For this reason, the intellectual capital contribution is separated from the forthcoming summary of theories in this thesis. Instead, it is applied later in the analysis, organizing the main model constituents that are explained below. However, intellectual capital is initially outlined here.

Intellectual capital is divided into human capital, organizational capital, and relational capital (www.intellectualcapital.se, 2005-06-10; Edvinsson, 2005-02-21). According to www.intellectualcapital.se, human capital consists of the people working for a company, which has limited control over employees, for instance through employment contracts. Moreover, human capital includes the management of the employees in a firm. The next element of intellectual capital—organizational

capital—consists of created knowledge made available to fellow employees, as well as intellectual properties and process capital. Intellectual properties are for instance patents and licenses, whereas process capital deals with efficient internal processes like IT systems and databases, but also the reprocessing of competence in firms (Edvinsson, 2005-02-21; Bounfour & Edvinsson, 2005). The final intellectual capital section is the relational capital, encompassing relations to customers, networks with suppliers and distributors as well as brands that reinforce the company (ibid.). These three dimensions enable a valuation of the company's non-financial assets, and can be applied to cities as well (Bounfour & Edvinsson, 2005). In order to extend the depth of the analysis, these dimensions are used to conclude the discussion once the empirical illustrations have been presented.

3.2 The Knowledge City Concept

Summarizing the article by Ergazachis, Metaxiotis and Psarras (2004) is a convenient way to initially encircle the knowledge city concept. When comparing it with ordinary cities, some traits are especially prominent. Ordinary well-developed and modern cities most often have a high quality of life, a dependable and cost competitive access to infrastructure, an architecture that incorporates the new technologies, a central educational strategy, a business culture, etc. Moreover, market access and networks of commercial influence are crucial factors for a modern city (ibid.). These criteria maintain that not every city at a given moment in time qualifies as a city that eventually can be transformed into a knowledge city. First, the region must fulfill the more fundamental requirements such as a modern infrastructure and so on, which implies that the middle-step, a well-developed city, cannot be overlooked in the progress towards a successful knowledge city. Only then there is room for further development into such a city, with the following important traits: research excellence; a provision of access to new communication technologies; an ability to efficiently generate, attract as well as retain skilled citizens; the existence of civic center that are open to diversity; and finally, provision of instruments to make knowledge accessible to citizens (ibid.).

The criteria mentioned above that distinguish a knowledge city are some possible among several existing theories. If a city is a well-developed region, and furthermore enjoys research excellence, provision to new communication technologies, etc. the chances of attracting companies and competence would according to this theory be more favorable. It remains to be seen to what extent a knowledge city fits into these descriptions and what characteristics of a region that tends to score higher altogether.

Another model that Ergazachis, Metaxiotis and Psarras (2004) cover is the six key success factors, with which a potential knowledge city separates itself from ordinary

cities, if the key success factors properly act together. The six factors are societal, environmental, technological, financial, political and strategic as depicted below.

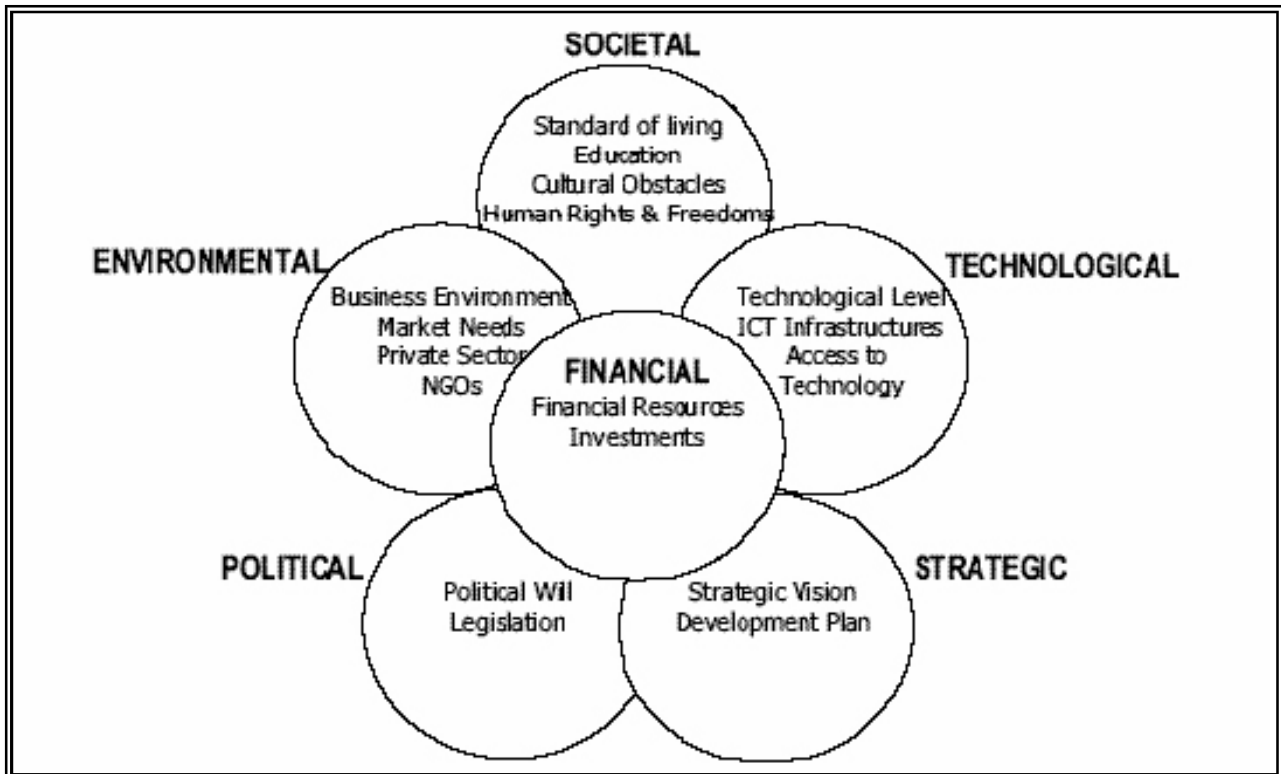


Figure 4: The key success factors that constitute a knowledge city. Ergazachis, Metaxiotis and Psarras (2004).

Particularly the political will (within the political circle) is according to the article a key among the different categories, being a ‘spark’ for further steps in the development. In addition, an efficient legislation must be present. Although significant in itself, the political aspect as a success factor of the knowledge city has little value without strategic considerations, divided into a strategic vision and a development plan. The vision ‘should incorporate and take into account the entirety of in-depth knowledge concerning the city status’ (ibid.), and the participants that are responsible (e.g. local government) for the future of the city must implement these strategies. Views concerning the financial and technological constituents of the model revolve around a sufficient level of funding, and access to new technologies. An extensive information and communication technology, ICT, is naturally worth striving for too. In this concept, ‘Hot Spots’ could for instance be included, referring to high-speed access at places like ‘cafes, airports, and hotels’ (Hotspot Zone, 2005-05-28) or other places in a certain city. The number of Hot Spots per capita in an area can give an indication of how widespread the ICT infrastructure actually is, and thereby its capabilities for fulfilling conditions of the technological category. (Examples of this is that there were 151 Hot Spot locations in Copenhagen and 141

within Barcelona on April 28 2005, whereas on June 14, the number of locations had increased to 158 and 174, respectively, which indicates a steady extension of ICT (Hotspot Zone, 2005-05-28, 2005-06-14.) As for the societal considerations depicted in the middle, above the other success factors, standard of living together with e.g. education plays a crucial roll. This is because new concepts easier would be adopted among citizens, when education and standard of living have adequate quality. Finally, an environmental approach is emphasized by Ergazachis et al. (2004), with focus on business environment and different market needs. The private sector and NGOs (nongovernmental organizations) are very central and 'their commitment to the strategic plan and their active support to the implementation of projects will help towards the direction of transforming the city into a knowledge city' (ibid.).

3.3 Creating a Knowledge-Based City

Stephen Chen and Chong Ju Choi (2004) discuss three processes that are interconnected in creating and transferring tacit knowledge in a city. The different processes are how local knowledge is created, how knowledge is transferred from external sources and how that knowledge is put into production. These issues are discussed under different topics, starting with economic geography, international business/management and urban planning, moving on with creative capital and tacit knowledge and finishing with the transferring of knowledge into production. The economy has transformed from mass production to flexible specialization, which has resulted in a weakening of economies of scale, making external economies a necessity. Companies may share the same infrastructure and draw from the same pool of skilled labor, forming a cluster that becomes self-reinforcing as the market grows, attracting suppliers and skilled labor (ibid.). Research in the last decade shows a few variables that are prominent for the economic development in a city. The key determinant is the ease of interaction and exchange with other major players, i.e. suppliers, customers, information and technology. Furthermore, economic geography is influenced by two opposing forces, clustering and scattering. Clustering is driven by factors such as market size effect and concentration of skilled labor, while scattering is driven by factors such as rents, availability of land and immobility of labor (ibid.).

The growth of multi-national enterprises is based on Dunning's (1980) framework for foreign direct investment that states three conditions that need to be met for any foreign direct investment to occur; ownership, internalization and location. Ownership refers to possession of scarce, unique and sustainable resources, capabilities and managerial power as well as monopoly power that makes a firm attractive for foreign direct investment. Internalization refers to the advantage of having direct control over goods rather than having to trade for them in the open market. Factors that make a location attractive for foreign direct investment are

physical and human resources, support from the hosting government, cost of local factors of production and the strategic fit with the international company's resources. Furthermore, Porter (2001) stresses the link between industry and university as a factor critical for success in a high technology cluster. In addition, the link between industry, government and institutions is stressed since they together can provide specialized training, education, information and technical support.

The urban and regional planning has changed over the years from a time when the work force was relatively immobile and the authorities focused on infrastructure such as housing, transportation and communication to the present, where the workforce is very mobile and authorities focus on social amenities and communities. Creating an appealing ambiance that will improve the 'quality of life', thus attracting talented and highly skilled workers is essential for a knowledge city (Chen & Choi, 2004).

Human capital has in various researches been confirmed to be connected with economic growth in a city. The scarce human resources are also a factor that drives clustering to different cities. Moreover, the latest research indicates that it is a certain kind of knowledge workers that drive economic growth, namely creative capital. Creative capital refers to professionals in various fields such as engineering, law science, art and music that are producing knowledge or solving complex problems. Contemporary research also suggests that it is tacit knowledge and not just creative knowledge that is the key factor to economic growth. Being able to transfer tacit knowledge between entities working in close proximity is a key factor in creating a competitive advantage. Thus, it is important to design a system to transfer tacit knowledge from idea to production, which consequently will constitute the core of a city's success as a knowledge city (ibid.).

3.4 The Creative City

There are many definitions of a knowledge city, but all knowledge cities are not very successful. The successful knowledge cities have some coherent characteristics that distinguish them from less successful cities. These cities have a widespread leadership, risky business investments and interconnected projects. '[...] cultural issues, expressing values and identity, is key to the ability to respond to change—especially organizational culture' (Landry, 2000). Another crucial matter that is recognized is that no one can reshape an urban structure alone, which has brought disciplines together forming constructive alliances and co-operations. The co-operations lead to recognizing that a successful urban policy needs to pay more attention to cultural issues and use approaches that are more creative and holistic. A sustainable success depends on developing the thinking of policy makers. The needed qualities for continuous growth are 'open-mindedness, willingness to take risks, a clear focus on long term aims with an understanding of strategy, a capacity to work

with local distinctiveness and to find strength in apparent weakness, willingness to listen and learn' (ibid.). These issues characterize what make persons, organizations and cities creative. This kind of creativeness can constitute a beneficial strategy when striving for success.

3.4.1 Culture

The increased attention of culture to the development of urban creativity has raised some important issues. The production and distribution of cultures in many disciplines, e.g. radio, bookselling, music and theatres need to be interconnected to become a fast growing sector. The importance of culture increases when industrial production resources move to low cost countries—in such a case culture is considered a *savoir* for many cities. Furthermore, cultural heritage and tradition have a significant effect on humans in terms of security and well-being.

Why, in the rush for change, do we find solace and inspiration in the buildings, artifacts, skills, values and social rituals of the past? Is it because in a globalizing world we seek stability and local roots? Cultural heritage connects us to our histories, our collective memories, it anchors our sense of being and can provide a source of insight to help us face the future (Landry, 2000).

Culture is a sum of past creativity and 'each aspect of our culture—language, law, theories, values, knowledge—needs re-assessing as it is passed to the next generation' (ibid.). Culture is what makes a place unique and distinctive.

3.4.2 Cultural Resources

Cities use raw material as resources to create economic value by adding value in production; in the same way cultural resources in a city can be exploited. A city can arrange festivals to celebrate the cultural resources whatever they may be. Culture is embodied in the skills and talents of the people, but also in buildings, symbols, activities, and local crafts and complicated local skills. Moreover, culture nourishes tourism but most tourism is focused on a constricted notion of culture, only exploiting museums, galleries, theatres and shopping. Cultural institutions amass culture to a city, thus having a direct impact on inward investment and at the same time attracting international companies that are looking for a vibrant cultural environment for their employees. Culture also has a sociological effect by strengthening social cohesion, increasing personal confidence and improving life skills. One more perspective of the culture in cities, proposed by Florida (2002), emphasizes a combination of culture (artistic and cultural creativity), business (economic creativity) and innovation (technological creativity) as ideal stipulations of a creative economy. Thus, Richard

Florida complements Landry's highlighting on culture, which conceivably improves a city's ability to become more successful from a knowledge point of view. However, it remains to be seen what relative importance companies and other contributors involved in the knowledge city discussion attach to culture.

3.4.3 Cultural Change

In order to be able to utilize the cultural resources in a city and unleash the creative power in the city, a new way of thinking is needed. However, there are many obstacles that need to be eliminated and the very long list of hinders can seem insurmountable (Landry, 2000). Uncreative urbanism is characterized by bureaucratic rigidity constraining peoples' creativity, and creative people are not hired because there is no need for them, resulting in a lack of creativity in the city planning. The abuse of different interests is a big problem; large enterprises invest in a city, which the city can benefit from, but the way these enterprises then exploit the location distorts the appearance of the city. For instance, Krakow in the south of Poland, which is a fairly small town with a rich culture, has been contaminated with large corporate neon signs that hide the rich culture of the town. Another example is light pollution: big night venues and discos have light beams searching the sky during nighttime. In addition, the presentation of the city has become distorted and the descriptions of a city have become more homogenous, making it hard to see a distinguished difference between cities. All cities are suggested to be central, a gateway or otherwise important junction in the region. Further, only a narrow perspective of cafés and beautiful scenery is presented and those pictures could have been taken anywhere. These misrepresentations have become common in most cities (ibid.).

The electoral system also causes a problem of accountability and liability; politicians are elected by the public for a short term and are accountable to the public. Hence, politicians are risk averse, which slows the response to problems. The short term during which politicians are in office (usually four years) causes them to prioritize big projects and festivals that show immediate visual results. The limited time politicians are in office also affects the partnership with private companies. Furthermore, laws, regulations, permissions and licenses slow down the bureaucratic procedure even more. Instead of being proactive, bureaucracy is reactive, looking back at yesterday's problems instead of looking forward at tomorrow's opportunities (ibid.).

3.4.4 Changing Mindset

In order to enable innovative thinking there is a need to change the mindset of people (add mind value), to get them to think in new patterns. Not surprisingly, this is a very difficult task, which requires vast resources and efforts. Not only must a new pattern be implemented but the old patterns must be eradicated as well, which might be the hardest part. There are three ways that people acquire new skills: through direct experience, seeing things work or fail and through conceptual knowledge. As experiencing things for oneself is the most effective, people are able to apply the things they experience to other situations as well. Seeing someone else work and execute things is educational but it is difficult to use the acquired knowledge in other situations (Landry, 2000). Conceptual knowledge that is derived from the educational system, books and teaching, gives the students another understanding of city life and they look at a city from a new perspective. The educational system realigns the thinking, which can be a powerful tool in changing the creative environment in a city. But is the educational system working towards this? ‘Are young people given enough opportunities to share in the experience of others, to experience workplaces, to see diverse living conditions, to raise awareness of other environments? Only then will they understand their urban world’ (ibid.). The policy makers of the city must consider this when creating a plan to change the mindset.

3.5 Ba

Baqir and Kathawala (2004) give an explanation of the importance of Ba in a knowledge city. The notion Ba described by Baqir and Kathawala was derived from Nonaka, Toyama, and Konno (2000). As mentioned previously, Ba is a place, a platform or an arena, in which different parties meet and create or exchange knowledge. From this perspective, Baqir and Kathawala discuss the importance of Ba in managing knowledge and describe a knowledge home model (Figure 5). In the article, ‘five futuristic technologies’ are described as the pillars of the knowledge home. The pillars are labeled intelligent agents, semantic web, web services, ontologies and global computational grid and support the socio-cultural structure—depicted by the roof of the knowledge home in the model—as a ‘shared social context for education, politics, society, economy’ (ibid.) and government. The five elements are autonomous, and when acting together in a network, the knowledge home has the ability to constitute a knowledge city. The theory is applied because of its technological framework in a city, not being mentioned in the other theories.

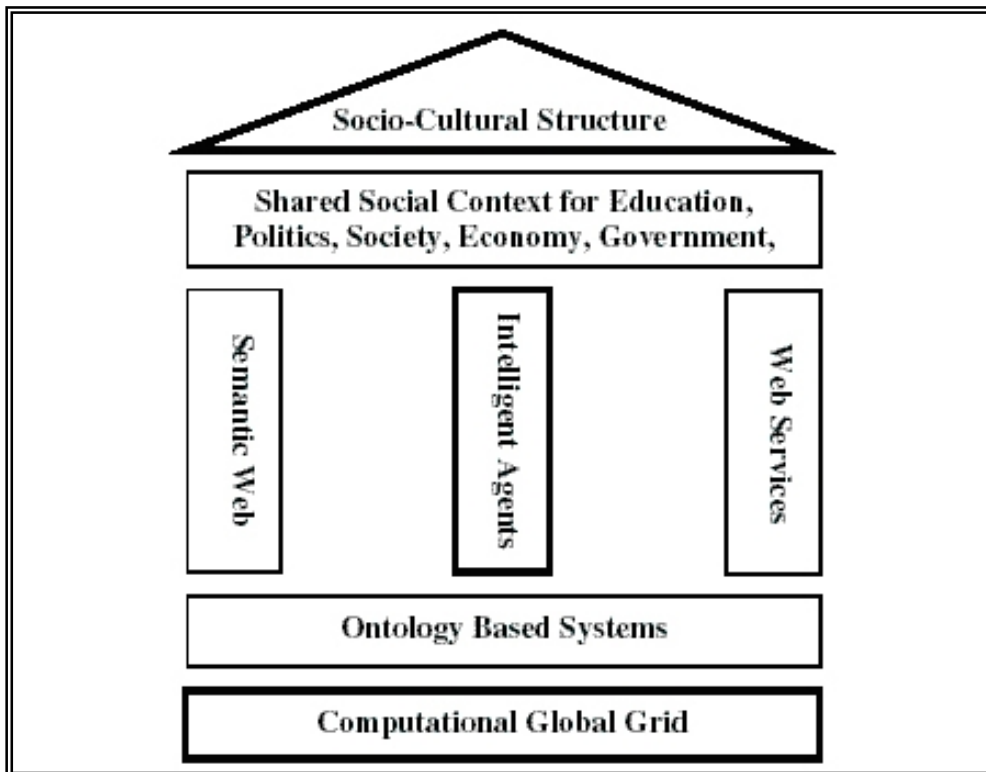


Figure 5: *A knowledge home. Baqir and Kathawala (2004). [sic!]*

3.5.1 Intelligent Agents

According to the authors of the article, intelligent agents are technology tools that work for citizens without the assistance of users by making choices on behalf of their owners (www.agentlink.org; www.agentcities.org). It is the developer of the knowledge home that defines the rules and the software with which the intelligent agents perform their tasks. The agents can be helpful in storage projects as well as in data collection, as they routinely scan different networks or systems in order to find useful information, according to certain criteria. Other properties of intelligent agents are that they can act intentionally, and exhibit so called social capabilities, including the ability to be aware of other agents. Furthermore, intelligent agents are able to interact with the environment and form groups or coalitions (Baqir and Kathawala, 2004).

Wooldridge (2000) also proposes some conditions that a computer program must meet, if it should qualify as an intelligent agent. These four conditions are called autonomy, adaptiveness, collaborative behavior, and mobility. With regard to autonomy, the agent must use previously learned knowledge to initiate communication and monitor events, whereas adaptiveness states that an agent can perform its task better as it gets used to it. The third condition, collaborative behavior,

is important for the achievement of common goals, which the agent does if it interacts with other agents or even humans, using a common language. Finally, mobility is a required or at least an advantageous condition: Computer programs qualify as intelligent agents if they can migrate between networks in order to fulfill tasks (ibid.). However, not all researchers share the belief that mobility is an essential condition for a successful agent.

As maintained by Baqir and Kathawala (2004), the intelligent software agents already exist today, even though they have a simple form. '[...] they exhibit a glimpse of what the future holds in this technology. [...] Web crawlers are examples of such agents working today but these are merely a shadow of what will be available in knowledge cities' (ibid.). Thus, the theory suggests that knowledge cities provide the technology for intelligent agents, and in addition, this capacity will increase dramatically in the future, given that the knowledge city decides to further develop the intelligent agents. However, a subsequent question would then be if knowledge cities actually have an advantage regarding presence of intelligent agents, or if they are comparatively equal to other well-developed cities in this manner.

3.5.2 Semantic Web

Tim Berners-Lee, who also is considered the father of World Wide Web (Berners-Lee et al., 2001), developed the term 'semantic web'. 'Semantic web promises the future of Internet as a web of data, like a global database with well defined semantics (Ba to some extent) built into it' (Baqir and Kathawala, 2004). The semantic web of a knowledge city aspires to considerably multiply the wide range of services that World Wide Web offers (ibid.). There are a couple of attractive features of a semantic web, for instance that the entire spectrum of parts like laptops, desktops, servers and cars can communicate with one another using the semantic web. Another beneficial aspect with the semantic web concerns trustworthiness of for instance documents available on the web, since citizens of knowledge cities easier can evaluate the worth of the web content and in a rapid way can access the information.

3.5.3 Web Services

The pillar web services in the knowledge home model supports a knowledge city by integrating applications, and in this manner, information can be shared by citizens and knowledge can be created. With web services, the information flow in knowledge cities will increase, but one requisition that should be accomplished is the XML, which simplifies the application integration process. XML is a new concept compared to HTML. Using HTML, one describes information with only one class of documents, whereas XML 'allows new customized markup languages for different

kinds of documents' (Baqir and Kathawala, 2004). As XML has been accepted as a universal language for exchanging information over the net (www.xml.org, 2005-05-10), a knowledge city can develop specific functions that are based on XML in order to improve the efficiency and attractiveness of the web services.

3.5.4 Ontology-Based Systems

Ontologies are in many perspectives regarded as the best way of extending knowledge management as well as sharing systems (Welt, 2003). One way to describe ontology in a knowledge-sharing framework is as a specification of a concept (<http://ontogeo.ntua.gr>, 2005-05-10). More specific, ontologies can be definitions of a formal vocabulary, and this is especially significant for a knowledge city. The ontologies provide a shared meaning of concepts within the knowledge city, and Baqir and Kathawala (2004) argue that 'without such a mechanism, a knowledge city model cannot be useful in achieving the shared context of knowledge creation and management'. Moreover, the software agents (intelligent agents) discussed above must be designed to use ontologies, and this architecture grants knowledge-sharing capabilities to a high degree with and among knowledge city citizens and the intelligent agents. Consequently, a shared context of Ba is formed (ibid.).

3.5.5 Global Computational Grid

An examination of the final constituent of a knowledge home and a knowledge city—the global computational grid—indicates that individual users have the chance to access computers, databases and experimental facilities simply and transparently with the help of grid computing. Most importantly, the users do not have to consider where those facilities are located (www.gridforum.org; www.ibm.com/grid, 2005-05-10). The grid system can be explained as a vast network connecting computers and solving complex problems that are too difficult for a single computer to approach. Baqir and Kathawala (2004) emphasize that the benefits of the tremendous computing power accumulated through the global grid only are limited by the imagination of the knowledge city citizens.

Grid computing not only enables efficient communication but also gives users collaboration towards common goals that they share. Companies would most likely appreciate knowledge cities with a global computational grid, where they together can share knowledge. Thus, the authors of 'Ba for knowledge cities: a futuristic technology model' argue that grid computing is an imperative for the infrastructure if a city has development objectives, but at the same time one has to be aware of the massive investments that are required: 'In addition to providing electric power,

computational power is also needed in a knowledge city' (Baqir and Kathawala, 2004).

3.6 City Branding

A city's brand is compiled from factors interacting and depending on each other—these factors are municipality and external relations, private sector and institutions, tourism, conventions and events, investment and settlement, culture, heritage and landmarks, and people. These factors are what make a city individual and distinctive (Placebrands Ltd., 2005-05-25).

The city's governing body has a deep effect on the relations with local and external policy makers. The city also needs to have good relations with local businesses and institutions, neighboring communities and government, local and national media as well as supranational organizations like the EU to be able to utilize its own potential. Moreover, a city depends on the willingness of other institutions to allow implementation of policies, and the city depends on these institutions to promote its policies and to assign events to the city as well as relevant funding in order to expand its limits. Furthermore, certain cities are associated with successful businesses located in the city; Coca-Cola and Atlanta, and Porsche and Stuttgart. The link between the city and the company is mutually beneficial and can even reinforce one another, as in the case of DKNY and L'Oreal de Paris. Such successful enterprises have a positive effect on the city and its local businesses in attracting visitors and foreign investment, creating a source of income as well as creating a sense of pride of the people. In a similar manner, the city can benefit from national, international, and supranational institutions, and even prominent universities can create a status of the city, attracting other businesses. These institutions send a signal about the quality of life in the city that attracts mobile professionals, which has the effect of attracting companies looking for creative human resources to the city.

In addition, tourism and events are the most visible and obvious part of a city's brand. Exerting a pull on foreign professionals and famous people as well as sporting and cultural events has a positive effect on the local economy. Large events can convert the positive perception of the city into economic profit for the local business. The positive perception usually comes from the city's architecture, famous people, and exciting nightlife and entertainment (ibid.). Moreover, the previously mentioned factors of a city's brand have a profound effect on the investment and settlement in the city. Companies and professionals are drawn to a city that has a high quality of life, good reputation of businesses and business opportunities, a creative and innovative environment, a high level of educated people, recreational facilities and a stupendous nature. Additionally, all cities have a history with famous people and

crucial moments, which are manifested in the cities' landmarks; architecture, theatres, museums, stadiums, monuments, public spaces and natural features (ibid.). These factors have a strong effect on foreign visitors, investors and business, which has a considerable impact on their perception of the city. The value of heritage also plays a role in retaining businesses, institutions and people that gives the city its character. Finally, a dynamic and vibrant city has the ability to retain creative and innovative people that make full use of their potential, and to attract foreigners to invest, work and live there. The local celebrities play an imperative role in setting the cultural, sports and political scene. In addition, the interaction between inhabitants in the city and its visitors help reshape the perception of the city, making the pride of people and the coherent vision of the people in the city and those governing it imperative to the city's future. The only way to achieve this is through a close dialogue between the local authorities, local media and the involvement of civil and business communities, working out a coherent vision of the city's future (ibid.).

3.7 Proximity and Location

In the article 'Proximity and location', Andre Torre and Alain Rallet (2005) discuss the phenomenon of how economy regions in a global market are being re-designed and local systems are given more importance. Should not the migrating companies and the mobility of the workforce have the opposite effect? The authors propose that as companies become more global, the relations become more anonymous and economic actors rely on local actors to compete in the international market. Assessing the importance of proximity and location, there are a few things to have in mind: the term proximity is ambiguous; the confusion of agglomeration and geographical proximity; the mobility of individuals; and that a geographical proximity has flaws as well as virtues.

Distinguishing the difference between proximity and location helps to see through a common misconception that firms have to be physically close to one another to be able to co-operate.

The concept of proximity is divided in two subsections, geographical proximity and organized proximity. Geographical proximity is expressed as the kilometric distance between two entities (e.g. cities, persons or firms). The distance between two entities is measured in the amount of time and the cost of transportation, but the distance is not only measured by objective data but also by subjective judgment of individuals (ibid.). Organized proximity is the ability organizations have to facilitate so that its members can interact. This is separated from geographic proximity since an organization can be dispersed geographically; what one looks at is the belonging to an organization, which is also called the logic of belonging. Members of the same organization are facilitated with the same set of rules and routines and can therefore

interact more easily. Furthermore, members of the same organization have the same set of beliefs and the same knowledge, which facilitate a tacit relation among co-workers, which is also called the logic of similarity. Both types of proximity are used when analyzing an industrial district, as either a fusion of the two or a disjunction of the two. Organized proximity deals with the relations and interaction of people and exists without geographical proximity operating globally, while geographical proximity provides physical facilitates for interaction. However, the clustering of firms does not result in any direct relation between the firms. This viewpoint is also shared by Sassen (2000): 'Headquarters can indeed locate outside cities, but they need a producer services complex somewhere to buy or contract for the needed specialized services and financing.' Still, many companies prefer to situate their headquarters in major cities, next to other firms, because of the highly innovative and complex lines of business that the new-established company operates within.

Big cities, Torre and Rallet (2005) continue, attract companies not because they need to co-ordinate but because they share the same infrastructure. The infrastructure has increased the mobility of individuals and information, which has reduced the importance of local co-ordination. The mobility has great influence on production and transportation activities but the geographical proximity is imperative to information- and knowledge-intensive activities. In addition to co-ordination, the constraint of geographical proximity is explained by two other factors. First, an economic relation is deeply rooted in local social networks and these networks are less due to the need of face-to-face interaction in knowledge exchange than to the fact that co-operation exists between different organizations because they come from the same university or share the same social and family network. Second, the geographic framework of economic interactions is largely determined by the function of institutions. The institutions provide information, knowledge and training for the local economic actors that are looking for synergetic effects, thus making institutions a priority for local policy makers in the process of local economic development.

The increasing mobility of the workforce has increased the distance between the place where people in fact work and the place to which they are administratively attached. The mobility of professional workers is largely due to the developed infrastructure making transportation more accessible with increased speed and lower costs, and telecommunication that has enabled long distance transference of information. The increased mobility of the workforce has also increased the distance people commute from their home to work on a daily basis (ibid.).

The increased mobility also has a significant effect on the geographical constraints on certain types of interactions such as service and sharing of knowledge—these activities can be fulfilled temporarily through traveling, which means that firms do not need to permanently locate themselves in geographical proximity of their partners. Geographical proximity is not permanent in general and it affects only

certain phases of interaction. The phase of negotiating, definition of guidelines and organizational framework of co-operation, the necessity of sharing equipment in the experimental phase of a common research project or the exchange of knowledge and above all to know personally the researcher belonging to a scientific community all require geographical proximity. Yet again, due to the mobility, these face-to-face interactions do not force permanent co-localization. The need for face-to-face interaction is more common in exchange of knowledge concerning production, commercialization and R&D activities. These activities are based on transference of tacit knowledge, i.e. learning by imitation, informal exchange and intuitive solutions to problems. On the other hand, implicit knowledge or knowledge in written form can be transferred more easily through ICT since that information is independent from the individual that produced it. However, there is some trouble with defining tacit and implicit knowledge in terms of geographical proximity (ibid.). First, separation of tacit and implicit knowledge is difficult; hence dividing them in geographical terms is not possible. Second, geographical proximity and face-to-face relations are not the only means to transfer tacit knowledge; the organization facilitates transference of tacit knowledge of long-distances through shared rules and representations. Third, ICT has greatly improved long-distance transferring of tacit knowledge with videoconferences. However, in some activities, such as problem solving and negotiation, face-to-face relations are far more superior, at least in the initial stage. The importance of geographical proximity diminishes with time; it is used in co-ordination with organized proximity in the initial stage of co-production of essential tacit knowledge. After the initial phases, geographical proximity is replaced by organized proximity and in this type of organization the need for face-to-face interaction is only required in two cases: the launch of innovative projects and in conflict management between investors (ibid.).

Companies have different needs depending on if they face problems in the choice of location or if they are searching for a new partner to an innovative project. When a company enters a new sector, this choice differs widely depending on the size of the firm. Large enterprises can choose to set up all R&D in a single laboratory to benefit from economies of scale, thus not suffering from duplication of research. The large enterprise can also choose to set up several small laboratories in the proximity of key clients. Small and medium size firms do not have that option due to scarce financial and human resources and are therefore forced to locate their business in proximity to firms that are vital to their innovation. Another situation is when the firm is already established and not in the vicinity of organizations that they aspire to co-operate with (ibid.). This problem can be solved in a variety of ways: The firm can create a joint venture or relocate staff assigned to the project. Creating a joint venture is a very expensive option, hence the infrequent use of it. Relocating staff is very flexible and does not require the financial investment of a joint venture but it deprives the firm of resources for the duration of the project, which has proved difficult for small firms. Therefore, the most common solution is to simultaneously assign employees to

different projects geographically spread, traveling between them when necessary (ibid.).

3.8 Summary of Theory

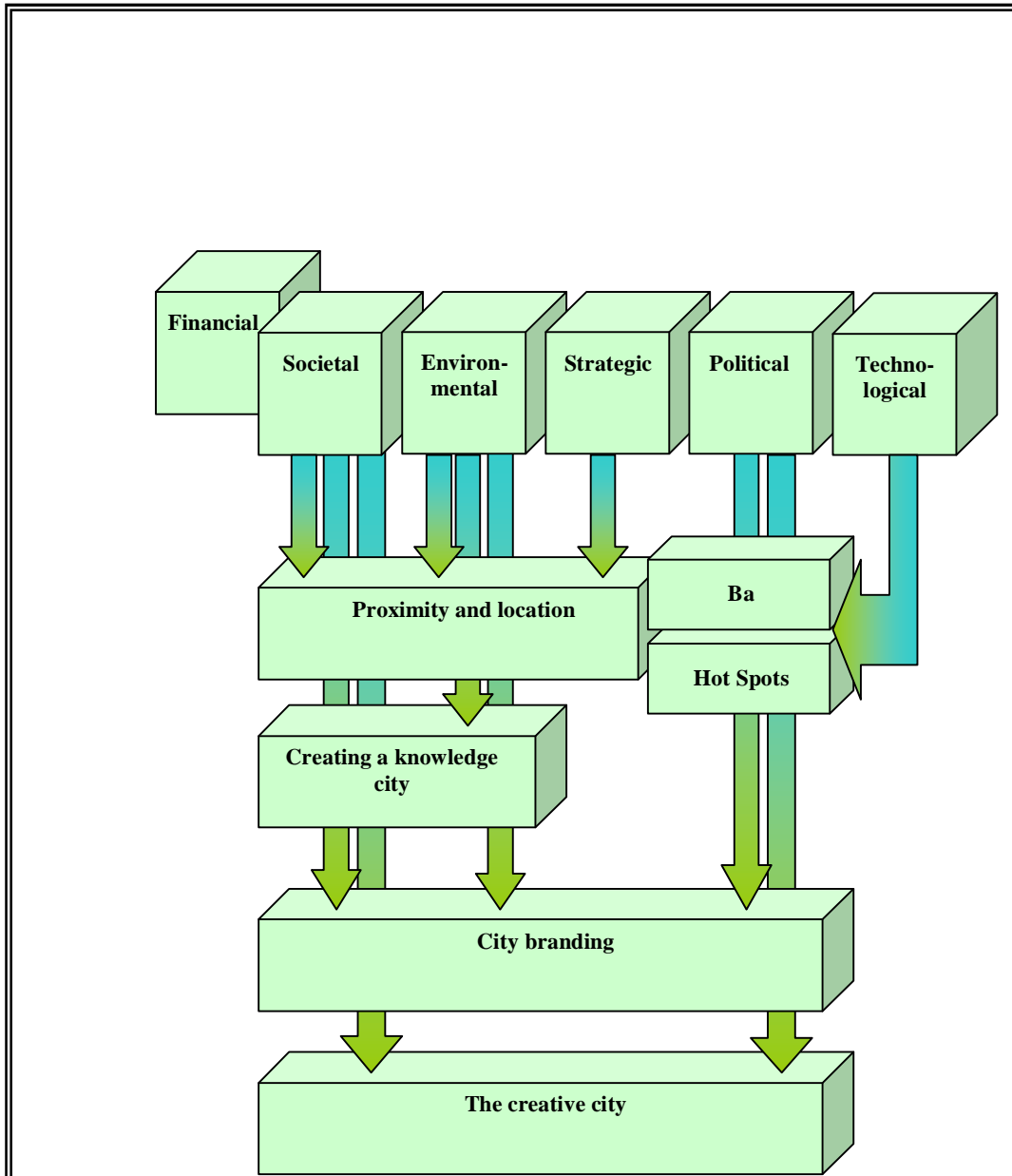


Figure 6: A summarizing model enclosing the applied theories.

The theory of key success factors described earlier is used as a foundation for the other theories and related notions discussed in this chapter. In Figure 6 above the theories are summarized as building blocks that co-opt and influence each other. The

model that Ergazachis, Metaxiotis and Psarras (2004) designed has many advantages, one of them being that it has connections to the other theories in one way or another. Therefore, their model, consisting of the financial, societal, environmental, strategic, technological and political fields, can be viewed as the center of the ideas put forward in this research. The arrows in the figure illustrate how the knowledge city models interact.

Baqir's and Kathawala's (2004) Ba model considers many technological aspects of a knowledge city, thus it has a strong link to the Ergazachis', Metaxiotis' and Psarras' theory of knowledge city concept with respect to the technological field in that model (see Figure 4). In addition, Hot Spots are without doubt a technological phenomenon, which explains the association to the technological building block. In this manner, the theory of culture within a knowledge city (Landry, 2000) is represented by another field, and belongs to the societal, environmental and political building blocks, since these forces to a great extent shape the culture of a knowledge city. One could also argue that culture has an influence on the societal and political spheres, i.e. the opposite relationship. A theory affected by several building blocks is the proximity and location ideas (Torre & Rallet, 2005), which were outlined earlier in this chapter. As proximity and location have to do with a suitable setting and surrounding for companies, the societal, environmental, strategic as well as technological perspectives are highly relevant for this theory. This is also because strategic and technological reflections have to be made by companies when choosing their ideal location and types of proximity to other companies. Finally, Chen's and Choi's article (2004) that explains processes in which knowledge is created and transferred from external parties has been connected with an arrow to the environmental field or building block in the figure, since urban planning and clusters of companies are important in this theory.

As can be observed from this outline of the summarizing model and the abovementioned figure, the financial field has few matching theories among the ones used in this research, and due to this fact, the building block 'financial' is depicted in the background (see Figure 6), and is not examined. The main arguments from the different theories are explained below, and the most important thoughts are reviewed using key success factor model as a framework.

3.8.1 Societal

As pointed out earlier, the societal key success factor can for instance be divided into education and standard of living. The proximity and location can be of great importance for organizations, and the main line of reasoning in the theory is that clustering of firms does not result in a direct relationship between firms. According to the theory, big cities catch the attention of companies because they share the same

infrastructure, a feature primarily provided by the knowledge city and the society. Furthermore, the importance of local co-ordination is today less emphasized, as the infrastructure has increased the mobility of individuals and information (Torre & Rallet, 2005). One other essential standpoint is that the geographical proximity (distance in kilometers) only matters in the beginning, when a company recently has located its operations in the region. Once established, the dependency on the geographical proximity will decrease rapidly. Another argument that neglects the geographical proximity says that organized proximity, such as relations between employees within the same organization who use the same set of rules and routines, can make companies more efficient, even though they not are close to each other.

In addition, Landry's (2000) theory of urban creativity has influence on the societal key success factor. The main topics described are the cultural resources, the change of mindsets, and the obstacles of bureaucracy. Cultural resources are not sufficiently utilized according to Landry, and cities must highlight the hidden cultural resources that lie within each city. This should be possible, as every city has its unique cultural heritage. Cultural heritage has a profound effect on the individual and its sense of belonging as well as well-being. Hence culture has a connection to the standard of living (presented in Figure 4), as one can claim that the standard of living is positively correlated with culture. The author argues that culture becomes more imperative as manufacturing industries migrate to low cost-countries. Therefore, an appropriate strategy would be to promote the regional culture, when a city is suffering from company reallocation.

Finally, the quality of life stressed in the city branding theory (Placebrands Ltd., 2005-05-25) is an essential idea that is consistent with the knowledge city concept model, as it fits into the standard of living constituent. Institutions, such as prominent universities and so forth, can send signals of the city status and the quality of life, which attracts mobile professionals. In turn, they attract companies that are looking for creative individuals. Not only the quality of life in the city attracts firms, but also the level of educated people (in accordance with Ergazachis, Metaxiotis and Psarras, 2004) and business opportunities are considered by establishing firms.

3.8.2 Technological

From a technological perspective, the expansion of IT infrastructure and technological progress might lead to the phenomenon that geographical proximity to partners and customers becomes constantly less interesting for companies. Digital knowledge transfer takes virtually no time at all, as opposed to physical knowledge transfer. Thus, this makes organized proximity more competitive.

When summarizing the technological success factors, additional ideas that have been presented earlier are Ba and the use of Hot Spots. The entire Ba article lays focus on the technological circumstances that a knowledge city offers to its citizens and companies. Even though one can imagine that most cities not have invested a great deal of resources on IT systems—at least not the kinds of systems proposed in the theory of Ba—some indications of an increasing degree of improvement with regard to IT can be seen worldwide. One example of this is Hot Spots, which more and more cities implement in order to provide an omnipotent ITC environment, with which citizens and companies can reach Internet from practically everywhere in a knowledge city, when the Hot Spots network is fully put into operation. The targets outlined by Baqir and Kathawala in a Ba or a knowledge platform are, as outlined above, for instance intelligent agents and a global computational grid. The aim with intelligent agents is to find and treat knowledge automatically, whereas the global computational grid has to do with the computer capacity of knowledge cities. Because of the complexity of intelligent agents (almost like artificial intelligence), it would most likely take time before cities have fully functional agents, but the global computational grid can be a more realistic goal for knowledge cities, as it involves improving the total computer capacity. This should not be impossible for a well-developed city (Ergazachis, Metaxiotis and Psarras, 2004), that intends to become a knowledge city.

3.8.3 Environmental and Strategic

The environmental key success factor from the summarizing figure can be dissected into the ideas discussed in the proximity and location theory, as well as the theories from Chen and Choi (2004) about tacit knowledge transfer. The key concepts in the last article concern factors that make locations for foreign investment attractive, and these can be physical and human resources, cost of local factors of production as well as support from a hosting government. Therefore, a company should examine the potential region's environment and seek a place 'saturated' with physical and human resources. Certain knowledge about the costs in a knowledge city and the political environment (support from government) should also be possessed by a company. As a final point, the authors of the article emphasize a link between industry, government and institutions as advantageous.

The earlier discussion about proximity and location demonstrated how the environment can affect companies and their success. In the environmental key success factor, the private sector has a critical role, apart from the different market needs. Organizations should be aware of the initial need for geographical proximity, which—however—only influences the business at an early stage, and after that loses impact on the effectiveness of companies.

Included in the environmental key success factor are e.g. the business environment, the market needs and the private sector, and along these lines, the place brand theory can be applied. This is because large successful businesses are associated with the cities from which they originate. Examples of enterprises linked with certain cities are Coca-Cola and Atlanta, Porsche and Stuttgart, as well as Heineken and Amsterdam.

This line of reasoning encompasses the linkage to the strategic key success factor too. The strategic choices are to find the best location from an infrastructure perspective and not because of the distance to partners and supplier, and to develop the organized proximity, so that a company can enter regions using efficient knowledge exchange. Hence, the theory suggests that the best contemporary approach will be to emphasize organized proximity as opposed to geographical proximity in the long run.

3.8.4 Political

The political key success factor is relevant in the city branding theory (Placebrands Ltd., 2005-05-25), as political relations with external and internal policy makers to great extent determine how well a city is able to make the most of its potential. When applying this theory, a city has to have excellent relations with e.g. the local businesses and the government in order to become a competitive knowledge city.

Furthermore, Landry covers a certain aspect of culture in his work, which supplements the political key success factor. A problem related to this field is that politicians are accountable to the public, and thereby they are reluctant to make any decisions that are risky but that in the long run may benefit the city. However, these benefits are somewhat curbed by the short term during which politicians are in office. In addition, as the bureaucratic system in most cities is very slow and rigid, no creative and innovative personnel are hired, since their imagination has no value to the municipalities or other institutions.

4 EMPIRICAL ILLUSTRATION

After having explained the theories above and illustrated the main ideas being central in the theoretical foundation, the empirical findings are outlined in this chapter. All the replies from the respondents are represented here, and the different answers are arranged into three categories: company respondents, expert interviews as well as an interview with Copenhagen Capacity. Two tables have been designed in order to show the key issues that the company and expert respondents stressed. The tables also facilitate comparisons between the responses more easily.

4.1 Interviews with Companies

The reasons for the current location

To the question why the companies are located in Barcelona or Copenhagen the answers are somewhat consistent but if they could relocate, the replies differ in the choice of location but the reasons for relocating are similar. Electrolux explained that the reason why they are located in Copenhagen is the easy access to infrastructure, human resources and the level of education, accessibility to Europe and Scandinavia through the airport and the Öresund Bridge. In accordance with Electrolux, Respondent A argued that the accessibility of human resources is an important factor to their location but also the proximity to their customers is considered a primary factor to their choice of location. Respondent A considered Switzerland, Romania, Ukraine, India and China as possible places for relocation—Switzerland because of the accessibility of human resources; Romania and Ukraine because of the low cost of production in addition to the proximity to the European market, and India and China because the low costs of production and the proximity to emerging markets in the Far East. Sandvik argued that they would relocate to Eastern Europe, India or Asia to where the cost of labor is significantly lower. Genmab justified their clinical development location with the synergistic effects by being located in Medicon Valley. They could not see another location that is more advantageous than their current location.

Characteristics of a knowledge city

With regard to what characterizes a knowledge city, Electrolux reasoned that the level of education, creative culture, vibrant business environment and the ability to attract key human resources is what is characteristic for a knowledge city. Genmab considered high level of education, the number of many professionals and the accessibility to highly educated people to be what distinguishes a knowledge city. Sandvik would look at the education in the city and if it was technical and business oriented. In accordance with the two previous companies, Respondent A believed that a high degree of concurrence between human resources and relevant education has to be present. Both have to be of a significant size and in addition, Respondent A believed that there must be a cross-company sharing of knowledge in a city for it to be a knowledge city.

The importance of culture

Electrolux considered culture important due to the fact that culture attracts creative human resources. Sandvik saw it a little different; the respondent believed that the price level, customer base, proximity to suppliers, political climate and possibilities for distribution are primary factors for a company. However, when attracting external human resources culture can be important. Like Sandvik, Respondent A believed that culture is important but as an auxiliary topic. Contrary to the other respondents, Genmab did not believe that culture has any significance.

What a city more can provide for companies

As to what the companies would like to see more of with respect to what the city can provide, the respondents differ in their opinion. Respondent A would like to see a better public transportation, thus utilizing their location, creating a perk by improving their employees' commuting time and quality. They would also like the bureaucracy to be less disrupting than it is today, making the applications process for buildings and environment a lot smoother. Electrolux would like the municipality to reduce the income tax, which would greatly affect the high salaries that their employees earn. The slightest change of the income tax level has a significant effect on companies cost for salaries; furthermore, the income tax is considerably lower in other European countries. On the other hand, Sandvik and Respondent A did not believe that the municipalities could change their situation to a great extent.

Ways for a city to retain companies

In the case when a company is contemplating about reallocating their business, the respondents had some suggestions for a solution. As Respondent A argued, it is imperative for the city to have a close relation to companies in the city to be able to understand the different needs of the companies, enabling the city to take political precautions in order to keep the companies in the city. Sandvik emphasized the importance of keeping the price level in the region and provide auxiliary service regarding contact with other companies in the region considering communication and labor market issues. Electrolux recognized that lowering taxes and creating an innovative network of matching companies are powerful tools to retain companies in a city. In addition, Genmab saw that the city could offer easy access to facilities and office spaces at low cost as a way to keep companies from reallocating.

The impact that a city's prestige has on companies

On the notion of the importance of prestige in a city, the respondents had opposing views. Respondent A argued that the importance of prestige in a city depends on what line of business the company operates in. For companies that are suppliers to producers of consumer products prestige is not important, but on the other hand, a dominant location has market value or commercial value to the producers of consumer goods. Electrolux believed that prestige has importance, but only initially, whereas Sandvik and Genmab argued that prestige has little or no importance.

The importance of governmental research contributions to companies

Government funding of education, argued Genmab, is important since they raise the level and number of trained professionals, which can contribute to creating more jobs. As Respondent A, Electrolux and Sandvik argued, research contributions only have importance to certain companies depending on whether they are conducting research or not.

Company influence when shaping a knowledge city

According to Respondent A, politicians cannot create a knowledge city on their own; there must be a collective effort between the municipalities and the companies in the city in order to create a knowledge city. Thus, the influence of companies needs to be quite large in the creation of a knowledge city. Genmab on the other hand did not believe that the companies have a great impact in shaping the city. Sandvik and Electrolux did not have any particular impression of how the companies can influence the shaping the city.

Subsidies and permissions that a company can apply for when establishing in a certain city

As to what subsidies and permissions a company can apply for, Sandvik recognized that it varies widely depending on the city—cities do not have the same processes for applications and different subsidies and permissions. Regardless of form, cities most often have some sort of support for establishing firms. Respondent A believed that companies can apply for practically anything—imagination sets the limits. The most common applications regarding permissions are permission to construct and environmental issues. The most common applications for subsidies regard price of land, taxes and education of staff. Genmab and Sandvik did not recognize any specific subsidies or permissions.

Possible co-operations between companies and municipalities in knowledge cities

Most of the responding companies did not see much co-operation between the city and the companies—there is some co-operation but it is not very distinguished. However, Respondent A recognized that there is co-operation regarding the environment and regarding construction and the renewal of old buildings that need to be restored to preserve the ambience in the city. Electrolux, Genmab and Sandvik did not see much co-operation between the municipalities and the companies in the city.

Problems associated with an unsuccessful establishment

Locating businesses in a city that turns out to be unsuccessful has serious effects on any company. Sandvik stressed that an unsuccessful establishment is not likely to be due to poor calculation or planning. Neither is it likely that the company should have done poor research on possible cities thus choosing an inappropriate city. A more probable cause is that the political situation has changed. A revolution in Russia would have a disastrous impact on establishments in neighboring countries such as the Baltic States. Furthermore, an establishment in South America is far more prone to military coups, which also would have devastating effects on business. The probability for such a scenario is not very high but it is a factor that is difficult to predict and impossible to control for any company. There are certain regions in the world that are considered to be of higher risk due to instability in the region. According to Respondent A, the consideration of reallocation depends on how unsuccessful the establishment was. One can always expect there to be problems in the initial stage of an establishment and that companies foresee this and have the appropriate funds before launching the project. The properties of the problems is also a factor to be considered—problems that have an permanent negative impact such as diminishing market opportunities or other parameters that have a permanent negative

effect on finances. A company having these kinds of problems might consider reallocating its business. If this is the case, then the planning has been insufficient or the political climate has changed, causing the failure. In contrast to Sandvik, Electrolux stressed the omissions of the company in planning and executing business in a way that may jeopardize future expansion as well as undermining the brand value. An unsuccessful establishment is largely due to the oversights and failures of the company itself rather than effects of ambient forces that the company has no control over. Genmab also recognized the many problems that can and probably will occur when establishing a business in a new location. Similar to Respondent A, the company believed that many of the problems encountered are surmountable, thus not a reason for reallocation.

Less successful investments in an inappropriate city

The respondents did not recognize that their company has done any less successful investments in a city. However Sandvik acknowledged that due to the long and extensive history of the company, founded in 1862 and established in 120 countries, there are most definitely failed investments, though no such failure has been made in present time.

Influencing factors when establishing a company in a knowledge city

The factors that influenced the responding companies to locate in Copenhagen and Barcelona are discrepant but some are of similar nature. One of Genmab's main sponsors is located in Copenhagen and they believed that they have good possibilities to grow in the city of Copenhagen. The availability of human resources that are highly experienced is a primary factor. Electrolux also argued that the availability of human resources is important but that they also value the easy access to infrastructure, enabling transportation to all of Europe. Sandvik explained their location in Barcelona with the fact that they bought a couple of companies in the region; other factors were involved but this was the major reason to their choice of location. The price of land is one factor that contributed to Respondent A's location in Copenhagen; another factor is the availability of human resources.

Importance of (1) research excellence; (2) civic centers; (3) new communication technologies; (4) the city's ability to generate, attract and maintain highly skilled citizens; (5) and instrument that make knowledge available to the public

The respondents were asked to judge the importance of a couple factors to the city they were located in. The factors are research excellence in the city; civic centers that

are open to diversity; access to new communication technologies; a city's ability to generate, attract and maintain highly skilled citizens; and cities' provision of instruments to make knowledge available to citizens. Genmab considered all but one factor as very important; civic centers open to diversity was deemed to be only of some importance. Electrolux' opinion was somewhat different regarding these factors, as the company believed that the three first factors (research excellence, civic centers and new communication technologies) not were important directly but had some importance indirectly. Electrolux had no opinion about the cities' provision of instruments to make knowledge available to the public. On the other, hand they believed that cities' ability to generate, attract and retain highly skilled citizens was very important. In accordance with Electrolux, Sandvik deemed the first three factors, (research excellence, civic centers and new communication technologies), to be insignificant. Making knowledge available to the public was deemed to be of some importance while the city's ability to generate, attract and retain highly skilled professionals was considered as very important. Respondent A deemed that the access to new communication technologies is of medium importance and that the remaining factors have a high degree of importance to the city.

Significance of geographical proximity to customers and suppliers for the company

In respect to the notion of the importance of proximity to suppliers and customers, the respondents' replies were discrepant. Proximity to customers and suppliers was considered not to be important to Genmab, while the other respondents considered proximity to either customers or suppliers to be important. Electrolux for instance, considered proximity to their customers to be very important while proximity to their suppliers was insignificant. Sandvik recognized that the proximity to customers and suppliers is depending on what type of business one is considering. In Sandvik's case the production is affected neither by the proximity of customers, nor by the proximity of suppliers, while their sales department is very dependent on the proximity to their customers. Respondent A also recognized that the proximity to customers is important, but the proximity of suppliers is considered crucial only if they can reap the benefits of more competitive suppliers.

Impact of a common platform for exchange of knowledge

A common platform for exchange of knowledge is in theory considered important, so the respondents were asked if they shared this view and if they thought that this was provided in the city they are located in. On this notion, Electrolux and Respondent A responded that professional networks are important and they experienced that it existed in Copenhagen. They also stressed that this is a local network and not an

international one. Genmab recognized the knowledge exchange across borders especially at universities and at conferences. Sandvik generally saw this as important and they also recognized that Barcelona has become a more popular city, attracting both companies and tourists. Regarding the companies, the reason for locating in Barcelona is more economical than due to a common platform for knowledge exchange. The cost level in the city has risen tremendously; salaries are equal to other big cities in Europe and the real estate prices are among the highest in Europe. Hence, companies are now moving away from Catalonia.

Table 2: Summary of the key issues reported by the company respondents.

	Sandvik	Electrolux	Respondent A	Genmab
Reason for locating in Copenhagen or Barcelona	Acquisition of companies located there	Human resources, infrastructure and education	Proximity to customers and human resources	Human resources
Characteristic of a knowledge city	Universities	Level of education, creative culture, vibrant business environment, ability to attract key human resources	Proximity between industry and relevant human resources, sharing of knowledge between companies	High level of education and many professionals
Importance of culture	Not very important	Quite important, attracts creative human resources	Important as a supplementary parameter	Not important at all
Retaining companies in a city	Good auxiliary services and networks	Reduce income tax	Close dialogue, solve companies problems	Good facilities and office space at affordable prices
Measuring a knowledge city	Universities, human resources	Education, business environment	Universities and business environment	Access to higher educated people
More from the city	No particular issue	Innovative network of complementary companies	Better public transportation, less bureaucracy	No particular issue
Importance of city prestige	Less importance	Initially a lot	Important to producer of consumer products	No importance
Government research contribution	Depending on business, not important to Sandvik	Important to some companies, not to Electrolux	Very little	Contributes to creating jobs and attract professionals
Companies power in shaping a knowledge city	No particular impact	No particular impact	Collective efforts, city and companies depend on each other when creating a knowledge city	Little to none
Subsidies/permissions	Start-up contributions	No opinion	Environmental, construction, education of staff	None
Co-operation between city and companies	Some co-operation with municipal office	No specific co-operation	Environmental, construction and renewal of buildings	No specific co-operation
Market and financial effects of unsuccessful establishment in a certain city	Disastrous effects. Political change more likely to effect than company mistakes	Undermine brand value, jeopardize future plans	Initially always problems, permanent negative effects only reason for reallocation	Negative effects both financial and market
Unsuccessful investments by the company	Most probably, nothing specific mentioned	Not to respondent's recollection	Not to respondent's recollection	Not to respondent's recollection
Factors influencing choice to locate business	Complementary companies	Availability of infrastructure and human resources	Land prices and proximity to customers and human resources	Main investor located in Copenhagen, availability of personnel

(continued)	Sandvik	Electrolux	Respondent A	Genmab
Most important factors of knowledge city concept theory	Attracting skilled citizen, making knowledge available to citizens	Research excellence, civic centers, ICT, attracting skilled citizens	Research excellence, civic centers, attracting skilled citizens, making knowledge available to citizens	Research excellence, ICT, attracting skilled citizens, making knowledge available to citizens
Importance of proximity to customers and suppliers	Production department not important, proximity to customers important to sales department	Proximity to suppliers important, proximity to customers not important	Proximity to customers important, proximity to competitive suppliers advantageous	Proximity to customers and suppliers not important
Perception of importance of a common platform for knowledge exchange	Other factors are more important when establishing a new business; market and financial	Professional networks are important, Copenhagen has local networks but not international	Networks are important and it is provided in Copenhagen	Good knowledge exchange across borders especially at universities and via conferences

4.2 Interview with Expert Respondents

Characteristics of a knowledge city

Regarding the question of what characterizes a knowledge city, the experts had a quite coherent view but expressed in different ways. Christer Asplund stressed the importance of niche competence, which can be competence in any field and can exist anywhere. Much of the knowledge in a city does not originate from institutions or universities; hence these are not prerequisites for a knowledge city. The circulation of rumors or myths in a business is often proven the opposite, which can be useful when analyzing a business or location. He also recognized that there are many different perceptions and definitions of what constitutes a knowledge city. This is something that Jan Annerstedt recognized as well and he meant that it is not a matter of defining the concept; it is rather a matter of encircling the phenomenon. Furthermore, he identified a difference between American and European writers in their description of knowledge cities. Most professionals do not look at the amount of knowledge but at the transactions that take place—the transactions are not only transactions of knowledge but also goods and services. The city is a market place where a flow of resources comes through and where transactions occur. Kjell Cronert emphasized the importance of individuals that need only their mind to succeed.

Most important factors when designing a knowledge city

With regard to what the most important factor when designing a knowledge city is, the experts had no coherent view. Asplund recognized the leadership as the most important factor to the emerging knowledge city. Annerstedt saw no sole factor but he recognized that institutions, hospitals and universities attract knowledge to a city and that cities have different profiles, thus attracting different kinds of professionals. Cronert saw intangible assets such as housing, commuting time and recreational environment as the most important factors.

The importance of culture in a knowledge city

In the question concerning the importance of culture, Asplund did not believe that it is a factor that contributes to attracting knowledge to a city; in fact, he argued that it can have the opposite effect. If a city is investing in for example logistics and at the same time is investing in culture, the focus will be shifted away from logistics. He also argued that attracting knowledge from other countries is not improved by providing theater productions that they do not understand and cannot appreciate. The incentives they have for moving is in the environment, beautiful scenery, a clean city, good education system, venture capital and a tax system that encourage people to

invest money in the country. Annerstedt had a different description of the importance of culture to attract knowledge to a city. He argued that large companies, institutions and universities all accumulate knowledge and that cultural institutions have the same properties as holders of knowledge so in that sense culture contributes to the accumulated knowledge in a city. In another sense, he saw culture as a contributing factor if culturally interested people move to a city and if large companies see these individuals as talented or if they find the companies' agenda appealing. Cronert did not believe that culture is more in focus in a knowledge city than anywhere else and he did not see it as a contributing factor.

Neglecting of culture

Concerning the notion that culture is neglected in cities today the expert respondents thought the opposite. Asplund believed that when society is not progressing or when it is experiencing a recession, culture fuels the fire to get things moving forward. Annerstedt believed that culture as a tool to brand or market a city is not widely used and that the power of branding a city is underrated and an unexploited option to attract transactions. Cronert also agreed that culture is an underrated tool to market a city.

How a knowledge city can be measured

The problem of how to measure a knowledge city was discussed by the expert respondents; they had some common definitions without being coherent. Asplund emphasized the need to see a city in an international context and that the leadership of a city is essential for its success. He also believed that one should compare cities and measure the number of patents per 1 000 inhabitants, or the number of start-ups per 1000 inhabitants and one can even measure the number of phone-calls to the international market to assess the cities' interaction with the outside world. Annerstedt acknowledged that there are a couple of ways to measure a knowledge city and that they are designed to measure the variables behind the façade, behind the metric variables of the annual report. The variables that one wants to measure are the soft variables such as knowledge, market relation and customer relations—these are variables that are in the mind of the companies' employees. This can be measured through the number of patents, number of innovative products produced, number of original ideas, and improvement of existing products. In this way, one can measure other institutions as well—universities, for instance, can be measured by the number of scientific articles produced and the number of students that passes through. There are more and less systematic ways to measure but some cities neglect to put it in an international context. Cronert believed that one could measure the density of

professions that in the end only are dependent of themselves to assess the knowledge in a city.

Failing knowledge cities

Among cities aspiring to become knowledge cities that have failed or not succeeded as well as they could have, Asplund mentioned St. Petersburg and Stockholm. St. Petersburg is a knowledge city—there are a number of universities, but has a big impediment in the visa requirement, which has the effect that people do not travel there neither for business nor pleasure. He also recognized that St. Petersburg has had a very different starting point compared to cities in Western Europe, but since 1991, there have not been any significant changes. Stockholm on the other hand, which used to be a city with many international relations, has declined in international interactions. The international experience of local politicians and municipal administration is another way to measure a city. The ability to speak a foreign language—especially if one's mother tongue is a very small language—is imperative for international relations. The lack of such knowledge seriously questions the credibility in the global economy that people live in today. Annerstedt meant that there are very few cities that are able to project themselves as a distinguished knowledge city and that some of those who succeed do not do it intentionally. Oxford for instance, is a prominent knowledge center in the world that has produced many Nobel Prize winners and that has a seemingly infinite amount of knowledge. Oxford is a knowledge city with a deeply rooted culture, universities, fantastic libraries and a production apparatus of publishers and conferences and is one of the world's most prominent producers of scientific knowledge. Oxford is a potent knowledge city but does not intentionally utilize it. Cambridge on the other hand uses its prominent position as a knowledge centre systematically to attract companies, create science parks and technical centers, and to link companies to the university and other institutions. The key is to make the university known and to attract companies, support research and link knowledge intensive companies to the university, institutions, culture, and to the business world. Cronert emphasized the importance of focusing on one topic and that the location of one company can attract other companies, which leads to a self-reinforcing cycle, creating a cluster.

Disagreements between municipal administration and companies in a city

The experts differed in their opinions about disagreements between the municipality of a city and companies located in the city. Asplund argued that there is a conflict regarding the architecture in a city, as the municipality sets up standards for size, shape and height of buildings that are built in the city. If the leadership in the city is weak these standards will cause a conflict and the resulting compromise often

constricts the innovation of architects, and the innovative environment in the city does not show. If the architect is allowed to use his/her innovative skills and create a building, which can become a landmark, people will possibly travel from far away to come and see it. In addition, the use of the name of historically significant people like Alfred Nobel is a powerful tool in branding a city, for instance by naming the airport after him (like JFK in New York and Charles de Gaulle in Paris). Annerstedt recognized that companies and the city have different opinions that can cause conflicts, but most companies give up before it becomes a conflict. The city also has certain areas that are reserved for companies to build on, and the size of these areas is what constricts the building in a city. Many companies are not interested in the city and do not care much about interacting with it. They are only interested in the available workforce that is located in the city or in proximity to it. Cronert mentioned that policy makers are taking short-term actions for their party to prevail and that this can cause conflicts. He also believed that using leaders from the business world in groups to give immediate feedback to the municipalities on what the business world deems important is a good way to make the city more effective. Unfortunately, the municipalities are not keen on getting straight answers since they fear that they cannot deliver.

Tools that a city can use in order to profile itself

Regarding the options and tools that a city can utilize in profiling itself as a knowledge city, the interview objects were somewhat coherent. Asplund thought that a city must have a market plan with a brand and a couple of sub-brands to profile the city. The city must emphasize to profile variables that attract three market forces: investors, visitors and potential inhabitants. The city can very well have three brands depending on what kind of market they want to attract. Annerstedt meant that a city can use any tool to profile the city and that it has the same tools as any company and added to this is that there are no laws or regulations constricting the possibilities. He also recognized that there are many stakeholders and that they are independent from each other and the lack of co-operation leads to the fact that the city is profiled in many ways and none of them becomes prominent. Cities rarely utilize the opportunity in the many business travelers and professionals that visit the city, which would be a simple way to profile the city. Cronert believed that the city should use the available professionals such as lawyers, dentists, doctors, accountants and consultants to profile the city.

Negative effects of attracting knowledge to a city

The experts all agreed that there are no negative effects with attracting knowledge intensive companies. Asplund imagined that the municipalities must contemplate in a

wider perspective than merely the city—they also need to have an international focus when deciding on policies. Considering only the city, many possible options from potential new investors and companies from outside the city are lost, and that will seriously constrain the possibilities to grow. Annerstedt saw no negative effects at all; he noticed that Barcelona and Copenhagen are investing billions of euros in bioscience to profile the cities as biotechnological centers. While investing heavily in bioscience other knowledge intensive activities do not get the same amount of investments, and with this focus on one industry, it is very difficult to measure results in the short-run; results are often not measurable until after 15 to 20 years. From a business perspective, this means that the infrastructure is expanded with new research institutions and biotechnological facilities and that other knowledge-intensive sectors are neglected, resulting in that the city's aggregated projection of its image is a very unsure and the outcome is unknown. Picking the wrong horse can have extremely negative effects but it can also have extremely positive effects if the investments are successful. It is difficult for the municipalities to see the effects in the long-run, and investments in the long-run can seem preposterous in the short-run. In contrast to a city, a state has more than one horse to bet on and can spread the risks, which a city is unable to do. Cronert acknowledged that there in some cases is a need for manufacturing companies to complement the more knowledge intensive service industry allowing it to develop with their full potential.

Retaining companies that are about to relocate from a city

Annerstedt believed that one important aspect is the creation of an interesting living environment for the people living in the city, which in turn makes it interesting for the companies to stay in the area. Furthermore, a suitable variation is necessary in the trade and industry, which can be achieved by for instance attracting different kinds of companies that will complement each other. Thereby the employment will be more amalgamated. Finally, companies are retained by a developed infrastructure, since this too is a part of the company's environment. Asplund also thought that there are many ways to retain companies, for instance by focusing on psychological parameters. Sometimes the company does not feel appreciated, from a general viewpoint. Merely talking to the companies every now and then can make them change attitude, and moreover an extensive service from cities can make a difference, for instance schools, education systems, roads, and company offices. In addition, Asplund distinguished between abstract and concrete approaches. The concrete approach includes building highways and infrastructure, as in Trollhättan, Sweden, where the government tries to give benefits to the auto industry. However, Asplund suggested that working actively with economic factors is a successful method, and having a proximity to suppliers and factories would be a useful strategy too. Start-ups are vital as well. It costs a lot of money to transport material, so in this perspective the city can provide a good deal of support. Another example concerns Hamburg in

Germany that had the ability to attract about 330 Chinese companies to the city, since they built a Chinese school there, the first in Europe. If the city intends to retain the Chinese companies, this Chinese school has to be made even more attractive. Cronert, on the other hand, reflected that the problems related to relocation are due to the fact that more and more companies are governed from other countries. The big decisions of investments and allocations take place in important cities such as London, Amsterdam and countries like USA and Switzerland.

The impact that a city's prestige has on companies

All respondents shared the belief that prestige is very important for cities that have an aspiration of becoming attractive, but their answers differed to some extent with regard to the prestige aspects. According to Annerstedt, a city's identity or brand can be created in many ways, and sometimes it is intentional, sometimes unintentional. The work can be intentional when a campaign is implemented, for example perfume campaign in Paris, but Paris is more of a fashion metropolitan. The history of a city influences other companies. Grass has a perfume manufacture profile, whereas London brands itself as a finance capital city. Global cities can act like hubs or centrals for finance, and it is possible that London obtains its strength by being a node in a global network, where Frankfurt, New York, Tokyo and others are prominent too. From this perspective, Copenhagen and Barcelona do not at all play in the same league. They have the same system but are not connected to the global networks but rather regional networks or even a local network for Barcelona. As for Copenhagen, it is rather a third- or fourth-level finance center—so one has to consider a city's nodes in a network too. This includes Paris, as the strength of the city is its market platform for the industry. When a company or a person intends to buy the latest product, the natural marketplace is where the majority and the most important companies are located, and this phenomenon includes the advertisement market, design business, biomedicine and so on. Thus, a city has a certain profile and obtains prestige when it is included in a network of other cities in the same league. Asplund proposed that prestige is particularly important for cities, and prestige or image together with an area can form a co-brand. Co-branding with prestigious products is extremely efficient, because the area gains popularity from the companies. In this manner, there are many possible approaches that a metropolitan area can work with. Interesting examples of co-branding are the city of Gävle in Sweden together with coffee exported to the US, and Dublin co-branded with Guinness. In addition, the watch industry—Switzerland; and BMW—Munich are closely related. This means that co-branding is a powerful way to attract companies. Asplund also concluded that people in general are very focused on image, and therefore employment at governmental or public positions is not very attractive. Consequently, the competence will in time decrease in these areas if nothing is changed. Cronert complemented the discussion by saying that sport teams, such as a local soccer team in a city plays a major role in

attracting citizens and creating the profile of a city. The sport events can constitute prestige if they are famous and popular.

Governmental contributions

The question about governmental contributions resulted in fairly similar answers, since all respondents argued that contributions to a city or region from the government affect companies. On this issue, Asplund indicated that a region or city that earlier was very unattractive suddenly can become attractive among companies, after a contribution program is initiated. He continued by telling about a contest the Financial Times arranged, in which Östersund in Sweden was ranked the most attractive city in Europe. This result was due to the large amount of financial contributions from the government, a measure intended to create more employment. However, he added, governmental contributions are very temporary, and when the contribution programs are aborted, the companies leave cities again offices will turn empty again. As a reply to the question concerning governmental contributions, Annerstedt also had the opinion that contribution can be of great importance, but they can also be less important if a city can survive without the subsidies. A university city like Lund in Sweden would practically disappear as a knowledge city if the contributions would stop. Functions like major hospitals and so on depend on contributions, but they are vital to a city as well. According to Cronert's point of view, the contributions affect mainly companies that invest in cities that are typically unattractive apart from the subsidies that catch the attention of investing firms. These regions are primarily sparsely populated with a high level of unemployment. Thus, the contributions from governments are merely connected to some regions and cities, and not general.

How much influence a company has

Asplund laid focus on the size of a given city: If the city is small, firms in general have much influence on its design, and this is especially common in the US. Yet again, in Europe, the phenomenon is more unusual, since this part of the world has a larger public sector that makes decisions. Besides, there are cultural differences between Europe and the US with regard to the power over cities' development. When representing a Sweden, the majority of the participants traveling from Stockholm would come from the public sector, and vice versa if US representatives would visit Sweden. Annerstedt believed that companies have rather limited influence over a city's development. Even though companies like Tetra Pak and Alfa Laval have headquarters or major parts of their industries in Lund, they are not likely to shape the city very much. He continued by saying that it would be favorable for mayors to take advantage in a higher degree of the fact that firms are located in a specific city.

However, in small cities where a company is dominant, the dialogue could be entirely different, and the municipal administration would have less power. A relatively opposite answer compared to the other respondents was given by Cronert, by maintaining that companies in general have very little influence on the blueprint and development of a city. This viewpoint includes both small and large cities, whereas Asplund and Annerstedt believed that small cities can be more shaped by dominant companies.

What criteria companies look for

Asplund has made research about the criteria companies search for, and these are soft (intangible) and hard (tangible) attraction factors. The last-mentioned are most often possible to measure and easy to express by financial means, whereas the intangible factors are difficult to manifest in numbers. The tax system and logistic system can be tangible factors. Examples of soft or intangible factors are different competence profiles, and one must nourish the advantages that exist and internationalize as much as possible.

When Annerstedt was asked about criteria companies look for, the following response was given: If a manufacturing company is about to establish itself in a region, it has to consider factors like available resource base, wages, tax rates etc. The decision also depends on what type of company it is, and what the competition from other companies is, as well as access to transport etc. In addition, the proximity of the future market in relation to the products a firm manufactures ought to be regarded. A company that designs technology has an advantage if it is located near a university, whereas manufacturing companies may succeed at many types of locations, depending on its business. The remaining respondent, Cronert, underlined the social aspect of the issue as well as matters relevant for citizens of a knowledge city. These include the living environment, the school (e.g. an international school), the healthcare and spare time activities that are offered by the region.

What kind of contributions or subsidies a company can apply for

According to Asplund, the potential contributions that a company can obtain are certainly a matter of negotiation. Especially in the US, there are numerous types of contributions that are available. In Europe, a sordid way to look at it is that the closer one comes to the Mediterranean, the more subsidies are obtainable. Of extraordinary significance is the rapidness with which a city can handle the applications and make decisions. The city must immediately present a list with suggestions. By doing so, the companies will respect the municipal authorities, which can be more important than the contributions themselves. Another important contribution from the city may be

personnel education for companies. Cronert emphasized that companies can obtain contributions to some extent using governmental programs and certain measures. He mentioned that among the 400 new firms that he as chairman of the Enterprise Agency ('Nyföretagarcentrum') in Sweden (an organization that provides assistance for company start-ups) helped creating, 90 % survive. Sometimes these start-ups continue to exist using the governmental program in Sweden ('Starta eget-bidrag').

What problems an unsuitable allocation in an inappropriate city can cause, financial and on the market

Unsuitable investments and allocations in cities, said Asplund, can be tremendously expensive for companies. If IKEA's huge investments in Russia would fail, it would mean and cost very much for IKEA, both economically and as a prestige issue. It can certainly hurt the image. Microsoft for instance, invested considerable financial capital in Stockholm, only to find out that it would be a massive disappointment and an inappropriate allocation. The development center was abandoned after only a few years, so such projects are very costly. Cities, said Annerstedt, dislike companies that are flexible or casual and also dislike that the companies do not stay for a long time in the region. Concerning lock-in, there are a couple of interesting examples of companies that are locked-in in regions. The Swedish company Getinge is confined to a certain region, which means that it would very expensive to move from this region once established there. However, the company is successful and uses the location in an efficient way: As the workforce is rather stable and the employees have special knowledge, they are not likely to leave the company. Consequently, the lock-in can have both advantages and disadvantages. According to Cronert, the consequences of an allocation in an inappropriate city may be a distorted balance in terms of service from the commune, and seen from a market perspective, an expected win-win situation might disappear from companies and cities.

Kinds of co-operations that can exist between companies and government

As noted by Asplund, there is a trend in Europe towards a private-public partnership, in which the company invests together with the city or region. An example of this phenomenon can be observed in Nässjö, Sweden, where a corporation was formed by the commune, including 230 companies. This kind of model will most likely be more common over time in Europe. Annerstedt argued that there are virtually no limits as to what kinds of co-operations that might exist between the parties, but recently there have been a couple of cases where public operations have supported specific companies. In cities like Copenhagen, there is a close co-operation between the public and private sector, resulting in a strategic approach. One very interesting project in Copenhagen is the island Amager between Copenhagen city and the

airport, where a former military area has been transformed into a highly knowledge-intensive region, with universities and Denmark's broadcasting channels positioned close to one another. Furthermore, Copenhagen Business School, science parks, companies like IBM, Nokia and Sony, as well as other institutions are present in this area. The government and to some extent the municipal authorities have designed the rather small region of 4 km². With investments of billions of Danish crowns and different consortiums, the zone has deliberately been converted into a lighthouse of a future information society.

The relative importance for a knowledge city of (1) private sector and institutions, (2) municipal policy & external relations, (3) investment and settlement, (4) culture, heritage & landmarks, (5) tourism, conventions and events, (6) people

Asplund proposed that the private sector is one of the most important constituents for a knowledge city, as this is a cluster of different parties acting together. In addition, a respect for the external relations in the model can be important, as well as culture, heritage and landmarks, exemplified by the Guggenheim museum as an identity of the city. Meeting points are crucial, but in this sense, a market plan is needed too. Local celebrities as Columbus and Barcelona can raise the success of a knowledge city, and Nobel and Stockholm could be a strong brand, if it would be properly used. Finally, tourism perceived as the flow of people has a distinguished meaning for a knowledge city as well. As observed by Annerstedt, no city is an isolated island, so the city works as a transaction point and has to grasp the global knowledge flows taking place all the time. The private sector is ranked rather high, but sometimes, specific individuals can play vital roles. Without Kamprad and IKEA in Älmhult, the city would not exist. Annerstedt shared Asplund's viewpoint that tourism too is a prerequisite for a knowledge city, and culture must not be neglected as a way to attract competent citizens. Finally, Cronert argued that the most successful conditions for a knowledge city are the six parts of the model combined into an appropriate balance. By finding a region where all constituents function in harmony with one another, a company has better chance of thrive.

Table 1: Summary of key issues reported by the expert respondents.

	Christer Asplund	Jan Annerstedt	Kjell Cronert
Characteristics of a knowledge city	Niche competence	Place of transactions	Independent individuals needing only their mind to succeed
The most important factors when designing a knowledge city	Leadership	Institutions, hospitals and universities attract and accumulate knowledge	Housing, commuting time and recreational activities
Focus on culture in an emerging knowledge city	The focus on culture results in loss of focus in business investments; in recessions, cities focus on culture. Clean city, good education, venture capital are more important	Culture in itself is knowledge, can attract business professionals	Culture not important
Neglecting of culture	In recessions culture is fueled	Underrated tool to brand or market a city	Underrated tool to market a city
Measuring a knowledge city	Patents/capita, business start-up/capita, international phone-calls	Number of patents, number of innovations, number of original ideas	Density of professions who only need themselves to succeed
Failure in knowledge cities	St. Petersburg, visa requirement; Stockholm declines in international relations	Few cities succeed	Stresses the importance of focusing on one topic
Conflicts between the city and companies	Conflict regarding architecture	Companies give up before there is a conflict	Politicians' short terms actions to boost party cause conflict
Options to profile a city	Market plan with a brand and a couple of sub-brands to profile a city	Many tools; many stakeholders in a city, not co-operating leads to not using the city's potential	A city can use professionals, layers, doctors and consultants to market the city
Negative effects in a knowledge city	No particular	No particular	Service companies need manufacturing companies, which there is a lack of in knowledge cities
Options for retaining companies in a city	City can show appreciation towards companies	Create interesting living environment; attract complementary companies	Reallocation decisions are taken from HQ abroad
Importance of a city's prestige	Very important	Very important	Very important
Role of governmental subsidies or contributions	Significant impact in smaller cities, temporary	Contributions to hospitals are crucial for existence, hospital service is vital to society	Important to cities that without subsidies are unattractive to companies, subsidies concentrated to some regions
Company influence on design of a knowledge city	Depending substantially on the size of the city; companies can only affect small cities	Limited influence	Little or no influence in shaping the city
Company criteria when locating in a knowledge city	Intangibles (competence profile); tangibles (logistic system tax system)	Availability of resource base, tax system, wages and proximity to future markets	Social aspects; environment, schools, healthcare and leisure activities

<i>(continued)</i>	Christer Asplund	Jan Annerstedt	Kjell Cronert
Subsides/contributions and permissions that companies can apply for	Many in the US. More in the South of Europe than in the north	No specific contributions mentioned	Contributions to business start-ups is one of the most important subsidies
Financial and market problems when allocating in an inappropriate city	Very costly, can damage image considerably	Cities dislike companies that are flexible and casual	Distorted balance in terms of service from the commune, win-win situation can be deficient
Co-operations between the city and companies	Commune starts consortium with many private companies	Consortium agreement between city and private companies	No specific co-operations mentioned
Factors important to a knowledge city	Private sector most important; public sector, heritage, tourism, landmarks	Global knowledge flow most important, tourism is a prerequisite for a knowledge city	Balance between tourism, culture, heritage, landmarks and significant people

4.3 Interview with Copenhagen Capacity

Characteristics of a knowledge city

Danny Christophersen at Copenhagen Capacity has looked into investment profiles of Copenhagen, for example number of investments in Copenhagen. These investments have to lie in certain sectors and the companies that are present in the region or city will have to be knowledge-intensive. Certain clusters of companies within knowledge-intensive industries have to exist and there has to be a strong infrastructure, a so-called knowledge infrastructure. Certain factors need to be above average, for instance output of students in technological universities and IT universities, as well as pharmaceutical universities. In addition, the whole infrastructure in terms of knowledge imbedded in people will have to be better than the average

Importance of culture

From a Richard Florida perspective, culture is important, but it also depends on how one defines culture—if one translates culture into a dynamic city with rock concerts, theaters, and museums. From Copenhagen Capacity’s experience, culture plays a role, but not *the* role; it is important for companies when they set up in a certain city that they get their key employees to move, since foreign companies would probably have to move their key employees to the new location. It is important that these employees are willing to move, so if there is an open, dynamic city, it would be easier for them. International schools and clubs play important rolls too, when expatriates live in the city. Copenhagen Capacity locates between 20-50 companies every year. Once a company has established in Copenhagen, the organization conducts a survey

through Deloitte, who makes interviews with a person from each company established in Copenhagen. Different factors that are important to the company in a city are evaluated. Access to competence has shown to be the most important one. Copenhagen's geographical location comes in second place; Copenhagen is close to both Europe and Scandinavia, where the large airport is an important factor. Without a big airport, cities have difficulties attracting foreign business. The infrastructure is important and according to Copenhagen Capacity's study, culture is not *the* most important factor for companies, but it may play a bigger role than shown in the research. Before companies come to Copenhagen, the organization has visiting programs and meetings, and it could involve setting up meetings with potential partners, universities, where they can rent office space, since it is important that they find themselves comfortable in the city. Copenhagen Capacity shows the infrastructure and markets the city, and follows up after six months with the Deloitte survey, evaluating Copenhagen City's performance. Through this research, they try to find the main reasons why companies locate in Copenhagen.

How to measure a knowledge city

There are different benchmarks that one could use when measuring a knowledge city—broadband penetration rate, number of computers per capita, average educational level, etc. Looking at a broad range of factors, Copenhagen Capacity tries to benchmark against the average cities. If one looks at benchmarks, IMB and the World Economic Forum are good sources. IMB publishes the competitive yearbook, benchmarking countries in the world. The World Economic Forum is mainly based on Michael Porter's theories. Christophersen also maintained that OECD and the World Bank are good sources. UN and Eurostat have useful information as well.

Lessons from other cities' failures

With respect to other cities' failures as knowledge cities, one has to look at it over a very long period of time. Copenhagen Capacity looked at the potential of different cities; if a certain city is attractive on a scale, then it has a number of investments that it attracts. According to their analysis, one can see the expected amount of investments in a city with certain attractiveness. If a city is attractive, it would according to theory get many—for instance 300—investments. If they are above the line in a figure, they are not utilizing their potential. Paris is too attractive, and has too few investments in relation to its attractiveness. Copenhagen Capacity applies a figure to find the profile of a city, in terms of different factors. The main problem of Scandinavian cities is the market size. Scandinavia has about 22 million inhabitants, whereas Germany has 80 millions. That affects the companies' choices where to locate their businesses. Europe is often divided into regions, and Copenhagen lies in

the Scandinavia region, hence not competing with cities in the Iberia region but with Stockholm, which is another large city in Scandinavia. Companies often use one city as a regional headquarters. Many of the investments follow the market. An increasing number of investments follow knowledge. That kind of investments could be an R&D center for a company, and they could locate in Copenhagen due to the business climate in for instance pharmaceuticals. They want to access the competence, and they like good universities.

Copenhagen Capacity learning from other cities' successes

Danny Christophersen stated that Copenhagen Capacity indeed has learned from other cities' successes, but it is very much the regional and country politics that control; Copenhagen Capacity cannot influence very much. However, the organization learns from other investment agencies' successes, like what clever things they do. What Copenhagen Capacity does is providing consulting services to companies rather than marketing the city. The organization recognizes that there is an increasing slope where it is better to be positioned as opposed to a position that has stagnated or which is even decreasing. The cities that are doing well have business promoting agencies, that provide very knowledge-intensive services. Copenhagen Capacity will monitor which cities are on the upslope.

What a city more can do to accommodate companies

A higher level of service is always possible, as a way to accommodate companies. It is to a large extent a question of money, and there is a limit to the number of companies that Copenhagen Capacity is able to provide with consulting. The big issue is to get in contact with the foreign companies. The organization can probably take in 25-30 % more clients with the same number of people, according to Danny Christophersen. The procedure when finding companies is to narrow down a big number of potential firms, and then provide assistance for a small range of firms. Most large enterprises do not need Copenhagen Capacity's services, as they have their own agencies. There is also another approach, which is visiting fairs and exhibitions, which the organization does a lot in biotech. Networking is important too; matching companies can be vital, and diabetes, for instance, is a stronghold in biotech in Copenhagen.

Instruments to retain companies

Christophersen stressed that Copenhagen Capacity is increasingly occupied with the issue of retaining companies. They do after sale to utilize the potential of the already present companies—one thing is attracting companies that are not located in

Copenhagen, and the other is to contact companies that are already in Copenhagen. Copenhagen Capacity tries to attract on internal basis and make companies place central functions in Copenhagen, like shared service centers. They try to convince firms that it is a good idea to have a headquarters in Scandinavia, and that the size of the market requires a headquarters. When a company is about to reallocate, the organization provides them with the information that they need to argue why the company needs to stay in Copenhagen, like ammunition, that the employees use to protect their jobs. Even though the price level is higher in Denmark, the employees are more efficient in relation to their wage.

Importance of city's prestige

Prestige probably ranks in the same level as culture according to Copenhagen Capacity's studies; it has some influence but it is not the most important factor. Production traditions are linked to specialized competence, so clusters of companies with certain competence are attractive to companies with similar competence that might locate their business there, reinforcing the cluster. That is the cluster perspective, which is very significant. In Copenhagen, there are life science clusters and an IT cluster. Stockholm has a similar profile.

Government research contributions

Government research contributions are very important. It has been a big issue the last two election periods and all political parties focus on more innovation and research. Companies must see that they do not invest in a city that has a downward slope in terms of innovation and there is a focus on increasing funds on these activities. Firms look for cities with many PhDs, which indicates a high degree of R&D, funded by the government.

Company influence in shaping the city

There is actually a case of a company affecting the shape of the city happening right now. It is Biogen, a very big US biotech company; they actually chose the city Hellerup, a suburb of Copenhagen, for manufacturing. They will employ about 400-500 people, and therefore, politicians decided to educate more lab assistants. They estimated together with the company as to how many students that were needed, and then increased the output of students. If a large company like Nokia would leave Copenhagen, it would be noticeable, but on the other hand other companies would attract a great deal of those skilled workers.

Available subsidies for establishing firms in Copenhagen

Danny Christophersen proposed that subsidies are one of the things characterizing Scandinavia: Scandinavia does not subsidize as much as they do in southern regions of Europe. Incentives are not given in that manner; it is a very strong principal making it equal for everyone. Yet again, foreign companies can get three years of tax exemption for their employees when they establish themselves in Copenhagen. This is a strong incentive, but most other countries use this strategy as well.

Co-operations between municipalities and companies

In general, Copenhagen Capacity takes pride in having a high level of dialogue between companies and the policy makers and the level of co-operation is quite high compared to other cities. The Biogen case is an example where a company can get into a positive dialogue with the local policy makers—both parties gain from this kind of co-operation. A good example is Ørestad, an old military base now used for company establishments. No specific industry is favored, but politicians try to divide the activity into several sectors. However, manufacturing companies are not preferred in this area, since policy makers do not want pollution near the city. The area has an organization with its own director, which makes it less influenced by shifting politics.

Importance of (1) research excellence; (2) civic centers; (3) new communication technologies; (4) the city's ability to generate, attract and maintain highly skilled citizens; (5) and instrument that make knowledge available to the public

All the factors from the theory by Ergazakis et al. are important, and regarding instruments to make knowledge available, e-governance is a new phenomenon. The government creates specific demands on new technology, and therefore it has a major role. Digital signatures have grown in significance too, as the government has implemented this technology. By providing online services and digital signatures etc., the government increases the IT development. Research excellence is of course important; it is the foundation of Medicon Valley. Diversity is quite important as well, and is connected to the city's ability to generate, attract and maintain highly skilled citizens. Low crime rate and culture institutions have influence too. Culture and diversity should not be neglected either—they function in a positive circle.

Geographical proximity to customers and suppliers

Geographical proximity is a very important issue, using the market argument. Copenhagen airport is now the largest airport in northern Europe, and the bridge to

Sweden gives good access to Scandinavia. In addition, Germany and south Sweden are easily accessible through good infrastructure. This makes Copenhagen a strategically significant location in many aspects.

Common platform for knowledge exchange

Networks with industries are very important, but physical facilities have less significance. It takes some kind of an organization to establish meeting places for companies in cities, and therefore Copenhagen Capacity has been very active in providing connections between companies. Creating a brand, like Medicon Valley, but also a network where companies can exchange knowledge is beneficial too. Physical facilities such as science parks are important as a platform for knowledge exchange for smaller companies. Smaller suppliers of larger companies locate themselves in proximity to these enterprises. They would probably choose to locate in a research or a science park, because there they can use common administration and share office equipment, thus reducing cost and getting in touch with other scientist as well.

Additional reflections

One must consider the Scandinavian approach to management. Such characteristics can be a flatter organization, short power distance, managers involving employees in decision-making and employees saying what is on their mind and the managers listening to them. Employees are flexible and adapt easily to change and also feel affiliated with the company compared to a country that has higher hierarchy. This has the result that the Scandinavian management usually discusses the matter for a long time but when it is time to implement the ideas, it is done very quickly. The hierarchical organization on the other hand needs very little time to make a decision but they take a very long time to implement that decision. Another thing to consider is the mobility of the labor market—it is very easy to both hire and fire workers with short notice. To sum up, access to competence, clusters and strongholds, flexibility of the labor market, market size and geography are the most important factors. Furthermore, the Scandinavian market is good for sophisticated demand, and to try new products in the Scandinavian market is a measure that gives the producer good feedback on the products introduced.

5 ANALYSIS

The objective in this chapter is to present an analysis based on the empirical findings and the theoretical framework. These two perspectives are compared in order to identify and clarify critical factors found in this study. Subsequently, the intellectual capital dimension is integrated with the theory and the empirical illustration in order to categorize the factors of the main model. The chapter is structured in accordance with the key success factors of the main model.

5.1 The Five Key Success Factors

5.1.1 Societal

Theory says that the standard of living and education in a knowledge city play crucial roles. This suggestion derives from Ergazachis, Metaxiotis and Psarras (2004), and is a subset of their six key success factors. Danny Christophersen at Copenhagen Capacity underlined how important education is, and especially, the educational level is a good way to measure a knowledge city. Genmab and Electrolux also found the level of education as a fitting measure. Furthermore, a critical factor is, states Porter (2001), the link between industry and university. Respondent A confirmed this idea to some extent, by maintaining that a close relation between companies and a city is needed. Most of the other respondents did not acknowledge the suggested link as crucial. The societal perspective also involves the focus on quality of life, which will attract talented and highly skilled workers. Most of the interviewed individuals were convinced that quality of life is a major factor that attracts people to the location. Cronert emphasized intangible assets like housing, commuting time and recreational environment, which are measures of quality of life. Annerstedt concurred to this notion, by saying that culturally interested people have an incentive to move to a city that has a high quality of life, surrounded by a high level of culture. Different lines of industries can be attracted using a suitable cultural profile. The third respondent with information about quality of life is Christophersen, who meant that an open, dynamic city with international schools and clubs appeal expatriates. Consequently, about half of the respondents maintained that a city must strive for quality of life.

Regarding the cultural environment in a knowledge city—apart from the quality of life viewpoint—the majority of the companies did not consider culture to have a great influence. For instance, Sandvik saw other issues as primary to the decision of location. The price level as well as proximity to suppliers and political climate is ranked higher from their point of view. Culture has more appeal to Electrolux, as culture attracts creative human resources, and according to Respondent A, culture only has auxiliary importance. Disagreement between municipality and companies proved to be apparent in some cases, for instance in conflicts with the architecture in a city. As the municipalities in cities set the standards for size, shape and height, the innovation climate for companies can be confined, according to Asplund. As for the other expert, Annerstedt, companies yield before there is a conflict in most cases, indicating that the disagreements never culminate.

One prominent feature of a knowledge city, advocated in the theory, is the benefits from national, international and supranational institutions, as well as universities. Generally, the benefits from such institutions were somewhat confirmed by the respondents, e.g. by Annerstedt, who recognized that institutions and hospitals attract highly trained professionals. Christophersen shared this view and added that crime rate needs to be low as well. The last expert, Cronert, also mentioned that healthcare and international schools were relevant to knowledge cities. Local celebrities and historically significant people can have a profound effect in branding a city, as proposed in the theory of city branding. When examining these types of celebrities, Asplund contributed with a noteworthy input: Larger airports can successfully make use of the names of famous people, like the JFK Airport in New York City. Furthermore, IKEA has branded the Swedish city Älmhult, as noted by Annerstedt.

One of the final theories related to the societal key success factor states that the ability to generate, attract, and retain highly skilled citizens is central, together with the existence of civic centers that are open to diversity. This idea—however not including civic centers—was supported by all the respondents, and for instance, Genmab underlined the highly skilled citizens in this issue, in accordance with Electrolux and Sandvik that found the ability to attract highly skilled citizens to be very important. The final concept included in the societal field deals with the dynamics of the city, which can retain creative and innovative people and make full use of their potential. This in turn, would attract foreigners to invest in the city. In general, the respondents stressed aspects like interesting living environment, complementary companies, psychological parameters and international schools, all being aspects that contribute to retain innovative citizens. The respondent from Copenhagen Capacity added that shared service centers and after sales would make companies stay to a greater extent.

5.1.1.1 Reflections

The quality of life aspect and the focus on educational level associated with the societal key success factor were discussed by the respondents. Since many interview objects maintained that quality of life works as a motor for attracting and retaining competence, one can argue that this part of the theory to a large extent corresponds to the perception of reality put forward by the experts and company representatives. As several theories underline quality of life (e.g. Ergazachis, Metaxiotis & Psarras, 2004; Landry, 2000) as an inducement to move to a knowledge city, it was not unexpected that this view was confirmed by the empirical data. In one interview, culture was regarded as an essential condition for quality of life, which was stated in Landry's (ibid.) theory as well. However, the concept of culture is ambiguous, and might encompass—apart from entertainment like movies and music—values, norms and knowledge that has a more profound effect on the well-being of humans. The level of education, as suggested by several respondents, has understandably qualities as a knowledge city measure. Thus, culture attracts and retains knowledge, whereas education generates knowledge within a city.

The other aspect of culture discussed in the theory (differing from the quality of life aspect) was of no great concern to the companies, even though e.g. Landry (ibid.) put great emphasis on culture. It is a sound reasoning that matters like the price level and proximity to suppliers are graded above culture, since these are more tangible and flagrant. Furthermore, price level and suppliers have a considerable effect on short-term survival, but a discrepancy to this opinion originates from Electrolux. This company meant that there is a strong link between culture and creativity, as creative people are enticed by a dynamic and changing environment. Thereby, there is indication that the culture theory applies in reality. When considering disagreements between municipalities and companies, the innovation climate was central. Most of the time companies do not even commit resources to proceed with disagreements. In this sense, one can argue that there is a need for a new way of thinking, as suggested in the theoretical framework.

Institutions, universities and hospitals constitute the groundwork of a modern city. They attract highly skilled professionals and they are rather permanent as opposed to companies that relocate with the changing economic tides. Institutions and prominent universities give cities status and send out signals about the quality of life in the city. The expert respondents and companies partly agreed with the theory, but Christophersen at Copenhagen Capacity stressed the need for a low crime rate too. This opinion appeared to be more important in practice than stated in theory.

Concerning local celebrities and significant people, the interesting viewpoint Asplund proposed can be extended to encompass the Copenhagen Airports. Local celebrities have in their name an already established brand that can be used to distinguish central

institutions. It would most likely be appropriate for Copenhagen Airports to rename the airport and exploit the renowned name of for instance HC Andersen, in a similar way to the JFK airport in New York City. The marketing costs would in a sense decrease as much of the publicity is already established.

The ability to generate, attract and retain highly skilled citizens was considered very important, whereas civic centers that are open to diversity were considerably less important. Consequently, the main discrepancy between this theoretical context and the empirical data concerns civic centers that are open to diversity, and one reason might be that the interviewed companies do not have a holistic view of the city and its needs. Civic centers are possibly more fundamental to specific individuals living in the city. As mentioned above, the living environment and a vibrant city attract and retain skilled citizens but there is also a need for a close dialogue with the companies to make them stay. Copenhagen Capacity for instance has interaction with companies that are about to move to Copenhagen, and this dialogue continues after the establishment process, thereby enabling Copenhagen Capacity to take measures to accommodate the companies and solve problems that arise.

5.1.2 Technological

The technological key success factor has frequently been accentuated as a motor for development, ease of interaction and transaction; hence, the theory highlights the importance of technology in a knowledge city (Ergazachis, Metaxiotis & Psarras, 2004; Baqir & Kathawala, 2004). Both Asplund and Christophersen articulated an array of indicators illustrating how widespread the knowledge in a city is, and some of them are number of patents, start-ups per 1 000 inhabitants, number of computers and broadband penetration rate. One noteworthy way to measure the amount of knowledge in a city is via the number of international telephone calls to the international market. Furthermore, the Hot Spot concentration described in the theory gives an indication of technological development in a city. None of the aforementioned measures are in concurrence with the theoretical framework, which signifies the value of the respondents' reflections. In this sense the knowledge city concept is somewhat widened. The Ba model was supported by for instance Genmab, arguing that access to low cost office space and other types of meeting forums are of the essence for retaining companies in the city. Since the Ba theory is very technically oriented, it received little support from the more concretely aligned companies. Therefore, the Ba model might have a rather limited merit in this context. Several large cities have accommodated companies with science parks and accumulated office space outside the city core, providing relatively low cost of land and affordable offices. Christophersen described the expanding region of Ørestad as a highly technological area with a cluster of innovative firms. According to Chen and Choi (2004), the ease of interaction and exchange of knowledge and technology

between companies is of great consequence, and the amalgamation of companies in Ørestad provides this interaction.

The semantic web and web services referred to in the article about Ba were recognized by three companies: Electrolux, Respondent A and Genmab. This kind of professional network is however, according to Electrolux and Respondent A, not international but rather local. As a result, the Ba theory once again appears to be more technically oriented, since the respondents commented the networks on a more local and personal level. The theory concerns the trustworthiness of information on the web that would require more international networks to be evaluated, which the respondents did not have particularly much of. The interview objects had some thoughts concerning the geographical proximity and organized proximity. Large companies—as opposed to small—have the possibility to reposition their personnel and co-ordinate geographically dispersed efforts. Because of their shared rules and routines, the companies can interact and share knowledge with ease. For instance Danny Christophersen at Copenhagen Capacity maintained that geographical proximity (distance in kilometers) is a key factor for companies, as the fine infrastructure gives easy access to substantial markets like Germany and Sweden. Finally, access to future markets and transports can influence decisions to locate firms.

Two respondents acknowledged the importance of transferring tacit knowledge within regions, and Annerstedt argued that geographical proximity is a prerequisite for knowledge and information transferring, especially explicit knowledge about the market and customers that is not possible to assemble from overseas. Furthermore, Christophersen reasoned that prestige originates in production traditions driving agglomeration of companies that develop a specialized knowledge. Partly the theory was confirmed, as sharing equipment and learning by imitation are convenient ways to convey tacit knowledge and innovative solutions to problems, a line of reasoning that has similarities with the replies from the empirical data. Genmab, Respondent A and to some extent Sandvik agreed on the notion of access to new communication technologies as a pillar for a successful knowledge city. The respondents did not emphasize any specific technology, but Hot Spots and digital voice communication via IP could be examples of such new technologies.

5.1.2.1 Reflections

The technological key success factor covered in the Ba article gives good structures and depicts lines of reasoning conveying a coherent view of a knowledge city; however there are no references of how to measure the variables mentioned. This shortcoming of the theory could be deliberate, as the authors of the literature might

want to safeguard themselves against future ICT development. By not advocating any specific measurement, researchers have the ability to discuss ICT on a more academic and theoretical level. As noted earlier, the expert respondents and the representative from Copenhagen Capacity supplemented the measurement issue with several relevant indicators of a knowledge city. When analyzing the Ba model, one can argue that the government or municipalities should issue incentives by constructing a comprehensive ICT structure, with which companies can improve their efficiency at all levels, due to the common computer language (semantic web etc.). Furthermore, a government might set the standard and regulations in order to increase the impact and penetration in the knowledge city. The common standard can manifest itself through the same communication system for laptops, desktops, servers and cars (Baqir & Kathawala, 2004), using the semantic web.

The stages that require geographical proximity are the initial stages of businesses, like negotiations, research and development, definition of guidelines and similar activities that are not standardized procedures within or between companies. Therefore, there is no need for a permanent localization while firms can reassign and reallocate their staff to the location where they are needed. This gives companies a substantial advantage since they do not need to establish offices at other locations to conduct research in collaboration with a partner. Thus cities with developed infrastructure are prime locations for companies with temporary interactions with partners. Moreover, transferring tacit knowledge can be of a more permanent nature, as this process generates clusters that develop very specialized knowledge. New communication technology has also accelerated and extended the amalgamated capability to transfer tacit knowledge.

5.1.3 Environmental and Strategic

Within the environmental key success factor, several angles of approach were expressed by both Copenhagen Capacity and the responding companies. Summarized, the theory stating that market access and networks of commercial influence are important for a knowledge city is relatively congruent with empirical context. Danny Christophersen envisioned that networking and matching companies is a prerequisite for a vibrant business environment, whereas Electrolux and Respondent A stressed that human resources, proximity to customers and emerging markets as essential to companies emerging in new sectors. This has strong congruence with theory, in which it is stated that scarce human resources and the size of markets drive clustering. Another side of the environmental field is what companies look for in terms of the business environment. The wage level and tax rates are general factors that influence companies in their choice of location; more specific factors that differ between companies depending on which business they are

in are customer base and competence profile. Furthermore companies can receive tax exemptions the first couple of years they are operating in a certain region or country.

Related to the knowledge city concept is according to the theory human resources, of which creative capital is a subset. Creative capital is regarded as very influential on economic growth (Chen & Choi, 2004), and is characterized not by skilled professionals but professionals producing knowledge or solving multifaceted problems. When comparing Chen's and Choi's outline with the replies from the empirical context, all interview objects concentrated on human resources but did not identify the specific creative capital mentioned in their article. In this sense, the specific theory was not confirmed, which nevertheless does not discard its merits. A quite different aspect of the environmental field is the strategic advantage from linking a city to a successful company, wherein the region can reap the benefits of the renowned company brand, and this can be mutually beneficial. The prevailing perception among the interviewed companies was that prestige is of little value, other than initially. These interview responses could be seen as rather unanticipated, as the city branding theory suggests the opposite. Respondent A meant that it depends on the line of business. Asplund, on the other hand, maintained that prestige is particularly important and that cities can co-brand with prestigious companies, which is a very efficient tool. Another way to create co-branding and reap its advantages for a city is to be a node in a global network—the city in itself might be unattractive but linked to a global network of i.e. stock market exchange, thus becoming significant in another perspective.

One of the final theories suggests that companies may share the same infrastructure in order to take advantage of the same pool of professional workers. Cronert claimed that it is very important for cities to focus on one topic, whereas another expert highlighted the available work force in a city as a main attraction for companies, and not about interaction with other companies. The last crucial environmental factor in the model is research excellence, which two responding companies found highly relevant. The exceptions were Sandvik and Electrolux, which laid focus on the other features in the model. Danny Christophersen had a different opinion, as he advocated the research excellence in accordance with the model by Ergazachis, Metaxiotis and Psarras (2004).

5.1.3.1 Reflections

As the discussion was analyzed, both the environmental and strategic key success factors proved to be substantiated through the respondents' replies. However, one difference could be documented between the observed knowledge cities, since the level of networking and co-operation in Barcelona according to Annerstedt is

noticeably lower compared to Copenhagen. Christophersen at Copenhagen Capacity also underlined that his organization has established a goal of a leading position in terms of providing assistance and services for companies—both potential and present—and therefore Copenhagen Capacity has gained a substantial advantage. Influential issues in the empirical data were moreover tax levels, a topic that not only Electrolux but also Asplund mentioned. The latter also brought up venture capital as crucial for the business environment. The same argument is illustrated in the theory by Ergazachis, Metaxiotis and Psarras (2004), who describe the need for support in terms of venture capital but also consulting and so forth.

The main reason that the respondents did not confirm the theory about creative capital as a main contributor to economic growth, is most probably because they are not familiar with the model. As research also suggests, it is not only creative capital that determines economic growth but also the systems that cities employ in order to transfer that knowledge into production. The subject of prestige could be analyzed through some perspectives, i.e. from a consumer point of view and business-to-business. The business-to-business commerce is quite different from consumer business; both parties have extensive information about each other and the product, hence the prestige becomes less important. Consumer business on the other hand, relies heavily on the marketing message conveyed, since there is little other interaction with the customers. The information is one-sided and therefore the prestige should reasonably be more important. Prestige has according to Asplund great importance to cities, since they can use the renowned name of successful businesses to co-brand the city, and this collaboration is mutually beneficial. In addition to this, Annerstedt added the notion of being a node in a global network as another way to bring prestige to a city.

Two opposing statements with respect to the clustering of companies were described in Chen's and Choi's (2004) and Torre's and Rallet's (2005) articles, respectively. On the one hand, clustering is caused by companies co-operating; on the other hand, clustering is a result of companies sharing the same infrastructure to access other markets easily. The latter notion was also proposed by one of the expert respondents, and together with the theory, this point of view seems more convincing, as not all companies desire to co-operate. Finally, concerning research excellence, this part of the model might be ranked lower by Sandvik and Electrolux because of their rather massive size—they have their own research and development as well as other functions, and thus these organizations are in greater need of human resources than research excellence in a city.

5.1.4 Political

The last key success factor, i.e. the political factor, is examined here. This constituent in the theoretical apparatus covers above all the political will associated to the region, as well as the legislation. After the respondents were consulted, it became visible that the companies do not notice a great deal of political will in neither Copenhagen, nor Barcelona. Genmab, Sandvik and Electrolux shared this opinion, whereas Respondent A identified some political will through co-operations regarding environment and construction in Copenhagen. One can also observe that companies are granted subsidies for cost of land, taxes and education of staff and that these subsidies generally increase the farther south in Europe companies choose to locate their operations, according to Christer Asplund. The political will in a city or country can have tremendous effects on cities, for instance governmental subsidies for call centers located in remote regions such as Östersund in Sweden. These cities can due to these subsidies thrive and develop in other areas as well. In a similar manner governmental implementation of technology can have comparable effects. New technology can rapidly become a standard if governments apply it. Legislations slow down the bureaucratic procedures and therefore the bureaucracy becomes reactive instead of proactive. However, the empirical context does not stress this connection. In addition, Landry's (2000) theoretical framework explained the need for constructive alliances, since no one can reshape the urban structure alone in a knowledge city. This enables more holistic and creative solutions to the problems in a city. Even though there is a need for such alliances, there are many independent stakeholders profiling themselves in different ways, and the lack of co-operation results in a city having many profiles, of which none is potent, according to one expert respondent. The political will can manifest itself in another way, i.e. when representatives from the municipality merely take time to discuss relevant issues with companies, said Asplund. He also recognized a trend in which the private sector and the public sector co-operate to a higher degree. A final interesting example of a political will is the region of Ørestad close to Copenhagen, where a business area has been formed.

Together with the political will, the electoral system also has to be taken into account because of its great impact on cities. As mentioned earlier, problems with the electoral system are the short electoral periods and risk-averse politicians. Cronert highlighted this with the fact that politicians often take short-term actions in order for their party to prevail, which Annerstedt confirmed. The governing body in a city is also associated with the political will, and this body has deep effects on relations with local and external policy makers, as stated in the city branding theory. Asplund emphasized that leadership is the most important factor for the emerging knowledge city, and this statement goes hand in hand with the theory. He continued that municipalities must reconsider and widen their perspectives outside the cities, because otherwise several opportunities can be lost. Such opportunities are business

investments and profitable exchange with other foreign companies. Not considering this aspect will seriously constrain a city's possibility to grow.

5.1.4.1 Reflections

As the majority of the firms in this study did not attribute particularly much importance to the political will in cities, it remains to be analyzed what this is due to. One possible reason is that well-established, successful companies have experience of doing business independent of the politics within a city, whereas young, expanding companies in general need more interaction with other businesses as well as city representatives. Issues like office space and networks with complementary companies might affect the smaller companies to a larger extent than others. Another reason might be that political will is not very visible and that it works more as a spark to get things moving. Asplund mentioned two good examples that show how government subsidies and implementation of technology can give a business a jump-start, enabling it to flourish. Furthermore, the co-operation between municipalities and companies is an issue that needs to be developed. The companies are mostly interested in their own business and have little resources to commit to a common purpose. The individualistic view of many companies results in incoherent efforts and interrupted ventures not giving any company a strong brand that they can exploit. As pointed out earlier, there is a need for co-operation between companies, enabling a viable brand that both the companies and the city can utilize. One co-operation that has become rather successful is the Ørestad region, and the most outstanding features of the place is that the government commenced a consortium consisting of many companies, that together shape the region, without external political influence. As a final point, the biomedical company Biogen—as illustrated earlier—negotiated with the municipal administration of Hellerup and consequently, the political will assisted the company by expanding the pool of lab assistants.

In order to cope with the most serious imperfections associated with the electoral systems in many cities, Florida (2002) and Landry (2000) suggest that an arrangement of economic creativity and a higher inclination to risk-taking is the best solution. However, this might not be an all-embracing way to deal with the problems. A concluding remark about the political will is the leadership, as mentioned in the theory. One must be aware of the reactive nature of the municipal leadership, as decisions may be prolonged for an extensive period of time, during which companies may suffer from financial losses. Not only might the firms undergo difficulties, but the city as well, when politicians are concerned with solving yesterday's problems. Conclusively, a very strong leadership is required to widen the perspective of politicians and to look forward to tomorrow's opportunities.

5.2 The Five Key Success Factors from an Intellectual Capital Perspective

The five key success factors that have been accentuated throughout the thesis are now displayed by means of the intellectual capital dimensions explained previously in the theoretical framework. It is the relation between organizational capital, human capital, and relational capital that determines the outcome of available resources in a knowledge city.

In the figure below (Figure 7), the intellectual capital dimensions are depicted in a mind map, which categorizes the important characteristics of a knowledge city. From each branch (relational capital, human capital and organizational capital), the prominent nodes, such as human resources, quality of life and so forth, are illustrated. The main benefit of this figure is that it amasses all key success factors under the corresponding intellectual capital branch, for instance societal (quality of life node), and political (political will node) under the relational capital. The other intellectual capital branches function in a similar way, and the corresponding key success factors are shown within parenthesis after each node.

Furthermore, the mind map of the intellectual capital dimensions gives clarity and by means of these relations one is able to distinguish the factors affecting the organizational, relational, and human capital. Consequently, if a knowledge city has a poorly developed ICT structure, it will constrain the potential of the human capital, limiting the outcome. In this manner, the knowledge city can identify the factors it needs to work with in order to utilize the existing human capital. Thus, intellectual capital provides further depth to the key success factors.

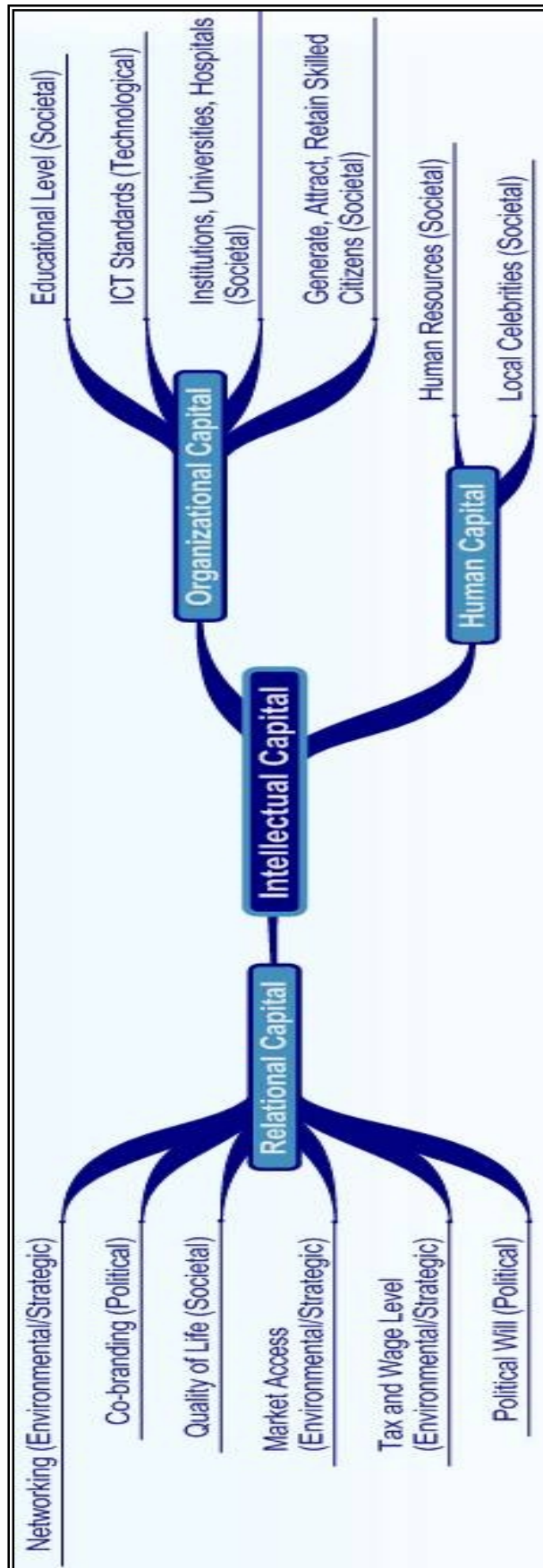


Figure 7: A mind map illustrating the key success factors through intellectual capital.

6 DISCUSSION

In this concluding chapter, the most important findings and noteworthy implications of the analysis are discussed, and the theoretical outcome of the thesis are stressed in one section, whereas ideal conditions of a potential knowledge city subsequently are proposed in a list. This is followed by suggestions of further research that conclude the final chapter.

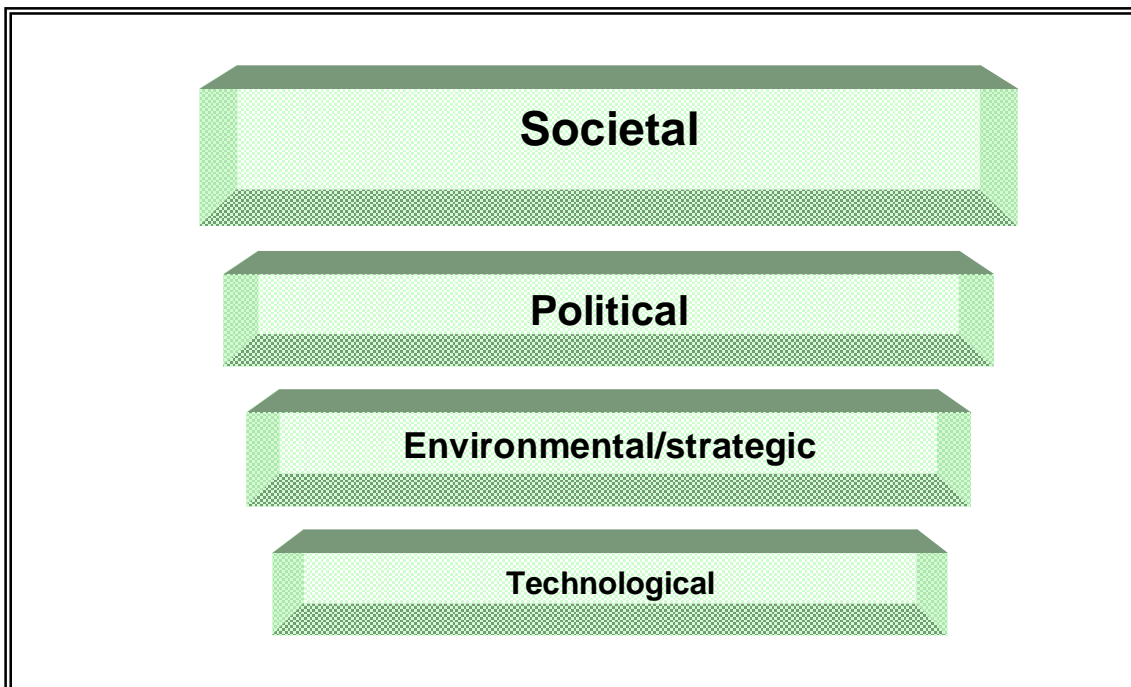


Figure 8: *A concluding model, ranking the key success factors from the main theory.*

6.1 Theoretical Contributions of this Thesis

To conclude this thesis, a concise and illustrative figure (Figure 7) has been assembled in order to rank the different key success factors from the theoretical apparatus. The reasoning is based on the emphasis the respondents gave each issue within the key success factors, and the relative frequency the constituents appeared is also relevant to the discussion. As stated earlier, the financial key success factor from

the main model is deliberately overlooked because of the alignment of the remaining theories. The figure portrays how the societal factor was given most importance, whereas the political, environmental/strategic, and technological were ordered in sequence according to relative weight.

One reason that the majority of the participants in the empirical context had most comments and opinions on the societal key success factor, is most likely due to the link between this factor and human resources in knowledge cities. All respondents did in a credible way label the human resources as the main requirement characterizing a prominent knowledge city. This is possibly because human resources in an exceptionally direct manner influence the performance of knowledge-intensive firms—the creative and innovative power embedded in humans is essential to these firms. Therefore, companies must focus on their workers and employ sufficient resources in order to facilitate and develop the organization, creating a business environment, which enables employees to unleash their creative potential. As discussed earlier, one should nourish the creative capital that solves highly complex problems and generates new knowledge. As a consequence of companies' preferences for skilled workers, it is imperative that cities invest in the factors appealing the most competent workers. This study has shown that the quality of life, encompassing cultural settings, living environment, recreational areas, and—when suitable—international schools. When a well-developed city can provide such a combination of benefits, it is one step closer to fulfill all the possible requirements of a knowledge city. Yet again, the empirical framework indicates that a city not necessarily needs to fulfill *all* key success factors to be a knowledge city. A small city with specialized knowledge within a field like logistics (e.g. Nässjö) can be a knowledge city even though it does not encompass all key success factors. The benefits from quality of life naturally do not only affect companies but also the average citizens. Not only the affluent companies constitute a knowledge city but also content citizens working in various fields, so the standard of living might be equally worth striving for in a knowledge city.

The societal key success factor is closely followed by the political factor, which in a sense represents a prerequisite for the remaining knowledge city traits. The political will lies as a foundation for any knowledge city and works as a spark instigating ventures and investments from companies within and outside the city. As leadership was regarded by the expert respondents as very crucial, one can conclude that most metropolitan areas need a strong and internationally experienced leadership, which has the capability to provide opportunities for foreign investors and to unleash the creative power within the city. Strong leadership must furthermore reconsider and break old habits and enhance the risk taking and increase venture capital, thus enabling the city to grow. Both the theory and empirical foundation suggest that the political system forces short-term action in order for the politicians to prevail. Thereby, the distribution of resources is often distorted in a way that favors eye-

catching ventures with doubtful long-term gains for the common good. Consequently, the aspect of reconsidering should enjoy great attention. In spite of the experts' notion that there is an increasing degree of co-operation between the public and private sector, the responding companies did not see a great deal of interaction with municipalities. This might depend on the indication that companies do not see themselves as a part of something bigger; they do not have a holistic view of the knowledge city.

At the third place in the figure above the environmental and strategic key success factors appear, as a vital factor for companies located in a city. Even though firms acknowledge networks of commercial influence they do not recognize non-profit co-operations with municipalities for the common good as a way to improve the quality of life in the city. A part of the concluding remarks with respect to the environmental and strategic approach is also the focus on wage levels and tax rates. Next to the human resources, companies appreciate favorable tax rates and wages, because of the immediate financial impact of these variables. In addition, the prestige of a city or a successful company is a powerful tool to co-brand a city, but the respondents were discrepant on this notion. The more academically oriented respondents recognized this as a very good way to profile a city, thus attracting foreign investments. Conclusively, co-branding and prestige should not be neglected and a fundamental condition for co-branding is a coherent effort gathering companies in a city so that they all project the same image.

Technology from a key success factor perspective turned out to be ranked as the least important factor shaping a knowledge city, at least according to the company respondents and a few expert respondents. The explanation to this phenomenon ought to be that firms and citizens cannot entirely utilize the full potential of the rapidly developing ICT systems that exist today. The fast progress of ICT has resulted in technology being far more advanced than public demands, since different societal groups might use the technology only to communicate and do basic transactions over Internet. As a last reflecting note, the transferring of knowledge has a need for geographical proximity and especially tacit knowledge. There is not yet technology available to convey this kind of information, consequently leaving a lot of room for further development of ICT.

To encapsulate this discussion, one can see that the societal perspective, closely followed by the political success factor, is the foremost priority when a city aspires to turn into a knowledge city. The bottom line is moreover that one needs to have a holistic perspective and to distribute resources into one field—spreading them out will most likely result in a loss of focus and the progress of the city will stagnate.

6.2 A Number of Ideal Conditions

Apart from the theoretical outcome of this study, a number of ideal conditions of a knowledge city is represented below. These suggestions are proposed as ways in which a city can prevail and flourish as a knowledge city. However, every town or city has its own set of prerequisites that are more or less rewarding to devote resources to, and therefore, some of the recommendations below are more pertinent than others. In order for a city to improve its possibilities of becoming a prominent knowledge city, it ought to:

- ◆ Generate, attract and retain highly skilled citizens, subsequently accumulating foreign investments.
- ◆ Facilitate networking between companies.
- ◆ Eradicate bureaucratic obstacles and advocate long-term commitment in order to highlight a consistent political will.
- ◆ Use the municipality to advocate or implement new technology, establishing a common standard.
- ◆ Provide reasonable tax levels and price of land for firms.
- ◆ When possible, strengthen the prestige and co-brand the city in order to attract more investments as well as people.
- ◆ Benchmark other cities in terms of prominent achievements.
- ◆ Exploit latent cultural resources within a city to improve the quality of life and widen the creative capital.
- ◆ Create common platforms for knowledge exchange, thus facilitating sharing of resources.
- ◆ Proactively contact interesting companies and assist them in the establishment process. Thereby mutual interests between companies and city representatives are satisfied.
- ◆ Exploit local resources such as cultural heritage, landmarks, and local celebrities as a means to promote the region.

6.3 Further Research

As this study is a qualitative research, it would be interesting to look at the knowledge city phenomenon from a quantitative point of view, either by looking at other cities or a larger number of cities. In addition, this study has not compared the knowledge cities, so in this sense further research is feasible. Components that have been obtained from the empirical findings (and not mentioned in the theory) describing a knowledge city could also be a field of additional studies. Such components are international telephone-calls, number of patents and number of new companies established in different cities each year.

Another possible aspect of attention is to put Barcelona's municipal administration under scrutiny, in a similar way to that performed of Copenhagen in this thesis. Furthermore, several other theories are available on this subject, and therefore one could make exciting supplementary investigations on this issue, using different approaches. Such approaches could be the theories of regional branding and intellectual capital for regions. Yet another interesting perspective in a knowledge city is the existing ICT infrastructure.

A final aspect in association to this thesis is the financial key success factor from the main model that could be probed, in order to obtain a more specific view of the financial effects of investing in a knowledge city.

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8 APPENDIX

Company Questionnaire Copenhagen/Barcelona

1. Why are you located in Copenhagen/Barcelona and if you could relocate, where would you locate your company?
2. According to you, what characterizes a typical knowledge city?
3. What importance has culture when you establish yourself in the city?
4. How do you evaluate if a city is a knowledge city?
5. What would you like to see more of in the city where you have established your company? Can the city provide more for your company?
6. What can a city do to retain companies that are about to reallocate?
7. What importance does the cities' prestige have when you establish in a city? (e.g. London finance, Paris fashion)
8. What importance do government research contributions have to your company?
9. How much influence do companies have in shaping the knowledge city?
10. What subsidies/permissions can a company apply for when establishing in a certain city?
11. What co-operations exist between companies and municipal administration in the city you are located in?
12. What problems can an unsuccessful establishment in a certain city cause, in terms of market opportunities and financial effects?
13. Has your company made any less successful investments in any inappropriate city?
14. What factors had an influence when you established your company in Copenhagen/Barcelona?
15. How important are the following factors for you in Copenhagen/Barcelona:
 - ◆ Research excellence in the city?
 - ◆ Civic centers that are open to diversity?

- ◆ Access to new communication technologies?
 - ◆ A city's ability to generate, attract and maintain highly skilled citizens?
 - ◆ Cities' provision of instruments to make knowledge available to citizens?
16. Is it important for you to have a geographical proximity to suppliers and customers in Copenhagen/Barcelona?
 17. Theory suggests that a common platform of meeting place is important for knowledge exchange. Do you share this belief and do you experience that this is provided in Copenhagen/Barcelona?
 18. Do you have anything else to add on this subject?

Copenhagen Capacity Questionnaire

1. According to you, what characterizes a typical knowledge city?
2. What importance has culture when a company establishes itself in Copenhagen?
3. How do you measure if a city is a knowledge city?
4. What have you learned from other cities' failures?
5. Can the city provide more for a knowledge-intensive company?
6. What can a city do to retain companies that are about to reallocate?
7. What importance does the cities' prestige have in attracting knowledge-intensive companies to Copenhagen? (e.g. London finance, Paris fashion)
8. What importance do government research contributions have to a potential company establishment in Copenhagen?
9. How much influence do companies have in shaping the knowledge city?
10. What subsidies/permissions can a company apply for when establishing in Copenhagen?
11. What co-operations exist between companies and municipal administration in Copenhagen?
12. How important are the following factors for Copenhagen:
 - ◆ Research excellence in the city?
 - ◆ Civic centers that are open to diversity?
 - ◆ Access to new communication technologies?

- ◆ A city's ability to generate, attract and maintain highly skilled citizens?
 - ◆ Cities' provision of instruments to make knowledge available to citizens?
13. Is it important for companies to have a geographical proximity to suppliers and customers in Copenhagen?
 14. Theory suggests that a common platform of meeting place is important for knowledge exchange. Do you share this belief and do you experience that this is provided in Copenhagen?
 15. Do you have anything else to add on this subject?

Expert Respondent Questionnaire (Swedish)

1. Vad kännetecknar en utpräglad kunskapsstad?
2. Vad är viktigast när man utformar en kunskapsstad?
3. Får kultur större fokus i en stad som satsar på att bli en kunskapsstad?
4. Tror du att kultur är något åsidosatt?
5. Vilka sätt finns det att mäta en kunskapsstad?
6. Bland de städer som aspirerar på att bli kunskapsstäder, har några misslyckat eller lyckats mindre bra?
7. Uppstår det ofta konflikter mellan företag som är etablerade i staden och de som designar staden?
8. Vilka möjligheter har en stad att kunna profilera sig som en kunskapsstad?
9. Vilka negativa effekter finns det med att attrahera kunskapsföretag?
10. Vems intressen representerar myndigheterna? Företagen, staden?
11. Vad kan staden göra för att behålla företag som är på väg att omallokera?
12. Vilken betydelse har prestige för städer? Paris (parfym), London (finans)
13. Hur vanligt är det och hur mycket påverkar statliga bidrag till städer för etablering av verksamhet?
14. Hur stor makt har företagen vid utformningen av kunskapsstäder?
15. Vilka kriterier förstår du dig att företag söker när de ska etablera sig i en kunskapsstad?
16. Vilka stöd/bidrag/lov/subventioner kan företag söka/få för att etablera sig i en viss stad?

17. Vad kan en feletablering i en viss stad orsaka för problem, ekonomiska, marknadsmässiga?
18. Vilka samarbeten kan finnas mellan företag och statlig verksamhet?
19. Vikta betydelsen för en kunskapsstad av följande:
 - ◆ Private sector & institutions
 - ◆ Municipal policy & external relations
 - ◆ Investment & settlement
 - ◆ Culture, heritage & landmarks
 - ◆ Tourism, conventions & events
 - ◆ People (lokala celebriteter och stolthet)