Land Use Policy

Forces of change shaping the future commercial real estate market in the Helsinki Metropolitan Area in Finland

Saija Toivonen*, Kauko Viitanen

Aalto University, School of Engineering, Department of Real Estate, Planning and Geoinformatics, PO Box 15800, FI-00076 Aalto, Finland

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ABSTRACT

The built environment as a part of society is facing fast and constant changes occurring in the surrounding environment. This is a challenging situation for real estates because their character does not inherently support fast changes and constant development. Nevertheless there are many reasons why it is essential that also commercial real estates are able to answer to development goals set to them by different market actors. This can be achieved by analyzing forces of change affecting the market at this moment. Identifying the forces is important because they form the future real estate market and related land use. When market actors are aware of the forces appearing in their action environment, they are able to notice any new phenomena emerging and quickly adapt their actions and even steer the development to the desired direction. This competitive advantage can benefit both public and private sectors. This study presents the different forces of change affecting the commercial real estate market in the Helsinki Metropolitan Area (HMA) in Finland. The forces of change are studied with a future research method called environmental scanning (ES). The identified forces form a complicated network with many interconnections. Different actors working with real estate and land use issues can benefit from this knowledge in far reaching planning over these issues. Actors are able to make better decisions and prepare themselves for the future, if familiar with the forces of change shaping future real estates and their land use. Because of the constant changes happening in the action environment, the need to foresee and evaluate future requirements and demand set to real estates will only increase in the future.

Introduction

The world around us is changing constantly, and the pace of change is accelerating. Temporality has replaced continuity in many different fields and consequences can be seen in technological, economic, social, cultural, political and geopolitical contexts. Due to this development, individuals, organizations and institutions are inevitably facing constant changes in their everyday actions (McBlaine and Vrkic, 2006, p. 1; Heinonen, 1995, p. 19; Heinonen and Heinonen, 2006, p. 95; Hietanen et al., 2002, p. 412; Kasvio, 1999, p. 159; Kirvelä, 1999, p. 309; Mannermaa, 1986, p. 7; Mannermaa, 1999, p. 17 and 187–189; Mannermaa, 2004, p. 128; Metsä, 1999, p. 7). Also the commercial real estate market is facing challenges connected to the constant changes, and the temporality happening in the market environment. Many of the characteristics of real estates do not naturally support fast changes and constant development. Firstly, land and buildings are thought to be very

long-lasting, even eternal by their nature. Secondly, real estates are chained with many fixed elements that, cannot be changed at all, or are at least very expensive or time-consuming to change. Due to these reasons commercial real estates are in danger to age ahead of their time, and not to survive in the new era. Real estate features may stay stable but because the property requirements set to them are constantly changing due to the changing environment, the real estate is not capable to fulfill them. As a result, real estates are abandoned by space-users and investors, and they become unwanted, even though their life-circle is still not complete.

A significant amount of private and public wealth is bound in real estates. The value of the Finnish building stock is around 350 billion euros which is about 45% of the national wealth. It is estimated that as much as 75% of the national wealth is bound to the built environment (Rakennusteollisuus, 2010). Commercial real estate costs are usually the next biggest expense of a company after personnel costs. They are calculated to be around 5–30% of the total costs of a company or a public sector actor (Suomen Rakennusinsinöörien Liitto, 2011, p.11). In Finland about 60% of space users own the space they occupy. Municipalities own up to 90% of the space they use (KTI, 2012, pp. 29–30 and 41). It is evident

that there should be a strong motivation to ensure the successful future of such significant capital stock.

In addition to the economical aspect, also other motivations to focus on the future of the commercial real estate market can be found. Real estates and the actions related to them affect their surrounding environment remarkably. First of all, the environmental impact caused by real estates is significant. The building and real estate sector is the biggest individual user of fossil fuels (Elfving, 2009, p. 28; Niemi, 2009, p. 56; Noponen and Junnila, 2009, p. 5; Tommila, 2006, p. 2). According to calculations, approximately 40% of the world's primary energy-use is from buildings (UNEP, 2007). In Finland, buildings were estimated to cause circa 32% and construction circa 6% of the total CO_2 emissions in 2010 (Vehviläinen et al., 2010). Real estates are also a significant element when looking at the environmental impact caused by service sector companies (Junnila, 2006; Lehtonen et al., 2009, p. 23). In conclusion, this means that there is a clear possibility to reduce future environmental impact by concentrating on real estate issues.

Real estates are also linked to many political and social consequences. Because commercial real estates are housing many different fields of activities, the resulting effects are multidimensional. For example, a retail premise can offer potential workplaces to citizens and a tax revenue source to the public sector, but also enhance social interaction and the feel of togetherness, and even act as an innovator for the area (Kotisalo et al., 2000, p. 39). In conclusion it can be said that, commercial real estates have many strong direct and indirect effects to their surroundings and to its actors. It is inevitable that the future development of commercial real estates should receive the attention it is entitled to.

Luckily enough our society is becoming more and more future oriented. Different work groups are formed to investigate future developments and several scenarios and goals are set to gain the wanted future. Common for many of these future oriented investigations is that they are often handling the future from a specific point of view by a specific viewer. Future research about the real estate market in Finland can roughly be divided in four groups. First there are quantitative forecasts about future price development and demand and supply figures of land and premises. These investigations are usually serving different investment goals (e.g. Jones Lang Wootton, 1993; Hannonen, 2005, 2006; Hepsen and Vatansever, 2011; McKinnon, 2009; O'Mara, 2000; Rabianski and Gibler, 2007). A second group focused on future oriented research is investigations analyzing development possibilities for certain building groups, land areas or certain land use types. For example in Finland the public sector is conducting these kinds of surveys linked to their economic development or land use policy. These studies can be far reaching especially when focusing on land use planning (e.g. Bendor et al., 2013; Feenan et al., 2003; Gal and Hadas, 2013; Helsingin kaupungin kaupunkisuunnitteluvirasto, 2009; Uudenmaan liitto, 2009; Vuolanto, 2004). The third group of future oriented studies comprises a qualitative approach and they are usually investigating the subjective view of some target group. In these investigations for example the future requirements of land and space users are collected and often some recommendations based on the survey are presented (e.g. Cattell, 2002; Hart and Wang, 2006, pp. 4–5; Heikkilä et al., 2000, p. 7; Sullivan, 1996). The fourth group consists of future oriented research that is not as such analyzing real estates or land use itself, but rather investigating actions that are normally linked to them. For example in Finland there have been many surveys about the future development of work (e.g. Heinonen, 2004; Ilmakunnas et al., 2000; Kasvio, 1999; Kasvio and Nieminen, 1998, 1999; Kasvio and Räikkönen, 2010; Kasvio and Tjäder, 2007; Tulevaisuusvaliokunta, 2000, 2001). Also development of consumption and transportation have been studied (e.g. Helsingin seudun liikenne, 2011; YTV, 2001, p. 78). The environmental aspect is strongly apparent in these studies. The results

of these forecasts give valuable information that can affect the possible future development of the commercial real estate market and its land use, although they do not precisely focus on real estates and land use themselves.

The future commercial real estate market is shaped by different forces acting in the market environment. For example, if the goal is to make a decision about land use that will last in time, it is essential to search, analyze and try to foresee the forces of change that are affecting the commercial real estate market environment at the moment. Current forces shape future development and are therefore the key to the future.

Despite growing interest toward future research in the commercial real estate market, there is still a lack of an interdisciplinary and multidimensional study concerning the future commercial real estate market – a study that would investigate the formation of the future from a holistic point of view. That kind of research would see the market as a whole, and not only serve one specific customer and its personal goals but would give useful information to all interested parties of real estates and future land use. The study would also act as a stepping board for discussions or other extended future studies. This paper is the first and preliminary part of a research that aims at filling the gap and providing said insight.

This paper aims to increase knowledge of the forces of change that affect the commercial real estate market in the HMA. As being the first part of a bigger research entity, the purpose of this paper is to recognize the affecting forces of change and to introduce them at a general level and their main appearance in the commercial real estate market context. In addition the nature and the inter-relations of the forces are analyzed. In the forthcoming part of the research the forces will be analyzed more closely to show their significance and future effects to the real estate market. The research presented in this paper is conducted through a research method used in the future research field called environmental scanning. The forces of change are being identified as megatrends, trends, wild cards, driving forces and weak signals. The approach is comprehensive, multidimensional and interdisciplinary. The data includes 400 literary sources and 170 interviews and questionnaire answers. The study concentrates especially on office and retail premises located in the HMA. The next section presents the data and method used in the research in detail.

Study design

The introduction explained why it is essential to foresee future development in the commercial real estate market. This section introduces how the study was conducted. This study utilizes environmental scanning (ES) as a research method to examine the future forces that shape the commercial real estate market. ES is an information collection method used by future researchers. The method collects information from the environment under examination (Gordon and Glenn, 2009). Environment here refers to the sociocultural, political, ecological and economical entirety where the action of the element under examination is happening. This stage of action consists of scenes, actions done by different actors and interactions between different actors. The scenes are different resources like money and infrastructure. The actors in the environment can for example be citizens, companies, authorities and other organizations (Rubin, 2014). When using ES, the development is examined by trying to follow and understand the changes happening in the different phenomena in the environment by drawing comprehensive attention to the future consequences resulted from different events, decisions and choices. The changes in the environment are examined by searching, identifying and analyzing

different forces from the environment. Those forces can be *megatrends, trends, wild cards, driving forces and weak signals* (Rubin, 2002, p. 904).

The forces of change are important because they give indication on how the future may form. Some of the forces are strong and easily recognized, while some of them are changeable and not known by many (Gordon and Glenn, 2009; Heinonen, 1993, s. 106; Heinonen, 1995, s. 16; Hietanen et al., 2002, s. 416). With ES, it is possible to detect the early signs of changes and possibly important developments. When the changes in the environment are detected on time, the actors are able to change their plans immediately after detecting the signs (Gordon and Glenn, 2009). This awareness gives a special advantage for the actor. When being aware of the changes ahead it is possible to foresee the consequences and change your own actions toward a more desirable development (Naisbitt, 1984, s. 91). ES can also be used when wanting to maintain a certain development path or to shape the future toward certain directions (Bell, 2003, p. 295).

In this study the forces of change are investigated through a data scanning process. Next the different data sources used in the scanning are presented. After that the ES process with four phases is explained.

Data sources

This study utilizes a wide range of information sources. Literary as well as oral and online sources were utilized. There were about 400 literary sources and approximately 170 person sources used in the study. The information sources were chosen to be multidimensional and cross-disciplinary. Among the utilized literary information sources were for example scientific and research papers, articles and books of different character, statistics, seminar material, magazines, newspapers, company releases, authority releases and info, blogs and advertisements. In the information scanning stage, different online searches and library researches were utilized. The sources were studied randomly and also with the help of certain search words when using online and library searches. The search words were chosen from the questionnaires and interviews utilized in the study (see below). Normally more than one observation could be done from one literary source. The literary data was mainly collected during the years 2008 and 2009. After that, some updates were made for example to update some statistics. The information sources were published 1984–2011.

In addition to literary information sources, also oral information resources were utilized in the information collection phase. The opinions of the commercial real estate market actors from the HMA were examined. Inclusion of the opinions of the actual market actors to the research was seen very important because their actions have an evident impact to future development. The study includes the opinions of space users, investors, builders, developers and municipality authorities. The opinions of the space users were collected through a questionnaire survey while the investors, builders, developers and authorities were personally interviewed. All the market actors were responsible for the decision making concerning commercial real estates in their organization, or they were included in the decision making process. There were 100 commercial real estate space users, 38 real estate investors, 7 developers and constructors and 20 public authorities taking part in the study. In total there were 165 market actors involved in the study.

The opinions of space users were collected with a questionnaire. The space users were companies using office or retail space in the HMA. The office space-users were randomly chosen from a list that contained firms that had at least one office located in the HMA and at least 50 employees. The retail space users in turn were chain retail stores located in the shopping centers located in the HMA. In total, 43 office users and 57 retail users took part. In the questionnaire the respondents were asked to name three trends that will in their opinion affect the office/retail market. The questionnaire was answered either on the internet after an email inquiry, or during a phone-interview. The questionnaires were answered during 2007. Anonymity was guaranteed to the respondents.

In addition to the questionnaire, 65 market actors were interviewed. The interviewed actors consisted of 20 domestic investors, 18 foreign investors, 7 developers and constructors and 20 public authorities. The domestic investors belonged to the biggest commercial real estate investors acting in the HMA. The foreign investors were investors who had either invested or showed interest toward the Finnish real estate market for example by taking part to a transaction process. The interviewed developers and constructors belonged to the biggest construction companies in the HMA. The interviewed authorities were selected among persons working with commercial real estate issues for the city of Helsinki, the city of Espoo and the city of Vantaa which are the three biggest municipalities in the HMA. There were 20 authorities interviewed (8 from the city of Helsinki, 7 from the city of Espoo and 5 from the city of Vantaa). The authorities were usually persons working with planning or land policy issues. All the interviews were done during 2007 and 2008. Anonymity was guaranteed to all respondents. The market actors were asked to name and describe the factors that will in their opinion affect the future commercial real estate market.

Information scanning was done in different phases, as shown in Fig. 1. First, the information sources were selected (c. 400 literary sources and c. 170 oral sources) (Phase 1). After that, in Phase 2, the information sources were studied and observations of different phenomena were collected. The observations described the phenomenon itself or/and its appearance in the commercial real estate market. The information scanning was limited to observations which could have seen to have a relatively clear connection to the commercial real estate market. However the searched phenomena were not pre-determined. The observations made from the information sources were also written down. One observation could be just one word, a sentence or also a longer text. Simultaneously when writing down the observation also the name of the information source was registered (Phase 2). After the observations from the information sources were collected, all the observations were divided according to their theme into subcategories under different titles (Phase 3).

In total 41 subcategories were formed (see Appendix A). Some of the observations were placed under several subcategories because their content was so complex and multi-connected. After that the subcategories were united according to their theme to form bigger entireties. In this process nine upper-categories were established (Phase 4). Some of the subcategories were placed under several upper-categories because of their content (see Appendix A). The goal of forming upper-categories was to describe the big entities that the forces of change formed. This means that the theme of observations was united within every category. The observations within one category could be consequences of each other or connected tightly in some other way. This categorization was seen appropriate because it made it easier to understand the holistic content of the forces of change. Also by using this categorization it was possible to reduce the overlap of different forces and repetition. Nevertheless it was not possible to eliminate the repetition entirely. This is only natural because the forces of change are strongly linked together also in reality.

Simultaneously with the forming of the upper-categories, the observations located under the upper-categories were transcribed to form a narrative description of the forces of change and their appearances in the market environment. Through that narrative description, we could see that these individual observations from
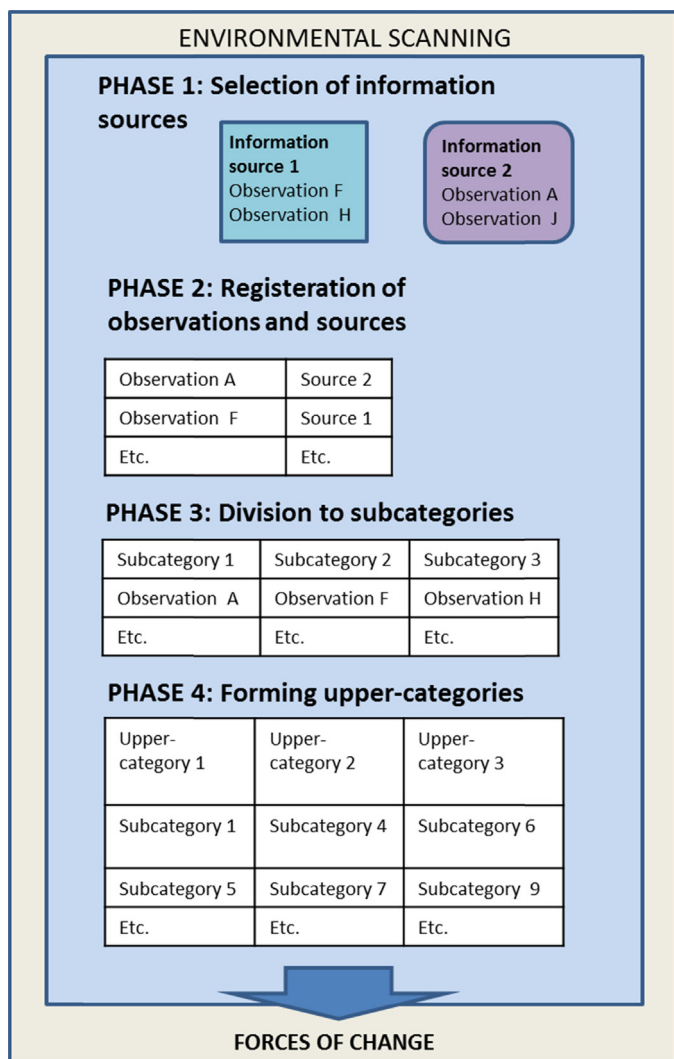
Fig. 1. The four phases in the ES process.

Table 1
Categories of the forces of change.

Category	Main appearances in the market environment
1 Globalization	Increased global mobility of companies, capitals, people and ideas
2 Action optimization	Pressure to optimize and cut costs of all actions conducted in commercial real estates
3 Differentiation	Differentiation and inequality of market actors, commercial real estates and land areas
4 Technology as an enabler	Technical building elements
	Actions conducted in buildings are more technical and even free of time and space.
	Constantly growing amount of information relevant to the real estate market
5 Urbanization	The HMA is attracting more population and companies.
	Congestion, inner dispersion of the area, reuse of land and increased importance of traffic connections.
6 Aging population	Aging workforce and aging consumers
7 Environmental pressure	Growing pressure to decrease environmental impacts of real estates
8 Safety	Building safety and local and global locational safety of real estates
9 Search of meaning	Appreciation of "softer" values

different data sources of phenomena happening in the market environment, formed several coherent entities when they were bind together with other observations of the same theme. Next as a result of this research we will present nine themed categories where all the forces of change found during the ES were categorized. In addition, the appearance of the forces in the commercial real estate market context is described in a general level.

Results

According to our research there are several different forces of change affecting the commercial real estate market. During the ES process, large scale themes could be recognized and identified in a general level when several detailed pieces of information and individual observations from different data sources concerning phenomena of similar themes were combined. Through this process we were able to form nine categories with different themes where the forces of change are placed (see Table 1). Every category has its own theme, but the nature of the forces found in every category varies. This means that under every category several different forces can be found, such as megatrends, trends, driving forces, weak signals and wild cards. On the other hand a category can be seen as a megatrend itself. In the first column the themes of the categories are shown. In the second column the main appearance

of the phenomena in the commercial real estate market context is described in a general level.

According to ES *Globalization* can be seen in the environment mainly in increased global mobility of companies, capitals, people and ideas. *Action optimization* is seen in the market environment as pressure to optimize and cut costs of all actions conducted in commercial real estates. *Differentiation* means in the commercial real estate market context differentiation and inequality of market actors, commercial real estates and land areas. According to ES *Technology as an Enabler* refers to the phenomenon that technology is incorporated into physical elements of buildings, and that actions and tasks conducted by people inside the buildings are getting more technical and even free of time and space. It is also clearly seen that development of information technology leads to a constantly growing amount of information relevant to the real estate market. *Urbanization* is clearly apparent in the market environment when the HMA is attracting more population and companies to locate into the area. This leads to side-effects such as congestion, inner dispersion of the area, reuse of land and increased importance of traffic connections. According to ES Aging *population* is seen in the commercial real estate market in two contexts: aging workforce and aging consumers. Because real estates have significant environmental impacts, there is a growing pressure to decrease those impacts according to ES. This is clearly seen in the category *Environmental Pressure*. The forces of change in category *Safety* are handling issues concerning building safety and local and global locational safety of real estates. According to ES the *Search of Meaning* category describes phenomena which represent some "softer" values in the market environment. Through these values some deeper meaning for actions is sought such as pursuit of experiences, simplicity, silence, nature, personal wellbeing, back to the roots and background stories.

The forces found in this study are linked to each other and form a complicated and entangled network of reasons and consequences which are seen also in reality in the commercial real estate market. Some of the forces are overlapping, some of them can have same outcomes while others are totally contradictory. For example, the category *Action Optimization* increases the pressure to maximize the productivity of work. Also unfavorable population structure (Category Aging *population*) can lead to the same result. Another example of forces of change that can lead to the same outcomes are

emphasized ecological image (*Environmental Pressure*) and tightening ecological regulations (*Environmental Pressure*) which both can increase the need to take into account the behavior of the space users.

In turn, some of the forces in the environment are contradictory with each other. For example agglomeration (*Urbanization*) and remote working (*Technology as enabler*) can lead to contradictory outcomes. Agglomeration is pushing actors physically more close to each other and emphasizing the meaning of place and location while the increase of remote working is diminishing the importance of physical nearness and shifts actors from one location to several ones. Another example of contradictory forces of change are the cutbacks of commercial real estate costs (*Action Optimization*) and the motivation to locate in real estates with desirable images (*Differentiation*). These forces can lead to totally different results in the environment. Even forces of change in the one and the same category can be contradictory by their nature and lead to opposite directions when estimating possible future development.

The forces can also affect each other in different ways. The effect can be neutral, strengthening or in contrast slowing down. Also the scope of the forces differs. Some of the forces influence the whole commercial real estate market, while some of them are apparent only in some parts of the environment or among some market actor groups. For example cutting down the commercial real estate costs is appearing in the market when looking especially at office space and correspondingly emphasized experiences (*Search of Meaning*) are connected specifically with commercial premises. Tightening competition and globalization are drivers for many of the forces of change (e.g. *Action optimization* and *Differentiation*). In addition also several weak signals could be identified e.g. increasing amount of direct real estate investments to abroad, increasing importance of locational connectivity of commercial real estates to airport, dislike of global real estate market customs among domestic actors, popularity of B-class premises, emphasized safety issued concerning real estates, commercial real estates as a source of wellbeing in work environment, voluntary environmental actions concerning real estates and utilization of commercial real estates as a powerful tool to affect company image. Wild cards connected to commercial real estates were found as well. Possible wild cards could for example be mass immigration of companies, safety threats affecting locational issues of real estates, and totally new real estate requirements.

The forces of change are mostly the same in many studies but their importance, appearance and connections differ depending on the subject under examination. This study focuses on the commercial real estate market, which is why *Global mobility*, *Action optimization*, *Space cost control*, *Specialization and individualism*, *Networking and clustering*, *Importance of information*, *Urbanization and Environmental Pressure addressed to real estates* are seen to have strong and wide appearances in the market environment and named as megatrends especially. These same forces are familiar to us from other future studies as well. Especially *Globalization*, *Aging population*, *Urbanization and Environmental pressure* have generally been described as megatrends. Also *Differentiation* and *Technology as an enabler* are forces that have a clear influence to the commercial real estate market according to this study. Also in other studies they have been named with nuance to be strong, future shaping forces such as megatrends or trends (see e.g. McBlaine and Vrkic, 2006, p. 2; Suomen Akatemia ja Tekes, 2006, p. 6; Hiltunen, 2010, p. 102; Kuusi and Kamppinen, 2002, pp. 151–153; Mannermaa, 1998, pp. 6–16, Mannermaa, 2004, pp. 219–220; Mäkelä, 2001, pp. 74–76; Naisbitt, 1984, p. xxiii).

However, there are still some differences how the forces are emphasized in different contexts. *Action optimization*, *Safety and Search of meaning* have not generally been seen to be as strong by their influence like for example globalization and environmental issues. Nevertheless, also these categories contain forces that have been analyzed to have a clear importance for future development. For example a networking phenomenon located in the category *Action Optimization* has been named as a megatrend also in other occasions (e.g. Kuusi and Kamppinen, 2002, pp. 151–153; Mäkelä, 2001, pp. 74–76; Naisbitt, 1984, p. xxiii). This study c finds the influence of *Action optimization* to be very strong and an important force, while *Safety and Search of meaning* contained phenomena just emerging, and had only small influence to the commercial real estate market environment. On the other hand, some of the significant forces named in other studies, have in this study context been dispersed under several different categories instead of being presented as one separate category. One example of such a force is the importance of services which in this study can be found in several categories based on its multidimensional appearance in the commercial real market. In some other contexts it could be presented as a separate unit.

Discussion and conclusion

Future development is shaped by the influence of many different elements. Thinking, planning, decision making and actions occurring in different parts of the environment are all affecting the formation of the future. Also irrelevant events, unconscious actions and clear coincidences have their own role when the future is shaped (Mannermaa, 1999, p. 18). This makes the foreseeing of future development a challenging task. Nevertheless, it has not been seen as an impossible one. Foreseeing the future is possible because many of the forces affecting the future are already apparent in the environment and they can be recognized in the current situation (Hannula and Linturi, 1998, p. 10). The dynamics of the commercial real estate market are complicated and challenging phenomena to foresee because there are so many elements and actors affecting them. Nevertheless, in this study we were able to find forces of change that are apparent in the commercial real estate market and can affect future development of the market.

The study presents nine different categories for forces of change affecting the commercial real estate market: (1) Globalization, (2) Action optimization, (3) Differentiation, (4) Technology as an enabler, (5) Urbanization, (6) Aging population, (7) Environmental pressure, (8) Safety and (9) Search of meaning. The forces of change form a complex network of reasons and consequences. The study helps actors of the real estate market to understand how the forces appear in their action environment. Through the new knowledge actors are able to analyze what the forces of change mean from their point of view and what kinds of actions the forces might require. This will give actors a competitive advantage. When actors are familiar with the forces of the environment, they are able to develop their actions and adapt to the change in their own plans. When forces of change are known by actors, they will also have better possibilities to affect the formation of the future to the direction they see preferable (see also Jones, 2014; Gallent, 2009; Wang et al., 2012).

Monitoring the environment can be very beneficial for both private and public actors of the real estate market. When being aware of the forces of change appearing in the environment, actors can more easily notice any new phenomena emerging. Well-informed actors are not only able to adapt their business and actions to the new phenomena happening in the environment but they can also benefit by their cutting edge position. In other words these actors can act as pioneers and gain competitive advantage with their awareness compared to their competitors. The possibility has not been fully understood or utilized by the real estate market actors (see also Mannermaa, 2004; Kuusi and Kamppinen, 2002, s. 142). This could be an interesting, thus challenging research subject for

further investigations. When the pressure set to real estates grows as described in the introduction, the need to foresee and evaluate future requirements and demand set to real estates will also increase constantly. In other words, in the future, actors of the real estate sector need to foresee the future more actively. This will require skills but also resources reserved for analyses.

The influencing forces in the commercial real estate market are mostly the same forces that are affecting the surrounding world. This is natural because the commercial real estate market is indeed a part of a bigger entirety and not a separate, isolated world of its own. Because the forces of change affecting the different parts of society are mostly the same, the commercial real estate market should be seen as an element that is constantly exposed to the influences of other fields and is not a separate unit that is immune to the changes happening in the rest of society. This is a specific notion that should be kept in mind when planning real estates and their future land use. What it means in practice is that phenomena possibly affecting real estates should be searched widely and the conductors of the studies should not only concentrate on information sources that are common to them and originate from their own field. Cross-disciplinary research attitude is indeed needed.

In this study no forces of change were found which could be seen as totally unique phenomena for the commercial real estate market and not apparent in other parts of society. Hence, this means that when interested in the possible development of the commercial real estate market, the future surveys done in the other fields of society can be used and analyzed in the context of the commercial real estate market. This might be a proper way to foresee future development in those situations where it is not possible to make a special investigation about the forces of change concerning especially the commercial real estate market while the process can be quite time and resource consuming (see also O'Mara, 2000). Nevertheless it has to be kept in mind that while the forces of change might be the same in the real estate market as in the surrounding environment, their appearance, significance and influence can vary remarkably depending on the context environment. This means that the analysis of the forces should always be conducted by a person specialized in real estate issues to ensure that the meaning of future forces is fully understood in the real estate context. For example researchers from the real estate field could offer their knowhow to actors from the public and private sectors needing future analysis of real estate issues.

When evaluating the validity of this study, we have analyzed the validity of the conclusions made based on the used information resources. In other words, do the forces of change that we have presented in this study really exist in the environment of the commercial real estate market? According to our analyses, we managed to reveal at least the most significant and general forces of change. Firstly, the information resources used in ES were selected to be cross-disciplinary and wide by their range. Also the views of different market actors were included in the scanning to get multidimensional views from the market. Secondly, the forces of change found in this study are uniform with the forces of change named in other studies. It should be noted, however, that due to the substantially long data scanning period in the ES process, the market situation changed over that time due to different phenomena e.g. the property and financial market crisis. This has predictably affected also the forces of change.

It is probable that the scanning is never able to reveal all the forces affecting the environment because new forces are constantly born. This is why we recommend that the scanning process should be preferably a constant procedure. Even though the ES process demands resources, it is still a process that is maintained with considerably small effort. This means that after the scanning database is formed and analysis is conducted for the first time, it is possible to concentrate and follow only the most interesting phenomena or new phenomena appearing in the environment and only redo the total scanning process from time to time.

As this study shows, the different forces of change shaping the future commercial real estate market form a very complex network of reasons and consequences. In the next stage of our research, we will analyze those connections more deeply and try to understand possible and plausible outcomes of those interconnections. Further research could also be done by estimating future effects to the commercial real estate market and its actors. Our next aim is also to form a model that could be utilized for cyclic scanning of commercial real estate market environment.

Acknowledgements

Appendix: The subcategories formed in the ES process and their division into upper-categories.

Subcategories	Upper categories
Environmentally friendly image	Environmental pressure
Emphasized experiences	Search of meaning, action optimization
Specialization	Action optimization, differentiation
Remote working	Technology as an enabler
Physical and mental wellbeing	Action optimization, aging population, search of meaning
Physical nearness	Action optimization, technology as an enabler, safety, search of meaning
Global customs	Globalization
Aging and retiring	Aging population
Images	Differentiation, technology as an enabler, environmental pressure
Large units	Action optimization, differentiation
The dispersion of city structure	Urbanization, technology as an enabler
Rush, pace and easiness	Action optimization
Competition	Globalization, action optimization, differentiation
Clustering	Action optimization, differentiation
Cost minimization	Globalization, action optimization
Importance of quality	Action Optimization, technology as an enabler, search of meaning
Air traffic	Globalization, environmental pressure
Nature as an important value	Environmental pressure, search of meaning
Diversification	Globalization, differentiation, aging population, urbanization
Versatility	Action optimization, differentiation, aging population, search of meaning
Importance of knowhow	Globalization, action optimization, technology as an enabler
Services	Globalization, action optimization, differentiation, aging population, search of meaning
Personalization	Action optimization, differentiation
Building technology	Action optimization, technology as an enabler, environmental pressure
Peace and silence	Search of meaning, globalization
The importance of social contacts	Action optimization, technology as an enabler, urbanization, search of meaning

Subcategories	Upper categories
Stress and wellbeing in work life	Action optimization, search of meaning
Outcast	Differentiation, aging population
E-commerce	Technology as an enabler
Stories	Search of meaning, differentiation
Information society	Technology as an enabler, urbanization
Environmental friendly real estate	Environmental pressure, technology as an enabler
Safety RE	Globalization, safety, technology as an enabler
Functional and effective real estate	Globalization, action optimization, technology as an enabler
Outsourcing	Globalization, action optimization
Networking	Globalization, action optimization, technology as an enabler, urbanization
Comfortable RE	Action optimization, aging population, search of meaning
Eco awareness and actions	Environmental pressure, technology as an enabler, search of meaning
Internationalization of companies	Globalization

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