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TEPPO FORSS

# Improving Operational Performance within Social Housing

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	<b>Sivumäärä</b> 165	<b>Kieli</b> Englanti
	<b>Julkaisun nimike</b> Sosiaalisen asumisen operatiivinen tehokkuus	
<b>Tiivistelmä</b> Tämä työ tutkii sosiaalisen asumisen, talouden ja yritysten toimintojen välisiä yhteyksiä. Vertailussa on sosiaalisen asumisen malleja Suomesta, Thaimaasta ja Kiinasta. Vertailu tehtiin pitkän aikavälin taloudellisen kehityksen, makrotalouden tekijöiden sekä sosiaalisen asumisen päätöksenteon perusteella. Väitöskirja tarkastelee sosiaalista asumista alueellisen kehityksen ja talouskasvun välineenä.  Tässä työssä arvioidaan sosiaalista asumista toteuttavien yritysten strategista suuntautumista ja toiminnan tehokkuutta. Tutkimuksen tarkoituksena on parantaa strategista päätöksentekoa ja toimeenpanoa kokoamalla eri tekijöitä yhteen yritystason päätöksenteon tueksi. Tarkoituksena on myös tunnistaa ja arvioiden listata tavoitteita ja päämääriä päätöksentekijöille sekä muuntaa makrotason suuntauksia strategiksi tavoitteiksi asumista toteuttaville yhtiöille ja niiden toiminnoille. Työssä verrataan yritysten suorituskykyä vertailumalleihin ja parhaisiin käytäntöihin sekä määritellään yritysten strategisia profiileja.  Työssä esitellään asumisen operatiiviseen toimintaan ja resursointiin kehitettyä, erityisesti asuntojen vuokraamiseen liittyvää, dynaamista mallia. Malli toteutettiin seuraamalla kahden asumista tarjoavan yhtiön sisäisiä ja ulkoisia suuntauksia Suomessa. Suuremman osallistujajoukon avulla on hyvät mahdollisuudet ennustaa käyttäytymistä Suomen asumismarkkinoilla, mikä on hyödyllistä strategisessa suunnittelussa ja päätöksenteossa.		
<b>Asiasanat</b> Sosiaalinen asuminen, päätöksenteko, strateginen tyyppi, kiinteistöhallinta		



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	<b>Title of publication</b> Improving Operational Performance within Social Housing	
<b>Abstract</b> <p>This work explores the connection between Social Housing policies, the economy and companies' operations. A comparison is made between social housing models of Finland, Thailand, and China, based on long-term analysis of economic lifecycle, macroeconomic indicators and social housing decision making. This dissertation examines social housing as a tool for regional development and economic growth.</p> <p>The work evaluates strategic orientation and operational effectiveness of companies involved in social housing projects. It enhances strategic decision making and policy implementation, compiling indicators for operation management on a company level. The goal is also to identify and evaluate a complete list of targets or goals for policy makers and to translate macro level trends into strategic priorities for housing companies and operation level indicators. The work compares company performance with benchmark models and best practices and categorises companies' strategic profiles.</p> <p>Advanced method for dynamic resource allocations in the operative processes in housing, especially in the renting, where the customers move from one apartment to another one, has been proposed. It was possible to trace tendency which takes place internally and externally of, at least, two companies operating on the housing market of Finland. With more participants the method has a huge potential to predict the behaviour of the whole Finnish housing market, what might be considered as a very strong tool for strategic planning and decision-making.</p>		
<b>Keywords</b> Social housing, Decision making, Strategic types, Property management		



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*Ex Nihilo Nihil fit, nothing comes from nothing.*

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*Fabricando Fit Faber, Practise Make Perfect.*





## Contents

ACKNOWLEDGMENTS.....	VII
1 INTRODUCTION .....	1
1.1 Housing and the economy .....	1
1.2 Social housing .....	2
1.3 Study area .....	4
1.4 Research questions .....	5
1.5 Research design.....	5
1.5.1 Epistemology.....	6
1.6 Approach and methods.....	6
1.6.1 Macroeconomic level.....	7
1.6.2 Company level.....	7
1.6.3 Process level.....	7
1.7 Structure of the thesis.....	8
2 PUBLICATIONS.....	10
2.1 Property Management Efficiency Process in Real Estate and Housing Business.....	10
2.2 Implementing Customer Delight in Decision Support System with Performance Indicators: Comparative Study of Finnish Housing Market.....	10
2.3 On The Implementation of Decision Support System Combining Critical Performance Indicators in the Finnish Real Estate Business.....	11
2.4 Learning from Social Housing Policies – Key Decision Factor Analysis of Finnish, Chinese and Thai Models .....	12
2.5 Sustainable Operative Housing by Dynamic Renting.....	13
3 THEORETICAL FRAMEWORK.....	14
3.1 Housing market and social policies.....	14
3.1.1 Housing policy in Finland .....	18
3.1.2 Housing policy in Thailand .....	22
3.1.3 Housing policy in China.....	23
3.2 Decision making and theory of organization.....	25
3.2.1 Strategic types.....	26
3.2.2 Adaptive enterprise .....	27
3.3 Balanced scorecards .....	28
3.3.1 Financial perspective.....	29
3.4 Hierarchy of needs motivational model .....	30
3.5 Customer Delight .....	32
4 METHODOLOGY.....	34
4.1 Housing policy comparison .....	34
4.2 Analytic Hierarchy Process .....	36

4.3	Strategic types .....	38
4.4	Critical Factor Index .....	41
5	DATA COLLECTIONS.....	47
5.1	Companies data collection .....	47
6	RESULTS .....	50
6.1	Macroeconomic indicators.....	50
6.2	Policy comparison .....	55
6.3	Companies strategy .....	61
6.3.1	Company A.....	62
6.3.2	Company B .....	64
6.4	Operation priorities.....	67
7	CONCLUSIONS AND DISCUSSION.....	73
7.1	Contribution of the study .....	74
7.2	Managerial Implications .....	75
7.3	Validity criteria, reliability of the method .....	77
7.4	Limitations and future research.....	77
	REFERENCES .....	79
	APPENDICES .....	86

## List of figures

Figure 1.	Fields of science .....	6
Figure 2.	Dissertation analysis levels .....	8
Figure 3.	Main stages of Social Housing evolution .....	15
Figure 4.	The framework of China housing policy .....	25
Figure 5.	Sense and response management model (source: Haekel 1999).....	28
Figure 6.	Perspective of balanced scorecards .....	29
Figure 7.	Maslow's Hierarchy of Needs .....	31
Figure 8.	Kano's satisfaction chart.....	32
Figure 9.	Research process .....	35
Figure 10.	The decision problem in a hierarchy .....	37
Figure 11.	Pairwise comparison.....	38
Figure 12.	RAL model.....	39
Figure 13.	Process of internal monitoring .....	44
Figure 14.	Model of questionnaire .....	45
Figure 15.	Indices equations .....	46
Figure 16.	Rental housing operational functions .....	49
Figure 17.	Population growth (annual %). .....	50
Figure 18.	Human Development Index (HDI).....	51
Figure 19.	Income per person, .....	52
Figure 20.	Urban population (% of total) .....	53
Figure 21.	Hierarchy trees for the housing policy decision making (Asian and EU/Finnish models).....	55
Figure 22.	Main policy factors weightings among the three countries.....	56
Figure 23.	Complete hierarchy weights for Finland .....	57
Figure 24.	Complete hierarchy weights for China .....	57
Figure 25.	Complete hierarchy weights for Thailand.....	58
Figure 26.	Politicians overall priorities synthesis .....	58
Figure 27.	National authorities overall priorities synthesis .....	59
Figure 28.	Areal authorities overall priorities synthesis.....	59
Figure 29.	Housing operators overall priorities synthesis .....	60
Figure 30.	Scenario analysis options .....	60
Figure 31.	AHP main criteria weights .....	61
Figure 32.	Main criteria weight results.....	62
Figure 33.	Competitive index results for Company A .....	63
Figure 34.	Main Criteria value weight .....	64
Figure 35.	Sub-factors values formation .....	65
Figure 36.	Sub Criteria Ranking .....	65
Figure 37.	Synthesis summary .....	66
Figure 38.	PERFORMANCE (BSC): Expectations vs. experiences among Companies A and B.....	68
Figure 39.	CFI: Matches of the extreme attributes among Companies A and B (PERFORMANCE BSC).....	69

Figure 40.	RESOURCES (OP): Expectations vs. Experiences among Companies A and B. ....	70
Figure 41.	CFI: Matches of the extreme attributes among Companies A and B (BSC perspective).....	71
Figure 42.	BCFI: matches of the extreme attributes among companies A and B (BSC perspective).....	72
Figure 43.	Economic cycle and trends in decision making .....	76

### List of tables

Table 1.	Households by tenure in Finland 1950– 2002 (%) Source: Ruonavaara (2006) .....	21
Table 2.	Classification rules .....	39
Table 3.	Sense and response attributes list.....	42
Table 4.	BSC attributes list .....	43
Table 5.	Descriptive statistics .....	52
Table 6.	Descriptive statistic for urban population % indicator.....	53
Table 7.	Pearson Correlation coefficients between Income per person, Urban population % and Human development index from year 1960 to 2008.....	54
Table 8.	Main factors importance present values.....	56
Table 9.	Global Competitiveness Index Values .....	66

**Abbreviations:**

AHP	Analytical Hierarchy Process
BSC	Balance Score Card
CA	Competitive Advantage
CF	Critical Factor
CFI	Critical Factor Index
CRA	Constructive Research Approach
PM	Property Management
PP	Policy Priorities
RAL	Responsiveness, Agility and Leanness
RBL	Research Based Learning
SH	Social Housing
ST	Strategic Types



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# 1 INTRODUCTION

## 1.1 Housing and the economy

Housing is more than shelter. It combines lifestyle, environment, determines opportunities for work and access to services and facilities. A particularly significant aspect of housing is its economic value. Homes represent a huge capital stock. (Hoek-Smith & Diamond 2003)

Either through purchase or rent, housing accounts for a large share of private consumption. It involves many other substantial costs, creating a large economic multiplier: upkeep, taxes, utilities, furnishings, and numerous other expenses. Investment in the construction of new housing involves huge sums from various sources. Housing tends to be a major item on the public budget, too; major public investments are needed to create, maintain, and service residential areas. (ARA 2011.)

According to Fitzpatrick (2007), due to the amount of investment, both direct and indirect, residential construction used to be a preferred area of intervention for Keynesian economists in their efforts to control the economy.

In principle, the government has two initial thoughts and conceptual alternatives on housing policy direction:

- Free Market mechanism concept
- Social safety net concept

The first alternative is to let market mechanism adjust by itself. This concept accepts that players in the market learn from experience and in the long run, demand and supply move to equilibrium. In the short run, however, low-income population have no guarantee against significant market fluctuation and can be forced to live below the living standard. Such result accumulates social problems in resident settlements area. This is considered as negative externalities for social welfare (Yap 1996).

The second thought is to consider a house as a merit good and to concern about social safety net concept. Governments have better tools to help and subsidize low-income population to own a house with a proper quality and have a better living standard. (Fitzpatrick & Pawson 2007.)

## 1.2 Social housing

In most societies, housing plays a special role in the social and political dialogue. Besides being a major component in creating stable and healthy communities, housing is often the largest single household expense. Social housing is supposed to ensure affordability of owner-occupied and private rental housing and enhances tenants living experience. (Hoek-Smith & Diamond 2003.)

Access to decent and affordable housing is a critical condition for economic growth and stable society. Many countries are actually seeking ways to strengthen the provision of social rental housing, in a context of increasing home-ownership and tightening private rental markets which result in housing exclusion for wide sections of the population, not just the most economically vulnerable. Furthermore, there is the recognition in many countries that extreme privatisation of public or social housing represents a loss of societal assets needed to accomplish a range of public interest tasks, e.g. integrated urban development and regeneration projects. (King 2006.)

The link between Social housing (SH) and economic environment is familiar to policy makers; still for academic research the factors behind the actual measures taken to address the topics are not proportional to the importance of the issue. (Allardt et al. 1981.)

Links between housing policies and economic cycles take form of adjustments made in housing policy programs, to keep up with changes in national economic conditions. Motivation for adjusting the housing policies derived from policy decisions concerning the national budget. It comes as no surprise that during the past decade, housing policies have been adjusted many times. States have had to take proactive measures in the context of Global Economic crisis, which gave the size of the national debt so much political weight. Yet, at lower levels of policy-making, there is another economic dimension of housing. There are clear signs that local and regional government's turn increasingly to social housing as tool to stabilize economic environment and sustain wellbeing. This is a response to fundamental changes in the world economy. (Weesep 2000; Priemus & Van Kempen 1999.)

Usually Governments interfere with free housing markets in order to improve people's housing prospects and to ensure fair access to housing. Such interventions comprise of fiscal measures, for example taxes and subsidies; direct provision of social housing or rent allowances; and various regulations influencing the quantity, quality and price of housing. Housing policies are closely connected to overall economic performance and living standards. Indeed, recent analysis of

OECD (2011) shows, effectively supervised financial and mortgage market development combined with policies that enhance housing supply flexibility are key for macroeconomic stability.

SH policies are tools that governance uses, trying to provide welfare for all citizens and ensure economic stability. With high turbulence in global markets and growing social unrest, SH is high in the agenda of policy makers. Recent peak was registered in China with the approval of 20 years plan to invest 4 billion in SH projects, as OECD (2011) reports.

There are substantial variations around the world in the countries policy responses to economic and demographic changes. They differ depending on national cultures and political traditions, as well as on the impulses of the development of the national economies. Still housing has been a major policy ingredient for almost every state regulation in the effort to adopt welfare-state model. (Feddes & Dieleman 1996.)

It is useful to compare Chinese massive expansion policy with of the first social housing providing countries with best in class political model, like Finland, in the context of Housing and Economic life cycle. Adding to this sample Thailand as supplementary Asian representative with especially volatile history of real states prices and significant population income gap make our comparison more comprehensive.

This work will also explore pragmatic business considerations for companies/organizations developing social housing projects. Housing conditions are often considered to be worse than are socially desirable in relation to national living standards and societal values, as ARA (2011) reports. For these reasons, almost all societies intervene in housing markets through an array of policies and subsidies intended to stimulate housing production or consumption by various groups. Production support is defined as support forms that aim to increase volumes of new production and renovation, to raise their quality or to function so as to reduce housing expenses levels. (ARA 2011.)

Donner (2002) reports several reasons that can be distinguished for subsidy intervention in the housing sector. They may include some or all of the following:

1. Improving fairness, justice and societal stability
2. Improving public health
3. Overcoming market inefficiencies that yield monopoly profits, poor housing quality or insufficient volume of new construction, particularly in the low-income sector
4. Stimulating economic growth

The accessibility of affordable housing for low-income groups varies widely among countries. It depends on the shares of social, subsidized, and market-rate housing as well as on the mix of rental and owner-occupier dwellings. From this perspective and considering the various levels of economic development in different societies, it is understandable that housing finance – and more broadly speaking, housing policy instruments have taken various courses in different countries. As ARA report (2011) defines, historically, each country's housing policy can be divided into three main stages:

- Concentration on new construction
- Emphasis on management and maintenance of the existing stock and improving the use of existing assets
- Emphasis on addressing problems in connection with regenerating urban areas and restructuring housing within wider social infrastructures, again within the framework of privatization and reduced funding

Policy-makers have to make some basic choices regarding the design of a housing finance system to address specific housing sector objectives:

- Demand or supply support?
- Location- or household-specific support?
- Entitlements or rationed/allocated support?
- Linking subsidies to housing finance or not?

Answering these questions, as Whitehead (2003) discuss, requires systematic approach to create measurement for the importance of the decision factors, indicators for current condition and the direction of development. In practice, it requires balancing and trade-offs between three major criteria, namely Property development, Government interventions and Housing diversification. There are no straightforward optimal solutions to the questions, but there may be a possible link to the objectives and housing policy instruments available to decision-makers and to the financial (budgetary) limitations of the housing finance system. (ARA 2011.)

### 1.3 Study area

This research focuses on the following problems.

- What are the decisions making priorities of policy makers?
- How to convert policy decisions to company strategy and set operation goals?
- How can dynamic resource allocation and operational efficiency serve strategic goals in social housing companies?
- How to evaluate the level of implementation of policy goals?

The work takes in discussion existing forms of affordable housing, the applied policies and their targets, indicators and goals and what should be the share of social housing in existing stock and new production, as well as future development trends and challenges in the implementation of policies.

## 1.4 Research questions

The dissertation enhances strategic decision making and policy implementation, compiling indicators for operation management on company level. Aim is to transform the findings to operational level goals, and implementation of housing policy to company decision making, operators, finance, etc. Thus the research formulates the following research questions:

*How to transform the significance on policies to company goals and decisions?*

*How to combine operational indicators in social housing company strategy?*

The work aims to value targets and goals for policy makers, to transform macroeconomic trends into strategic priorities for housing Company And their operation objectives. It compares companies' performance and identifies companies' strategic profile.

The work assesses how to balance policy making and company goals in different kind of economic environment. It provides managerial implications for strategic orientation and operational efficiency of companies involved in social housing projects. This dissertation also discusses social housing as tool for regional development, and acting as foundation for economic growth.

## 1.5 Research design

The research strategy of this dissertation is based on interviews, case studies, observations, surveys and statistical data analysis. It makes longitudinal investigation of the economic factors affecting decisions in social housing sector and cross sectional inquiry of the priorities of factor importance. Both qualitative and quantitative research methods are used. The dissertation makes comparison between different countries' social housing models. Semi structured interviews with decision makers were used to model existing social practices in Analytical Hierarchy Process AHP. This developed research framework was tested in Thailand- Bangkok, China-Wuhan and Finland.

This work reflect on the principle of positivism, collecting observable data from the studied housing phenomenon and then independently analysing and the results and finding practical solutions to develop operational performance in social housing, also comparing it to previous studies.

There is search to explain the relationship between the macroeconomic indicators and housing policy factors. Therefore deductive research approach is taken into use. The dissertation uses several theoretical modes, from the strategic types defining, balanced scorecards business process evaluation and benchmarking. The concept of efficient housing management is described and its components are measured quantitatively in two case studies. General features of housing policies in different stages of economic growth are explained. The work offers model to balance between varying goals.

### 1.5.1 *Epistemology*

Research epistemology addresses how we come to know the reality and identifying practices that help to attain knowledge of it. An objectivist approach was chosen because the analytical models are developed according to general rules in the social housing sector. Thus the models follow common acceptable behaviour in the industry, while trying to optimize the outcomes such that they are better than previous research.

## 1.6 Approach and methods



**Figure 1.** Fields of science

The dissertation uses combined method from three fields of science, namely Strategic Planning, Operational Efficiency and Production Economics (see Fig. 1). This work utilises social housing models assessment with the purpose to improve strategic planning. It also studies operational efficiency of companies in the sector from a production economic point of view. The author presents the social housing systems in Finland, Thailand and China and compares their evolution and current state. The background of the study is in the field research based on project work/field research, Competitive Advantage CA evaluation, Critical Factor Index (CFI), etc. for effective resource planning and goal setting. This work uses also Constructive Approach (CA) in business research as defined by Kasanen and Lukka (1993).

#### *1.6.1 Macroeconomic level*

This work address diverse economic conditions starting from 1960's in the three countries. It evaluates the existing social housing models and current economic situation. Macroeconomic level comparison and statistical analysis of following indicators was conducted:

- Urbanization
- Population growth
- Countries GDP
- Human development index

#### *1.6.2 Company level*

Strategic decision making is revised for the participating companies. How they implement of their main goal in operation management in companies. The case studies consist of the following parts:

1. Interviews with decision makers in Company A and B
2. Sense and Response questionnaire data collection
3. Analytical Hierarchy Process (AHP) questionnaire and analysis of importance weight and dynamic sensitivity-lead to calculation if Competitive index
4. Balanced Score Card (BSC) criteria selection method
5. Strategic types (multi-focused strategies).

#### *1.6.3 Process level*

Achieve operational efficiency in customer service processes. Customers profile; who needs, expectations, special customers groups etc. Mapping service process;

from beginning to the closure. Identify Critical factors in the processes. Decisions at this level concern making a sensible choice for resources allocation in particular system of activities. This is amendable task, still often managers have to make decisions for the company based on dispatched information. That creates information gaps and affects decision making.

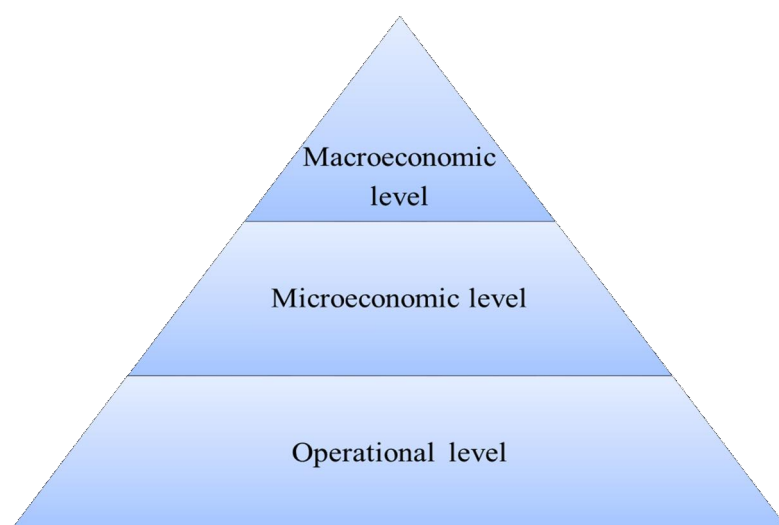
## 1.7 Structure of the thesis

This dissertation consists of eight sections as follow:

First introduction to the subject is made, presenting background of Social Housing, the study area, research objectives and questions. The next chapter presents the list of publications. Section four considers the theoretical framework and carries out literature review of previous studies in the field.

Afterward in section five, the work discusses methodological issues in social housing and economy life cycles. This section revisions practises in social housing models and decision making. The next part describes data collection and the case companies

Results are presented in section six, using three levels of generality, Figure 2. Comparison is made between social housing features for a number of countries (Finland, Thailand and China) and their past present and future housing policy. This part presents cross-sectional correlation of major economic indicators for the countries. For the case companies it includes identification of strategic profile competition advantages, delight factors and critical factors in current processes.



**Figure 2.** Dissertation analysis levels



The results are discussing macroeconomic, microeconomic level and operation level issues and the interconnectedness between them.

The last section outlines the limitations and research conclusions and discusses the benefits of the work for the managers. The sub-chapters revise social housing using the same logic as the research design, specifically top to bottom approach of macroeconomic environment affecting the social housing market, policy making decisions adapted to company strategy and further formulated as operational rules.

## 2 PUBLICATIONS

Five publications have been included in the dissertation to cover the three main fields of science as they were presented previous in Figure 1. Two of them are journal published papers and the other three are published in international conference proceedings.

### 2.1 Property Management Efficiency Process in Real Estate and Housing Business

Published in Proceedings of Management International Conference (2008), November 26–29, Barcelona, Spain.

Authors: Toshev, R., Forss, T. & Phusavat, K.

This work describes implementation of Analytical Hierarchical Process and Knowledge Management methods with the aim to maintain cost efficient operations, while providing the users a quality living & working environment. Facility management is the practice of coordinating the physical workplace with the people and work of the organization. As such it requires multi-focused organisational strategy orientation combined with proactive identification and assessment of new service concepts. The goal is to enhance property values through active day-to-day management that focuses on maintaining high levels of occupancy and owner/tenant satisfaction, while lowering facility costs.

Author contribution: Representing the company the author facilitated data collection explaining questionnaires methodology, co-write analysis and conclusion part and presented the article at the conference session.

### 2.2 Implementing Customer Delight in Decision Support System with Performance Indicators: Comparative Study of Finnish Housing Market

Published in Proceedings of International Conference on Innovation & Management (ASIA-ICIM) (2010), December, Wuhan, China.

Authors: Forss, T. & Toshev, R.

This descriptive case study in Finnish housing market targets the application of Customer Delight model by Sense and Respond methodology and Analytical hi-

erarchical process analysis. The goal is to enlarge property values through active day-to-day management that focuses on maintaining high levels of occupancy and residents satisfaction and at the same time stay cost efficient. We aim to pilot the construction of intelligent knowledge-driven Decision Support System that provides specialized problem-solving expertise stored as facts, rules, procedures, or similar structures.

Author contribution: Developing and testing the model for first time, performed the data collection, described the research design and performed with the co-authors the analysis and edited the final version.

### 2.3 On The Implementation of Decision Support System Combining Critical Performance Indicators in the Finnish Real Estate Business

Published in Proceedings of Conference of the International Association for Management of Technology (IAMOT). (2011), April 10–14, Miami, USA.

Authors: Toshev, R., Forss, T. & Takala, J.

This comparative case study in Finnish real estate business addresses the compilation, of customer delight model, progression of economic values theory, Sense and Respond methodology and Analytical hierarchical process (AHP) analysis in an innovation cycle. It pilots the construction of intelligent knowledge-driven Decision Support System (DSS) that provides specialized decision making expertise stored as facts, rules, procedures, and indicates critical factors (CF) in the housing lifecycle.

The used CF Index method is a measurement tool that indicates attribute of a business process with high deviation between expectations and experience of the company's employees and customers, imposing prompt action to be taken for the lowest valued attributes. The CFI was developed on the basis of the Gab analysis and the implementation index (IMPL). The method reveals which attributes are critical within the business process and therefore supports the management to make decisions concerning which indicators should be improved. The proposed DSS integrates the contemporary view of progress of economic values, which puts experience and customer delight at the top of the competitive advantages and pricing level possibilities. Delightful experiences bring customers back and create interest in potential customer groups, thus distinguishing the company from the

competition. The level of satisfaction is monitored by clients' questionnaires and front desk staff interviews.

Originally conceived as a quality tool for obtaining a good match of customer need and product functions, it helps property managers not only to grade requirements, but also to evaluate budget allocations and priorities. Still it omits operational efficiency, except as far as operational capability is reflected in product or service quality that influences customer satisfaction. That's why the proposed DSS applies AHP analysis to facilitate multi-focused strategic decision making.

Author contribution: Compiled the methodology from the previous publications, described the Finnish housing market situation and housing policy overview. Wrote the conclusion part and presented the paper at the conference session.

## 2.4 Learning from Social Housing Policies – Key Decision Factor Analysis of Finnish, Chinese and Thai Models

Forthcoming publishing in *International Journal of Innovation and Learning (IJIL)* (2014).

Authors: Forss, T. & Toshev, R.

This paper describes and compares the current priorities of Social Housing in Finland, China and Thailand. The results are discussed in the context of fifty years revision of major economic and population indicators. Initially, countries social housing policies profiles are defined. After it the main priorities for comparison are systemized in hierarchy tree. These priorities are evaluated by different stakeholders in the countries, combined in overall assessment, presented in the third and fourth section of the paper.

Results of this Analytical Hierarchy process and Macroeconomic indicators historic values are examined in the last part, together with conclusions of the comparison and further research possibilities.

Author contribution: Organized the source selection and data collection. Made the visits to case countries. Analysed the results and described the findings and conclusions, performed the journal editing.

## 2.5 Sustainable Operative Housing by Dynamic Renting

Published in *Management and Production Engineering Review*, Volume 3, Number 3, September 2012, 11–17.

Authors: Forss, T., Takala, J., Korpi, H. & Golovko, I.

This paper demonstrates utilization of Sense and Respond method for developing operations within housing markets by Critical Factor Index (CFI) having influence even on the strategic business performance. CFIs of knowledge intensive businesses can be measured and dynamically developed by Sense & Respond philosophy (Bradley and Nolan, 1998). The purpose is to evaluate operative business performance in two quite different cases within quite big real estate businesses in Finland. For example, relationships with the customers, processes and possibilities for growth internally by different groups of respondents, ‘hosting’, ‘management’ and ‘rent’, were compared between the cases. One case company has a lot of more social housing compared to another.

The work aims at finding out and understanding similarities and differences in business processes by Balanced Score Card (BSC) and by much more operations oriented OP questionnaires, and by deeper interviews in the case companies as well. BSC questionnaire has been supported by an important part of trust related factors as well. We could find similarities like: openness, customer, communication between different departments and hierarchy levels, utilizing different types of organizing systems; adaptation to knowledge and technology, utilizing different types of organizing systems.

A new method for dynamic resource allocations in the operative processes in housing, especially in renting, where the customers move from one apartment to another one, has been proposed, it was validated and verified by weak and semi strong market tests in two quite big but different case companies. The preliminary but promising findings can be applicable for the whole market.

Author contribution: Managed the data collection process, analysed the results and wrote findings and conclusions, edited the final version.

### 3 THEORETICAL FRAMEWORK

Oxford dictionary defines SH as “housing provided for people on low incomes or with particular needs by government agencies or non-profit organizations” and Macmillan dictionary defines it as “houses that local councils and other organizations provide at a low cost”.

The term “social housing” is broadly used in the housing policy literature; however it is more connected to housing policy than to economic criteria, as Donner (2002) mentions. The term includes both public and limited profit rental housing, and in some cases private rental housing with subsidised prices by government interventions. Social housing is one of the main tool that governance uses while trying to provide welfare for all citizens and ensure economic stability (Hills 2007). Countries policies’ regarding social housing differs to extend which authorities are regulating housing production, market player or creating programmes for tenants subsidizing.

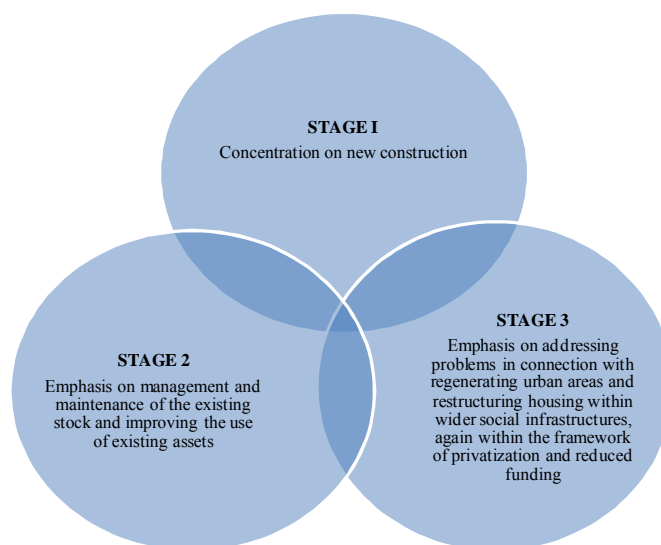
In the context of 2008 US housing market crisis that expanded to global financial crisis, the 2010 European debt crisis and “Arab Spring” movement SH is high in the agenda of policy makers.

#### 3.1 Housing market and social policies

The accessibility of affordable housing for low-income groups varies widely. It depends on the shares of social, subsidized, and market-rate housing as well as on the mix of rental and owner-occupier dwellings. They differ depending on national cultures and political traditions, as well as on the impulses of the development of the national economies. Still housing has been a major policy ingredient for almost every state regulation in the effort to adopt welfare-state model (Feddes and Dieleman, 1996).

From this perspective and considering the various levels of economic development in different societies, it is understandable that housing finance and housing policy instruments have taken various courses in different countries. (Brunn et. all 2003)

Historically, each country’s housing policy can be divided into three main stages, see Figure 3:



**Figure 3.** Main stages of Social Housing evolution

*The primary goal of SH:*

SH ensures that all residential cooperatives have access adequate and appropriate housing conditions according to size, quality and cost. Housing policy have to shelter the most important group of low-income earners and the less well-off. (Donner 2002.)

*Secondary objectives*

A number of objectives have been taken forward in relation to housing

- Increase in owner-occupied housing
- Private rental housing supply replacement public offering
- Increasing the supply of new homes
- The supply of housing stock redistribution
- The level of housing development of new housing or repair of
- Reducing the cost of housing / support to households
- Living conditions for the further improvement of the essential things

*Additional Targets*

Primary and secondary objectives in addition to living and housing is often associated with other issues

- Income distribution policy
- The economic and employment policy
- Sub-regional and regional policy
- Energy Policy

Policy-makers have to make some basic choices regarding the design of a SH system to address specific housing sector objectives

1. Property development,
2. Government interventions
3. Housing diversification

Housing demand is determined by overall economic development, local price trends, current financing conditions on the capital market, the availability of public subsidies, on present and expected future household income, as well as on individual consumer preferences (Donner 2002).

In addition, as Donner (2002) explains, housing demand also is a function of (regional) population development, household structure, and purchasing power, as well as the existing housing stock and the level of housing consumption already attained.

#### *Population trends*

Housing markets are influenced by general population trends. Population increase means that additional housing demand must be met. This can be achieved by increasing the residential density of the housing stock or by larger output of new housing so as to exceed replacement needs. On the other hand, with decreasing population, the average residential density drops as well, demand for new housing is greatly reduced and may become limited to the replacement of derelict dwellings. Natural population trends can be used to indicate future housing demand.

#### *Household income*

The level of household income depends on national economic development which may diverge among regions. Housing demand is a function of net household income which is a result of gross earnings by household members minus taxes and social security contributions. On the other hand, many countries provide income transfers which may be sector-specific or based on general social criteria. In the owner-occupation sector, it is not only current income which determines the affordability of housing but also foreseeable future earnings, as capital cost is distributed over extended periods of time.

#### *Housing expenditure*

The production cost of new dwellings essentially consists of land cost, construction cost, construction-related cost and temporary financing cost. In most cases, these costs have to be financed and thereby distributed over longer periods of time.



### *Housing stock*

Housing demand is also strongly influenced by the structure of the existing housing stock. As a rule, a large share of old dwellings will result in many of them being demolished in the foreseeable future and thus require high replacement production. A generally low amenity standard, on the other hand, will increase demand for renovation and modernisation work. (Donner 2002.)

### *Housing prices*

Although housing prices originate in imperfect and local markets, they are essentially determined by supply and demand. However, insufficient market transparency and partly non-economic decision criteria of both providers and consumers have to be taken into account, too. Housing markets varying degrees of competition result from the local balance of supply and demand. In such situations commercial providers tend to relocate their investment to other local markets or to other market sectors altogether. Buyers usually cannot opt for this solution as their housing need is strongly linked to their place of work and has to be satisfied at least to a minimum degree. Depending on the development of their individual income and on the respective price levels in the rental and owner-occupied market sectors, households strive to optimise their housing position by switching among market sectors. (Hossain & Latif 2009.)

Apart from direct demand by households requiring a home, housing prices are also influenced by public sector housing supply at below-market price. If the size of this additional supply is sufficiently large to offer realistic alternatives, profit-oriented providers may be obliged to revise their profit margins.

As Zhang (2002) defines, public operator shareholders include government, regional municipality, pension funds, labour unions, church etc. which have much broader goals and interest than mere quarterly or yearly profit. To evaluate those one have to use mix of qualitative and quantitative measurements. Overall efficiency of public companies has been traditionally hard to measure. These shareholders have much broader interest; accordingly the goals are not only profit oriented. They include social stability.

Private companies, shareholders include individuals, customers, other legal bodies and municipalities. They all possibly will have different goals which are to be balanced in setting overall policies.

In this dissertation, the Finnish, Thailand and Chinese SH markets were chosen for closer investigation from a method validation point of view, as these three

have different characteristics. Finnish market is a mix of government regulation and market orientation (Asselin et al. 2002), while in Thailand has dominant market forces (Pomchokchai 2002) and China has government driven housing policy if even exist. (Lin 2011.)

Finland has gone through new construction focused period during 60's and 70's. This is still major priority in the capital area (Timonen 2003). Overall result for the recent years shows that housing policy is in transition between second and third stages. China is currently focused on new construction due to the sharp urban and economic growth it is experiencing. Thailand recent housing policy can also be positioned between stages two and three. (UN HABITAT 2008.)

China is good example of government driven social housing policy, while Thailand has a policy dominated by free market factors. Government has also strong role in Finnish social housing; still these interventions are made with market mechanisms.

The authentic matter is not just creating choice alone, but creating choice for specific groups in specific areas and supporting disadvantaged groups in deprived neighbourhoods. Moreover, it is about supporting people by building aspirational housing to allow social climbers to stay in their community and to stimulate labour mobility (Hills 2007). These goals require organisations that are not guided by shorten market profits, but by long-term societal gains. (King 2006.)

### *3.1.1 Housing policy in Finland*

The homogeneous characteristics of Nordic countries have been noted and discussed in several studies particularly with respect to legal and political institutions, culture and social policy (see, e.g. Allardt et al. 1981; Bondeson, 2003; Karvonen & Sundberg 1991; Kautto et al. 1999; Kautto et al. 2001). Finland is often taken to represent the Nordic or Scandinavian welfare model.

Finland is one of the first countries to provide public housing. In 1909 wooden houses were built in Helsinki for the city's workers. On other hand private real estate market in Finland is relatively young comparing to other European countries. The driving forces during the last 60 years have been migration from rural area to urban cities and it is dominated by the lack of capital. In the early 1990s Finland underwent very severe economic and employment problems, which had no parallels in the other European countries. (Kautto 2001; Timonen 2003.)

Nordic climate conditions and new demanding sustainability factors set the building price relatively high. There are complete set of regulations concerning the location, building processes, as well as the business operations to be followed. One third of all Finnish homes are rentals, situated in concentrated urban areas. Major market trend is the building of new houses, while renovation of old property is less than third. Government is using the housing market as a tool to implement political goals like social and economic equality, economic growth and stability, and environmental issues. (Ruonavaara 2005.)

According to Ruonavaara (2006), there are three characteristic features of the Finnish housing regime. First, the Finnish regime is built on the presupposition that households satisfy their housing needs mainly by relying on other than public provision of housing, either in the private housing market or by self-promotion of housing. Second, housing policy has been understood as a branch of social policy. Its function has been to help households that cannot help themselves to acquire decent housing. In previous times, housing policy measures became more intense only in acute crisis situations, such as those after the world wars, and were abolished as normal times reappeared.

Since the 1960s, housing policy became more institutionalized, and its target has been to gradually raise the housing standards of the population, especially its less well-off part, with selective measures. Third, the Finnish housing system has traditionally consisted of two distinct housing sectors: one where relatively free market reigns and another where access is regulated by means testing and waiting lists. Therefore, the Finnish housing system can be considered as a dualist one (Ruonavaara 2006: 219–220).

The idea of a dualist housing system is consequent in Kemeny's work (2006: 2). He has introduced the distinction between two types of rental housing systems: unitary/ integrated and dualist. Integrated systems are such where there is no clear difference between profit-oriented private rental and non-profit 'cost rental' housing: both serve the whole population and the two sectors compete with each other.

Kemeny argues that a rental housing system is a dualist one when there are two distinct forms of rental housing that de facto constitute two different forms of tenure: profit-oriented rental housing distributed through the market and social rental housing distributed through means-testing procedures (see Kemeny 2006: 2, 2003: 38). In this limited sense, the Finnish rental housing system is surely a dualist one.

There is non-profit, 'social' rental housing consisting of housing stock owned mainly by municipal rental housing companies and non-profit developers but also

by a multitude of other lesser owners. In this sector means and needs testing are employed in allocating housing.

Since the 1990s, the means testing procedures have been relaxed but, in spite of this, lowincome households, immigrants and unemployed have become more and more concentrated in the social sector (see Juntto 2002: 298–301; Juntto et al. 2004: 99–100). This housing sector carries a largely unfounded stigma of being ‘welfare housing’ for people suffering from various kinds of social problems (see Piirainen 1993). However, security of tenure is good in the social rental sector: municipal landlords and non-profit developers are committed to long-term landlordism and especially municipal companies carry the responsibility to house homeless and other people with urgent housing needs.

Tenant participation in decision-making is practised in social rental housing; also different kinds of renovation projects have been targeted to housing estates containing social rental housing. Social rental housing is not segregated from housing in other tenure forms but a policy of ‘social mixing’ has been practised.

On the other hand, there is a profit-oriented private rental market where the majority of landlords are petty owners of rental housing, not necessarily committed to their business in the long term.

During 1990s, the emerging free market in rental housing and a tax reform that made taxation of capital income more lenient, acted as incentives for investors and petty owners of housing to become landlords. A recovery of private rental market followed. The end of rent regulation raised the rents in the private market and the rent levels between the two sectors started to diverge. (Ruonavaara 2005.)

So in the fieldwork the category ‘home owner’ contains both housing company owner-occupiers and tenant-owners. The long-term growth of home ownership and the decline of private renting were halted in the 1990s (see Table 1).

**Table 1.** Households by tenure in Finland 1950–2002 (%)  
(source: Ruonavaara 2006)

<b>Tenure</b>	<b>1950</b>	<b>1960</b>	<b>1970</b>	<b>1980</b>	<b>1990</b>	<b>2000</b>	<b>2002</b>
Owner occupiers	56	60	60	63	72	64	63
House owners	53	51	44	37	38	34	33
Housing company owners	3	9	16	26	34	30	30
Co-operative owners	–	–	–	–	–	1	1
Tenants	43	39	38	30	25	32	33
Private	42	37	34	19	13	16	17
Public	0	2	4	11	12	16	16
Other or unknown	1	1	2	7	3	2	4

In the 1990s, the share of owner-occupier households started to decline. The exceptional economic depression in the early 1990s is the major factor behind this development (see Doling & Ruonavaara 1996; Ruonavaara 2003). The depression led to a declining GDP, explosive growth of unemployment, the emergence of the household over-indebtedness problem, business bankruptcies, a banking crisis, a crisis of public finances and a crash of the housing and property markets. The Finnish economy and society recovered from the crisis in an astonishingly short period of time, in the late 1990s, but the depression's heritage is lasting in the society.

In the aftermath of the depression the housing system underwent substantial changes. The private rental market, which had been shrinking, experienced an extraordinary revitalization. Also housing policy changed. The previously generous tax incentives to home ownership were eroded by changes in the principles of taxation and the generally low interest level. The subsidy policy was reoriented from emphasis on production subsidies to that of selective consumption subsidies.

Also the changes in the financial markets have changed the environment in which households make housing choices. There are much more financial products available for homebuyers than before with more flexible and varied terms and, what is most important, loan interests have stayed on a relatively low level for a long time. (Ruonavaara 2003.)

### *3.1.2 Housing policy in Thailand*

Thai social housing policy has long history. In order to compare it on a general level with Finnish and Chinese models, a summary of the important milestones is presented here. Correlation between economic and the development indicators is presented later in results chapter six. This work does not focus on the institutional dimension. However, to understand the overview of Thailand housing policy is clearly beneficial for the overall analysis.

Housing market and development in Thailand is prominently dominated by the private sector rather than the government sector. However, housing policy implemented by the government authorities still has a significant effect on housing market. The local government has seemingly a little role to manipulate housing market. While, the central government focuses on implementing the housing policy in Bangkok due to a very high level of primacy and half of total urban population residing in Bangkok. (Glassman 2010; Hara et al. 2010.)

Thai housing policy can be divided into two parts. The first one is the policy to enhance middle-income population to own a house. The other is the policy to help low-income population to have a better dwelling (Giles 2003). Housing can be classified as a merit good like public health service, education service, and recreation service. These sorts of goods and services not only affect an individual's interest but also social welfare. Therefore, the government authority ought take externalities effect into the consideration. For example, the government should control a minimum standard for housing projects for low-income group in order to ensure a good surrounding environment and public security in the community (O' Sullivan, 2007: 301–103).

#### *Housing policy for middle-income population*

In Thailand there are many economic tools to subsidize middle-class housing projects. For instance, banks lend money to developers with a low interest rate. Government Housing Bank GHB was established in 1973 by the government to secure appropriate housing finance for low-income households. However, GHB practically make a housing loan to middle-income households as well. The gov-

ernment launched the regulations that allow including housing loan interest expense to reduce an income tax. Moreover, housing market in Bangkok is a market-led by the private sector and there are many competitors in the market especially medium-end housing projects. As a result, developers have to intensively compete by improving the quality of houses and control the budget to offer a competitive price to customers. Therefore, the middle-income population is better off by this policy direction. (Pornchokchai 2002.)

#### *Housing policy for low-income population*

The main purpose of this policy is to provide a sufficient amount of dwellings for low-income population with a certain level of quality. The government put an effort to help this group of urban population to live in a better dwelling rather than squatter settlements (Sivam 2002.)

There are two government units that mainly work on this policy. The first one is Government Housing Bank supporting housing finance to low-income population and the other is National Housing Authority working on developing public housing projects. Nevertheless, the housing policy for low-income group has not been functioning well in Bangkok because of discontinuity and inefficiency in both policy direction and implementation level. In practical, they serve the wrong group of population (middle-income) instead of low-income group because they have to work as a profit-making organization. That is the reason why these two organizations are not be able reach the initial objective, which is to help the poor in the city (Yap 1996).

Most customers of these two organizations turn out to be middle-income households instead of low-income households. In 2007, National housing authority permitted a household who earn less than 15,000 baht per month to buy a public housing unit. But in 2010 the maximum income increased to 40,000 baht per month. Therefore, the government authorities have to lessen the maximum income regulation to serve wider group of customers because low-income households still cannot afford a public housing unit. Furthermore, they are not willing to move to remote area or suburbs of which public housing projects are located (Yap & Wandeler 2010).

#### *3.1.3 Housing policy in China*

China SH policy is the most challenging as the country has the largest population in the world. Chinese government start to implement public housing policies and establish the 'public housing system with Chinese style'. (Lin 2011.)

As Lin (2011) notice, the development of ‘Affordable housing’ has become an urgent and important topic of discussion in China. Unlike in western countries where the social welfare system has been set up for many years and the public housing system also is mature, in most of Asian countries, the social welfare systems are still weak in relation to their large amount of low-income populations.

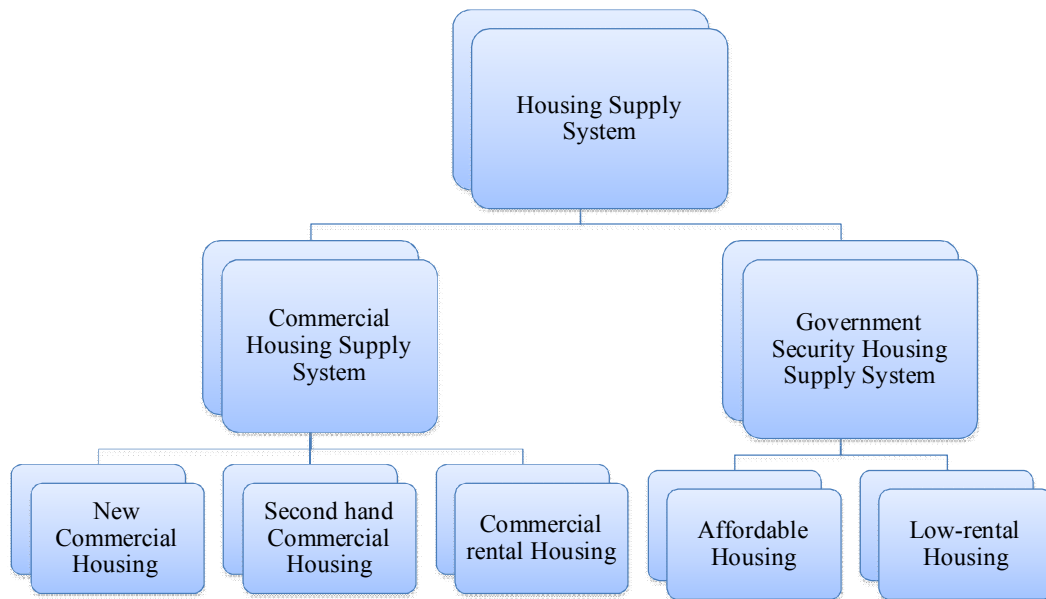
Chinese housing policy is strongly centralized with government situated in Beijing. Advices and recommendations are given to local governance and authorities. From the capital they are monitoring closely the environment in provinces, cities and rural areas. The main tools for implementation housing policies in China are naturally the right and ownership of land, construction project implementation and financial regulations. The government goals are to ensure the development and stability in the society with urbanization progress, along with infrastructure modernization and economic growth. The government and authorities accomplish desired housing policy by control over land, regulations and capital. (Li 2002.)

Land is crucial resource for new buildings. It can only leased, not owned by private individuals. In principal the government can always take the land its use when it needs it necessary. City and areal planning is the most important guide for project developers. Projects are then led by constructions allowances and regulations. The government can and does decide what and where can/must be built. (Lin 2011.)

Housing is financed both by private and public capital. Owners occupied apartments finance consists of own capital and bank loan. The guarantee needed for bank loan is under government control. The guarantee is practical tool to control and drive housing markets development. Public support forms for rental housing are supply and demand based. Supply support is provided to project developer to decrease rent prices. To get the support the development company must accept certain technical rules and profit limitations. Actually the government can and does orders the companies to produce these supported houses in areas they like. Individuals too can get also additional support for rent. (Ye et al. 2010.)

For the purpose of this study the author do not describe the social housing in China in details, as it differs significantly between rural area and cities, inland and coastal area. Rather it takes an overview of the historical development and compares it to the economic indicators.





**Figure 4.** The framework of China housing policy

The housing supply system in China consists of two part (Figure 4), commercial housing supply system and security housing system. The commercial housing market is opened for the private real estate developer or buyer, while the social security housing is opened only for the low-income group or typical group. (Ye et. all 2010.)

### 3.2 Decision making and theory of organization

Real estate companies are using decision making models for strategic goals, as well as optimal pricing and allocation of assets, based on assessment of performance. In the increasingly complex world of real estate business, it is hard to balance multiple day to day operation decisions required with complex development projects and cardinal shareholders goals (Haeckel 1999.)

Often, judgments are made relative to current expectations and current business constraints. While a decision-maker may believe in the required optimum resource allocation levels, as dictated by optimal pricing model, the final decision may/will be influenced by factors outside the parameters of that model. Yet, as French (2001) points, much of decision theory does not lie entirely within any one discipline: it draws upon psychology, economics, mathematics, statistics, social sciences and many other areas of study.

The organizational configurations framework of Mintzberg (1994,2004) is a model that describes six valid organizational configurations:

- Entrepreneurial organization
- Machine organization
- Professional organization
- Diversified organization
- Innovative organization
- Missionary organization

### 3.2.1 *Strategic types*

According to Miles and Snow (1978), organization types have the following general characteristics:

*Prospectors* actively seeks, tests, develops and utilizes new product-and market opportunities, and therefore is the pioneer of the new products and services. According to DeSarbo et al. (2006) the main thing for a prospector is technological capability and good relationship to delivery channels and good market research. Of the three strategic business types it is the most market oriented.

*Defender* type of companies seeks to maintain a stable market position and is typically competing with quality and prize. Is concentrates on resource efficiency, cost cutting, process improvement and efficient marketing. On the other hand, as a defender is conservative, it also is inflexible.

*Analysers* is a hybrid between prospectors and defenders. It follows the prospectors footsteps but seeks to maintain its existing markets and customer segments while quickly absorbing the most promising novelties. The strategy is to offer improved or more inexpensive versions of the products introduced by prospector and defend the core products and markets. For this group, technological capabilities are an important determinant of competition and its operations are flexible by offering product variety and product in a different phases of life cycle

*Reactors* are companies with not clear strategic choice. Such companies are followers on the market and exist by trying to adopt to the business environment coping models from the others on opportunistic principle. (Miles & Snow 1978.)

From the point of view of the company's competing strategy this means

1. penetrating to new markets,
2. positioning to existing markets or a market niche, or
3. being an early follower in the new markets.

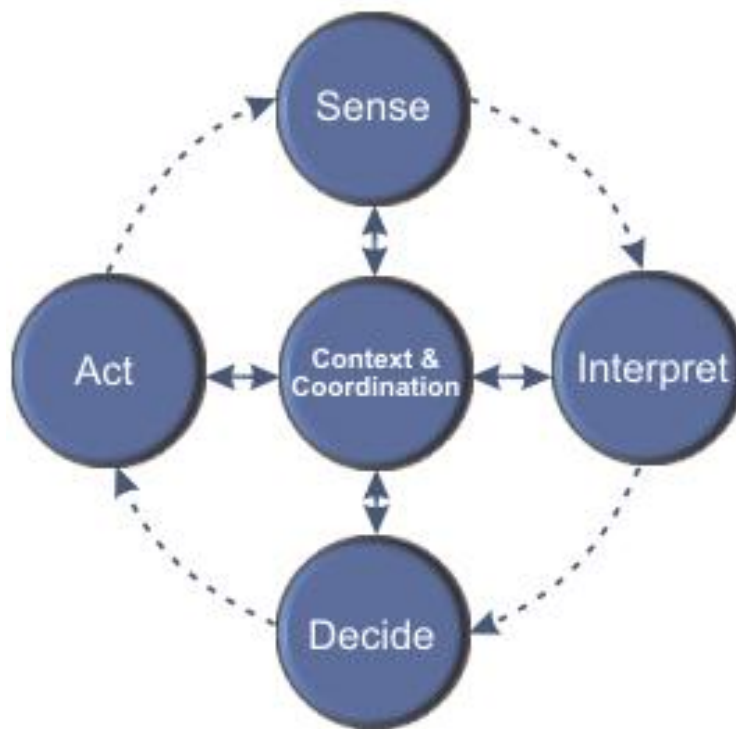
According to Manion and Cherion (2009) service providers typically use different ways to measure their performance consistent to their strategic type: prospectors attach greater importance to growth performance measures, defenders to efficiency performance measures and analyser places more emphasis on objectives-based performance measures, including strategic fit.

### 3.2.2 *Adaptive enterprise*

Uncertain environment conditions require changes faster than the energy companies ability to respond to them, they must re-engineer themselves to become a sense-and-respond (S&R) organizations.

In order to make timely, well-informed decisions company executives must have a clear window into the operational health of the business. As Jacobsson (2002) states: “This process needs to be studied using an innovation system perspective where the focus is on networks, institutions and firms’ perceptions, competencies and strategies.” That provides a more comprehensive view of processes motion, which in turn helps organizations act in their best long-term interests. (Haeckel 1999.)

An adaptive management model, Figure 5, is advanced tool in the efforts to transform businesses into adaptive organizations. S&R systems consist of information collection sensors, communication links, processors and responders. Sense and Respond fills the adaptive management gap. It is a framework for customer-back businesses; one that systematically enhance adaptive organizational behaviour (Frishammar 2003; Kapoor 2005).



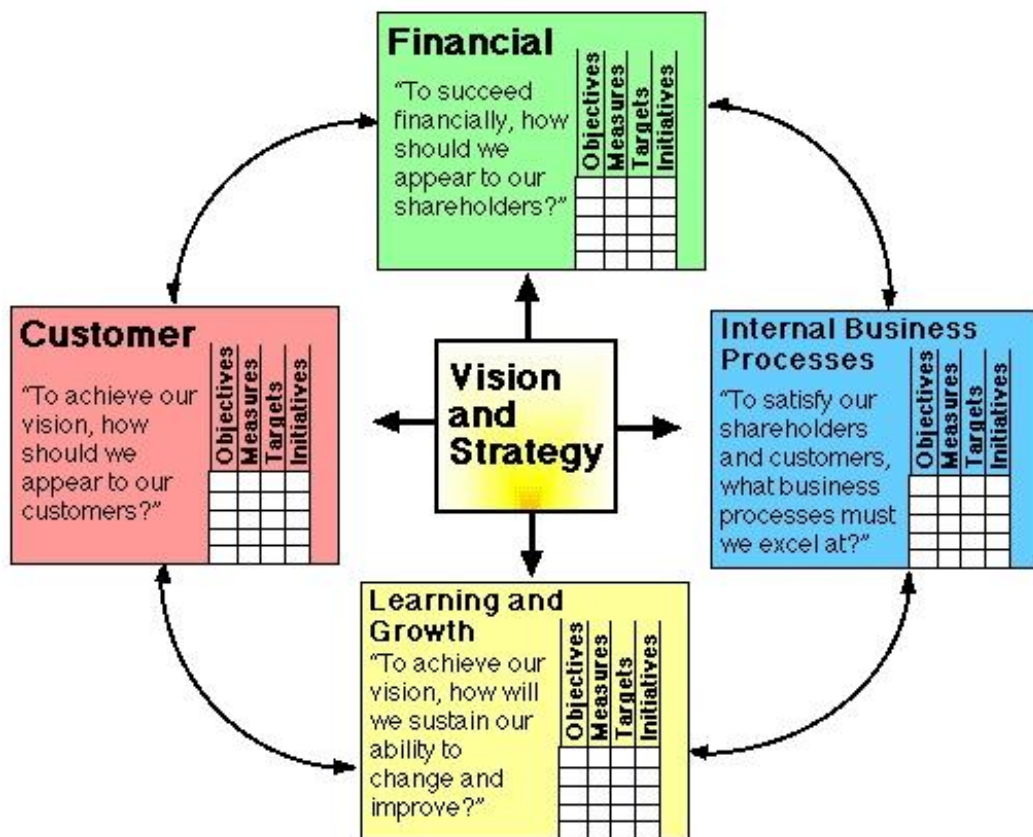
**Figure 5.** Sense and response management model (source: Haekel 1999)

### 3.3 Balanced scorecards

The Balanced Scorecard method of Kaplan and Norton (1992) is a strategic approach, and performance management system, that enables organizations to transform a company's vision and strategy into implementation, working from 4 perspectives:

- Financial perspective
- Customer perspective
- Business process perspective
- Learning and growth perspective

This allows the monitoring of present performance, but the method also tries to capture information about how well the organization is positioned to perform in the future.



**Figure 6.** Perspective of balanced scorecards

### 3.3.1 Financial perspective

Kaplan & Norton (2001) do not disregard the traditional need for financial data. Timely and accurate funding data will always be a priority, and managers will make sure to provide it. In fact, there is often more than sufficient handling and processing of financial data. With the implementation of a corporate database, it is hoped that more of the processing can be centralized and automated. But the point is that the current emphasis on financial issues leads to an unbalanced situation with regard to other perspectives. There is perhaps a need to include additional financial related data, such as risk assessment and cost-benefit data, in this category. (Kaplan & Norton 2001.)

The integration of these four perspectives into a one graphical appealing picture, (see Figure 6) has made the Balanced Scorecard method very successful as a management methodology. It is focusing the whole organization on the few key things needed to create breakthrough performance (Fink et. all 2005). It helps to integrate various corporate programs, such as: quality, re-engineering, and customer service initiatives. Breaking down strategic measures towards lower levels,

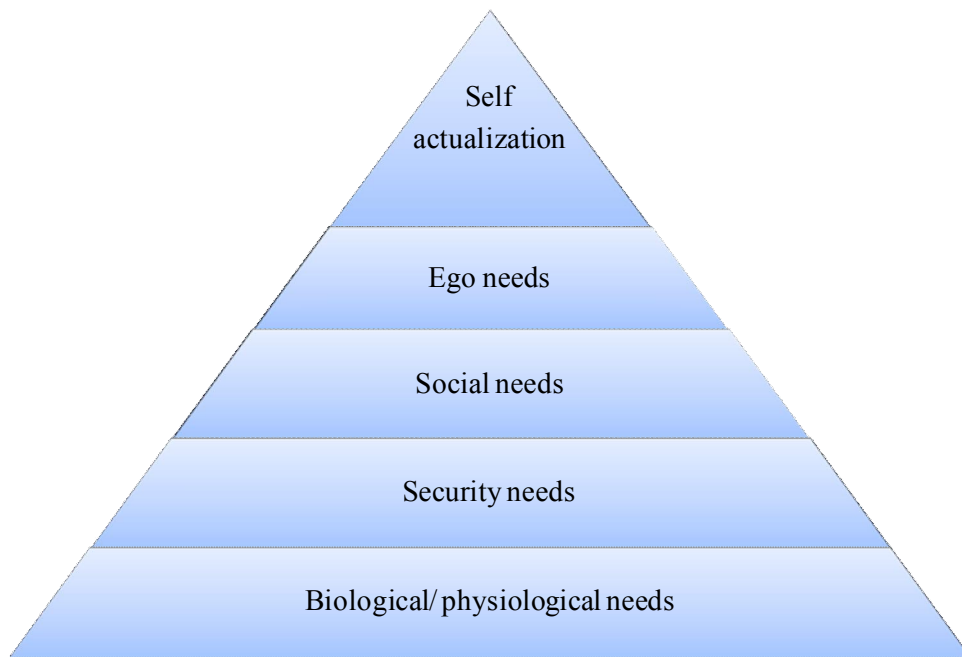
so that unit managers, operators, and employees can see what's required at their level to achieve excellent overall performance. Objectives, measures, targets, and initiatives for each perspective of the Balanced Scorecard four things are monitored (scored):

- Objectives: major objectives to be achieved.
- Measures: the observable parameters that will be used to measure progress toward reaching the objective.
- Targets: the specific target values for the measures
- Initiatives: projects or programs to be initiated in order to meet the objective.

Outcome metrics refer to the fact you can't improve what you can't measure. Therefore metrics must be developed based on the priorities of the strategic plan, which provides the key business drivers and criteria for metrics managers most desire to watch. Decision makers examine the outcomes of various measured processes and strategies and track the results to guide the company and provide feedback. (Jeroma & Kleiner 1995.)

### 3.4 Hierarchy of needs motivational model

Hierarchy of needs theory of Maslow (1943), a motivational psychology remains valid today for understanding human motivation, management training, and personal development. The ideas surrounding the Hierarchy of Needs concerning the responsibility of employers to provide a workplace environment that encourages and enables employees to fulfil their own unique potential (self-actualization) are influencing decision factors (see Figure 7).



**Figure 7.** Maslow's Hierarchy of Needs

The most fundamental and basic four layers of the pyramid contain what Maslow (1954) called "deficiency needs" or "d-needs": esteem, friendship and love, security, and physical needs. With the exception of the most fundamental (physiological) needs, if these "deficiency needs" are not met, the body gives no physical indication but the individual feels anxious and tense. Maslow's theory suggests that the most basic level of needs must be met before the individual will want the secondary or higher level needs. (Maslow 1954.)

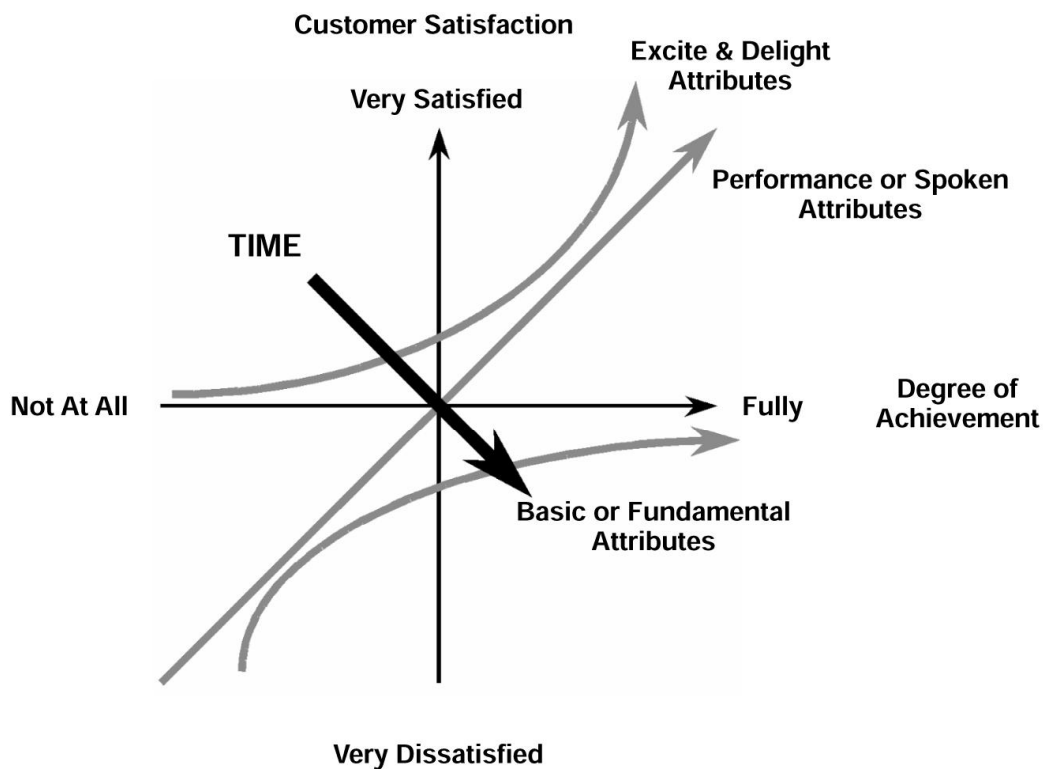
Many people are sensitive to the physical and social characteristics of a residential environment when they choose a place to live. The neighbourhood influences the quality of life and the social status of the residents, see Lee et. all (1994). Neighbourhoods are also important as frameworks for social interaction; some people therefore prefer the liveliness of mixed neighbourhoods, others the protection of living 'among their own kind'.

As urban populations become increasingly diversified, more people seek to protect themselves from conflict situations by withdrawing into the privacy of close-knit communities, with or without gates to lock the rest of society out. The degree of residential segregation says a great deal about the character of a society. (Skogan 1986.)

### 3.5 Customer Delight

The model of Dr. Noriaki Kano (1984) aims at capturing the voice of the customer for requirements for products and service. It is quality tool for obtaining a good match of customer need and product feature and function; project managers can apply this tool not only for grading requirements but also for evaluating budget allocations and priorities, and for assessing qualitative risks.

There are compelling reasons for setting up an enabling framework to providing good customer service (see Figure 8). Customer satisfaction is valuable because of the impact it have on the business bottom line. Satisfied customers are most likely to be loyal and to make repeat orders and to use a wide range of services offered by firms (Jerome 1995; McDougal 2000).



Source: Kano *et al.* (1984)

**Figure 8.** Kano's satisfaction chart

In the current economic environment, companies cannot afford to alienate its customers. It's critical that the company can form a close working relationship with its client, customer service play decisive importance (Berry 2006). There are in



existence variety of steps that one can take for enhancing client's experience. To list few of them here follows a choice of techniques eligible for implementation in Finnish real estate market conditions:

- Respond to messages promptly & inform clients regularly
- Ensure approachable and friendly communications work line
- Define and apply clear customer service policy
- Encourage face-to-face or front desk dealings
- Teaching the personnel attention to detail
- Anticipate client's needs and be able to change fast enough your company's resources to be able to help them out
- Be reliable partner and keep promises

Contemporary view of progression of economic values, spread out by Pine & Gilmore (1999), puts experience and customer delight at the top of the competitive advantages and pricing level possibilities. It brings customers coming back for more, creates interest in new customers and distinguishes your company from the competition.

Kano actually only addresses two of the focus areas already described: customer perspective and product excellence. The model pretty much ignores operational efficiency, except as operational efficiency is reflected in product or service quality that influences customer satisfaction.

## 4 METHODOLOGY

This Dissertation examines macroeconomic indicators historic trends connection with policy making in SH and provides evidence from two company case studies. It delivers operation maps and analysis of the critical factors for firms' strategic decisions. Priority weights for these factors are given by analytical hierarchy process calculation.

### 4.1 Housing policy comparison

For verification of the presented social housing factor importance weightings, we take a historic review of the major macroeconomic indicators such as Urbanization level, Population growth, Gross Domestic Product levels and Human development. Urban population refers to people living in urban areas as defined by national statistical offices. It is calculated using World Bank population estimates and urban ratios from the United Nations World Urbanization Prospects (World Urbanization Prospects 2011). Gross Domestic Product per capita in constant 2000 US\$. The inflation but not the difference in the cost of living between countries has been taken into account (World Bank report 2010.)

Annual population growth rate for year  $t$  is the exponential rate of growth of mid-year population from year  $t-1$  to  $t$ , expressed as a percentage. Population is based on the de facto definition of population, which counts all residents regardless of legal status or citizenship—except for refugees not permanently settled in the country of asylum, who are generally considered part of the population of the country of origin (United Nations Population Division.2009; World Population Prospects Eurostat: Demographic Statistics 2008.)

Human Development Index is an index used to rank countries by level of "human development". It contains three dimensions: health level, educational level and living standard (United Nations Development Programme, 2011). and generate regression trends in last 50 years data window. They are compared in order to explain the different environment of the housing markets (Shah 2012). The research process is presented as follows (Figure 9):



**Figure 9.** Research process

In order to make policy comparison, we collected initial data for the description of social housing models in Finland, China and Thailand, and identified from it the major factors influencing the structure of these policies. Structured interviews with decision makers in the sector, housing managers and operators, as well as residents and tenants were conducted in the countries. In the analysis it is considered that policy-makers have to make some basic choices regarding the design of a SH system to address specific housing sector objectives:

Demand or supply support?

- Location- or household-specific support?
- Entitlements or rationed/allocated support?
- Linking subsidies to housing finance or not?

Answering these questions in practice requires balancing and trade-offs between three major criteria, namely

1. Property development,
2. Government interventions
3. Housing diversification

Policy Priorities (PP) have to be transformed to business operations. The weights of PP can be used in a model of a business as a hierarchy consisting of two modelling layers to create coherency in organization goals:

Strategy layer–AHP models specify what the business should achieve, and evaluate alternatives.

Operations layer–CFI adapt operations and infrastructures, based on dynamic performance target and measures progress toward achievement.

There is no straightforward optimal solution to the questions, but there may be a possible link to the objectives and housing policy instruments available to decision-makers and to the financial (budgetary) limitations of the housing finance system. (Donner 2002.)

## 4.2 Analytic Hierarchy Process

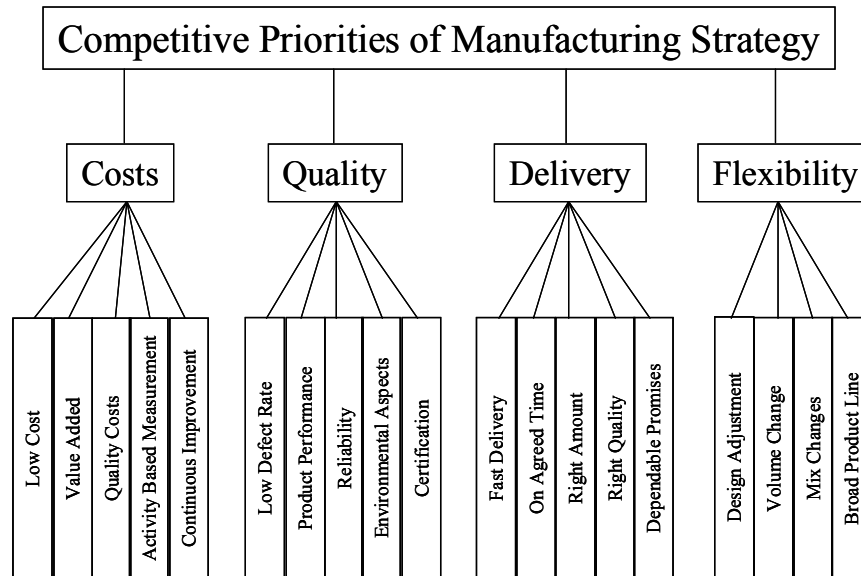
Analytic Hierarchy Process (AHP) is a structured technique for organizing and analysing complex decisions. It has particular application in group decision making, and is used around the world in a wide variety of decision situations, in fields such as government, business, industry, healthcare, and education. The AHP goal is to integrate different measures into single overall score for ranking decision alternatives with pair wise comparison of chosen attributes. AHP allows also considering quantitative and qualitative measures and making trade-offs. The process initiates by structuring the decision problems in a hierarchy of criteria and then connecting the comparisons to get the weights of each criterion with respect to the goal. (Saaty 1980.)

Rather than imposing perfect solution, the AHP helps decision makers find one that structure of criteria priority suits best their goal and their understanding of the problem. It is a process of organizing decisions that people are already dealing with. AHP goal is to integrate different measures into single overall score for ranking decision alternatives. (Saaty 1982.)

The application of the AHP approach explicitly recognizes and incorporates the knowledge and expertise of the participants in the priority setting process, by making use of their subjective judgments, a particularly important feature for decisions to be made on a poor information base. However, AHP also integrates objectively measured information (e.g., yields) where this information is available. The AHP is based on three principles:

1. Decomposition of the decision problem,
2. Comparative judgment of the elements, and
3. Synthesis of the priorities.

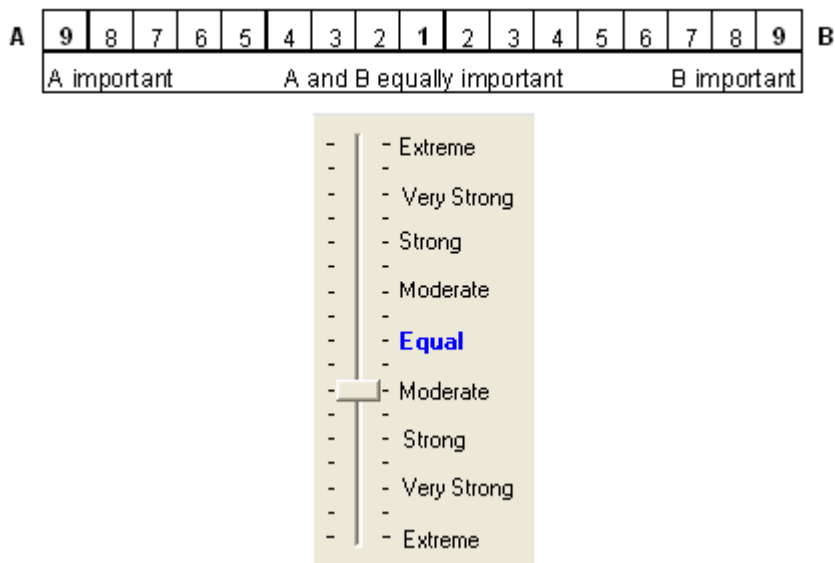
The first step is to structure the decision problem in a hierarchy, as depicted in Figure 10.



**Figure 10.** The decision problem in a hierarchy

Once the hierarchy is constructed the decision makers methodically evaluate its various elements by comparing them with respect to their impact on an element above them in the hierarchy. Appendix 1 shows the questionnaire and comparison of main criterion and sub criterion. In making the comparisons, the decision makers can use concrete data about the elements, but they usually use their judgments about the elements' relative meaning and importance. (Bhushan and Kai 2004.)

AHP converts these evaluations to numerical values that can be processed and compared over the entire range of the problem. A numerical weight or priority is derived for each element of the hierarchy, allowing diverse and often incommensurable elements to be compared to one another in a rational and consistent way. Importance weight results are measure of current resource allocation and a foundation for estimates about the effect of reallocating in times (Liu et. all 2008). This can be developed in scenario planning implementation and enhance policy making (Toshev 2010). This capability distinguishes the AHP from other decision making techniques.

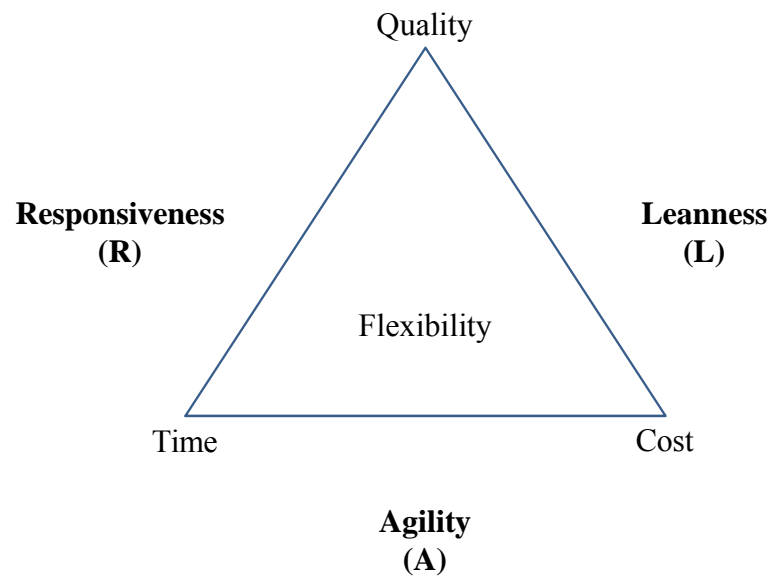


**Figure 11.** Pairwise comparison

By using pair wise comparison (Figure 12), it allows executives to take into consideration both quantitative and qualitative measures and make trade-offs in between. It is suitable when applying multi-focus strategy in large companies. In such a way AHP permits decision makers to institute multi-focused housing policy, balancing between factors as is appropriate for their specific country environment targets. (Saaty 2008.)

### 4.3 Strategic types

Strategic Types are linked to RAL model, see Figure 12, if the company focuses to quality only it follows that the company should have abilities to react for responsiveness (speeding by which the system satisfies unanticipated requirement) and leanness (minimizes waste in all resources and activities) to keep their operation flows smoothly.



**Figure 12.** RAL model

According to the choice in AHP between Cost, Quality and Time for finding out the competitive priorities, results can be utilized to classify the organization into 3 groups, group A (prospector), group B (analyser), and group C (defender).

For instance, if the number of quality of the company exceeds 0.43 the company will be classified as type A or type of prospector. For companies that emphasize on low cost the company should take care of agility (speed by which the system adapts to the optimal cost structure) and leanness regarding to its strategy. (Si, Takala & Liu 2008.)

If the number of cost is more than 0.43 then the company will be put in type C, the defender. And if number of time is over 0.43 the company will be classified as type B, the analyser. The classification criteria can be seen in Table 2.

**Table 2.** Classification rules

Rule	Group						
	A	C	B	B	A	C	B
(Q >= 0.43)	/			/	/		
(C >= 0.43)		/		/		/	
(T >= 0.43)			/		/	/	
B (0.23 <= (Q, C, T) <= 0.43)							/
R A L concept	R, L	A, L	R, A	L	R	A	R, A, L

For example, if both quality and cost is over 0.43 then the company will be classified as type B. Another example, if the company tends to keep balancing for their

strategy (the number of quality, time, and cost are between 0.23 and 0.43) so there for they should consider the entire of RAL concept.

### *Model building*

The analytical models have been developed and in preliminarily tested when studying global manufacturing strategies (GMSS) in about 100 deep case company studies in about 10 countries all over the world. These analytical models are different to innovator (focus to quality), analyser (focus to flexibility), and defender (focus to costs) types of industries.

Together with Q, C and T, flexibility is another key factor that determines the competitiveness of a company. These four main variables have constructed the core of a company's competitive strategy. Among them, T is what expressed as delivery in examined criteria. How much weight has been put on each variable can be calculated using the following formulas (Takala et al. 2007).

$$Q\% = \frac{Q}{Q+C+T}$$

$$C\% = \frac{C}{Q+C+T}$$

$$T\% = \frac{T}{Q+C+T}$$

$$F\% = \frac{F}{Q+C+T+F}$$

The competitive level of prospectors focus to Q% therefore weighing factor by taking 1/3 power to Q%, and smaller F% gives higher ranking, while the bigger Q%, T% and C% the better. The analytical model for CI to fit type A:

**Prospector:**  $\phi \sim 1 - (1 - Q\%^{\frac{1}{3}})(1 - T\%)(1 - C\%) * F\%^{\frac{1}{3}}$

For competitiveness analysers focus to F%, balancing Q, T and C. Bigger F is better in the group, and the smaller deviations between criteria, the better.

**Analysers:**  $\lambda \sim 1 - (1 - F\%)(ABS(\Delta Q * \Delta T * \Delta C))^{\frac{1}{3}}$

The competitive level of defenders focus to C%, therefore weighing factor by taking 1/3 power to C%, and “the smaller F% the better and the bigger C%, T% and Q% the better” The analytical model for MSI to fit type C (Takala et al. 2007, 2008.):



**Defender:**  $\varphi \sim 1 - (1 - C\%^{\frac{1}{3}})(1 - T\%)(1 - Q\%) * F\%^{\frac{1}{3}}$

Reactor type companies are not defined mathematically, as they follow uncertainty strategy and C T Q criteria weights variation is high.

#### 4.4 Critical Factor Index

When researchers are measuring customer satisfaction, first step is to study the company's service process. The study must be focused to the process operations which produce different attributes of service. Following on the literature of adaptive organization we construct the following approach to measure companies' performance over list of factors (see Table 3 and 4).

The connection between process operations and the attributes of services is really important because attributes arose in operations. In this way, it is easier to improve customer satisfaction on the basis of the customer feedback (Kim & Arnold 1996).

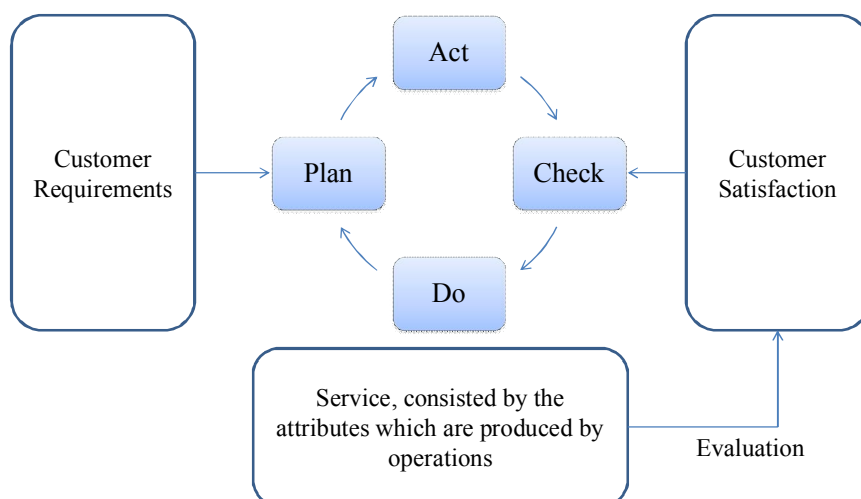
**Table 3.** Sense and response attributes list

OP SENSE & RESPONSE
ATTRIBUTES
<b>Knowledge &amp; Technology Management</b>
Training and development of the company's personnel
Innovativeness and performance of research and development
Communication between different departments and hierarchy levels
Adaptation to knowledge and technology
Knowledge and technology diffusion
Design and planning of the processes and products
<b>Processes &amp; Work flows</b>
Short and prompt lead-times in order-fulfilment process
Reduction of unprofitable time in processes
On-time deliveries to customer
Control and optimization of all types of inventories
Adaptiveness of changes in demands and in order backlog
<b>Organizational systems</b>
Leadership and management systems of the company
Quality control of products, processes and operations
Well defined responsibilities and tasks for each operation
Utilizing different types of organizing systems (projects, teams, processes...)
Code of conduct and security of data and information
<b>Information systems</b>
Information systems support the business processes
Visibility of information in information systems
Availability of information in information systems
Quality & reliability of information in information systems
Usability and functionality of information systems

**Table 4.** BSC attributes list

ATTRIBUTES
Expectations
external structure)
customer satisfaction)
customer loyalty)
brand)
internal process)
process improvement)
innovation)
information technology)
learning and growth)
know-how)
knowledge)
competence)
engagement)
trust)
performance-to-promise)
professional relationship)
openness)
benevolent collaboration)
empathy)
business performance)
financial)
sales)
customer)

When the service is divided into operations, each of which produces attributes for the service, it is possible to monitor the improvement of customer satisfaction both internally and externally. This is a vital thing to achieve improvements (see Figure 13).



Source: Rautiainen and Takala (2003).

**Figure 13.** Process of internal monitoring

After studying the company's service process, it is possible to establish customer opinions and feelings. In the study of Rautiainen and Takala (2003), information was collected with questionnaire. It was the measured attributes that takes customers' expectations and experiences, impressions of competitors, and direction of development into account. In order to maintain the reliability and validity, high the questionnaire was short, clear, and easy to answer. The more comfortable the questionnaire is to answer themore reliable and valid the answer is and in addition, more answers were also given. Rautiainen and Takala used a simple numerical estimation-scale from 1 to 10. The wide scale makes it easy to find differences between attributes. The questionnaire measures expectations, experiences, performance proportioned to competitors, and direction of development. Figure 13 introduces the way how the information was gathered (Vavra 1997; Rautiainen & Takala 2003).

Rautiainen and Takala analysed answers so that SD, averages, and some distributions in the beginning were calculated. SD and averages were calculated on the grounds of evaluations of certain attribute. The distributions were formed the numbers of the answers compared to all the numbers of the answers. Table 1 introduces an example what the preliminary analysis produced (Rautiainen & Takala 2003).

Attribute	Experience (1–10)	Expectation (1–10)	Direction of development		
			Worse	Same	Better
Attribute 1			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Attribute 2			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Source: Rautiainen & Takala (2003).

**Figure 14.** Model of questionnaire

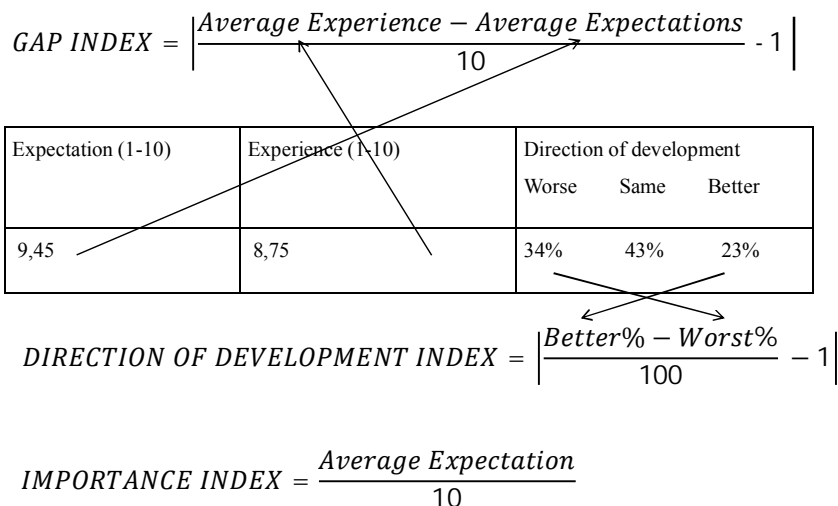
This model uses the numbers and distributions which were calculated during the preliminary analysis. Gap analysis compare differences between customers' expectations and experiences. With this basic tool, those attributes where the experiences were more insignificant than expectations can be identified. This kind of attributes can be chosen for development subjects.

Based on the study of Rautiainen and Takala, customer questionnaire process have been developed, and some parts and analysing methods have been added and modified for this case. Developed customer questionnaire process is a three-phase method (Rautiainen & Takala 2003):

1. *Phase:* Current state analysis. Tools: Personnel interviews, in-depth interviews, and observing.
2. *Phase:* Identify factors and attributes which affect quality and success of service. Tools: The company's vision, mission, values, and strategy is the information from the first phase, business process descriptions, and service descriptions.
3. *Phase:* Analysis of the questionnaire, observations, and conclusions. Tools: Customer questionnaire results analysing tools.

Questions have to be in line with strategy of the company so that all the customer groups are represented in the right proportions. As Rautiainen and Takala (2003) noted, first step is to get acquainted to the company's service process. This can happen with interviews and observations. After this, it is possible to move on the second phase and build the questionnaire. In third phase, the results will be analysed and it is possible to make conclusions.

Gap index, Direction of development index, and Importance index are introduced in formulas presented in Figure 15 (Rautiainen & Takala 2003).



**Figure 15.** Indices equations

Value of 1 for direction of development index means that performance has remained on the same level. Value lower than 1 means that it has developed, and more than 1 means that it has decreased. Respectively, in Gap index value 1 means that there is no gap, value over 1 means that experiences are lower than expectations and value under 1 means conversely. In Importance index, the larger value means a more important expectation of the attribute. (Nadler & Takala 2010.)

Critical Factors Index (CFI) was developed for the case-company. By this tool, it is possible to find out critical factors of the service. The smaller value corresponds to a more critical factor.

$$CFI = \frac{SD_{Expectation} * SD_{Experience}}{IMPORTANCE\_INDEX * GAP\_INDEX * DIRECTION\_OF\_DEVELOPMENT\_INDEX}$$

CFI is a more comprehensive and practical method than emphasised IMPL because it observes also SD of expectations and gap between customer experiences and expectations. In addition, it is possible to add Competitor index to denominator of CFI if determination of Competitor index is possible. Results of CFI can be multiplied by 10 or 100 to make it easier to monitor the values.

Indexation was developed and tested in the industrial management unit of department of technologies at the University of Vaasa. The idea, behind these measurement tools, was to develop a fast and reliable method for management purposes to sense and respond to customer satisfaction. The method reveals which attributes are critical within the business process and therefore supports the management to make decisions concerning which attributes should be improved. (Ranta & Takala 2007.)

## 5 DATA COLLECTIONS

Countries development indicators are monitored by different institutions. Gross Domestic Product GDP is widely used for academic research and business estimations. For the purpose of Social housing policy comparison of Finland, China and Thailand the author gathered data for forty eight years of Gross Domestic Product per capita and urban population growth from the World Bank, World Development Indicators database. For the Human Development Index HDI the data interval was 30 years, and values were calculated for every five years timespan. Source of the data was the Human development reports statistics of united nation development programme, Millennium Development Goals Database. Additionally questionnaire generated from the hierarchy model with Analytical Hierarchy Process AHP software “Expert choice”, were filled by national housing authorities, social housing sector stakeholders, housing companies’ representatives and university researchers.

Out of twenty selected representatives seven participants answered in China, 7 out of 16 answered in Thailand, as well as twenty two informants out of 30 answered in Finland. They filled in the provided questionnaire either as paper format or using the online web based tool. Based on the answers of the pairwise comparison, calculations allow to solve importance weight value for each factor and to compare overall the ranking of criteria in complete synthesis. Individual judgments were combined in country profiles and ranked the consistency of the answers to validate the logic of the respondents.

Structured interviews with decision makers in the social housing sector, housing managers and operators, as well as residents and tenants were conducted. The topics of discussion were the applied policies, the existing elements of social support for low-income population; the role of social housing as a part of the whole housing market; targets, indicators and goals, what should be the share of social housing in existing housing stock and in new production, as well as future development trends and challenges in the implementation of policies. Apartment complexes were visited and awarded social housing projects were inspected to get representative sample of the housing environment.

### 5.1 Companies data collection

During organised company visits main goals and decision making process was discussed. In sequential workshops hierarchy of aims was created and questionnaire was generated with Analytical Hierarchy Process AHP software “Expert

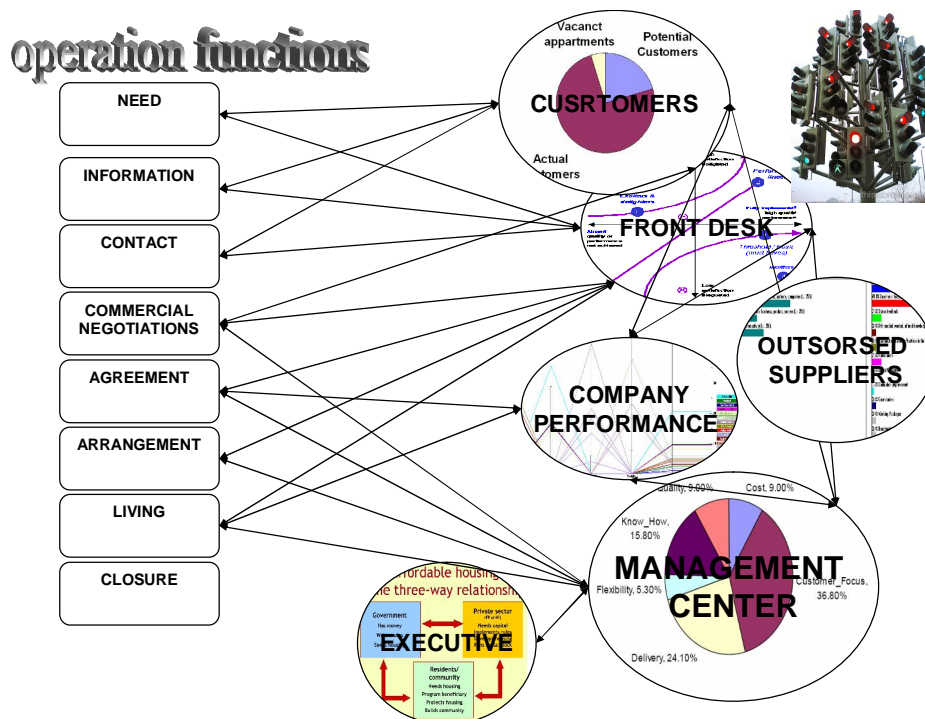
choice". It was distributed to national housing authorities, social housing sector stakeholders, housing companies' representatives and university researchers. Firms' financial statements were used to see how it reflects possible business orientation. After building up the empirical knowledge about corporate strategy the competitive priorities model was constructed.

Detailed data for two companies was gathered and used in the results and analysis parts presents later in this work.

Company A is a real estate company owned by the City of Turku. It is non-profit organization, with government set limits for operation profitability. The company is concentrated on rental housing. The organization and price setting follows absorption principals. It offers safe and affordable rental homes for people in different life situations. It owns a wide variety of residential options in blocks of flats, terraced houses and small private homes throughout Turku. Each apartment is equipped with the basic utilities. It owns almost 11 000 homes in city of Turku. The organization has yearly turnover of 70 M €, administration, maintenance and repairs sum up to 2/3 and finance costs are 1/3 of costs. There is a government set maximum limit on profit. 40 questionnaires forms were collected in the company to compile list of critical factors. Pair-wise comparison questionnaire were conducted by the CEO, managers and staff.

Company B is a real estate company owned by both by municipalities and other private organizations. It is partly non-profit Company A follows absorption principals in major part of rental housing. It has main focus on constructions projects, providing different forms of Finnish housing system including rental homes. The company is operating in main cities in western part of Finland. It holds 10 000 homes. The firm has yearly turnover over 70 M €. Information was collected from interviews in workshop and tutoring events. Approximately 25 questionnaires were collected in the company, filled by the CFO, District manager and company personnel.





**Figure 16.** Rental housing operational functions

It is quite revealing to separate rental housing operation function (Figure 16) between the departments and interest groups within the satisfaction delivery chain to find out how their experience and perception may differ from one another.

Two types of questionnaire BSC and OP used for BCFI calculation. BSC (Balanced Score Cards) questionnaire is targeted on strategic holistic resources, and OP (Operations) questionnaire is enquiring holistic operational resources to be measured in different manners. BSC questionnaire has 18 attributes to be measured; 21 attributes stand for OP questionnaire (see appendix).

The questionnaires were applied for three different groups of respondents for better reliability of the results (‘the voice of organization’): ‘Hosting’, Management’ and ‘Rent’. Here the author represents the results of the combined calculation - from all the three groups of respondents together.

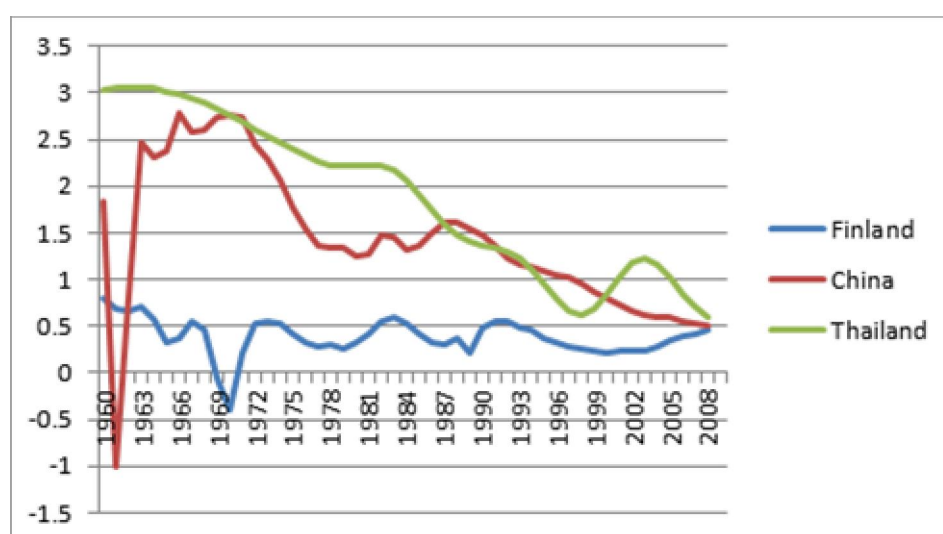
In case of Company A, 10 respondents took place in research and 8 respondents participated from the side of Company B. The number of participants may be considered as sufficient for making strong judgments and suggestions. But the number of participating companies could be bigger.

## 6 RESULTS

Results together are deduction of trends, policy shifts etc. and some future trends for efficient operational management in organizations/companies.

### 6.1 Macroeconomic indicators

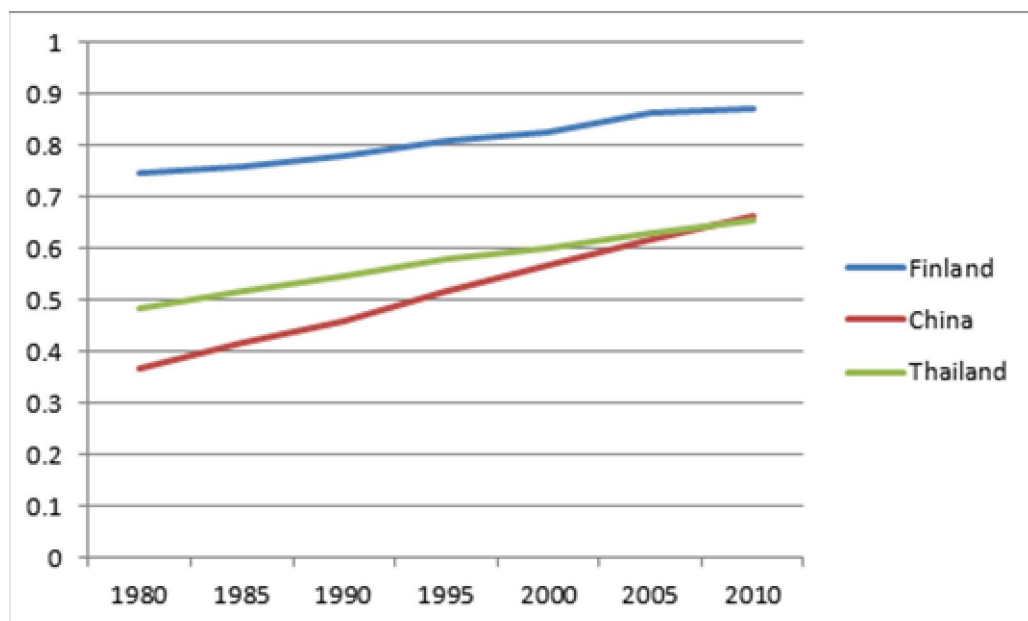
Economic development and population growth between countries differs a lot (Figure 17 and 19), but the latest data shows they are all reaching for 0,52 % annual population growth:



Annual population growth rate for year  $t$  is the exponential rate of growth of mid-year population from year  $t-1$  to  $t$ , expressed as a percentage.

**Figure 17.** Population growth (annual %)

The Human Development Index HDI for the period 1980–2010 demonstrates in Figure 18 similar trends for positive development, with fairly equal growth factor for Finland and Thailand, while China shows steeper growth.

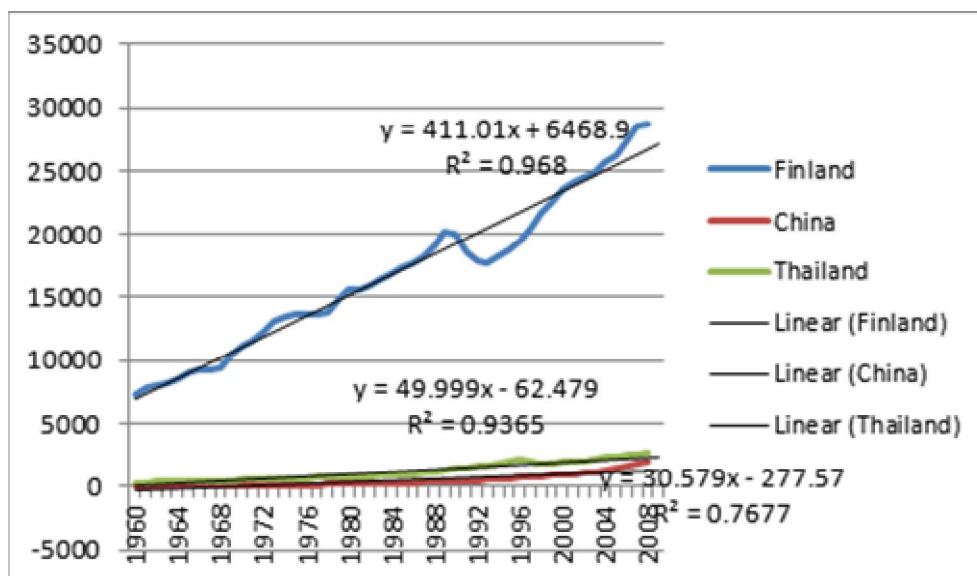


**Figure 18.** Human Development Index (HDI)

HDI is an index used to rank countries by level of "human development". It contains three dimensions: health level, educational level and living standard.

In our data analysis we used multi tools for extracting regression and correlation results for the Income per person, Gross Domestic Product per capita and Urban population indicators for the historic period from 1960 till 2010. Similar tool was used by Mahmood (2012) and Park (2011).

The economic conditions in the three countries differ as China and Thailand GDP figures are much lower compared to the Finnish level as it is visible from Figure 19. Finnish income per person grew much faster over the period 1960-1989, while for the two Asian countries it was almost flat. This is of major importance for the economic and housing cycle.



Gross Domestic Product per capita in constant 2000 US\$. Source: World Bank World Development Indicators

**Figure 19.** Income per person,

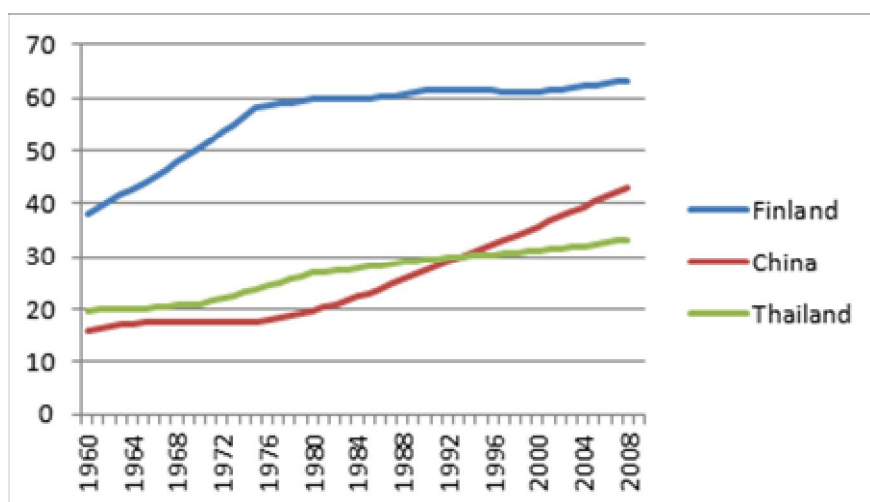
The data in Figure 19 shows that Chinese average income will soon equal those of Thailand. Table 5 shows that China is the only country with positive kurtosis, and the indicator with lowest standard deviation from the mean growth. As for Finland, while having the highest income still have also the highest deviation and variance from the growth rate.

**Table 5.** Descriptive statistics

	<i>Standard Deviation</i>	<i>Sample Variance</i>	<i>Kurtosis</i>	<i>Skewness</i>	<i>Minimum</i>	<i>Maximum</i>
Finland	5969.08	35629968.33	-0.80	0.24	7305.22	28626.73
China	498.67	248672.00	1.32	1.46	72.32	1964.71
Thailand	738.25	545009.92	-1.20	0.52	317.08	2640.29

The Urban population percentage indicator (Figure 20) suggest that Finland reached high level of urbanization much earlier than the Asian countries, and for period of 15 years, till 1975 reached about 60%, and kept relatively stable since then. China is experiencing increasing rate of growth in urban population from 1978, though not as sharp as Finland in the early period, still the current level is 44% and steadily rising. Compared to these countries Thailand hasn't seen sharp

increase in the urban population and the variation is the lowest in the compared group.



Urban population refers to people living in urban areas as defined by national statistical offices. It is calculated using World Bank population estimates and urban ratios from the United Nations World Urbanization Prospects. Source: United Nations, World Urbanization Prospects.

**Figure 20.** Urban population (% of total)

Within such framework of comparison, Thailand shows slow urbanization growth and lowest urbanization level situated between phase 2 and 3. Finland is well into stage 3 with social infrastructure in some living areas becoming issue and difficulties as aging population is in need of renovation old housing stock. Though China has stable economic growth, still shows features of stage 1 policy priorities.

**Table 6.** Descriptive statistic for urban population % indicator

	<i>Standard Deviation</i>	<i>Sample Variance</i>	<i>Kurtosis</i>	<i>Skewness</i>	<i>Minimum</i>	<i>Maximum</i>
Finland	7.34	53.91	0.37	-1.33	38.10	63.30
China	8.65	74.89	-1.00	0.65	16.00	43.10
Thailand	4.49	20.20	-1.38	-0.32	19.70	33.32

China and Finland exhibit similar deviation over the historic period, while Thailand has half of the variance, confirming the smoothest urban population growth.

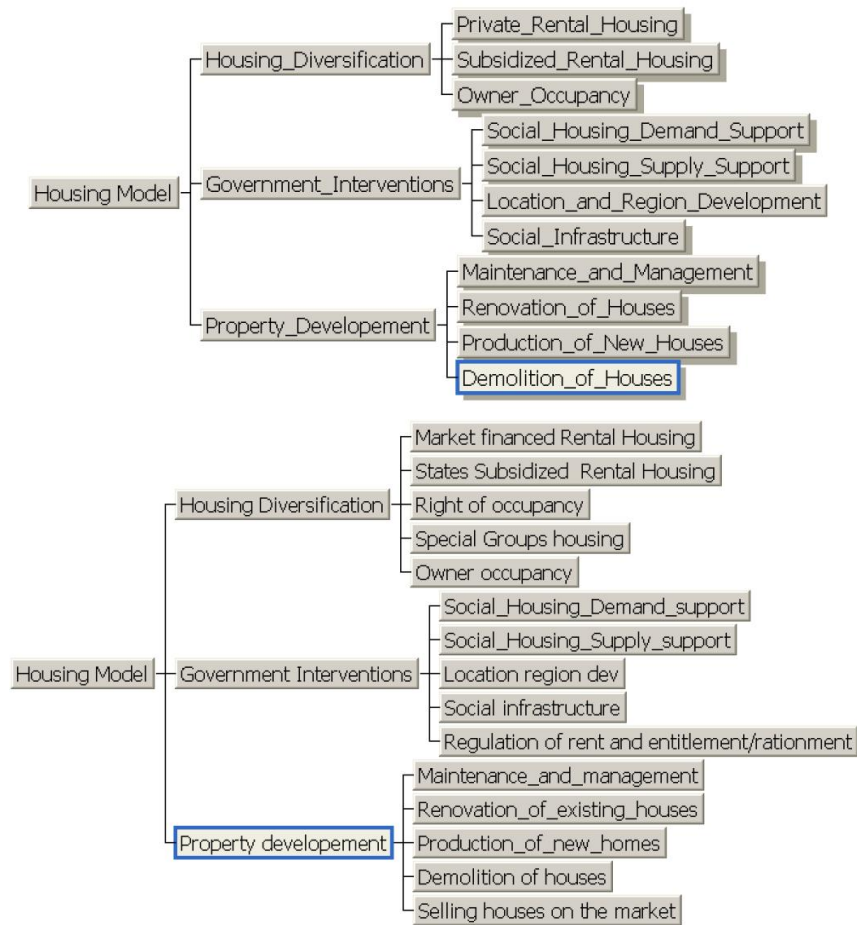
GDP growth, Urbanization rate and Human development index have been correlated with results shown in Table 7. All indicators show significant positive correlation. This can be explained with the fact that rural are people seeking higher

income at urban centres and this phenomenon is observed in our sample for all the countries, China having the highest values and Thailand coming close second. Finland showing lowest correlation value, both for Income per person vs. Urban population %.

**Table 7.** Pearson Correlation coefficients between Income per person, Urban population % and Human development index from year 1960 to 2008

<i>Country</i>	<i>Finland</i>	<i>China</i>	<i>Thailand</i>
Income per person vs. Urban population %	0.837	0.956	0.925
Income per person vs. Human Development Index	0.946	0.961	0.981
Urban population % vs. Human Development Index	0.899	0.998	0.997

On this basis, hierarchy of criteria for decision making was derived, with identical main level criteria and countries modifications in the sub-level settings list (see Figure 21), shaping the decision problem.

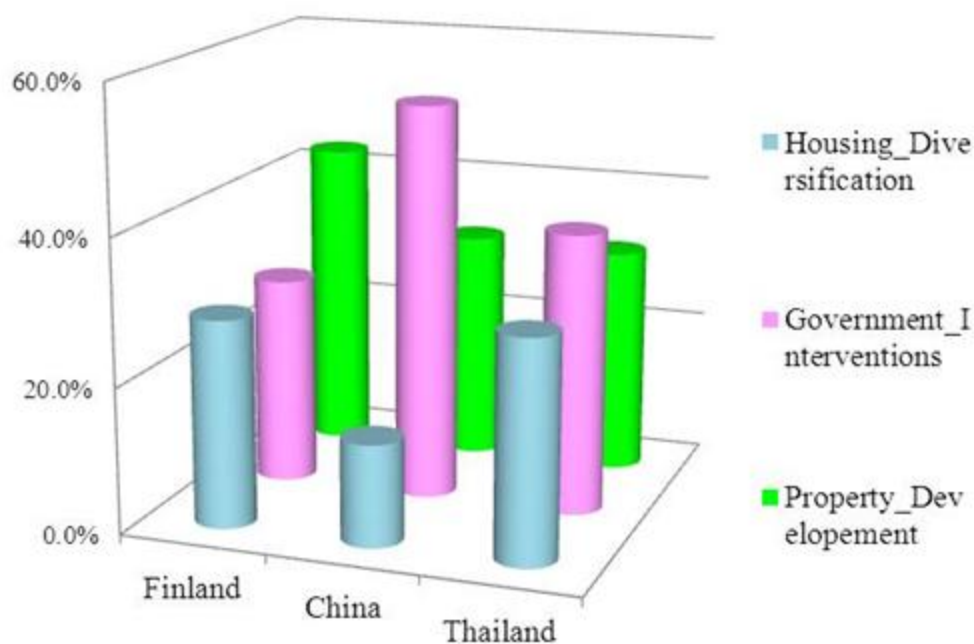


**Figure 21.** Hierarchy trees for the housing policy decision making (Asian and EU/Finnish models)

Pairwise questionnaire is generated from such hierarchies and distributed to the participants with explanation of the method and manual for filling. AHP was used to compare SH policies on country level, as well as strategic priorities inside companies. AHP is also the testbed when trying to connect these upper level priorities with operation processes.

## 6.2 Policy comparison

After all the information from the questionnaire was analysed, the calculated relative importance values are presented in Figure 22. Each country profile represents the combined participants' evaluation and the weights of three major policy factors sum up to 100%



**Figure 22.** Main policy factors weightings among the three countries

As it is evident from the figure, government intervention is the single most important factor for the social housing policy of China. That comes as no surprise given the centralized decision structure that is dominant in the country. The same criteria also have the highest priority in Thailand, though in that state all three measures are well balanced. Contrary in Finland property development have the highest priority with 42 % importance, 11 more than the levelled China and Thailand. Government intervention and housing diversification are of equal value in the Scandinavian country too.

**Table 8.** Main factors importance present values

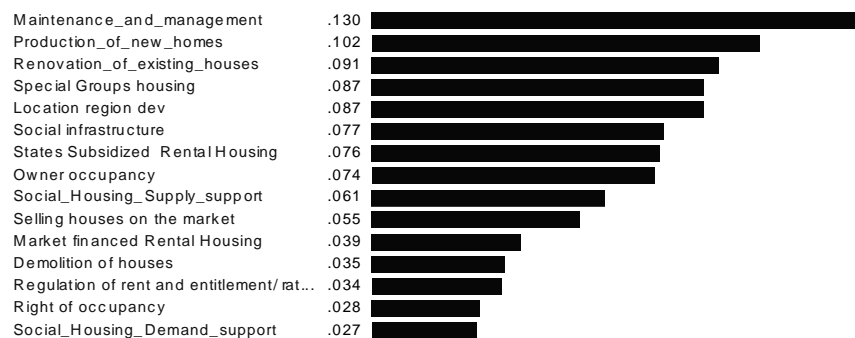
	<i>Finland</i>	<i>China</i>	<i>Thailand</i>
Government Interventions	28,6%	54,3%	38,5%
Property development	42,9%	31,7%	31,2%
Housing Diversification	28,5%	14,0%	30,3%

Inconsistencies in the answers were measured at 0,007 for Finnish sample, 0,01 for Chinese and Thailand , which are all in the acceptable limits for the model.

When head to head comparisons between main factors are made, housing diversification and government intervention has the result with highest variance 0.238.

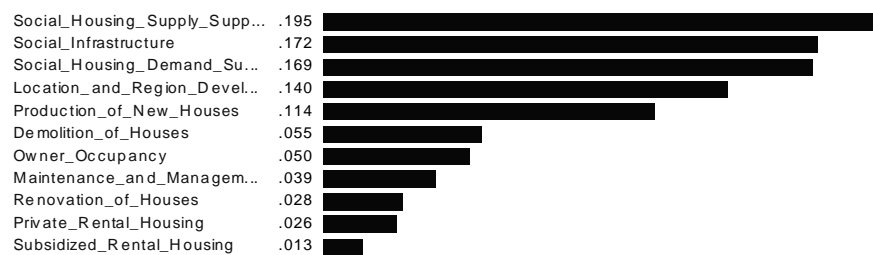


This indicate greater disagreement between respondents The geometric average value is 1,57, while for same comparison between government intervention and property development average is 1.22 in a scale of 1 to 9. Results are showing that the government intervention have priority over housing diversification and property development in head to head comparison for all the countries. In the same way Property development is more important than housing diversification with value of 1.65.



**Figure 23.** Complete hierarchy weights for Finland

In figures 20 to 22 all the factors are sorted according there values with respect to the overall Social housing policy. The small gap between the factors in Finnish results indicates more balanced strategy, and advanced culture of private housing system.



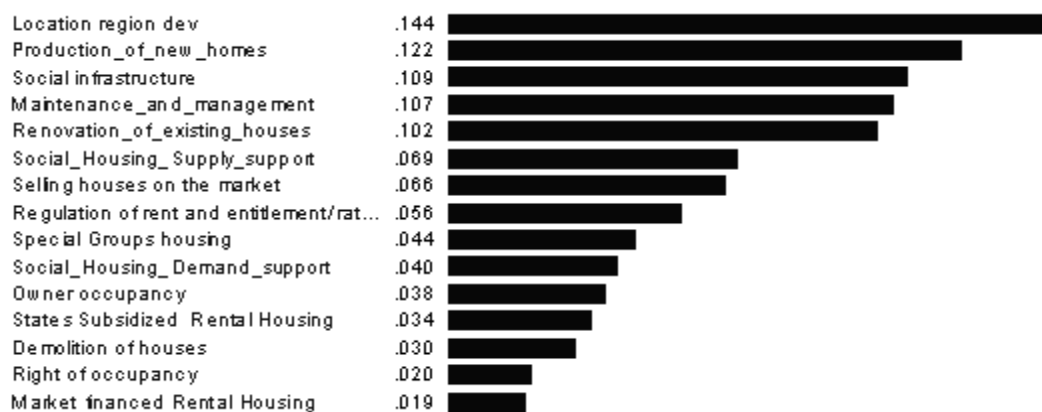
**Figure 24.** Complete hierarchy weights for China

In China we have group of five very important factors and big importance gap to the last 6 elements. Strong urbanisation and fast economic growth present big issue that need to be addressed by central government as social housing supply and demand are of highest priority. There is strong state control and trust in it. Social infrastructure and stability are a big concern having in mind the lack of organization and resources for distant and rural population groups.



**Figure 25.** Complete hierarchy weights for Thailand

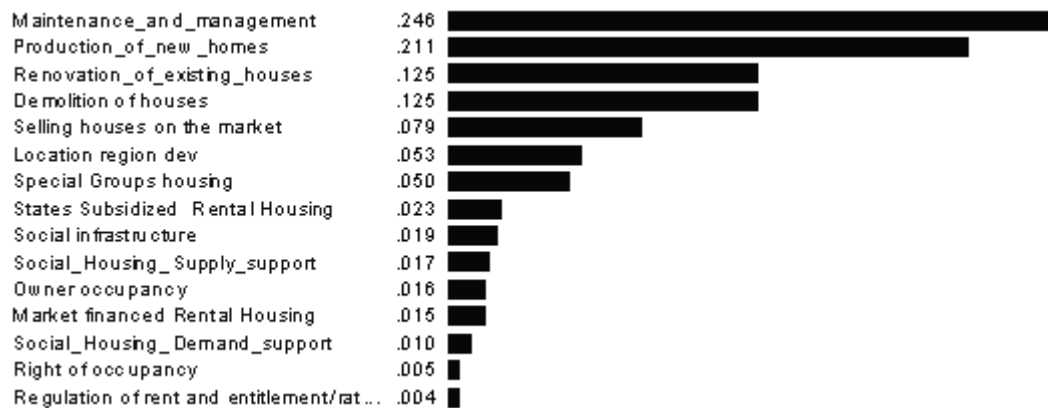
Social structure issues are influencing the prioritization in Thailand as well, but there maintenance and management and private ownership are of high significance. Social stability is an issue, as the country lacks confidence in public housing. The results suggest also China and Thailand lack's renovation efforts for old houses, which is a reason for the partially bad housing conditions present there.



**Figure 26.** Politicians overall priorities synthesis

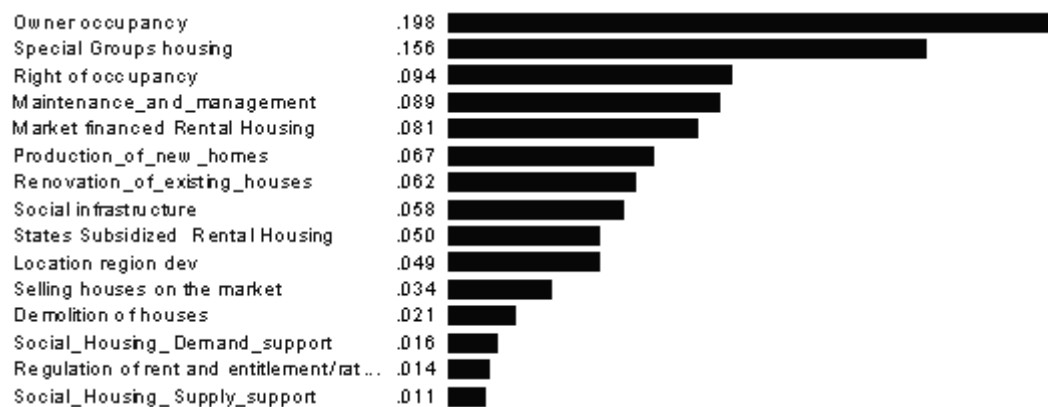
Politicians put greater value on the social influence of housing (see Fig. 27). They are interested in social structure development in living areas. Also on focus is how different housing features and actions are saving this value. They take attention how housing in shaping the living area. Production of new homes and maintenance and renovation of existing housing stock appears to be high priority. It can be seen that there is no much importance on owners' occupancy or rental housing.

The focus is on the quality of homes. Evidence of this is the high ranking of the production, maintenance and renovation. Managing the house stock and keeping it in line with demand allows getting higher value from the current assets.



**Figure 27.** National authorities overall priorities synthesis

From Figure 28 is seen that National authorities are interested in the development of current real estates and assets by maintenance and management. It is interesting to observe also there emphasises new homes production. The interest in renovation of existing home and demolition of houses are equal. on the other end of the scale, Housing ownership does not play high role in the decision making.



**Figure 28.** Areal authorities overall priorities synthesis

Areal authorities group have overall priority owner occupancy, followed closely by groups housing (Fig. 29). They are putting more importance to the form of rental housing, emphasising on housing diversification Maintenance and renovation and new production are above average level.

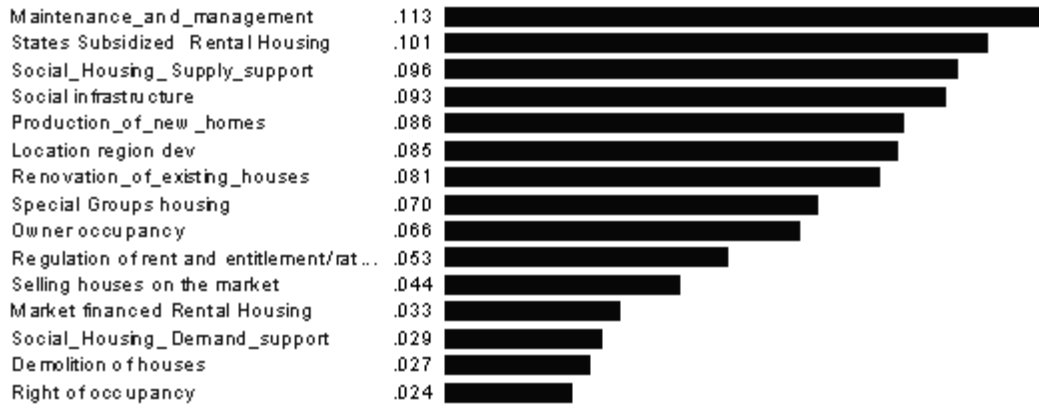


Figure 29. Housing operators overall priorities synthesis

Housing operators (Fig. 30) are placing in higher order the main value of current real estates and new state subsidised housing supply. Social and areal development is also in relatively high in priority.

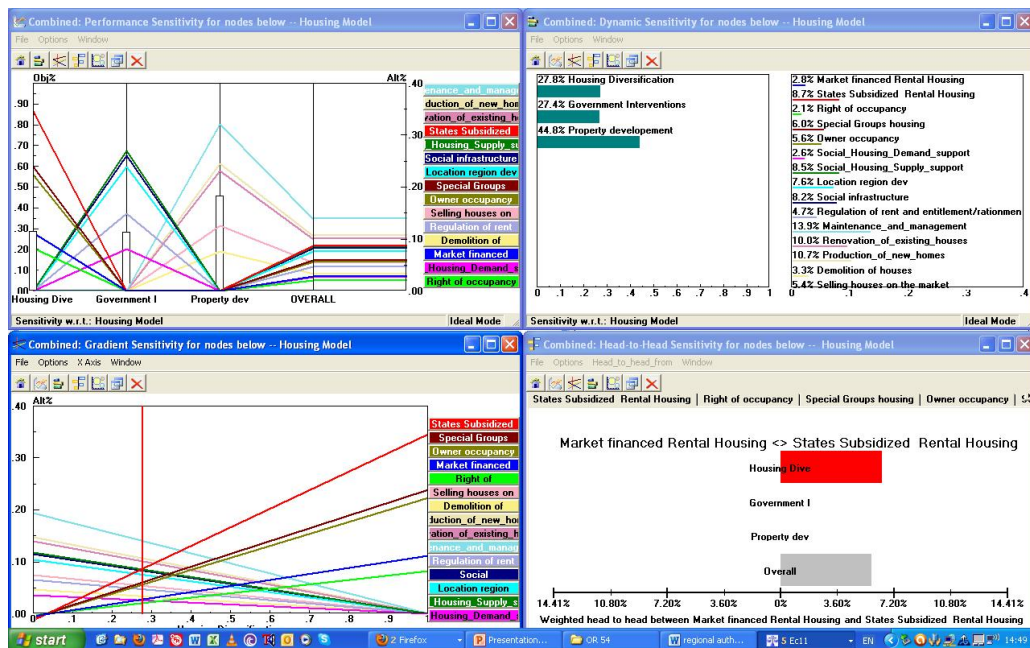


Figure 30. Scenario analysis options

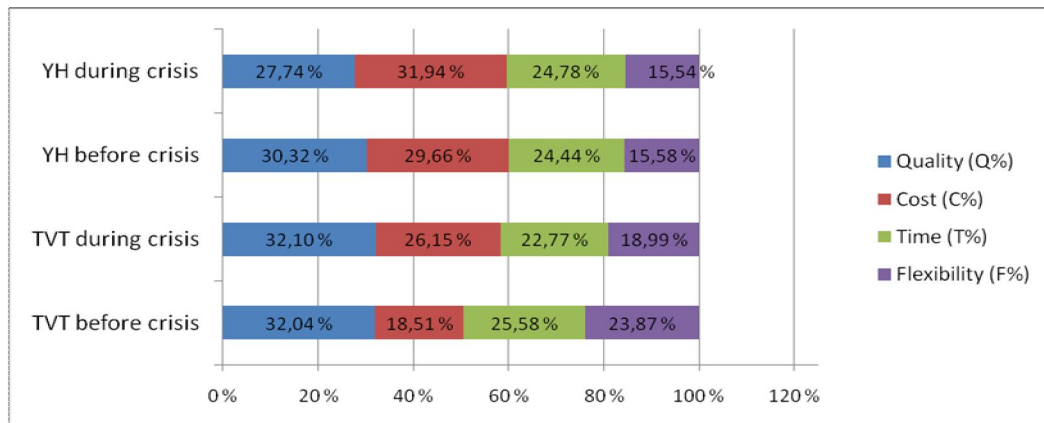
The identified trends can be used in scenario analysis, Fig. 31, to calculate the direction of change and the variation of main criteria. Empirical connections can be made with main criteria values to rearrange the complete hierarchy weights depending of global economic figures.

### 6.3 Companies strategy

Results got analysed by Analytical Hierarchy Process (AHP) and Sense and Response methodology to reflect the multi-focused decision making and evaluates each particular factor.

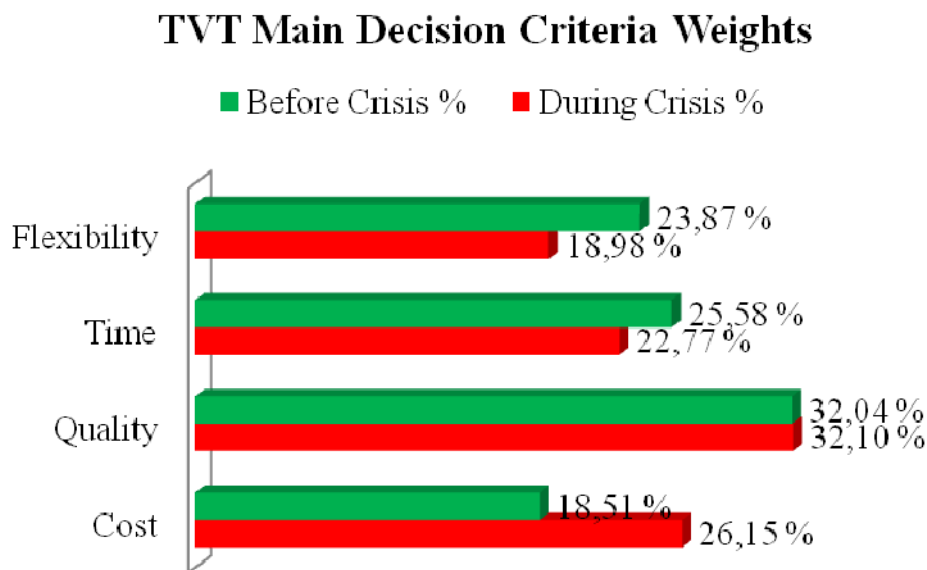
Main criteria were given weights considering two situations-before and after Financial crisis (2008) that started from US real estate sector crash, to study the effect of the economic environment on the decision making process.

Criteria values showed that on company level B case the cost became more important criteria for operation management. In A case we see the same rise of cost as major criteria, but Quality still remains main operational criteria. Priorities order changed more in Company A case than in B.



**Figure 31.** AHP main criteria weights

From the results it is clear that in case company B the competitiveness level diminished significantly in Analyser and little in Prospector group. The defender competitiveness category rose up and remains the highest position in operative competitiveness. For Company A, the biggest increase is also in Defender, but it rose in Prospector category, and we strongly believe that its orientation is matching this group.

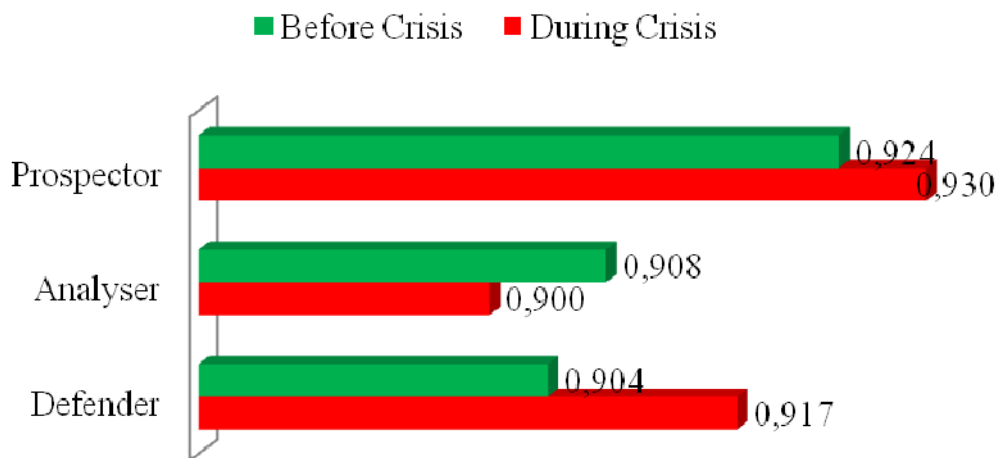
6.3.1 *Company A*

**Figure 32.** Main criteria weight results

Main criteria values shows that the quality focus remains the most important criteria's for successful business, cost, timeliness and flexibility expanded their importance. The company more and more needs to achieve its quality goals in especially cost oriented manner. Flexibility priority takes the blow in the housing crisis situation and end up as the least important variable. Before crisis flexibility value turns out to be higher than expected. High level of flexibility is needed in companies looking for new markets or market share growth. Flexibility is a core competitive advantage in improvement of added value for customer and redesign of business cycle. The increase of market share is not a priority for Company A, neither in Turku or other areas. In this context from the high flexibility results Company A is unnecessary losing resources, efforts and profit. As housing market is capital intensive business with long life cycle of products the company will not put itself at risk, as the business entrance barrier is high.

We calculate a numeric value for a competitive index in different types of business groups such as prospectors, analysers and defenders according to Miles and Snow (1978) organization types.

### Competitive Index Value in Strategic Type Category



**Figure 33.** Competitive index results for Company A

From these results Company A performs as a prospector type of company in the segment of social housing market. Finnish Government offers direct subsidy supports for persons with economic issues, health problems, immigrants, unemployed, bad credit histories, which have low to no chance to be accepted as customers for the private home rentals. State authorities also give indirect credit guaranties to cap the interest rate to 3,4% on real estate properties offered to these individuals. This market niche is a 40% of the company A clients. In this sense it is unique service function fitting.

Defender type of strategy is limited to cost competition. While company A is keen on keeping its main customer group, price sensitive clients, it also possible to increase profit margin by adopting analyser features in segments like family and luxury, city centre wooden houses. By adding additional competition issues in the core competence portfolio, company A services are moved up from continuous improvement to mass customization concept.

Major competition issues in housing markets are price, location, size, condition and security. company A performs as a defender type of company in the regular housing market, being price competitive to private housing organizations. Due to the government support system company A can reallocate profit to keep low rental price level. Housing and real estate overall is capital intensive business, which decodes to interest rate variation having high impact on rents. Government support system limits the effect of interest volatility to prices.

Time gap between tenants is one big loss generator. Streamlining this process with maintenance counterparts decreases vacancies rate. The housing management function is divided between company own unit and outsourced to outside companies. According to customer, the service provided by the own unit is valued higher by tenants. Cost analysis showed that the outside companies are more expensive than own work.

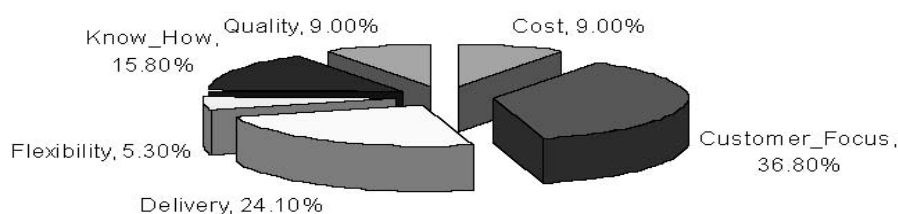
At the same time, advanced service segmentation between the different customer groups and optimal process design to reach the delight experience was pinpointed as the best option for profit increase.

Company A aim is to keep strong position in Prospector type of company in social housing market. It has a strong core competence operating in this market area without any competitors. This strategic advantage can be exploited in various ways. Pricing can be increased with the value of the administrative work done inside company A, and by additional standardization of the whole service process.

### 6.3.2 *Company B*

Following step is connecting the comparisons to get the priorities of the alternatives with respect to each criterion and the weights of each criterion with respect to the goal. The local priorities are then multiplied by the weights of the respective criterion. The results are summed up to get the overall priority of each alternative shown in Figure 35 and 36.

#### Competitive Priorities of Property Management



**Figure 34.** Main Criteria value weight



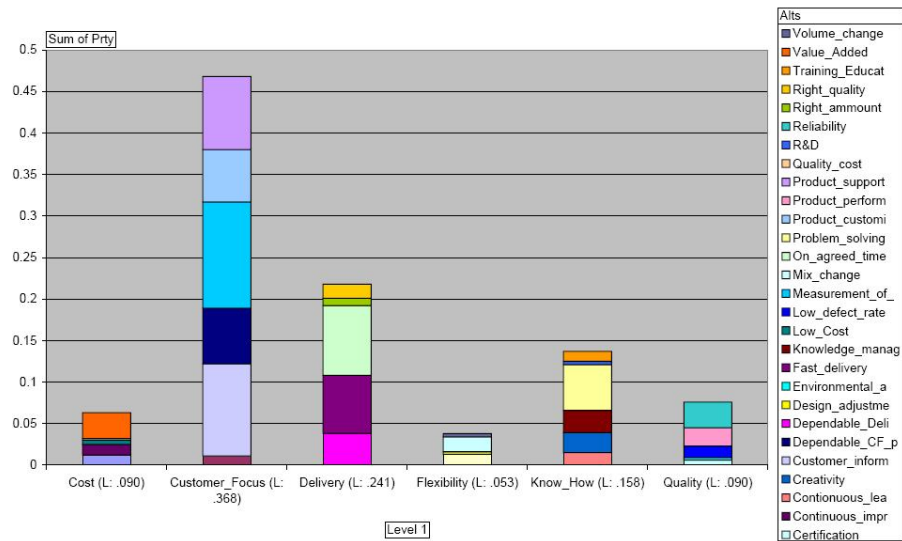


Figure 35. Sub-factors values formation

The next step in our work is to compare the weightings of the criteria with the database or results from 82 earlier case studies. We do this by calculating a numeric value for a competitive index in different types of business groups such as prospectors, analysers and defenders. The indexes have been calculated following the equation under the group description: Q,T,C.F represents normalised values of the main priorities Quality, Delivery, Cost and Flexibility respectively.

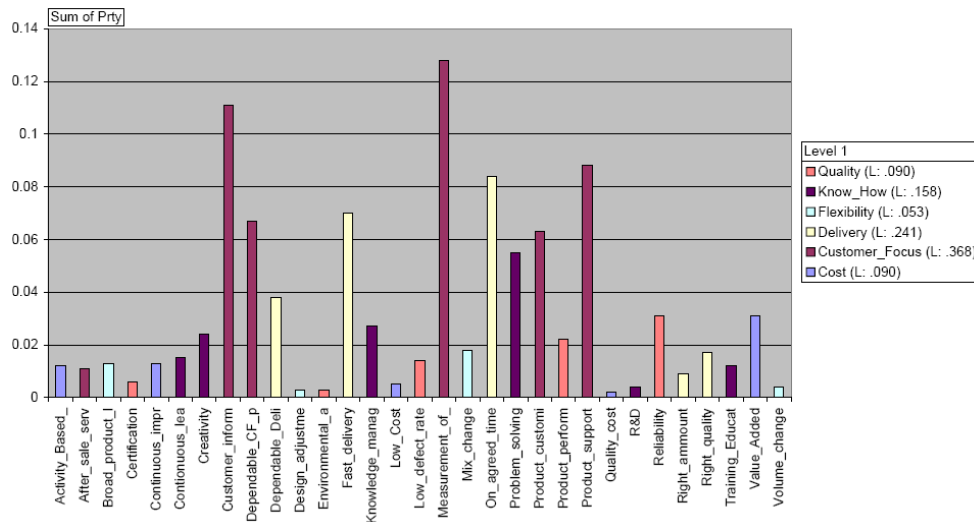
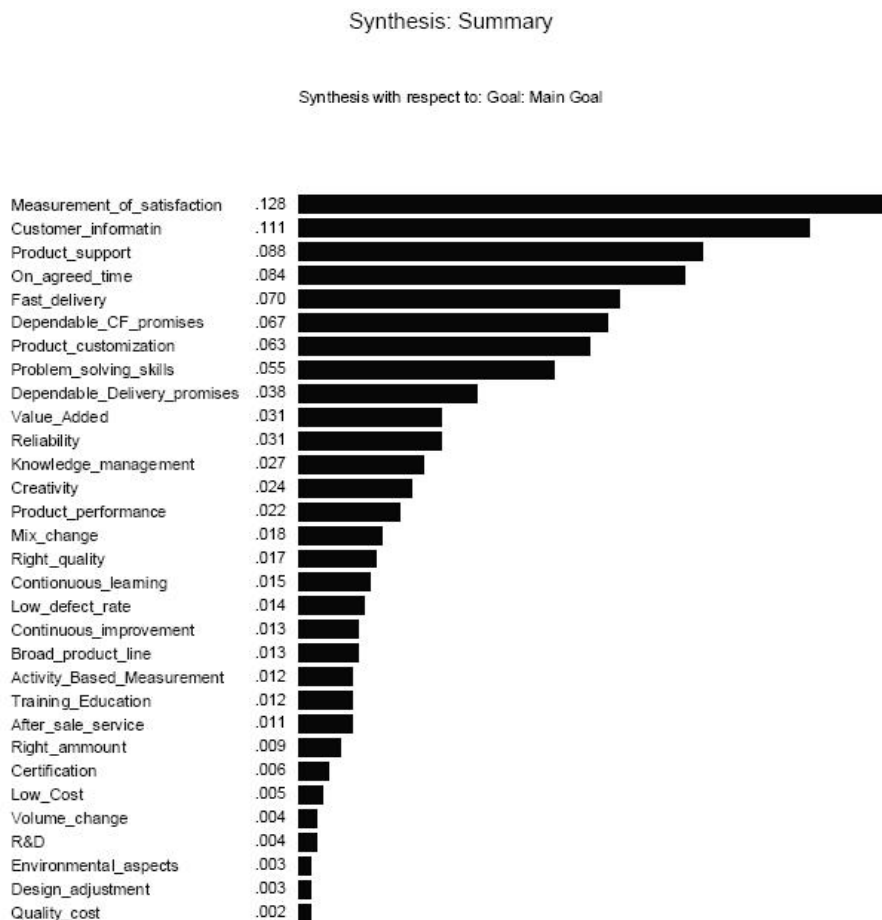


Figure 36. Sub Criteria Ranking



**Figure 37.** Synthesis summary

**Table 9.** Global Competitiveness Index Values

Company	Group A Prospectors (rank)	Group B Analyzers (rank)	Group C Defenders (rank)
<i>B</i>	<b>0.9242</b> (64) of 82	<b>0.8932</b> (43) of 82	<b>0.9242</b> (29) of 82

Table 9 represents the ranking of the researched departments in comparison to reference group of 82 earlier case studies. Index value of 1 represents the ideal competitive position in the groups.

Main criteria formation from sub-factors values shows that the most important criteria's for successful business are in customer focus and delivery. This could be true, because customers need to achieve their goals in quality and especially

profitable. And those providers who support the customers achieve their goals keeps their agreement valid. This can be seen a win-win situation as well.

From the business description point of view that business process in property management is usually very standardized means that only competition is with price. This is true, if the focus is in simple property management agreement between customer and service provider. The main financial success must be calculated from yearly outcomes and balance sheet but also from long term real estate value and profitable. The investment, real estate values and incomes in long term in housing are so large that one or couple year profit and low cost level are nothing beside those factors. That is also why the customer focus is so important.

From user customer point of view, why they pay for the housing and the services to the real estate owner? They need place to live well, feel safe, keep their property safe and so on. Their living must be as less as possible interrupted and the feeling of safeness and satisfaction must be going on all the time. This is also incomes to owner and that is why the delivery is so highly recognized. When the satisfaction is interrupted there must be help available in very short time.

The satisfaction and the changes must be observable fast. That is why the customer information is so important to get. The housing holds out little disadvantage and problems because moving from house is difficult and expensive. But if the movement away from real estate begins it can be very faithful. To find new customers cost money requires marketing and sale potential and at the same time the incomes are lost in real estate. The costs in real estate are very fixed and those are almost impossible to decrease while new customers are still under procurement. Also rumours can spoil the reputation of real estate which means that rental level must decrease to get new and more customers.

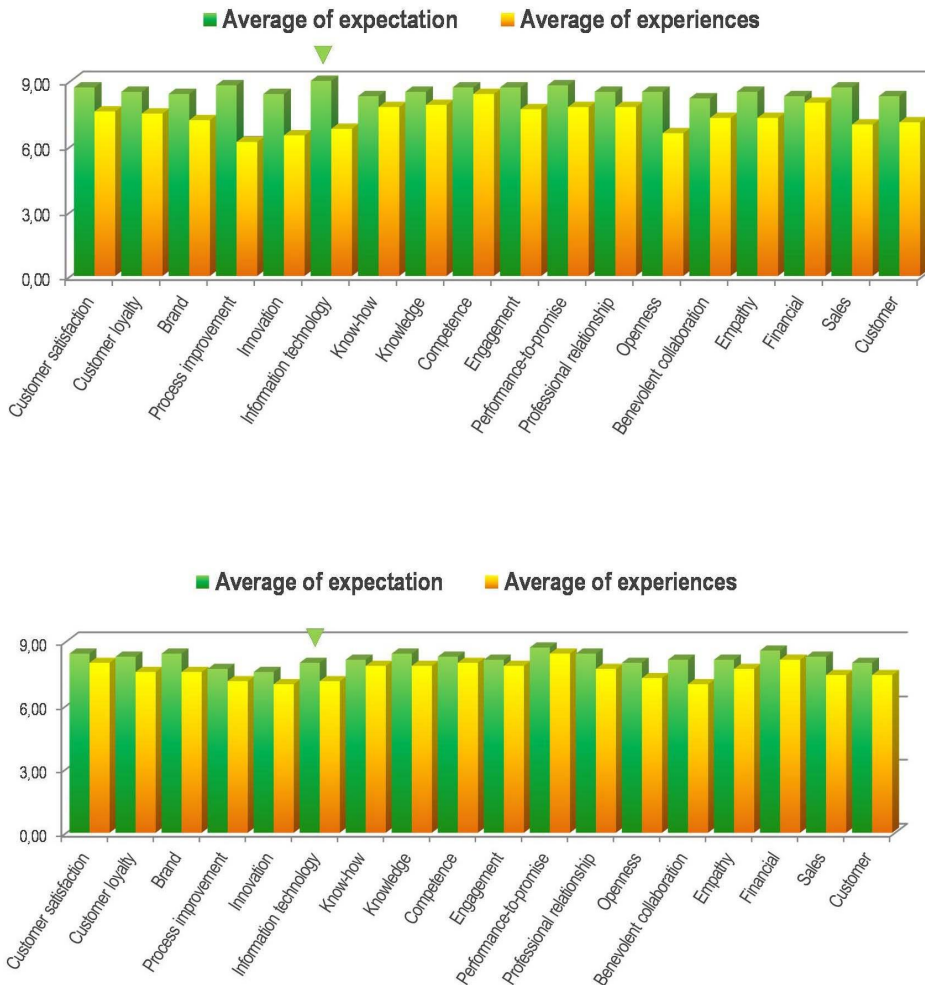
## 6.4 Operation priorities

This sub-chapter presents the results of the combined calculation - from the three groups of respondents for better reliability of the results: 'Hosting', 'Management' and 'Rent' together. In the case of the Company A, 10 respondents participated in the research and 8 respondents participated from the side of the Company B. The number of participants can be considered as sufficient for making robust judgments and suggestions.

It is reasonable to begin with tracing similarities in what the case companies expect to achieve in the future and consider more important for the future competi-

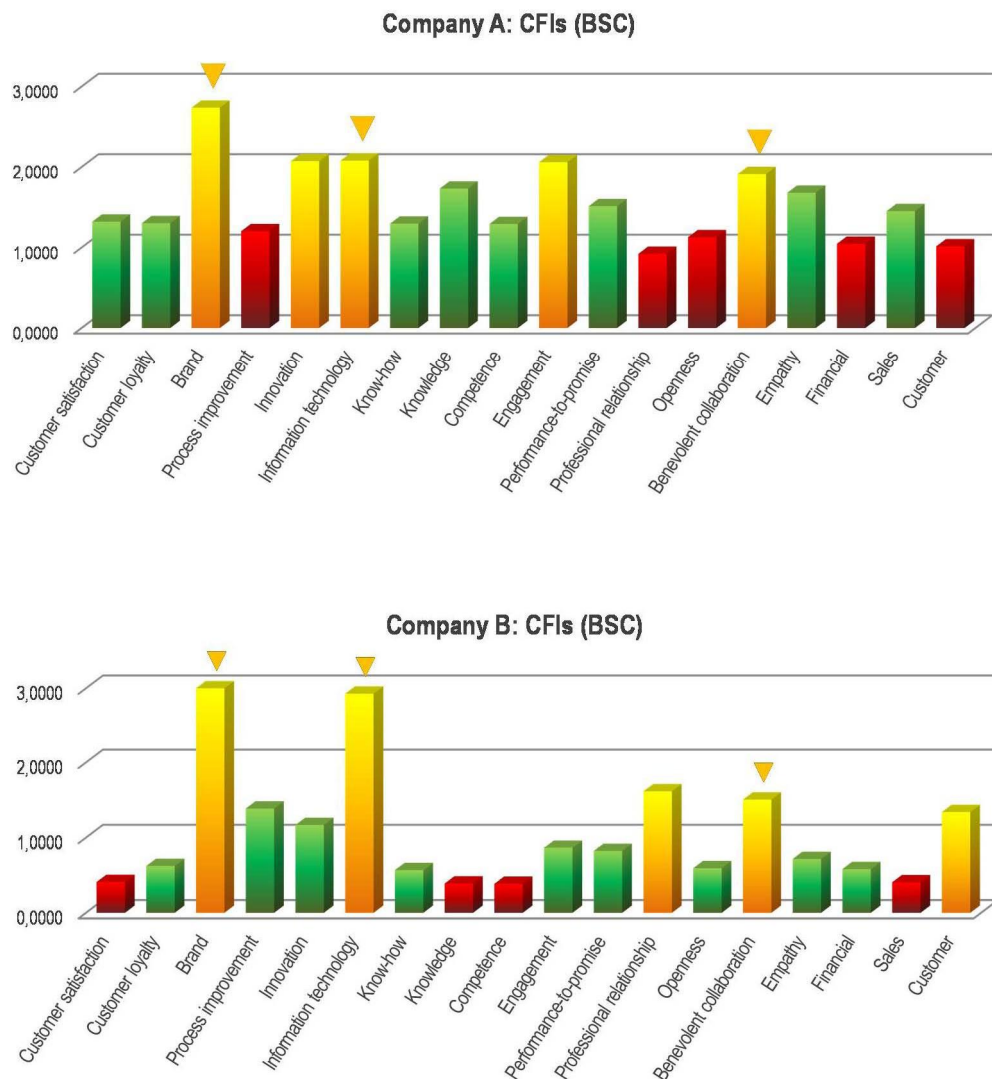
tiveness. Figure 39 demonstrates the gap between experiences and expectations of the Company A on the top and Company B-bottom.

‘Information technology’. Both companies feel that they are lacking in the mentioned attribute and expect it to improve in the future.



**Figure 38.** PERFORMANCE (BSC): Expectations vs. experiences among Companies A and B

After calculating series of indices, the results are generalized in the Critical Factor Index presented in figure 40. It demonstrates the results of CFI (BSC) calculation for both companies. Red and yellow attributes belong to the extremes and should be considered as critical or potentially critical.



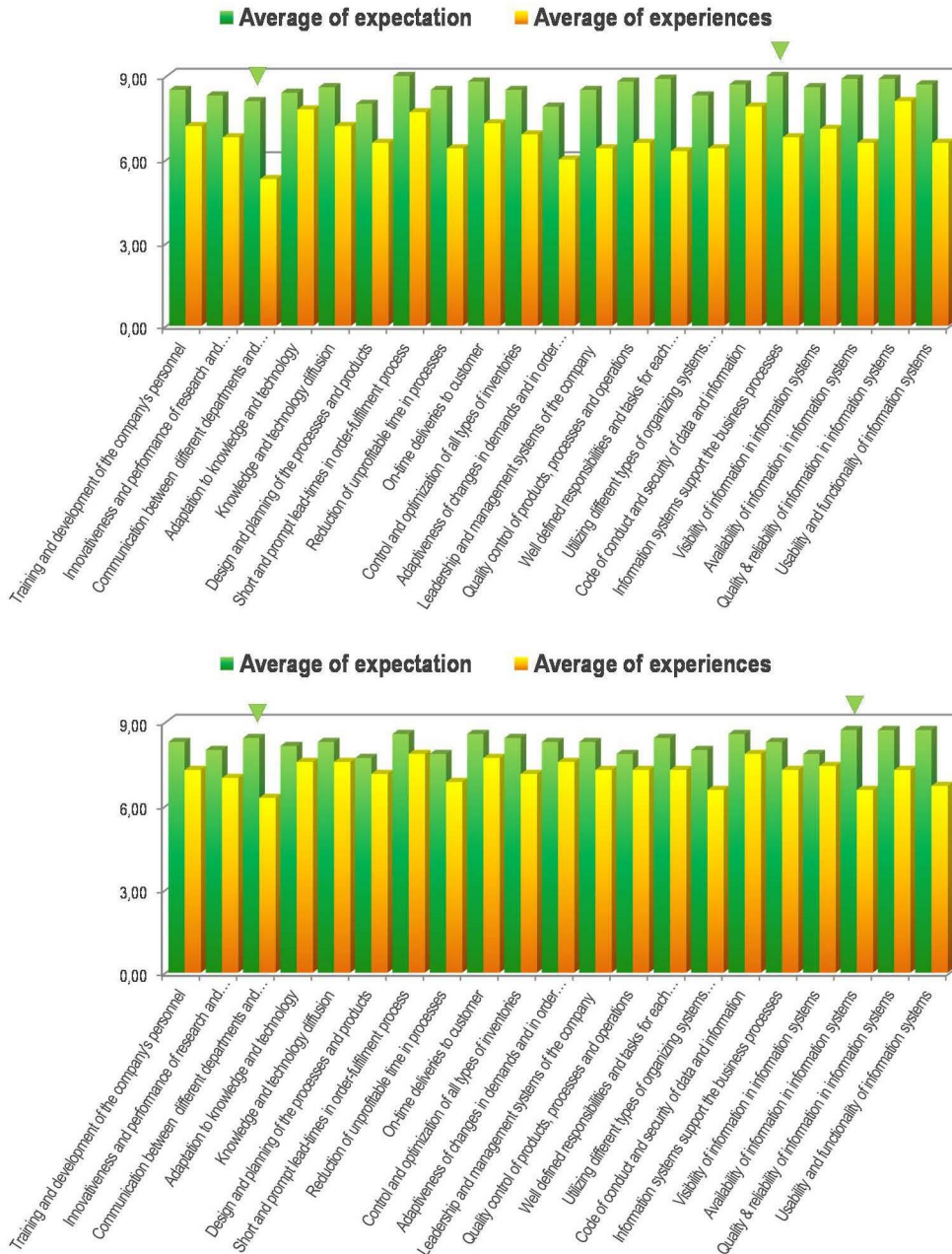
**Figure 39.** CFI: Matches of the extreme attributes among Companies A and B (PERFORMANCE BSC).

As for the previous figure, the matches are marked by rectangles over the attributes. The graphic shows that three attributes may become critical in the close future: ‘Brand’, ‘Information technology’ and ‘Benevolent collaboration’; that is why the companies need to pay attention to them.

### *Business Operations*

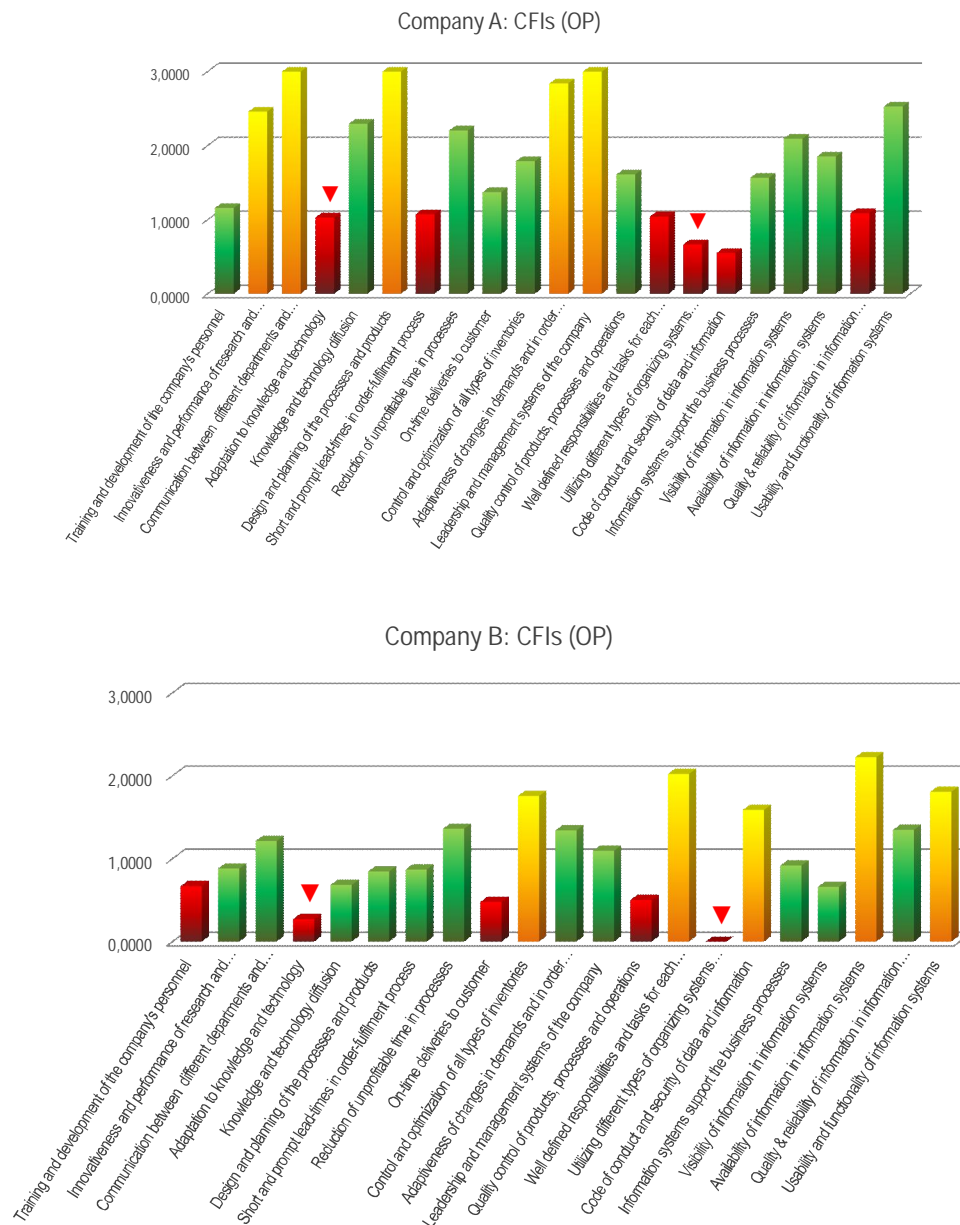
As in the previous sub-chapter, we begin with the investigation of experiences, expectations and gaps between them inside the two case companies. The target is to understand, which of the attributes from resource point of view are taken by the

companies more seriously and which they want to improve. Figure 40 demonstrates the comparison between the experiences and expectations of the companies (top picture Company A; the bottom one Company B). The most interesting for us are the attributes with the biggest gap between experience (past/present) and expectation (future).



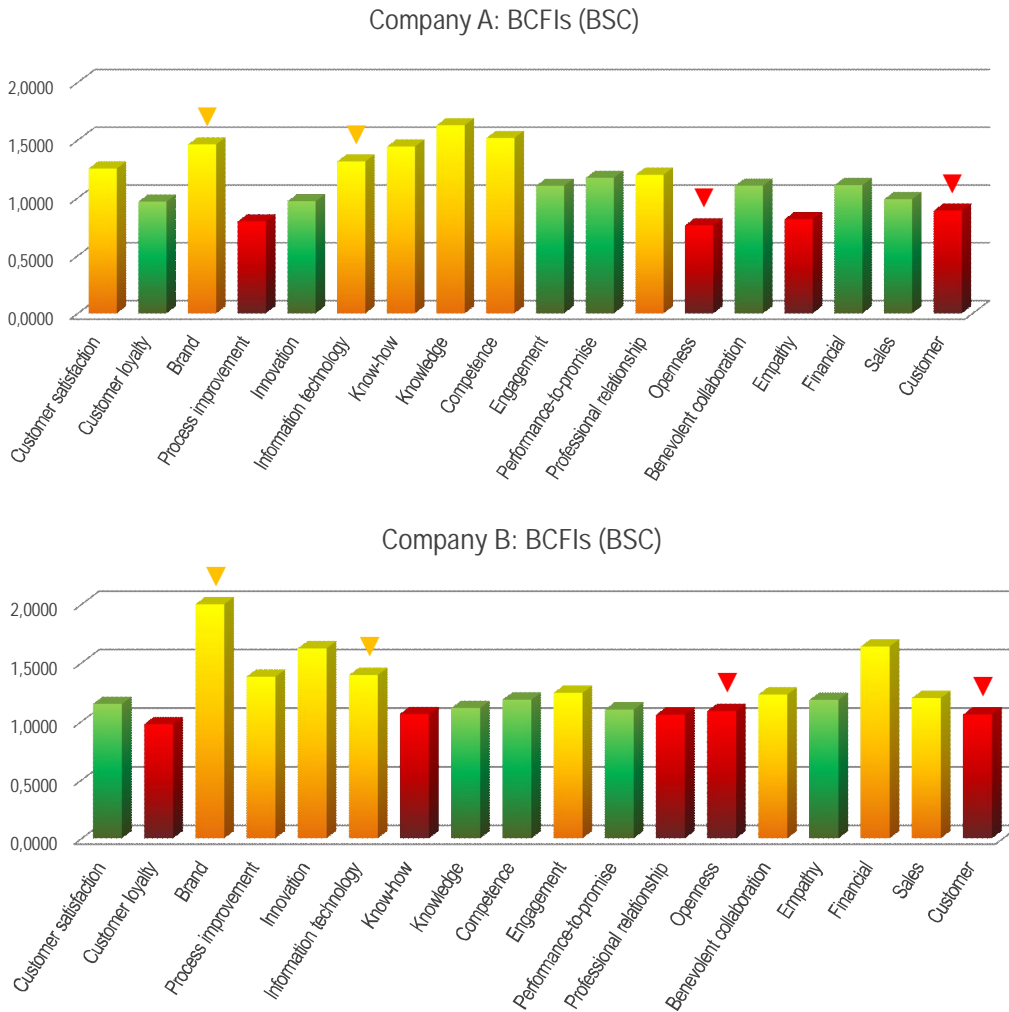
**Figure 40.** RESOURCES (OP): Expectations vs. Experiences among Companies A and B.

Figure 40 shows matches between the expected positive changes for the companies are marked by rectangles over the attributes. There are following matching attributes: ‘Communication between different departments and hierarchy levels’ and ‘Availability of information in information systems’. Both companies express their will to improve the mentioned attributes in the nearest future to have better functioning internal processes.



**Figure 41.** CFI: Matches of the extreme attributes among Companies A and B (BSC perspective).

Figure 41 demonstrates the results of CFI (BSC) calculation for both companies. The aim is to find similarities among the critical areas affecting the business performance of the companies. The figure shows that two attributes are critical for both companies: ‘Adaptation to knowledge and technology’ and ‘Utilizing different types of organizing systems (projects, teams, processes etc.).’



**Figure 42.** BCFI: matches of the extreme attributes among companies A and B (BSC perspective)

Figure 42 presents the same logic with the only difference is that it refers to Balanced CFI with BSC list of criteria, while using the same method of calculation.

It can be seen that ‘Brand’, ‘Information technology’ (as in case of CFI (BSC) calculation have potential to become critical for the companies’ business performance. At same time, ‘Openness’ and ‘Customers’ attributes are critical for both of the companies.



## 7 CONCLUSIONS AND DISCUSSION

Housing became a tool of social welfare redistribution, largely through the construction of a large subsidized rental stock. Governments have been trying to increase the economic efficiency of their housing systems without compromising social equity. Therefore, with time the focus of HP shifted from production to maintenance, to support for households in need.

Whereas HP generally follows the economy, that link could also work the other way around. As local governments compete for economic growth, a promising strategy is to improve local housing conditions and proactively address social infrastructure issues. Private and public interests should not contradict each other, rather cooperate on seeking long-term equilibrium.

The outcomes of the research support the assumption that housing and property in general can influence the competitiveness of cities through direct and indirect effects. For instance, migration decisions of individuals – based on the strength of their position in the housing market – affect the availability of skills in cities, which in turn affect productivity and unit labour costs. These effects are reinforced by the impact of housing on commuting patterns.

The author considered the Finnish social housing system as exemplary in many ways. Its organization through a separate fund is regarded a good solution. This work provides assistance in developing models for improving housing conditions and providing reasonable housing for citizens in dissimilar countries.

More vital changes are coming for fast growing economies, as governments give priority to development goals. It is up to policy-makers to prove that there are rational and bring equity to population.

Thailand Future challenges will be reduction of land, construction and other costs. The social housing asset system need to further develop and financed better.

Business process in SH are typically standardized. Effective management, combining resources and activities, is vital to the success of SH. At a corporate level, it underwrites conveyance of strategic and operational objectives. On a day-to day level, SH provides a safe and well-organized living environment.

Governing bodies in SH can effectively combine multiple criteria in goals optimization and exploit balancing acts between priorities in their policies. Main indicator for this serves the level of agreement between stakeholders. Different scenarios may be constructed.

High level of SH may be used as economic mechanism to counteract varying economic conditions. Such level has to be pursued both on national and regional political level, as well as market operators.

A complete, integrated strategy of all critical business functions is the foundation for effective real estate management. A lot can be done within the confines of existing property management. Businesses that can effectively manage utilization and costs associated with real estate assets stand to reap substantial benefits.

Through the applied methodology we found out which areas of the companies' business performance and resources (internal process flow) are critical and may become critical. Hence, it became possible to trace tendency which takes place internally for at least, two companies operating on the housing market of Finland. Lower maintenance cost with efficient work order and preventative maintenance execution Reduce administrative costs by harmonizing lease execution and optimizing space utilization. Businesses that can effectively manage utilization and costs associated with real estate assets stand to reap substantial benefits.

There are pronounced places for exploratory up to much needed relevant information about whether or not the organization is satisfying the customer. It is revealing to separate real estate business processes flow between interest groups within the business chain to find out how their experience and perception may differ from one another. Free and easily accessible customer information accumulated inside the company should be used regularly. This involves flexible strategy orientation combined with proactive identification and assessment of service concepts.

This study identified the SH's key consideration in Finland, China, and Thailand. The differences between these three countries' social and economic development and stage of SH development and the way they addressed same problems during the course of history makes them good case study for future scenarios development and SH policy innovation. They are effective also for historic trends validation.

## 7.1 Contribution of the study

The combination of the three levels –macroeconomic, company management and operation process approach analysis into model for decision making.

The benefits of a fast and comprehensive method to gather important information in order to make resource allocation decisions at operational level are self-evident.

This dissertation applies multi-criteria decision making in holistic environment. A complete, integrated strategy of all critical business functions is the foundation for effective real estate management.

The benefits of these models can be summarised as putting together the opinions of different stakeholders in an overall opinion and make possible balance operation priorities with overall policies. It can be applied in different economic situations and environments.

This dissertation also examines social housing as tool for regional development,

Analysing decision hierarchy for diverse countries generate versatile signals. It helps to minimize information gaps and inefficient decision making from strategic goals to day to day operations. The analysis facilitates organizational learning.

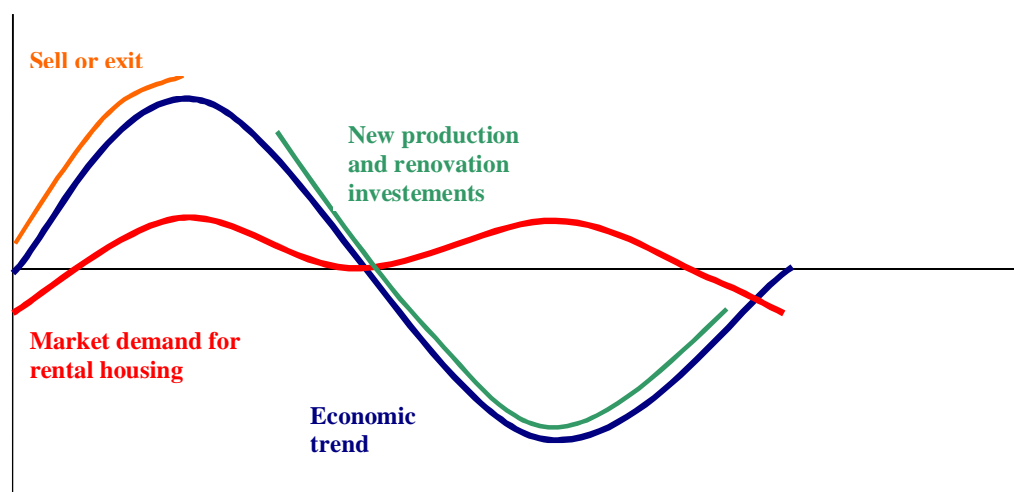
Another benefit is comparatively simple applicability of the method to other market segments and industries.

A novel method for dynamic resource allocations in the operative processes in housing, especially in the renting, where the customers move from one apartment to another one, has been proposed, and in preliminarily validated and verified by weak and semi-strong market tests.

## 7.2 Managerial Implications

This study tries to create model for decision making and taking actions in re-allocation of resources with implementation of AHP criteria weights. This analysis helps leaders understand the economic situation.

This presented analysis helps to minimize information gaps and inefficient decision making from strategic goals to company operations. Management can make decisions for the future of the organization based on information for the capital flows and CFI levels. Figure 43 presents broad view of the cycles through time with four economic positions for the companies.



**Figure 43.** Economic cycle and trends in decision making

The main economic line is presenting equal conditions for Private and Public companies. They are using the same resources (subcontractors, building companies, capital land. Concluding that in low economy the resources are cheapest, government can facilitate transfer of public funds to stabilize major sector of economy and cheaply maintain the living standard of the population.

On operational level possible benefits of such action are:

- Optimize construction execution keeping projects on-time and on-budget
- Reduce administrative costs by harmonizing lease execution and optimizing space utilization
- Lower maintenance cost with efficient work order and preventative maintenance execution

At the same time, some ways of the company's development have been proposed based on the received results of the analysis:

- New business models: pricing; operation costs;
- Development of estates;

Companies can aim at customer group people, who have difficulties to find housing: this customer group has little variety of apartments; other companies do not want them as customers. Improvement in the customer satisfaction can be seen as “low cost-high impact” action to combat lower rental growth, faster depreciation and higher risk premium, leading to higher yields and lower values over time.

### 7.3 Validity criteria, reliability of the method

The significance of results' validation is hard to underestimate in any research, as it says for reliability and correctness of the study made. In additions it takes the duty for detection of the study's drawbacks and judgment upon the further re-research in the area.

The investigation has shown high level of expertise for the answers obtained and sufficient level of the overall reliability. Individual answers are ranked the consistency of the answers to validate the logic of the respondents.

The case study is at the semi-strong and weak market test stages (Companies A and B). It was carried out, by asking the commitment of the management (one manager of expert is enough for weak market test) to propose an improvement in efficiency of the attributes found critical, for example: 'Communication between different departments and hierarchy levels' and 'Utilizing different types of organizing systems (projects, teams, processes. etc.).

Decisions made on the results' basis have been already applied. For instance, one ways to reduce costs of house exchange have been utilized:

1. Modify the process to be less expensive;
2. Use less expensive resources - use more expensive and skilled employees only when needed; otherwise use less expensive employees;
3. Contracts - make it beneficial to terminate housing contract well before the move.
4. Reduce the amount of house exchanges: for example by repairs while the residents live in the apartment – they don't need to move when they want an updated home; repairs are less expensive for the company then house exchange.
5. Choose customer groups, who do not move often: for example residents, whom competitors do not want as customers – a poor living history, bad behavior, payment difficulties etc.

With more participants the method has a huge potential to predict the behaviour of the whole Finnish housing market, what might be considered as the very strong tool of strategic planning and decision-making.

### 7.4 Limitations and future research

It is worth to mention that the main limitation of the research is the small sample – little number of participating case companies, also the informants from the

countries were limited. In addition, typically companies do not want to share their internal confidential information; therefore another problem appears on the stage of the study's sample selection.

In strategic types calculations flexibility is reported twice, once as independent variable with value coming from pairwise questionnaire analysis, and second time in competitiveness formulas as dependent variable with respect to normalized values of cost, quality and time. That is the reason for total sum of criteria reported in strategic types result to exceed 100%. This is due to the fact that in order to compare company performance with the previous existing results in the database.

CFI method is limited to one company inside processes evaluation over time and is not suitable for cross company comparison. Useful to compare between past, present and future within one company, but lack the scaling capacity to make comparison between different companies. Very sensitive measurements for each factor make the scale to vary a lot.

In a small sample size there is higher probability to get equal values for average of expectation and experience, that results to CFI value of 0 for the factor.

Nevertheless, the method is at the very early stage of development. It can be called as the main limitation. Further development and validation is required for getting stronger data about trends and correlations existing in the proposed method. CFI can be utilized to test internal as well as external processes, based either on expectations and experiences of employees, customers or business partners.

The choice of critical factors can vary, from practical point of view there is limit of few criteria that can be change or taken special focus for resource allocation. This suggest maximum of 3 to 5 extremely critical factors, and realistically organizations can focus only on 1 or 2 at a time. From academic point of view control charts can be the best option to evaluate and rank criteria with introductory possibility for multiple criteria or whole group to appear in the red scale.

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## APPENDICES

### Sense and Respond Questionnaire

This questionnaire measures organization's opinions about business performance of the company. All boxes must be filled in order to form a useable answer.

Explanations:

Expectations = What is the level of expectations for an attribute in a scale of 1–10

Experiences = What is the level of experiences for an attribute in a scale of 1–10

Direction of development = Direction of development compared to the situation  
1–2 years before this questionnaire

Compared with competitors = Level of experiences compared to the competitors



## Ral Strategy Questionnaire

Cost	9 8 7 6 5 4 3 2 1 2 3 4 5 6 7 8 9	Quality
Cost	9 8 7 6 5 4 3 2 1 2 3 4 5 6 7 8 9	Delivery
Cost	9 8 7 6 5 4 3 2 1 2 3 4 5 6 7 8 9	Flexibility
Quality	9 8 7 6 5 4 3 2 1 2 3 4 5 6 7 8 9	Delivery
Quality	9 8 7 6 5 4 3 2 1 2 3 4 5 6 7 8 9	Flexibility
Delivery	9 8 7 6 5 4 3 2 1 2 3 4 5 6 7 8 9	Flexibility

For validity and reliability checking, please also specify roughly the priority weights of Q(Quality), C(Cost), T(Time/Delivery) and F(Flexibility).

	Quality %	Cost %	Delivery %	Flexibility %
Before crisis				
During crisis				
After crisis				

Note: Percentage of Quality, Cost, Delivery and Flexibility altogether is 100%, which means the sum of every row in above table should be 100%.

THANK YOU FOR YOUR ANSWER!



## Balanced score cards attributes based questionnaire

ATTRIBUTES				
	Expectations	Experience	Past	Future
external structure)				
customer satisfaction)				
customer loyalty)				
brand)				
internal process)				
process improvement)				
innovation)				
information technology)				
learning and growth)				
know-how)				
knowledge)				
competence)				
engagement)				
trust)				
performance-to-promise)				
professional relationship)				
openness)				
benevolent collaboration)				
empathy)				
business performance)				
financial)				
sales)				
customer)				





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## PROPERTY MANAGEMENT PROCESS IN REAL ESTATE AND HOUSING BUSINESS

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### ABSTRACT

*Facility management is the practice of coordinating the physical workplace with the people and work of the organization. As such it requires multi-focused organisational strategy orientation combined with proactive identification and assessment of new service concepts. The goal is to enhance property values through active day-to-day management that focuses on maintaining high levels of occupancy and owner/tenant satisfaction, while lowering facility costs. With this study we try to implement additionally Analytical Hierarchical Process and Knowledge Management methods with the aim to maintain cost efficient operations while providing the users a quality living & working environment. What does it require from the strategic management and organization of operations?*

**Keywords:** Property Management Services, Strategic priorities, Managed Properties, Customer satisfaction

### INTRODUCTION

The Global Property sector is large and complex, comprising a mix of in-house departments, specialist contractors, large multi-service companies, and consortia delivering the full range of design, build, finance and management. Effective management, combining resources and activities, is vital to the success of real estates businesses. At a corporate level, it contributes to the delivery of strategic and operational objectives. On a day-to day level, effective property management provides a safe and efficient living environment. Property management responsibilities are spread into several major functional areas:

- \* Long-range and annual facility planning
  - \* Facility financial forecasting
  - \* Real estate acquisition and/or disposal
  - \* Work specifications, installation and space management
  - \* Architectural and engineering planning and design
  - \* Construction and/or renovation
  - \* Maintenance and operations management
  - \* Telecommunications integration, security and general administrative services
- A heightened awareness of the sector has been evident, driven by a number of factors including
- \* Interest in outsourcing

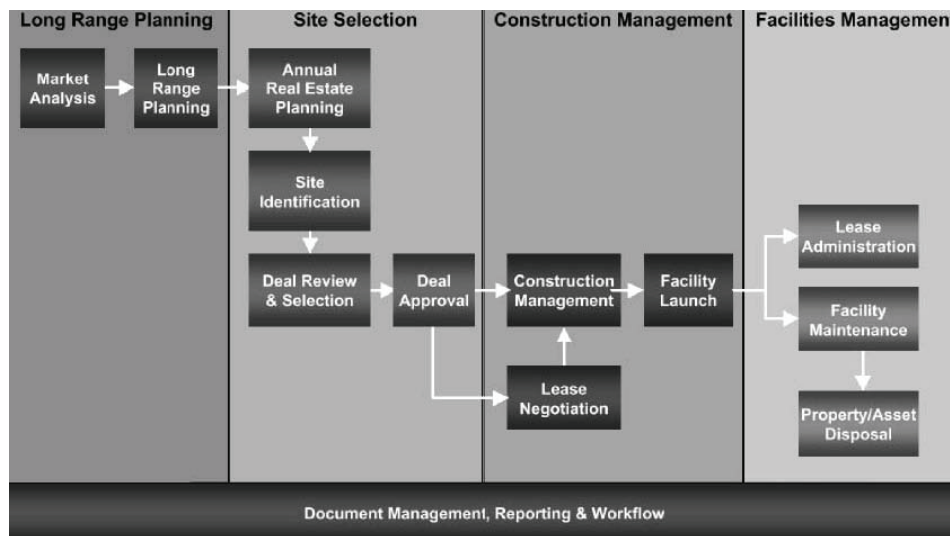
\* Increasing attention being paid to the sector by the financial community

Facilities management is a vital strategic discipline because it ‘translates’ the high-level, strategic change required by senior decision makers into day-to-day reality for people in their work or living space. Successful organisations in future will approach PM as an integral part of their strategic plan. Those organisations that treat PM as a ‘commodity overhead’ will be at a significant strategic disadvantage.

This study is concentrated on finding the main strategic criteria of Finnish Real Estate Firm and the proportional weights of the factors affecting it. Applied are Analytical Hierarchical Process and Knowledge Management methods to research the subject process and make choices about directions, effective transfer and managing ideas and resources.

### CASE COMPANY INFORMATION

In Finland the property management as a term means basically managing real estates economically and organise effective maintenance and the focus is in property owner point of view. Other relative term is facility management which consists includes different kind of supporting services for users and therefore the focus is more from user’s point of view. The inbuilt aim in both terms is to ensure real estate ability to provide services to customers make profit to its owner and support the development of value of real estates.



**Figure 1** Real Estate Business flow

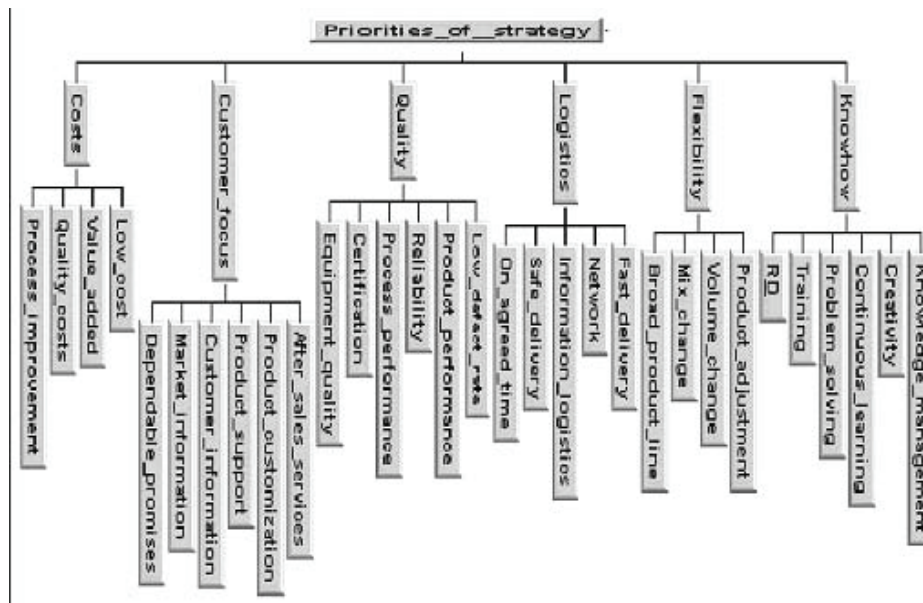
The property management in this particular case is a mix of present two terms and could be divided into 4 main function groups, 1) administration functions, 2) financial administration functions, 3) technical functions and housing functions. The administration function includes mainly corporation legislation, its requirements, connection to authorities and agreement monitoring. The financial administration functions are focused on planning, budgeting, incomes, outcomes and calculations. It takes care of payment transactions. These functions produce financial outcomes and balance sheet as well. Technical functions look after the real estate technical condition. The planning perspective is usually from daily functions to long-term functions. The aim is to keep real estates value and quality in defined level. Technical

functions monitors and controls the energy and water flows. The housing functions main aim is to keep on the incomes running. This includes sales and marketing functions as well agreement process with customers.

Business process in property management is usually very standardized. The Finnish real estate federation maintains a base model for the property management agreement and its recommended content. The agreement partners differs it vary rarely and very little. This causes that the competition is driven mainly with price. Actually this is not whole truth, because the companies have developed many other ways to extra charge customer from different ways like papers, phones, mail etc after they have got the agreement. This is usually almost one third of whole costs and misrepresents the competition in the offer phase.

During the agreement is valid the real estate owner states the standards for quality and cost levels. Owner can put profit demand as well but in Finland those are still quite unusual. Quality includes as technical quality for real estate as well quality of customer service for ensure the incomes. The service provider produces the services as the agreement involves. The buyer monitors the agreement mostly from reports and changes in those values. The owner can do the spot check if there is reason for that f ex from customers' feedback. The success of agreement in short-term is easy to evaluate, the incomes are more than outcomes and at the same time the real estate seems to be in order. But long-term evaluation of success of agreement is more difficult to make. The real estate needs planned maintenance, service and reparation. This function requires investments and causes challenges to keep cost level under incomes level and therefore real estate profitable. That is why the service provider neglects this necessary and expensive maintenance, service and reparation to keep on agreement valid. To neglect this necessary maintenance, service and reparation does not appear in short period even medium long period, but those must be done in every case in sometimes.

## DATA COLLECTION



**Figure 2** Hierarchical tree of Property Management

The information about the company was collected from interviews in the case company to choose major strategic factors, pair-wise comparison questionnaire conducted by the District manager and firm's financial statements to see how it reflects possible Business group orientation. After building up the empirical knowledge about corporate strategy the competitive priorities model was constructed.

Our empirical research part was carried out by Analytical Hierarchy Process (AHP) method that reflects the multi-focused strategy and evaluates each particular factor. AHP as a multi-attribute decision instrument allows also considering quantitative and qualitative measures and making trade-offs. The AHP goal is to integrate different measures into single overall score for ranking decision alternatives with pair wise comparison of chosen attributes.

## METHODOLOGY

The first step is to structure the decision problem in a hierarchy (as depicted in Figure 1). The goal of the decision, "Competitive Priorities of Property Management", is at the top level of the hierarchy. The next level consists of the main criteria relevant for the goal. At the bottom level are the alternatives to be evaluated. The second step is the comparison of the alternatives and the criteria. The last step is connecting the comparisons to get the priorities of the alternatives with respect to each criterion and the weights of each criterion with respect to the goal. The local priorities are then multiplied by the weights of the respective criterion. The results are summed up to get the overall priority of each alternative shown in Figure 2.



Figure 3 Main Criteria Results

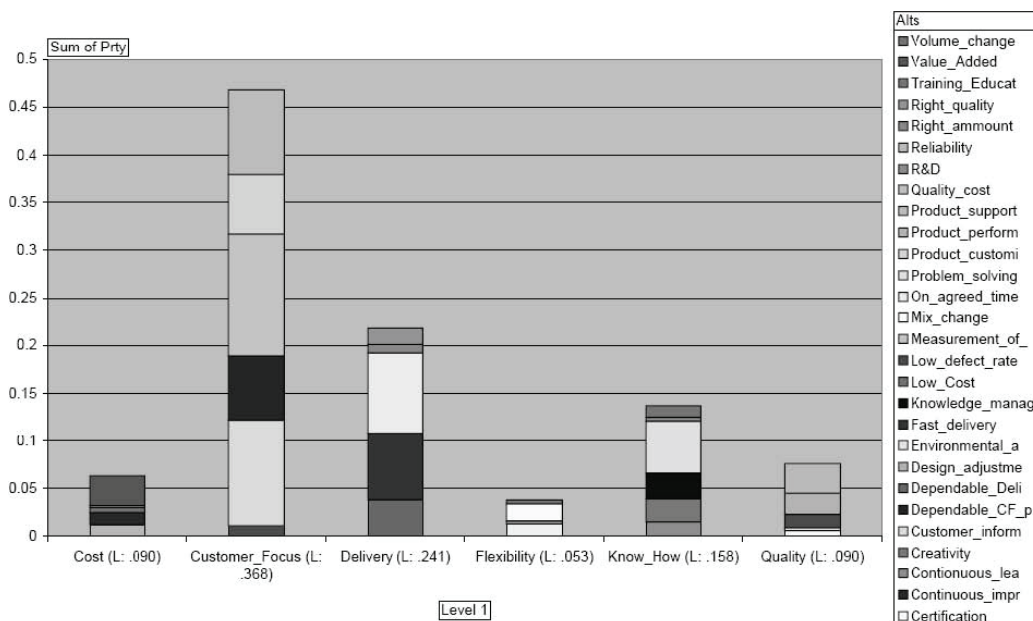


Figure 4 Sum of priorities

The next step in our work is to compare the weightings of the criteria with the database or results from 82 earlier case studies. We do this by calculating a numeric value for a competitive index in different types of business groups such as prospectors, analyzers and defenders. The indexes have been calculated following the equation under the group description: Q,T,C,F represents normalised values of the main priorities Quality, Delivery, Cost and Flexibility respectively. According to Miles and Snow (1978), three such organization types have the following general characteristics:

Type A: Prospectors are organizations which almost continually search for market opportunities, and they regularly experiment with potential responses to emerging environmental trends. Thus, these organizations often are the creators of change and uncertainty to which their competitors must respond.

**Equation 1**

$$\varphi \sim 1 - \{(1 - Q\%)^3(1 - T\%)(1 - C\%) \times F\% \}^{11}$$

Type B: Analyzers are organizations which operate in two types of product-market domains, one relatively stable, and the other changing. In their stable areas, these organizations operate routinely and efficiently through use of formalized structures and processes. In their more turbulent areas, top managers watch their competitors closely for new ideas, and then they rapidly adopt those which appear to be the most promising.

**Equation 2**

$$\lambda \sim 1 - \{(1 - F\%) \times (ABS(\Delta Q * \Delta T * \Delta C))\}^1$$

Type C: Defenders are organizations which have narrow product-market domains. They devote primary attention to improving the efficiency of their existing operations.

**Equation 3**

$$\varphi \sim 1 - \{(1 - C\%)^3(1 - T\%)(1 - Q\%) \times F\% \}^{11}$$

Knowledge Management is very important for enterprises that are operating with large volumes of unstructured data (contracts, legal notes, etc) and conducting procurement operations in day-to-day basis. For know-how efficiency, we assume that balanced model among each sub criteria R&D, KM, Creativity, Problem solving and Organization’s learning will best suit Business seeking for new emerging opportunities. Analyzing KM compared to Know- How level for the different groups can be done by means of their KM index and know-how%. The KM index of each company can be calculated by the following formula:

**Equation 4**

$$KM\ Index = KM\ \% \div \max(X)$$

Where;  $X = \{R\&D\%, KM\%, Creativity\%, Problem\ solving\%, Training\%, Organization's\ learning\ \%\}$

$KM\% = Knowledge\ Management\ \%$



RESULTS

Table 1 represents the ranking of the researched departments in comparison to reference group of 82 earlier case studies. Index value of 1 represents the ideal competitive position in the groups.

Table 1 Competitive index ranking

Company	Group A Prospectors (rank)	Group B Analyzers (rank)	Group C Defenders (rank)
<i>YH Lansi OY</i>	0.9242 (64) of 82	0.8932 (43) of 82	0.9242 (29) of 82

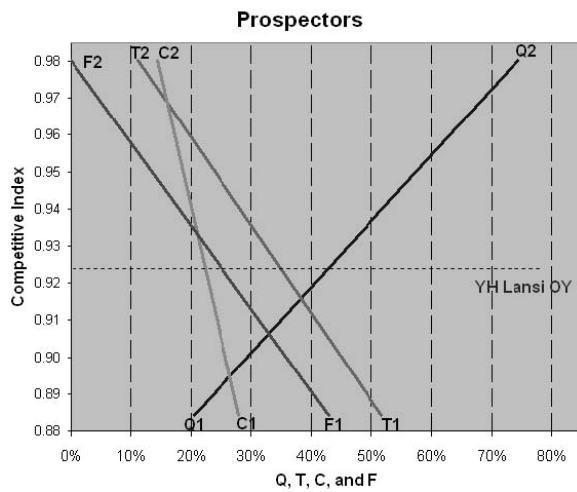


Figure 5

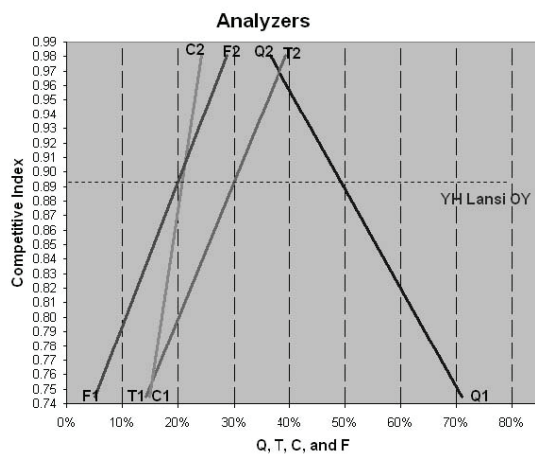


Figure 6

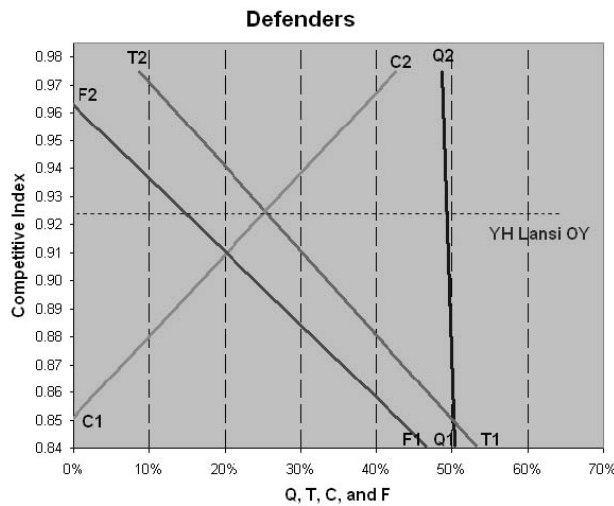


Figure 7

Main criteria formation from sub-factors values shows that the most important criteria's for successful business are in customer focus and delivery. This could be true, because customers need to achieve their goals in quality and especially profitable. And those providers who support the customers achieve their goals keeps their agreement valid. This can be seen a win-win situation as well.

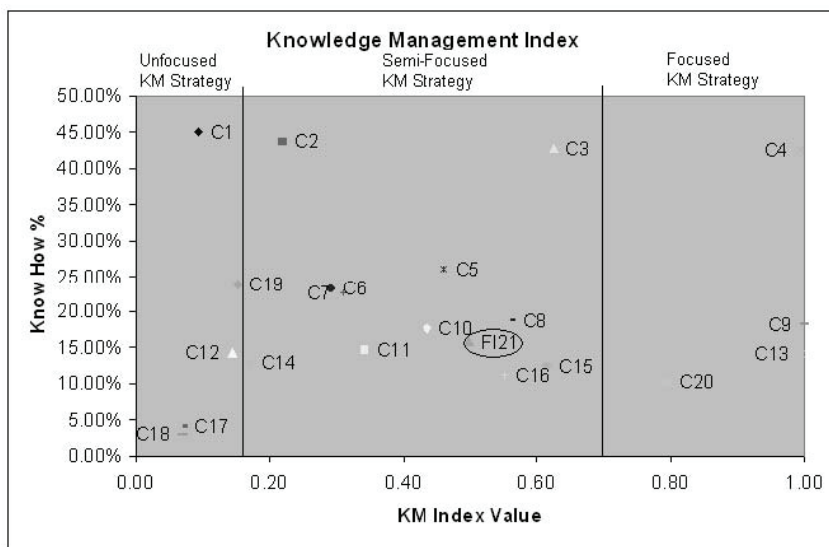


Figure 8 Knowledge Management Index Result

From the business description point of view that business process in property management is usually very standardized means that only competition is with price. This is true, if the focus is in simple property management agreement between customer and service provider. The main financial success must be calculated from yearly outcomes and balance sheet but also from long term real estate value and profitable. The investment, real estate values and incomes in long term in housing are so large that one or couple year profit and low cost level are nothing beside those factors. That is also why the customer focus is so important.

From user customer point of view, why they pay for the housing and the services to the real estate owner? They need place to live well, feel safe, keep their property safe and so on. Their living must be as less as possible interrupted and the feeling of safeness and satisfaction must be going on all the time. This is also incomes to owner and that is why the delivery is so highly recognized. When the satisfaction is interrupted there must be help available in very short time.

The satisfaction and the changes must be observable fast. That is why the customer information is so important to get. The housing holds out little disadvantage and problems because moving from house is difficult and expensive. But if the movement away from real estate begins it can be very faithful. To find new customers cost money requires marketing and sale potential and at the same time the incomes are lost in real estate. The costs in real estate are very fixed and those are almost impossible to decrease while new customers are still under procurement. Also rumours can spoil the reputation of real estate which means that rental level must decrease to get new and more customers.

### CONCLUSIONS

A lot can be done within the confines of existing property management. Property fund managers should be active - 'doing well by doing good' and as technology costs fall and energy costs rise, more actions will become economic driven. So improvement in the knowledge management are can be seen as "low cost-high impact" action to combat lower rental growth, faster depreciation, higher risk premium, leading to higher yields and lower values over time.

Possible benefits of such action are:

- ✓ Optimize construction execution keeping projects on-time and on-budget
- ✓ Reduce administrative costs by harmonizing lease execution and optimizing space utilization
- ✓ Lower maintenance cost with efficient work order and preventative maintenance execution

Businesses that can effectively manage utilization and costs associated with real estate assets stand to reap substantial benefits. A complete, integrated strategy of all critical business functions is the foundation for effective real estate management.

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## Implementing Customer Delight in Decision Support System with Performance Indicators: Comparative Study of Finnish Housing Market

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**Abstract** Our comparative study in Finnish housing market targets the application of Customer Delight model by Sense and Respond methodology and Analytical hierarchical process analysis. The goal is to enlarge property values through active day-to-day management that focuses on maintaining high levels of occupancy and residents satisfaction and at the same time stay cost efficient. We aim to pilot the construction of intelligent knowledge-driven Decision Support System that provides specialized problem-solving expertise stored as facts, rules, procedures, or similar structures.

**Keywords** Decision support system; Customer delight; Sense and respond; Analytical hierarchical process; Housing market

### 1 Introduction

There are compelling reasons for setting up an enabling framework to providing good customer service. Customer satisfaction is valuable because of the impact it have on the business bottom line. Satisfied customers are most likely to be loyal and to make repeat orders and to use a wide range of services offered by firms. In the current economic environment, companies can not afford to alienate its customers.

It's critical that the company can form a close working relationship with its client, customer service play decisive importance. There are in existence variety of steps that one can take for enhancing client's experience. To list few of them here follows a choice of techniques eligible for implementation in Finnish real estate market conditions:

- (1) Respond to Messages Promptly & Keep Your inform clients regularly
- (2) Ensure approachable and friendly communications work line
- (3) Define and apply clear Customer Service Policy
- (4) Encourage Face-to-Face or front desk dealings
- (5) Teaching the personnel Attention to Detail
- (6) Anticipate Client's Needs and be able to change fast enough your company's resources to be able to help them out
- (7) Be reliable partner and keep Promises

Making a sensible choose for resources allocation in particular system of activities to enhanced customer experience is amendable task, still often management have to make decisions for the company based on information dispatched from the expectation for the level of service needed. That creates information gaps and which are often distances efficient decision making from day to day operations. To fill these breaches we looked into the company's systems and processes, which support customer deliverables. They are great places for searching up to much needed relevant information about whether or not the organization is satisfying the customer. It is often quite revealing to separate real estate business processes flow between the departments and interest groups within the satisfaction delivery chain to find out how their experience and perception may differ from one another. It would be incompetent to disregard free and easily accessible customer information accumulated inside the company. This requires flexible strategy orientation combined with proactive identification and assessment of service concepts. Contemporary approaches to services identify the power of customer delight. It brings customers coming back for more, creates interest in new customers and distinguishes your company from the competition. At the same time to be able to sustain such effect one needs deep expertise in sensing customer behaviour as well as implementation of value added processes that are hard to copy. Our comparative study in Finnish housing market is targeting the application of Customer Delight model in construction of decision support system in making reasoned judgement in this selection and taking actual actions in re-allocation of resources. We implement additionally Analytical Hierarchical Process criteria weights. Only providing good customer service by itself is not enough cost

effective. The goal is to enhance property values through active day-to-day management that focuses on maintaining high levels of occupancy and clients satisfaction, while lowering facility costs.

**1.1 Property management in Finland**

In Finland the property management as a term means basically managing real estates economically and organise effective maintenance and the focus is in property owner point of view. Other relative term is facility management which consists includes different kind of supporting services for users and therefore the focus is more from user’s point of view. The inbuilt aim in both terms is to ensure real estate ability to provide services to customers make profit to its owner and support the development of value of real estates. The property management in this particular case is a mix of present two terms and could be divided into 3 main function groups:

- 1) administration functions,
- 2) financial administration functions,
- 3) technical functions and housing functions.

The administration function includes mainly corporation legislation, its requirements, connection to authorities and agreement monitoring. The financial administration functions are focused on planning, budgeting, incomes, outcomes and calculations. It takes care of payment transactions. These functions produce financial outcomes and balance sheet as well. Technical functions look after the real estate technical condition. The planning perspective is usually from daily functions to long-term functions. The aim is to keep real estates value and quality in defined level. Technical functions monitors and controls the energy and water flows. The housing functions main aim is to keep on the incomes running. This includes sales and marketing functions as well agreement process with customers.

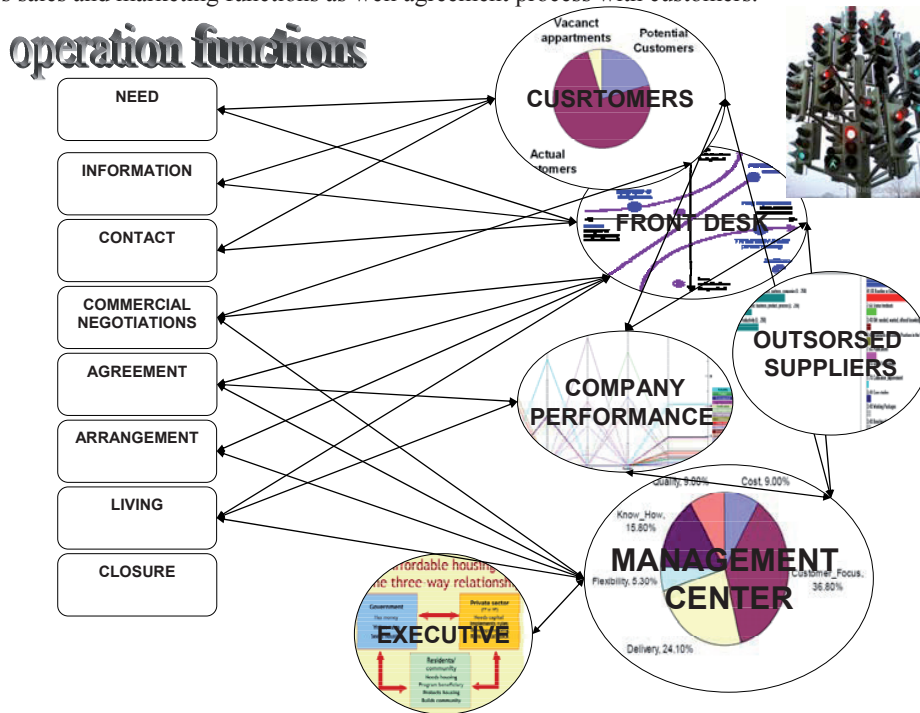


Figure 1 Operational Functions

Business process in property management is usually very standardized. The Finnish real estate federation maintains a base model for the property management agreement and its recommended content. The agreement partners differs it vary rarely and very little.

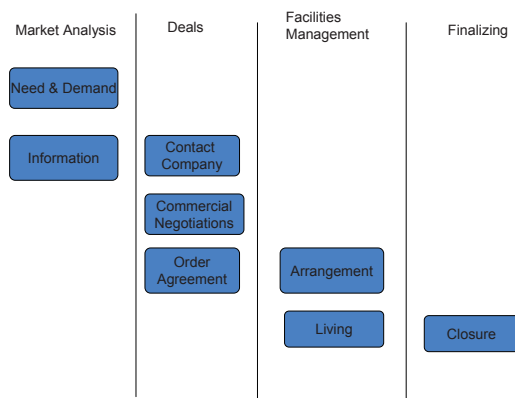


Figure 2 Real Estate Business Flow

This causes that the competition is driven mainly with price. Actually this is not whole truth, because the companies have developed many other ways to extra charge customer from different ways like papers, phones, mail etc after they have got the agreement. This is usually almost one third of whole costs and misrepresents the competition in the offer phase.

During the agreement is valid the real estate owner states the standards for quality and cost levels. Owner can put profit demand as well but in Finland those are still quite unusual. Quality includes as technical quality for real estate as well quality of customer service for ensure the incomes. The service provider produces the services as the agreement involves. The buyer monitors the agreement mostly from reports and changes in those values. The owner can do the spot check if there is reason for that f ex from customers' feedback. The success of agreement in short-term is easy to evaluate, the incomes are more than outcomes and at the same time the real estate seems to be in order. But long-term evaluation of success of agreement is more difficult to make. The real estate needs planned maintenance, service and reparation. This function requires investments and causes challenges to keep cost level under incomes level and therefore real estate profitable. That is why the service provider neglects this necessary and expensive maintenance, service and reparation to keep on agreement valid. To neglect this necessary maintenance, service and reparation does not appear in short period even medium long period, but those must be done in every case in sometimes.

### 1.2 Information collection

The information about the companies was collected from interviews, organized workshop for research method introduction and tutoring, almost 40 questionnaires forms in the companies to choose major critical factors, pair-wise comparison questionnaire conducted by the managers and firms financial statements to see how it reflects possible Business group orientation. After building up the empirical knowledge about corporate strategy the competitive priorities model was constructed.

## 2 Theoretical Framework

### 2.1 Customer delight

The model of Dr. Noriaki Kano is aimed at capturing the voice of the customer for requirements for products and service. Originally conceived in the 1970s as a quality tool for obtaining a good match of customer need and product feature and function, project managers can apply this tool not only for grading requirements but also for evaluating budget allocations and priorities, and for assessing qualitative risks. In this regard, Kano models are quite useful for project managers who must make dollar decisions about where discretionary funds can be best leveraged for business value.

Kano really only addresses two of the focus areas already described: customer perspective and product excellence. The Kano model pretty much ignores operational effectiveness, except as operational effectiveness is reflected in product or service quality that influences customer satisfaction, so and we add AHP for measuring the operational effectiveness.

### 2.2 Analytical hierarchical process

Results got analysed by Analytical Hierarchy Process (AHP) and Sense and Response methodology to reflect the multi-focused decision making and evaluates each particular factor. The AHP goal is to integrate different measures into single overall score for ranking decision alternatives with pair wise

comparison of chosen attributes. AHP allows also considering quantitative and qualitative measures and making trade-offs. The process initiates by structuring the decision problems in a hierarchy of criteria and then connecting the comparisons to get the weights of each criterion with respect to the goal.

### 2.3 Sense and respond methodology

An adaptive management model is the missing link in the efforts to transform businesses into adaptive organizations. S&R systems consist of information collection sensors, communication links, processors and responders. Given budgets, overall goals (objective functions) and constraints our research investigates optimum designs and optimum operations. Optimal designs consist of proposing operation structure capable of implementing focused decisions during reasonable time and developing algorithms for optimally sensing and responding to the environment. Adaptive people, technologies and infrastructures are necessary but insufficient, because the redundancy to change systematically discourages the exploitation of adaptive capabilities. Sense and Respond fills the adaptive management gap. It is a framework for customer-back businesses; one that systematically enhance adaptive organizational behaviour.

## 3 Proposed Approach

The Critical Factor Index method that we are using is a measurement tool that indicate which attribute of a business process is critical and which is not, based on the experience and expectations of the company's employees or customers. The CFI was developed on the basis of the Gab analysis and the implementation index (IMPL). These indexation was developed and tested in the industrial management unit of department of technologies at the university of Vaasa. The idea, behind these measurement tools, was to develop a fast and reliable method for management purposes to sense and respond to customer satisfaction. The method reveals which attributes are critical within the business process and therefore supports the management to make decisions concerning which attributes should be improved. Facilitator of this task is proposed customized knowledge-driven Decision Support System. It provides specialized problem-solving expertise stored as facts, rules, procedures, or in similar structures.

## 4 Research Framework

DSS systems require a structured approach. We utilize model of a business as a hierarchy consisting of four modelling layers:

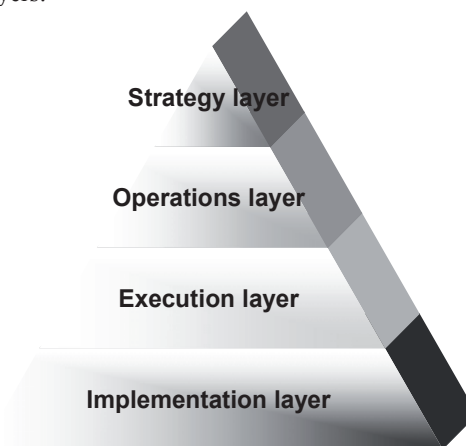


Figure 3 Business Modelling Layers

(1) Strategy layer— Analytical Hierarchy Process AHP model specifies what the business plans to achieve (“strategy execution model,” to distinguish it from strategy formulation). AHP optimize and adapt operations and infrastructures based on dynamic performance targets Using analytical hierarchy process we try to find answer how should the resource allocation be developed.

(2) Operations layer—The operations model describes what the business is doing to achieve, (different alternatives energy sources and technologies are evaluated with respect to the AHP strategic objectives) and how it measures its progress toward this achievement. Run-time monitoring of the business processes makes Critical factors (CFI) visible to operation managers.



(3) Execution layer - it rearranged resources and what describes what would be “the price” to implement SaR design in the operations network, on the “expense” of the already existing capabilities, and improves on baseline forecasts.

(4) Implementation layer—implementation model defines the actual information for realization of the execution. It consists of data acquisition tools and benchmarking interface that describes the operations and services offered by the housing companies and the data needed to execute them. Data is gathered through interviews and questionnaires, with additional information about demand forecasts, product life cycle times, costs, inventory, contractual buffers, customer service targets and product prices.

## 5 Results

Main criteria values showed that on company level YH case the cost became more important criteria for operation management. In TVT case we see the same rise of cost as major criteria, but Quality till remains main operational criteria. Priorities order changed more in TVT case than in YH one.

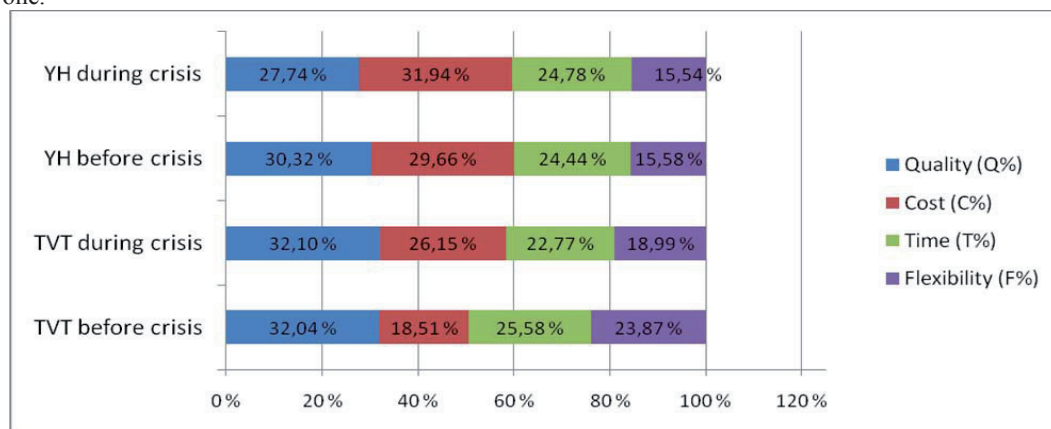


Figure 4 AHP Main Criteria Weights

Then we calculate a numeric value for a competitive index (Figure 5) in different types of business groups such as prospectors, analyzers and defenders according to Miles and Snow organization types. The indexes have been calculated using normalised values of the main priorities Quality, Delivery, Cost and Flexibility respectively. . The indexes have been calculated as follows:

Prospectors:

$$\phi \sim 1 - \left\{ (1 - Q\%^{\frac{1}{3}})(1 - T\%)(1 - C\%) \times F\%^{\frac{1}{3}} \right\}$$

Analysers:

$$\lambda \sim 1 - \left\{ (1 - F\%) \times (ABS(\Delta Q * \Delta T * \Delta C))^{\frac{1}{3}} \right\}$$

Defender:

$$\varphi \sim 1 - \left\{ (1 - C\%^{\frac{1}{3}})(1 - T\%)(1 - Q\%) \times F\%^{\frac{1}{3}} \right\}$$

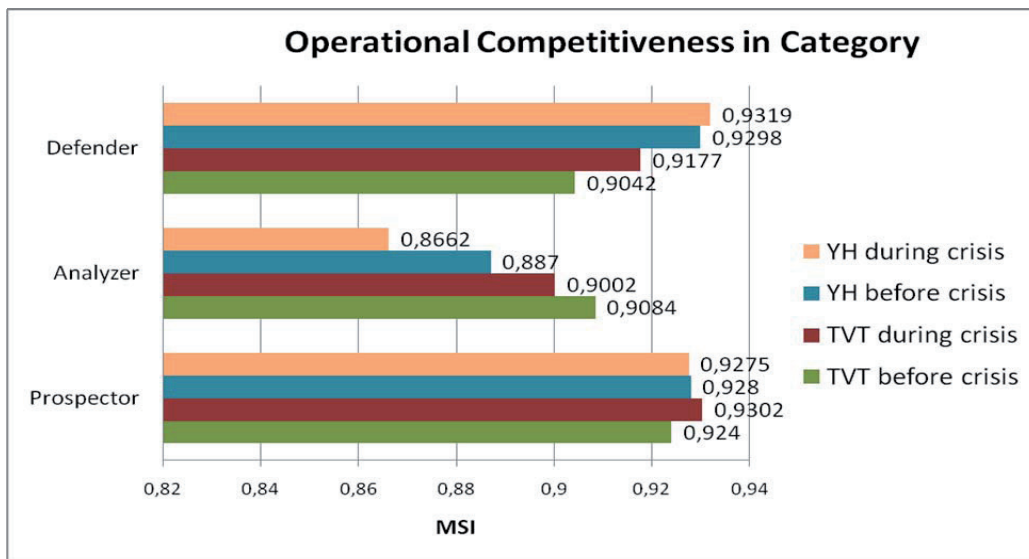


Figure 5 Competitive Index Results

From the results it is clear that in YH case the competitiveness level diminished significantly in Analyzer and little in Prospector group. The defender competitiveness category rose up and remains the highest position in operative competitiveness. For TVT the biggest increase is also in Defender, but it rose in Prospector category, and we strongly believe that TVT orientation is matching this group.

Customer Delight may be the difference between success and failure during turbulent times. It creates the additional clients attractiveness that one can't place a momentary value to. It allows to make more return on your investment and to reward employees. A lot can be done within the confines of existing property management. This exploratory study provides traffic light system for identifying critical factors that have to be taken care of immediately. After calculating series of indices, the results are generalized in the Critical Factor Index presented in figure 6. It is also a basis for benchmarking of prioritization of factors in the business.

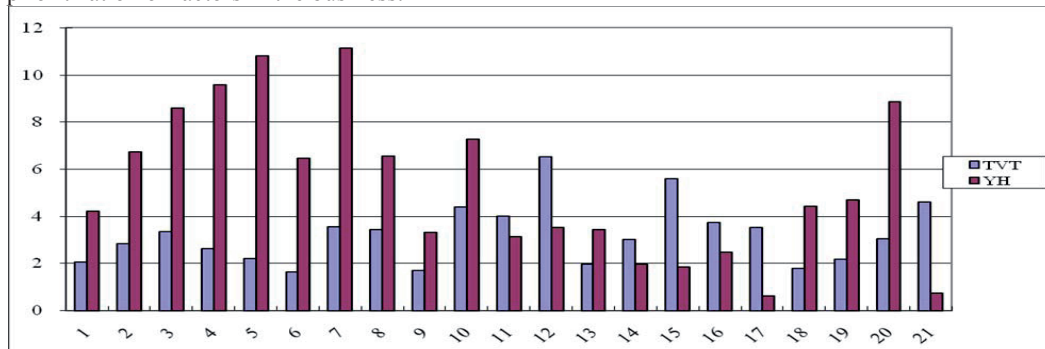


Figure 6 Sense and Respond CFI Results

Bars in red indicate attributes that are to be seen as attributes that are in critical. Bars in yellow illustrate attributes that are possess uncertain judgement in overall evaluation.

**Table 1 CFI Values: High Uncertainty in That Area, Low Valued Factors Needed to Be Stressed Urgently**

ATTRIBUTES	CFI-YH	CFI-TVf
<b>Knowledge &amp; Technology Management</b>		
Training and development of the company's personnel	4,22	2,05
Innovativeness and performance of research and development	6,73	2,85
Communication between different departments and hierarchy levels	8,61	3,36
Adaptation to knowledge and technology	9,58	2,64
Knowledge and technology diffusion	10,80	2,21
Design and planning of the processes and products	6,48	1,64
<b>Processes &amp; Work flows</b>		
Short and prompt lead-times in order-fulfilment process	11,14	3,54
Reduction of unprofitable time in processes	6,54	3,45
On-time deliveries to customer	3,32	1,69
Control and optimization of all types of inventories	7,27	4,40
Adaptiveness of changes in demands and in order backlog	3,13	4,01
<b>Organizational systems</b>		
Leadership and management systems of the company	3,53	6,54
Quality control of products, processes and operations	3,43	1,98
Well defined responsibilities and tasks for each operation	1,96	3,01
Utilizing different types of organizing systems (projects, teams, processes...)	1,85	5,60
Code of conduct and security of data and information	2,46	3,73
<b>Information systems</b>		
Information systems support the business processes	0,61	3,53
Visibility of information in information systems	4,43	1,78
Availability of information in information systems	4,69	2,19
Quality & reliability of information in information systems	8,87	3,05
Usability and functionality of information systems	0,73	4,61

The benefits of a fast and comprehensive method to gather important information in order to make resource allocation decisions at operational level are self-evident. However there is still the need of further development and therefore should be tested in future case studies. CFI can be utilized to test internal as well as external processes, based either on expectations and experiences of employees, customers or business partners.

## 6 Conclusions

Property fund managers should be active - 'doing well by doing good' and as technology costs fall and energy costs rise, more and actions are economic driven. So improvement in the customer satisfaction can be seen as "low cost-high impact" action to combat lower rental growth, faster depreciation, higher risk premium, leading to higher yields and lower values over time.

The benefits of our proposed DSS can be summarised as lower maintenance cost with efficient work order and preventative maintenance execution Reduce administrative costs by harmonizing lease execution and optimizing space utilization. Businesses that can effectively manage utilization and costs associated with real estate assets stand to reap substantial benefits. A complete, integrated strategy of all critical business functions is the foundation for effective real estate management.

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**ON THE IMPLEMENTATION OF DECISION SUPPORT SYSTEM COMBINING  
CRITICAL PERFORMANCE INDICATORS IN THE FINNISH REAL ESTATE  
BUSINESS**

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This comparative case study in Finnish real estate business addresses the compilation, of customer delight model, progression of economic values theory, Sense and Respond methodology and Analytical hierarchical process (AHP) analysis in an innovation cycle. It pilots the construction of intelligent knowledge-driven Decision Support System (DSS) that provides specialized decision making expertise stored as facts, rules, procedures, and indicates critical factors CF in the housing lifecycle. The used CF Index method is a measurement tool that indicates attribute of a business process with high deviation between expectations and experience of the company's employees and customers, imposing prompt action to be taken for the lowest valued attributes. The CFI was developed on the basis of the Gab analysis and the implementation index (IMPL). The method reveals which attributes are critical within the business process and therefore supports the management to make decisions concerning which indicators should be improved. The proposed DSS integrates the contemporary view of progress of economic values, which puts experience and customer delight at the top of the competitive advantages and pricing level possibilities. Delightful experiences bring customers back and create interest in potential customer groups, thus distinguishing the company from the competition. The level of satisfaction is monitored by clients' questionnaires and front desk staff interviews. Originally conceived as a quality tool for obtaining a good match of customer need and product functions, it helps property managers not only to grade requirements, but also to evaluate budget allocations and priorities. Still it omits operational effectiveness, except as far as operational capability is reflected in product or service quality that influences customer satisfaction. That's why the proposed DSS applies AHP analysis to facilitate multi-focused strategic decision making.

Housing market in challenging economic conditions requires flexible strategy orientation combined with proactive identification and assessment of service concepts. Making a sound judgement for resources allocation in property management activities to enhanced customer experience is amendable task, still often executives have to make decisions for the company based on information dispatched from indirect expectation for the level of service needed. That creates information gaps which often separates efficient decision making from day to day operations. To fill these breaches, the DSS looks into the company's systems and processes, which support customer deliverables. They are great places for searching up much needed relevant information about whether or not the organization is satisfying the customer in sustainable and efficient way. The main goal of DSS is to enlarge property values through active day-to-day management that focuses on maintaining high levels of occupancy and residents satisfaction and at the same time stay cost efficient.

*Keywords:* Decision support system, sense and respond, analytical hierarchical process

### **Introduction**

This study discusses pragmatic business considerations in decision making. It considers the multi-focused strategy theory aspects of the decision-making process for TVT and relates the various decision-making models to that process. It is based on a vast collection of empirical interviews, secondary data and inside knowledge of city of Turku and examines the potential effects of critical factors recourse allocation design approach on the social housing, in context of national policy issues as well as local agendas.

Reallocating resources in housing market in times of global economic turbulence triggered from derivatives written over the same market segment is a responsible task. In ensuring affordability of owner-occupied and private rental housing and enhancing tenants living experience, management have to make decisions for the future of the company based on information dispatched from expectations for the capital flows and level of service needed. The different business layers in real estate companies can generate versatile signals which create information gaps and retreat efficient decision making from day to day operations. To fill these breaches, we start from the company's systems and processes, which support customer deliverables. They are applicable sources for searching up much needed relevant information about whether or not the organization is satisfying the customer.

Front desk staff and maintenance process owners acquire first hand information about the demanded level of service and operational effectiveness. They gather experience about what customers expect from the company and provide estimate information for the operation management and company's network of service and product suppliers. When transmitted on to top management centre and executives, this information is filtered through the process; it does not contain too much relevant data for potential clients or competitor analysis. It would be inefficient to disregard free and easily accessible customer information accumulated inside the company. Utilizing effectively this knowledge requires flexible strategy orientation

combined with proactive identification and assessment of service concepts. Considering the long time span of the business cycle in real estate market and the difficulties in forecasts in volatile economy, top management need to deal with heterogeneous hierarchy of variables, cost time quality and flexibility taking the main priority. Structured DSS prevent executives from setting up main business strategy goals, based on expectations about experience of customer's expectation, and establish high level of sensitivity enough to comply with turbulent business environment.

### **Finnish housing market overview**

Finland is one of the first countries to provide public housing. In 1909 wooden houses designed by the architect A. Nyberg were built in Helsinki for the city's workers. The residents were mainly working-class families with several children. The apartments were constructed for communal living for five people per room, sometimes up to eight, equipped with basic utilities running water, a pantry and an attic cupboard. Electric lighting was installed in 1918. On other hand private real estate market in Finland is relatively young comparing to other European countries. The driving forces during the last 60 years have been migration from rural area to urban cities and it is dominated by the lack of capital. Nordic climate conditions and new demanding sustainability factors set the building price relatively high. There are complete set of regulations concerning the location, building processes, as well as the business operations to be followed. One third of all Finnish homes are rentals, situated in concentrated urban areas. Major market trend is the building of new houses, while renovation of old property is less than third. Government is using the housing market as a tool to implements political goals like social and economical equality, economic growth and stability, and environmental issues.

### **Case company description**

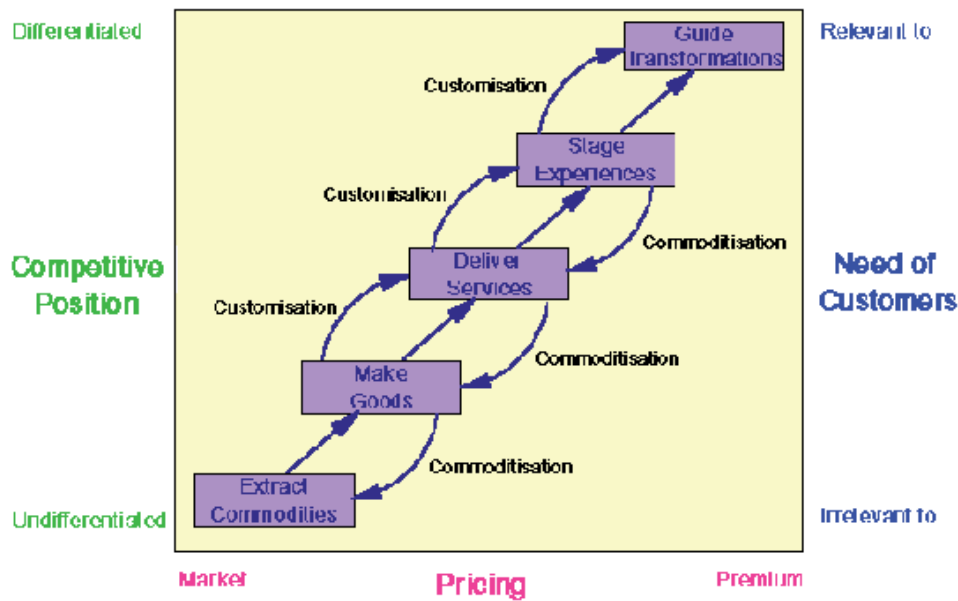
TVT Asunnot Oy is a real estate company owned by the City of Turku. It is concentrated on rental housing. It offers safe and affordable rental homes for people in different life situations. It own a wide variety of residential options in blocks of flats, terraced houses and small private homes throughout Turku. Each apartment is equipped with the basic utilities. It owns almost 11 000 homes in city of Turku with market asset value of 900 M €. Vacancy rate is 3.5%. The organization has yearly turnover of 67 M €, administration, maintenance and repairs sum up to 43 M € and finance costs are 22 M €. There is a government set maximum limit on profit. Excess profit is used to lower the rent level prices and for new investments.

### **Research background**

The roots of decision theory lay within models of conscious judgment and rational choice. Real estate companies are using models for optimal pricing and allocation of assets, based on assessment of performance and strategic goals. At the same time real estate economics does the research of real estate trends focus on the business and structural changes impacting the industry. They both analyse the equilibrium between supply and demand, taking into consideration urban economics, spatial economics, extensive research, surveys on customer satisfaction and finance. In the increasingly complex world of real estate business, it is hard to balance multiple day to day operation decisions required with complex development projects and cardinal shareholders goals. Often, judgments are made relative to current expectations and current business constraints. While a decision-maker may believe in the required optimum resource allocation levels, as dictated by optimal pricing model, the final decision may/will be influenced by factors outside the parameters of that model. Yet, as Nick French points, much of decision theory does not lie entirely within any one discipline: it draws upon psychology, economics, mathematics, statistics, social sciences and many other areas of study.

Contemporary view of progression of economic values, spread out by Pine and Gilmore, puts experience and customer delight at the top of the competitive advantages and pricing level possibilities. It brings customers coming back for more, creates interest in new customers and distinguishes your company from the competition.





**Figure 1** Progression of economic values

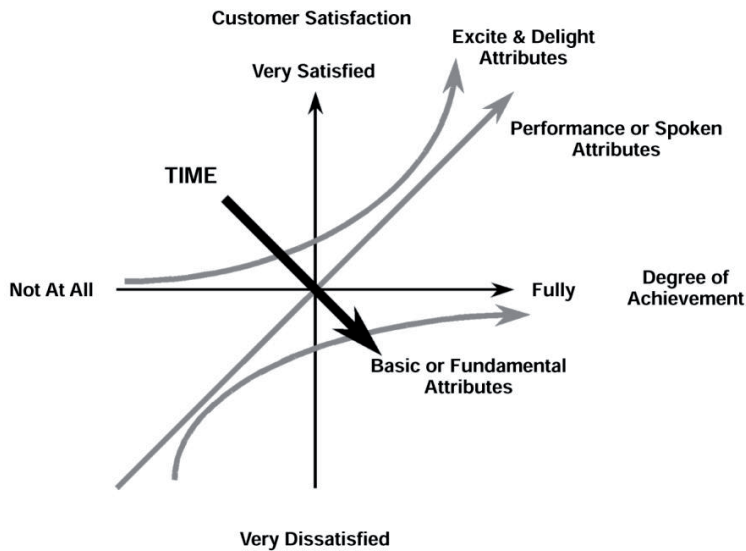
Real estate and service industries start to implement the power of a mass customization orientation. Front desk and call centres are leveraging agent-assisted technology to handle customers' inquiries and replenish data relevant for structural decision making. The process variation gets minimized with the expertise usage of that data as operators need to modify response only because of something the customer says or needs, as opposed to varying everything, every time. Adsit 2009.

At the same time to be able to get sustainable effect, one needs deep expertise in sensing customer behaviour as well as implementation of value added processes that are hard to copy. Our case study in Finnish housing market targets the application of Customer Delight model in construction of DSS in making reasoned judgement in this selection and taking actual actions in re-allocation of resources.

### Customer Delight

The model of Dr. Noriaki Kano is aimed at capturing the voice of the customer for requirements for products and service. Originally conceived in the 1970s as a quality tool for obtaining a good match of customer need and product feature and function, project managers

can apply this tool not only for grading requirements but also for evaluating budget allocations and priorities and for assessing qualitative risks. In this regard, Kano models are quite useful for project managers who must make dollar decisions about where discretionary funds can be best leveraged for business value.



Source: Kano *et al.* (1984)

Figure 2 Customer Delight Model

Kano really only addresses two of the focus areas already described: customer perspective and product excellence. The Kano model pretty much ignores operational effectiveness, except as operational effectiveness is reflected in product or service quality that influences customer satisfaction. In addition the delight factor, proposed DSS implement AHP criteria weights for measuring the operational effectiveness. Only providing good customer service by itself is not enough cost effective. The goal is to enhance property values through active day-to-day management that focuses on maintaining high levels of occupancy and clients satisfaction, while lowering facility costs.

### Analytical hierarchical process

AHP is a structured technique for handling complex decisions making. Rather than imposing a "best" solution, the AHP helps decision makers find one that structure of criteria priority suits best their goal and their understanding of the problem. It is a process of organizing decisions that people are already dealing with. AHP goal is to integrate different measures

into single overall score for ranking decision alternatives. It uses pair wise comparison of chosen attributes. AHP allows executives to take into consideration both quantitative and qualitative measures and make trade-offs in between. The process initiates by structuring the decision problems in a hierarchy of criteria and then connecting the comparisons to get the weights of each criterion with respect to the goal. It is suitable when applying multi-focus strategy in large companies.

Value for a competitive index CI is calculate in different types of business groups such as prospectors, analyzers and defenders according to Miles and Snow organization types. The indexes have been calculated using normalized values of the main priorities Quality, Delivery, Cost and Flexibility respectively. The indexes are calculated as follows:

Prospectors:

$$\phi \sim 1 - \{(1 - Q\%^{\frac{1}{3}})(1 - T\%)(1 - C\%) \times F\%^{\frac{1}{3}}\}$$

Analysers:

$$\lambda \sim 1 - \{(1 - F\%) \times (ABS(\Delta Q * \Delta T * \Delta C))^{\frac{1}{3}}\}$$

Defender:

$$\varphi \sim 1 - \{(1 - C\%^{\frac{1}{3}})(1 - T\%)(1 - Q\%) \times F\%^{\frac{1}{3}}\}$$

### Sense and response

An adaptive management model is the missing link in the efforts to transform businesses into flexible organizations. S&R systems consist of information collection sensors, communication links, processors and responders. Given budgets, overall goals (objective functions) and constraints our research investigates optimum designs and optimum operations. Optimal designs consist of proposing operation structure capable of implementing focused decisions during reasonable time and developing algorithms for optimally sensing and responding to the environment. Adaptive people, technologies and infrastructures are necessary but insufficient, because the redundancy to change systematically discourages the exploitation of adaptive capabilities. Sense and Respond fills the adaptive management gap. It is a framework for customer-back businesses; one that systematically enhance adaptive organizational behaviour. Haeckel (1999)

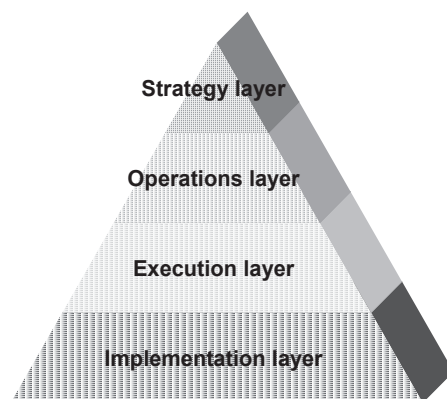
### Methodology

### Data collection

Information about the company was collected from interviews, organized workshop for research method introduction and tutoring, approximately 25 questionnaires forms in the company to choose major critical factors, pair-wise comparison questionnaire conducted by the CEO, District manager and firm's financial statements to see how it reflects possible Business process orientation. After building up the empirical knowledge about corporate strategy the competitive priorities model was constructed using the AHP-Expert choice software. Main criteria were given weights considering two situations-before and after crisis to study the effect of the economic environment on the decision making process.

### Business layers structure

It is quite revealing to separate real estate business processes flow between the departments and interest groups within the satisfaction delivery chain to find out how their experience and perception may differ from one another. DSS systems require a structured approach. We utilize model of a business as a hierarchy consisting of four modelling layers:



**Figure 3** Business layer model.

- i. Strategy layer— Analytical Hierarchy Process AHP model specifies what the business plans to achieve (“strategy execution model,” to distinguish it from strategy formulation). AHP optimize and adapt operations and infrastructures based on dynamic performance targets
- ii. Operations layer—The operations model describes what the business is going to achieve, and how it measures its progress toward this achievement. Run-time monitoring of the business processes makes Critical factors (CFI) visible to operation managers.
- iii. Execution layer - it rearranged resources and what describes what would be “the price” to implement SaR design in the operations network, on the “expense” of the already existing capabilities, and improves on baseline forecasts.
- iv. Implementation layer—implementation model defines the actual information for realization of the execution. It consists of data acquisition tools and benchmarks that describe the operations and services offered by the housing companies and the data needed to execute them. Data is gathered through interviews and questionnaires, with additional information about demand forecasts, product life cycle times, costs, inventory, contractual buffers, customer service targets and product prices.

In the same time Customer group segmentation was also done for the purpose of focused decision making.

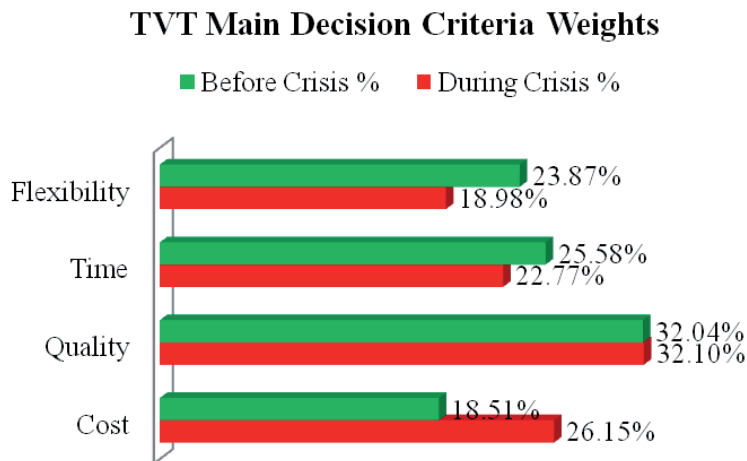
- Budget Homes
- Wooden Homes
- City Centre Homes
- Family Homes
- Luxury Homes
- Special Supported Homes

### **Critical Factor Index**

The Critical Factor Index (CFI) method that we are using is a measurement tool that indicate which attribute of a business process is critical and which is not, based on the experience and expectations of the company’s employees or customers. The CFI was developed on the basis of the Gab analysis and the implementation index (IMPL). The method reveals which attributes are critical within the business process and therefore supports the management to make decisions concerning which attributes should be improved. Facilitator of this task is proposed customized knowledge-driven Decision Support System. It provides specialized problem-solving expertise stored as facts, rules, procedures, or in similar structures.

## Results

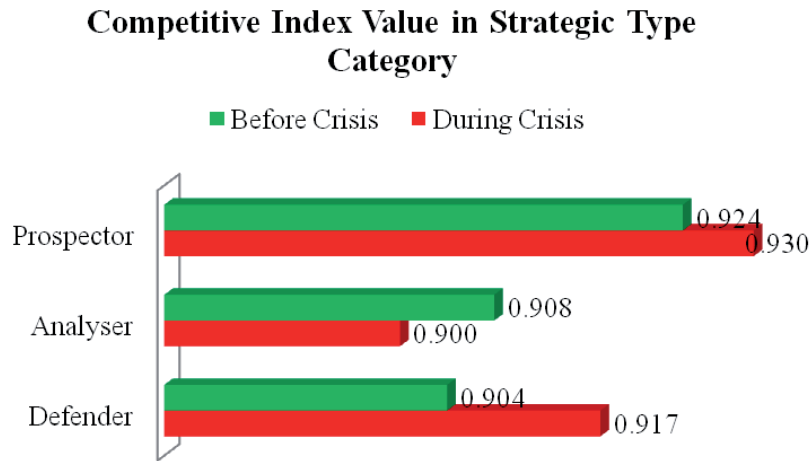
Results of questionnaires were analysed by AHP software “Expert choice”. CI values and CFI were calculated according to the methodology formulas developed and presented in the Industrial Management department of the University of Vaasa. They represent assessment of the multi-focused decision making process inside the company and the Sense and Response methodology evaluating critical factor values in particular.



**Figure 4** Main criteria weight results.

Main criteria values shows that the quality focus remains the most important criteria's for successful business, cost, timeliness and flexibility expanded their importance. The company more and more needs to achieve its quality goals in especially cost oriented manner. Flexibility priority takes the blow in the housing crisis situation and end up as the least important variable. Before crisis flexibility value turns out to be higher than expected. High level of flexibility is needed in companies looking for new markets or market share growth. Flexibility is a core competitive advantage in improvement of added value for customer and redesign of business cycle. The increase of market share is not a priority for TVT, neither in Turku or other areas. In this context from the high flexibility results TVT is unnecessary losing resources, efforts and profit. As housing market is capital intensive business with long life cycle of products the company will not put itself at risk, as the business entrance barrier is high.

We calculate a numeric value for a competitive index in different types of business groups such as prospectors, analyzers and defenders according to Miles and Snow organization types.



**Figure 5** TVT Competitive index results.

From these results TVT performs as a prospector type of company in the segment of social housing market. Finnish Government offers direct subsidy supports for persons with economic issues, health problems, immigrants, unemployed, bad credit histories, which have low to no chance to be accepted as customers for the private home rentals. State authorities also give indirect credit guaranties to cap the interest rate to 3,4% on real estate properties offered to these individuals. This market niche is a 40% of the TVT clients. In this sense it is unique service function fitting.

Defender type of strategy is limited to cost competition. While TVT is keen on keeping its main customer group, price sensitive clients, it also possible to increase profit margin by adopting analyser features in segments like family and luxury, city centre wooden houses. By adding additional competition issues in the core competence portfolio, TVT services are moved up from continuous improvement to mass customization concept.

Customer Delight may be the difference between success and failure during turbulent times. It creates the additional clients attractiveness that one can't place a momentary value to. This exploratory study provides traffic light system for identifying critical factors that have to be taken care of immediately. After calculating series of indices, the results are generalized in the CFI index. It is also a basis for benchmarking of prioritization of factors in the business.

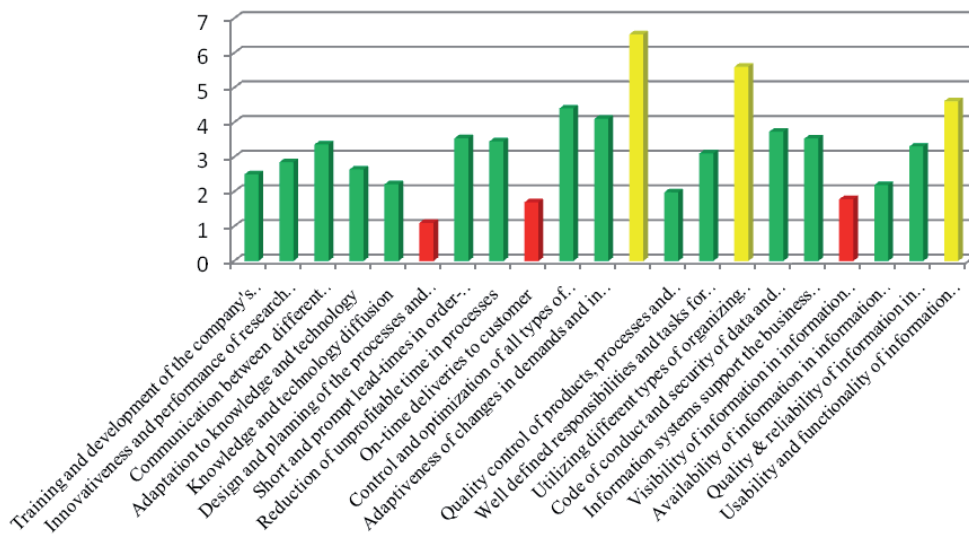


Figure 6 CFI index results.

### Conclusions

Major competition issues in housing markets are price, location, size, condition and security. TVT performs as a defender type of company in the regular housing market, being price competitive to private housing organizations. Due to the government support system TVT can reallocate profit to keep low rental price level. Housing and real estate overall is capital intensive business, which translates to interest rate variation having high impact on rents. Government support system limits the effect of interest volatility to prices.

Time gap between tenants is one big loss generator. Streamlining this process with maintenance counterparts decreases vacancies rate. The housing management function is divided between company own unit and outsourced to outside companies. According to customer, the service provided by the own unit is valued higher by tenants. Cost analysis showed that the outside companies are more expensive than own work.

At the same time, advanced service segmentation between the different customer groups and optimal process design to reach the delight experience was pinpointed as the best option for profit increase.

TVT aim is to keep strong position in Prospector type of company in social housing market. It has a strong core competence operating in this market area without any competitors. This strategic advantage can be exploited in various ways. Pricing can be increased with the value



of the administrative work done inside TVT, and by additional standardization of the whole service process.

The benefits of a fast and comprehensive method to gather important information in order to make resource allocation decisions at operational level are self-evident. Property fund managers should be active - 'doing well by doing good' and as technology costs fall and energy costs rise, more and actions are economic driven. So improvement in the customer satisfaction can be seen as "low cost-high impact" action to combat lower rental growth, faster depreciation and higher risk premium, leading to higher yields and lower values over time. The benefits of our proposed DSS can be summarised as lower maintenance cost with efficient work order and preventative maintenance execution Reduce administrative costs by harmonizing lease execution and optimizing space utilization. Businesses that can effectively manage utilization and costs associated with real estate assets stand to reap substantial benefits. A complete, integrated strategy of all critical business functions is the foundation for effective real estate management.

However there is still the need of further development and therefore should be tested in future case studies. CFI can be utilized to test internal as well as external processes, based either on expectations and experiences of employees, customers or business partners.

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# LEARNING FROM SOCIAL HOUSING POLICIES – KEY DECISION FACTOR ANALYSIS OF FINNISH, CHINESE AND THAI MODELS

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## **Abstract**

This work compares Chinese, Thai and Finnish social housing models in the context of their economic structure. It explores the variances in decision making factors for affordable housing policies related to Macroeconomic indicators such as urbanization level, population growth, Gross Domestic Product and Human development index. Statistical analysis of the last 50 years economic development is presented. Revising these three countries models highlights the need for dynamic reevaluation of decision factors priorities in time of economic turbulence. Policy makers and project developers can learn from data analysis to reorganized proactively Social Housing goals to face the uncertainties in policy development stages.

**Keywords:** social housing policies; learning; analytical hierarchy process; innovation.

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business and decision support system with critical performance indicators in real estate sector. He was recently honoured with grants from Evald and Hilda Nissi and Marcus Wallenberg foundations for his contributions to the field of science.

## 1 Introduction

This work identifies, describes and ranks the current priorities of Social Housing (SH) in Finland, China and Thailand. The main priorities are organized in hierarchy tree and are weighed by the major stakeholders in the countries. It explores the variances in decision making factors of affordable housing policies connected with Macroeconomic indicators such as urbanization level, population growth, Gross Domestic Product and human development index. Overall assessments are presented in the third and fourth section of the paper. Results of this Analytical Hierarchy process and Macroeconomic indicators historic values are examined in the last part, together with conclusions of the comparison and further research possibilities. Analysis of the last fifty years of economic development and population dynamics is presented in order to define the countries social housing policies profiles.

Social housing policies are one of the major tools that governance uses while trying to provide welfare for all citizens and ensure economic stability. With current high turbulence in global markets and growing social unrest, Social housing is high in the agenda of policy makers. Recent peak of investments in the sector was registered in China, with the approval of 20 years plan to invest 4 billion in SH projects. It was found useful to investigate the reasons behind such massive expansion policy and compare it with social housing providing countries, best in class political model like Finland, in the context of Housing and Economic life cycle. Adding to the sample of countries Thailand as supplementary Asian representative with especially volatile history of real states prices and significant population income gap, makes our comparison more comprehensive.

The link between Social housing and Economic factors is acquainted to policy makers, but still for academic research the factors behind the actual measures taken to address the topics are not proportional to the importance and economic scale of the issue. Usually Governments interfere with free housing markets in order to improve people's housing prospects and to ensure fair access to housing. Such interventions comprise of fiscal measures, like taxes and subsidies; direct provision of social housing or rent allowances; and various regulations influencing the quantity, quality and price of housing. Housing policies are closely connected to overall economic performance and living standards. Indeed, as recent analysis shows, effectively supervised financial and mortgage market development com-

bined with policies that enhance housing supply flexibility are key for macroeconomic stability (OECD 2011). Revising different countries models highlights the need for dynamic reevaluation of decision factors priorities in time of economic turbulence.

Currently the links between housing policies and economic cycles took the form of adjustments made in various housing programs to keep up with changes in national economic conditions. Motivation for adjusting the housing policies derived from policy decisions concerning the national budget. It should come as no surprise that during the past decade, housing policies have been adjusted many times. States have had to take proactive measures in the context of Global Economic crisis, which gave the size of the national debt so much political weight. Yet, housing policy-implementing has fiscal dimension at company and operation levels, so there is need to translate macroeconomic trends to prioritize there decision making factors.

There are clear signs that local and regional government's turn increasingly to social housing as tool to stabilize economic environment and sustain wellbeing. This is a response to fundamental changes in the world economy. (Weeseep, 2000)

## 2 Housing policies

In most societies, housing plays a special role in the social and political dialogue. Besides being a major component in creating stable and healthy communities, housing is often the largest single household expense. Social housing is supposed to ensure affordability of owner-occupied and private rental housing and enhances tenants living experience. Housing conditions are often considered to be worse than are socially desirable in relation to national living standards and societal values. For these reasons, almost all societies intervene in housing markets through an array of policies and subsidies intended to stimulate housing production or consumption by various groups.

Policy-makers have to make some basic choices regarding the design of a housing system to address specific housing sector objectives:

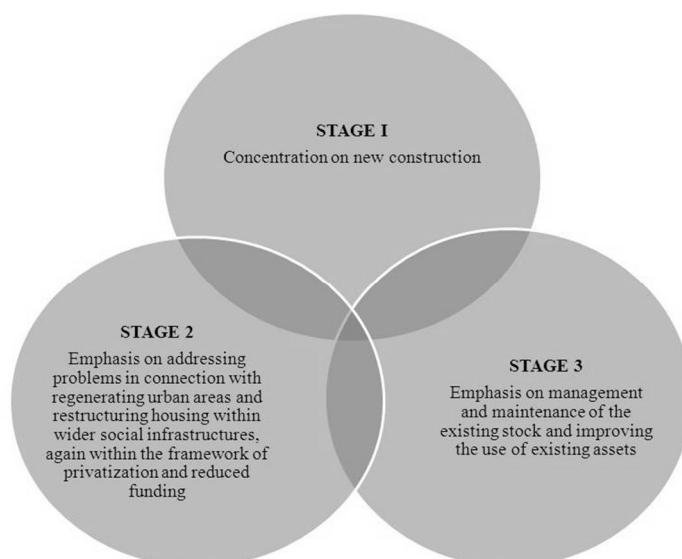
- Demand or supply support?
- Location- or household-specific support?
- Entitlements or rationed/allocated support?
- Linking subsidies to housing finance or not?

Answering these questions in practice requires balancing and trade-offs between three major criteria, namely

1. Property development,
2. Government interventions
3. Housing diversification

There are substantial variations around the world in the countries housing policy responses to economic and demographic changes. They differ depending on national cultures and political traditions, as well as on the impulses of the development of the national economies. Still housing has been a major policy ingredient for almost every state regulation in the effort to adopt welfare-state model. (Feddes and Dieleman, 1996)

The accessibility of affordable housing for low-income groups varies widely among countries. It depends on the shares of social, subsidized, and market-rate housing as well as on the mix of rental and owner-occupier dwellings. From this perspective and considering the various levels of economic development in different societies, it is understandable that housing finance – and more broadly speaking, housing policy instruments have taken various courses in different countries. Historically, each country's housing policy can be divided into three main stages:



**Figure 1** Main stages of Social Housing evolution.

Finland has gone through new construction focused period during 60's and 70's. This is still major priority in the capital area. Overall result for the recent years shows that housing policy is in transition between second and third stages. China is currently focused on new construction due to the sharp urban and economic growth it is experiencing. Thailand recent housing policy can also be positioned between stages two and three.

China is good example of government driven social housing policy, while Thailand has a policy dominated by free market factors. Government has also strong role in Finnish social housing; still these interventions are made with market mechanisms.

There is no straightforward optimal solution to the questions, but there may be a possible link to the objectives and housing policy instruments available to decision-makers and to the financial (budgetary) limitations of the housing finance system. (Donner 2002)

### *2.1 Finland*

In Finland, housing is a core element in ensuring welfare for all. The main objective of Finnish housing policy is to guarantee everyone the chance to obtain reasonable accommodation, both in terms of price and quality. Two-thirds of Finland's housing stock consists of owner-occupied homes. Housing companies are a typical, specifically Finnish housing system, accounting for approximately half of all owner-occupied housing in the country. About half of the rental dwellings are located in housing companies. As a result, various forms of tenure are often mixed within a single building. As right-of-occupancy housing is organized into housing companies too, their total share of the housing stock is around 40 per cent. (Asselin et al. 2002)

The Finnish housing finance and subsidy system is a combination of different options for both owner-occupied housing and rental housing production. This, and the so-called 'dual model' based on supporting supply and demand have been found to be effective in Finland. The model has functioned in cooperation between public actors (the State, the Housing Fund, municipalities) and actors on the market (developers, owners, banks and construction companies).

The most important forms of production support in countries like Finland are interest subsidies in connection with loans for new production or renovation, as well as subsidised interest rates on state loans. Additionally, up-front grants are provided for new production or renovation. Consumption support is defined as

support forms that focus directly on the household and aim to improve its situation on the housing market.

## 2.2 *China*

Chinese housing policy is strongly centralized with government situated in Beijing. Advices and recommendations are given to local governance and authorities. From the capital they are monitoring closely the environment in provinces, cities and rural areas. The main tools for implementation housing policies in china are naturally the right and ownership of land, construction project implementation and financial regulations. The government goals are to ensure the development and stability in the society with urbanization progress, along with infrastructure modernization and economic growth. The government and authorities accomplish desired housing policy by control over land, regulations and capital. Land is crucial resource for new buildings. It can only leased, not owned by private individuals. In principal the government can always take the land its use when it needs it necessary. City and areal planning is the most important guide for project developers. Projects are then led by constructions allowances and regulations. The government can and does decide what and where can/must be built. (Miles 2011, Lin 2011, Li 2002)

Housing is financed both by private and public capital. Owners occupied apartments finance consists of own capital and bank loan. The guarantee needed for bank loan is under government control. The guarantee is practical tool to control and drive housing markets development. Public support forms for rental housing are supply and demand based. Supply support is provided to project developer to decrease rent prices. To get the support the development company must accept certain technical rules and profit limitations. Actually the government can and does orders the companies to produce these supported houses in areas they like. Individuals too can get also additional support for rent.

## 2.3 *Thailand*

The start of the modern housing policy in Thailand came after WWII and the reconstruction of the country. The first efforts were to establish authorities with responsibilities for planning. Three government units, Government Housing bank (GH Bank), National Housing Authority (NHA) and Community Development Organization Institute (CODI), implement government middle- and low-income housing programs. GH Bank emphasis finance for low- and middle income mortgages. The Bank has been financing different public housing projects and energy



saving projects. NHA assures shelter for all residents. NHA provides apartments, condominiums, government employee homes etc. NHA acts primarily between government and private sector. The government budget funded GODI finance slum-area communities.

Major actions were taken, like clean up the slums and production of new more affordable housing, like in project “walk up apartments” did. The end of 60’s and beginning of 70’s brought “Turn the Key” housing in Bangkok. This was suitable to middle- and higher income customers but also for the financial institutions. The oil crisis in 70’s and second in 80’s slowed down well begun development a bit. The big boom started in the mid-80’s and continued until the fall of “Asia tigers” in 1997. During the boom Thailand developed fast due of its cheap labour force and natural resources. The land and former under-estimated housing areas for low-income people became more profitable and forced the people to find new places to live. The boom lasted while the Gulf war cooled the markets for a while. Combination of factors made the expansion overheat and in 1997 finally came the financial crisis. It was not until 1999 the recovery was seen.

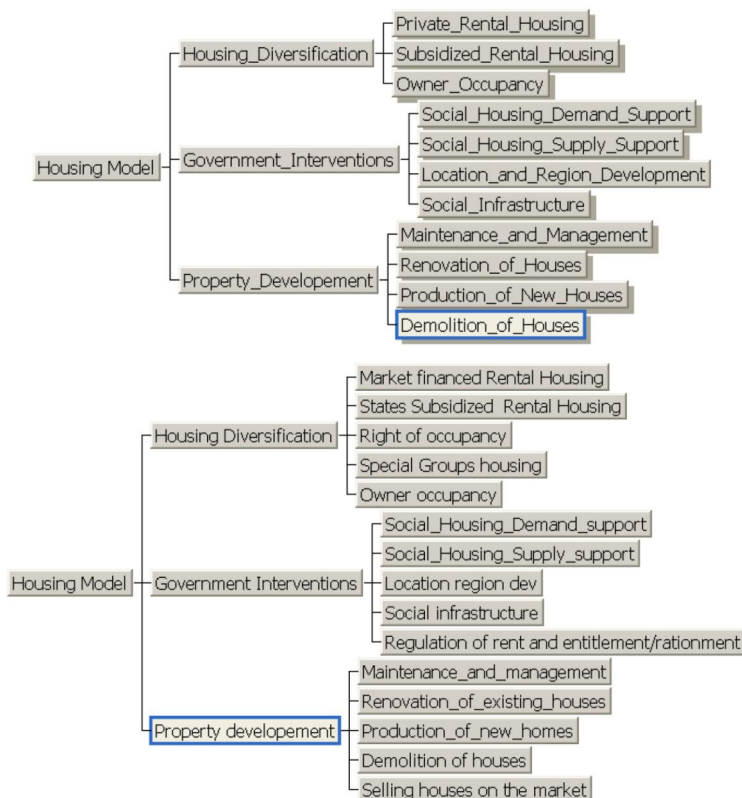
There has been an effort by the government to decentralize the urban growth and development to other parts of the country since 1970. Moreover, this policy was expected to indirectly slow down the urban growth and alleviate urban problems in Bangkok (Glassman & Sneddon, 2003).

### 3 Research approach

This study identifies the SH’s key consideration in Finland, China, and Thailand. We associate common policy goals -quality of life, social stability and economic development- with the differences in SH operational priorities. The differences between these three countries’ social and economic development and stage of SH development and the way they addressed same problems during the course of history makes them good case study for future scenarios development and SH policy innovation. They are effective also for historic trends validation.

Major factors influencing the structure of SH policies in Finland, China and Thailand were listed from the collected data for SH models. Structured interviews with decision makers in the sector, housing managers and operators, as well as residents and tenants were. The topics of discussion were the applied policies, the existing elements of social support for low-income population; the role of social housing as a part of the whole housing market; targets, indicators and goals, what should be the share of social housing in existing housing stock and in new pro-

duction, as well as future development trends and challenges in the implementation of policies. Apartment complexes were visited and awarded social housing projects were inspected to get representative sample of the housing environment. On this basis, decision making hierarchy was derived, showed at Figure 2:



**Figure 2** The hierarchy tree for the housing policy decision making.

During the visits, questionnaire generated from the hierarchy model with Analytical Hierarchy Process AHP software “Expert choice”, were filled by national housing authorities, social housing sector stakeholders, housing companies’ representatives and university researchers. Out of twenty selected representatives seven participants answered in China, 7 out of 16 answered in Thailand, as well as twenty two informants out of 30 answered in Finland. They filled in the provided questionnaire either as paper format or using the online web based tool. Based on the answers of the pairwise comparison, calculations allow to solve importance weight value for each factor and to compare overall the ranking of criteria in complete synthesis. In such a way AHP permits decision makers to institute multi-focused housing policy, balancing between factors as is appropriate for their specific country environment targets. (Saaty, 2008)

We combined individual judgements in country profiles and ranked the consistency of the answers to validate the logic of the respondents. Importance weight results (presented later in Figure 5–7) are measure of current resource allocation and a foundation for estimates about the effect of reallocating in times of global economic turbulence. This can be further developed scenario planning implementation and enhance policy making. (Toshev 2010)

Analysing decision hierarchy for diverse countries can generate versatile signals. It helps to minimize information gaps and inefficient decision making from strategic goals to day to day operations. The analysis facilitates driving-enabling-learning-outcome process of organizational learning. (Pastuszak et al. 2011)

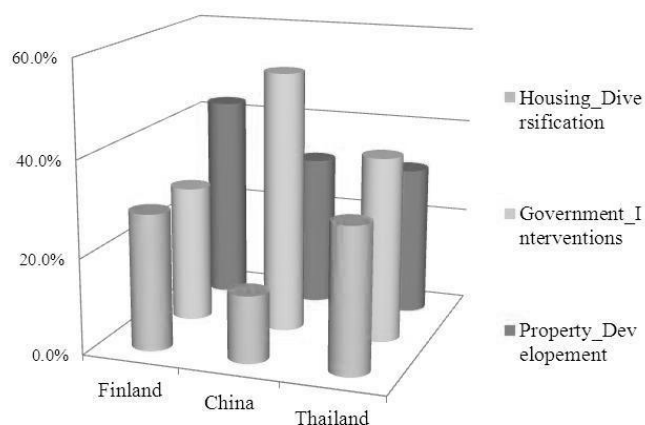
For additional verification of the presented social housing factor importance weightings, we take a historic review of the major macroeconomic indicators such as Urbanization level, Population growth, Gross Domestic Product levels and Human development, and generate regression trends in last 50 years data window. They are compared in order to explain the different environment of the housing markets (Shah 2012). The research process is presented as follows:



**Figure 3** Research process.

## 4 Data analysis

After all the information from the questionnaire was analysed, the calculated relative importance values are presented in figure 4 and table 1. Each country profile represents the combined participants' evaluation and the weights of three major policy factors sum up to 100%.



**Figure 4** Main policy factors weightings among the three countries.

As it is evident from Table 1, government intervention is the single most important factor for the social housing policy of China. That comes as no surprise given the centralized decision structure that is dominant in the country. The same criteria also have the highest priority in Thailand, though in that state all three measures are well balanced. Contrary in Finland property development have the highest priority with 42 % importance, 11 more than the levelled China and Thailand. Government intervention and housing diversification are of equal value in the Finland.

**Table 1** Main factors importance present values.

	<i>Finland</i>	<i>China</i>	<i>Thailand</i>
Government Interventions	28,6%	54,3%	38,5%
Property Development	42,9%	31,7%	31,2%
Housing Diversification	28,5%	14,0%	30,3%

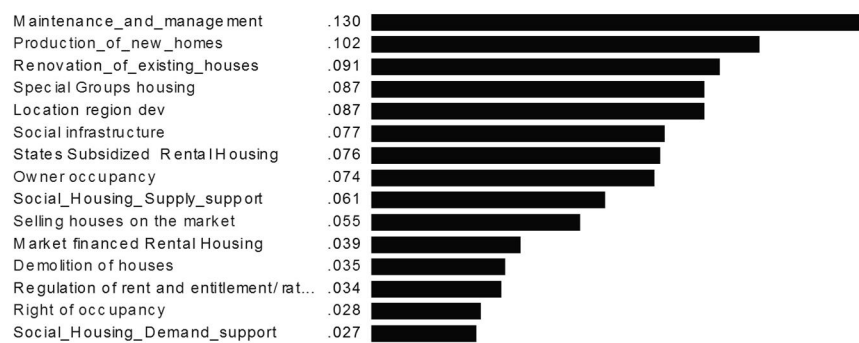
Inconsistencies in the answers were measured at 0,007 for Finnish sample, 0,01 for Chinese and Thailand , which are all in the acceptable limits for the model.

When head to head comparisons between main factors are made, housing diversification and government intervention has the result with highest variance 0.238. This indicate greater disagreement between respondents The geometric average value is 1,57, while for same comparison between government intervention and property development average is 1.22 in a scale of 1 to 9. Results are showing that the government intervention have priority over housing diversification and property development in head to head comparison for all the countries. In the

same way Property development is more important than housing diversification with value of 1.65.

In Figures 5 to 7 all the factors are sorted according their values with respect to the overall Social housing policy. The small gap between the factors in Finnish results indicates more balanced strategy, and advanced culture of private housing system.

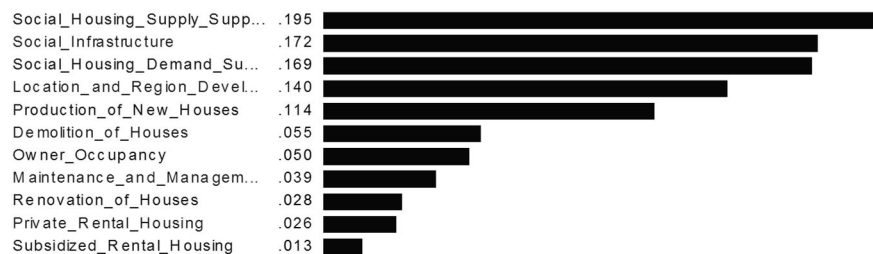
-add stage of urbanization and GDP level and growth and model of housing (government vs free market vs mix model)



**Figure 5** Complete hierarchy weights for Finland.

In China we have group of five very important factors and big importance gap to the last 6 elements. Strong urbanisation and fast economic growth present big issue that need to be addressed by central government as social housing supply and demand are of highest priority. There is strong state control and trust in it. Social infrastructure and stability are a big concern having in mind the lack of organization and resources for distant and rural population groups.

-add stage of urbanization and GDP level and growth and model of housing (government vs free market vs mix model)



**Figure 6** Complete hierarchy weights for China.

Social structure issues are influencing the prioritization in Thailand as well, but there maintenance and management and private ownership are of high significance. Social stability is an issue, as the country lacks confidence in public housing. The results suggest also China and Thailand lack's renovation efforts for old houses, which is a reason for the partially bad housing conditions present there.

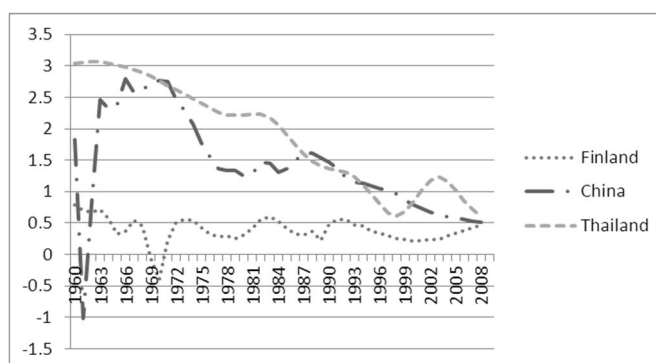
-add stage of urbanization and GDP level and growth and model of housing (government vs free market vs mix model)



**Figure 7** Complete hierarchy weights for Thailand.

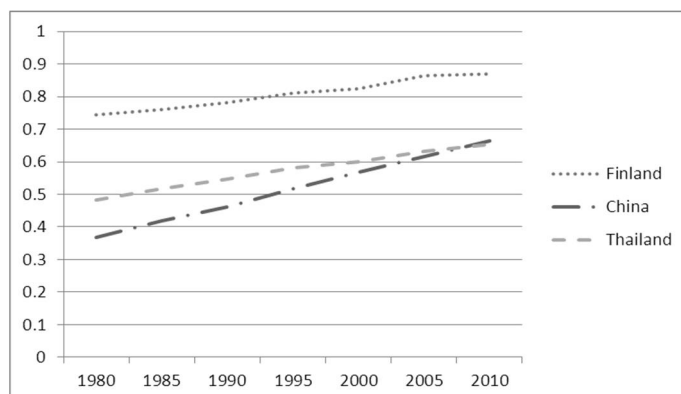
## 5 Macroeconomic indices analysis

Economic development and population growth between countries differs a lot (Figure 8), but the latest data shows they are all reaching for 0,52 % annual population growth:



**Figure 8** Population growth (annual %) Annual population growth rate for year t is the exponential rate of growth of midyear population from year t-1 to t, expressed as a percentage.

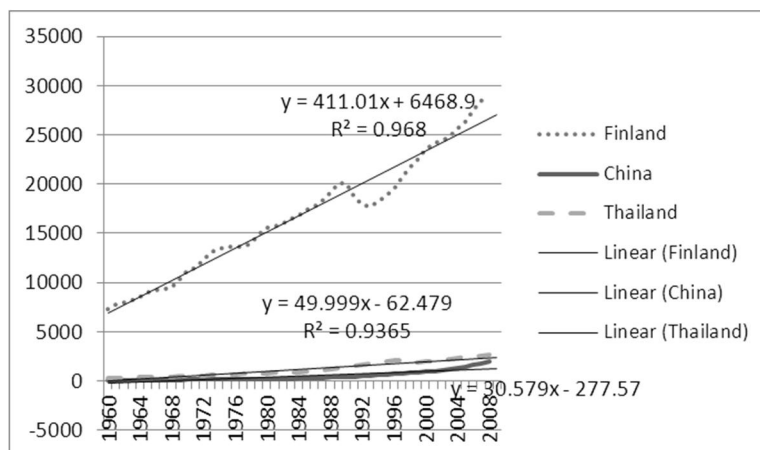
The Human Development Index for the period 1980- 2010 demonstrates in Figure 9 similar trends for positive development, with fairly equal growth factor for Finland and Thailand, while China shows steeper growth.



**Figure 9** HDI (Human Development Index) Human Development Index is an index used to rank countries by level of "human development". It contains three dimensions: health level, educational level and living standard.

In our data analysis we used multi tools for extracting regression and correlation results for the Income per person, Gross Domestic Product per capita and Urban population indicators for the historic period from 1960 till 2010. Similar tool was used by Mahmood (2012) and Park (2011).

The economic conditions in the three countries differ as China and Thailand GDP figures are much lower compared to the Finnish level as it is visible from Figure 10. Finnish income per person grew much faster over the period 1960–1989, while for the two Asian countries it was almost flat. This is of major importance for the economic and housing cycle.



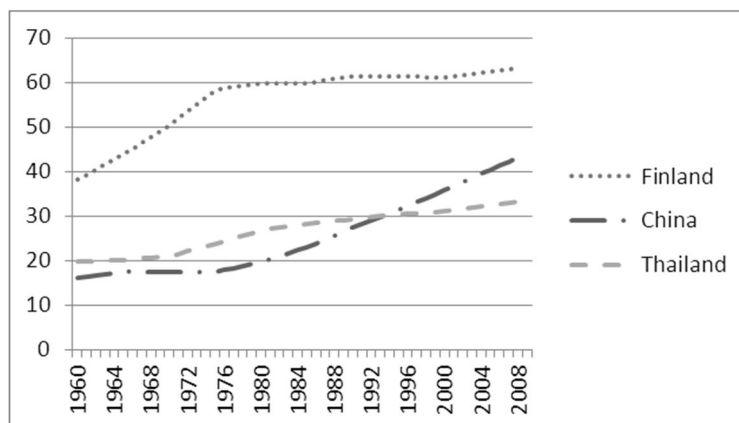
**Figure 10** Income per person, Gross Domestic Product per capita in constant 2000 US\$. Source: World Bank World Development Indicators.

The data in Figure 10 shows that Chinese average income will soon equal those of Thailand. Table N shows that China is the only country with positive kurtosis translating to ever positive increase in the indicator with lowest standard deviation from the mean growth,. As for Finland, while having the highest income still have also the highest deviation and variance from the growth rate.

	<i>Standard Deviation</i>	<i>Sample Variance</i>	<i>Kurtosis</i>	<i>Skewness</i>	<i>Minimum</i>	<i>Maximum</i>
Finland	5969.08	35629968.33	-0.80	0.24	7305.22	28626.73
China	498.67	248672.00	1.32	1.46	72.32	1964.71
Thailand	738.25	545009.92	-1.20	0.52	317.08	2640.29

The Urban population percentage indicator (Figure 11) suggest that Finland reached high level of urbanization much earlier than the Asian countries, and for period of 15 years, till 1975 reached about 60%, and kept relatively stable since then. China is experiencing increasing rate of growth in urban population from 1978, though not as sharp as Finland in the early period, still the current level is 44% and steadily rising. Compared to these countries Thailand hasn't seen sharp increase in the urban population and the variation is the lowest in the compared group.





**Figure 11** Urban population (% of total) Urban population refers to people living in urban areas as defined by national statistical offices. It is calculated using World Bank population estimates and urban ratios from the United Nations World Urbanization Prospects. Source: United Nations, World Urbanization Prospects.

Within such framework of comparison, Thailand shows slow urbanization growth and lowest urbanization level situated between phase 2 and 3. Finland is well into stage 3 with social infrastructure in some living areas becoming issue and difficulties as aging population is in need of renovation old housing stock. Though China has stable economic growth, still shows features of stage 1 policy priorities.

**Table 2** Descriptive statistic for urban population % indicator.

	<i>Standard Deviation</i>	<i>Sample Variance</i>	<i>Kurtosis</i>	<i>Skewness</i>	<i>Minimum</i>	<i>Maximum</i>
Finland	7.34	53.91	0.37	-1.33	38.10	63.30
China	8.65	74.89	-1.00	0.65	16.00	43.10
Thailand	4.49	20.20	-1.38	-0.32	19.70	33.32

China and Finland exhibit similar deviation over the historic period, while Thailand has half of the variance, confirming the smoothest urban population growth.

GDP growth, Urbanization rate and Human development index have been correlated with results shown in Table 3. All indicators show significant positive correlation. This can be explained with the fact that rural are people seeking higher income at urban centres and this phenomenon is observed in our sample for all the countries, China having the highest values and Thailand coming close second. Finland showing lowest correlation value, both for Income per person vs. Urban population %.

**Table 3** Pearson Correlation coefficients between Income per person, Urban population % and Human development index from year 1960 to 2008.

<i>Country</i>	<i>Finland</i>	<i>China</i>	<i>Thailand</i>
Income per person vs. Urban population %	0.8377	0.9569	0.9250
Income per person vs. Human Development Index	0.9461	0.9615	0.9816
Urban population % vs. Human Development Index	0.8998	0.9987	0.9977

## 6 Conclusions

Social housing is an important tool for social welfare redistribution, largely through the construction of a large subsidized rental stock and the economic value of the process. Government goal is trying to increase the economic efficiency of their housing systems without compromising social equity. With time the focus of housing policy shifts from production to maintenance to support for households in need. Such policy cycle dictates that vital changes are coming for fast growing economies, as governments give priority to development goals. The social housing asset system can be proactively developed and financed in a way that priorities can be easily shifted with the direction of economic change.

Whereas housing policy generally follows the economy, that link could also work the other way around. As local governments compete for economic growth, a promising strategy is to improve local housing conditions and proactively address social infrastructure issues. It is up to policy-makers to prove that there are rational and bring equity to population.

While the countries profiles differ from each another, still there are appealing reasons for policy makers to pursued models devised to create an equitable housing system, since the lowest income groups can gain access to low-rent units. Changes in economic variables have relatively fast influence on housing market. For example, a reduction in interest rate is likely to stimulate both demand and supply in housing market in the short-run (Hossain & Latif, 2009), whereas urban dynamics is process that take long period of time to show a significant impact on housing market. Therefore, urban dynamics plays an important role in a long-run analysis.

Social housing system require be mix between strong government influence and market mechanisms at matured stage as it is evident from the evaluation of the decision factors priorities. Policy makers and organization leaders have to understand in details the connection between the factors are reorganized them to meet political goals and face the uncertainties and in the same time. Social housing organization through a separate fund is regarded a good solution. Social restructuring, slowing economic growth and tenant mixing in more expensive new housing to increase local housing opportunities to socially rising households have been detected as trends in social housing cycle.

We hope that the presentation of experiences in these three countries will be of assistance in developing models for improving housing conditions and providing reasonable housing for all citizens.

### *6.1 Impacts on knowledge creations*

This research findings are in line with the previous research of Anussornnitisarn, Rassameethes et. Al (2010) and Anussornnitisarn, Sanpanich et. Al (2010) on knowledge, that has to be transferred from external sources inside organization. Tailored implementation of dynamic policies prioritizing can be effective for dealing proactively with the possible pitfalls these countries are facing.

The execution of the best practices in a dynamically changing environment by early detecting changes and reacting to them properly converts threats into opportunities and drawbacks into strengths.

Analysing decision hierarchy for diverse countries can generate versatile signals. It helps to minimize information gaps and inefficient decision making from strategic goals to day to day operations. Management have to make decisions for the future of the company/organization based on information for the capital flows and level of service needed. (Forss 2009)

### *6.2 Further Studies*

The identified trends can be used in scenario planning and SWOT analysis to calculate the direction of change and the variation of main criteria. Empirical connections can be made with main criteria values to rearrange the complete hierarchy weights depending of global economic figures.

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## SUSTAINABLE OPERATIVE HOUSING BY DYNAMIC RENTING

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### ABSTRACT

This study demonstrates utilization of Sense and Respond method for developing operations within housing markets by Critical Factor Index (CFI) having influence even on the strategic business performance. CFIs of knowledge intensive businesses can be measured and dynamically developed by Sense & Respond philosophy [1]. The purpose is to evaluate operative business performance in two quite different cases within quite big real estate businesses in Finland. For example, relationships with the customers, processes and possibilities for growth internally by different groups of respondents, ‘hosting’, ‘management’ and ‘rent’, were compared between the cases. One case company has a lot of more social housing compared to another.

The work aims at finding out and understanding similarities and differences in business processes by Balanced Score Card (BSC) and by much more operations oriented OP questionnaires, and by deeper interviews in the case companies as well. BSC questionnaire has been supported by an important part of trust related factors as well. We could find similarities like: openness, customer, communication between different departments and hierarchy levels, utilizing different types of organizing systems; adaptation to knowledge and technology, utilizing different types of organizing systems.

A new method for dynamic resource allocations in the operative processes in housing, especially in renting, where the customers move from one apartment to another one, has been proposed, it was validated and verified by weak and semi strong market tests in two quite big but different case companies. The preliminary but promising findings can be applicable for the whole market.

### KEYWORDS

Critical Factor Index, multicriteria decision making, process measurement, process management, business performance, housing, real estate.

## Introduction

The critical factors of knowledge intensive business in a globally competitive case company can be measured and dynamically developed by “Sense & Respond” methodology [1]. Critical Factor Index (CFI) [2], as well as its developed and stabilized form Balanced Critical Factor Index (BCFI) [3] refers directly to the concept of “Sense & Respond” philosophy and represents easy in use tool for supporting the strategic decision-making which applicability has

wide potential on various markets and types of organizations.

Knowledge intensive business aims at constant modernization, development and innovation, therefore the whole market segment is quite unstable and barely predictable. The bright representatives of the knowledge intensive business are housing (retailing) companies, as they depend a lot on customers’ opinion, experience, and satisfaction; face various and unique requirements from the customers’ side. Customer satisfaction has crucial impact on the business,

hence valuable. The loyalty of the customers increases with the satisfaction level what is beneficial for the company. [4]

The current article is the comparative study based on two significant actors of housing business in Finland: on quite big areal (over ten thousand of apartments) renting businesses of Company A (having a good part of social housing) and on Company B operating in same branch widely in other parts of the country and also with construction development businesses.

The work tries to find a new method for dynamic resource allocations in the operative renting processes in housing, especially in the process where the customers move from one apartment to another one (exchange). The purpose is to evaluate business performance in the case companies through utilization of (B)CFI methodology and find possible similarities, like relationships with customers, processes and possibilities for growth internally and externally.

The research method is survey represented by two different forms of questionnaire: Balanced Score Cards (BSC) demonstrating mainly the general performance of the company and Operations (OP) having closer reference to the company's resources. The investigation is arranged in three different groups of respondents (in each of the case companies): 'Hosting', 'Management' and 'Rent'. The fact that the questionnaires were arranged in different groups of employees provides better reliability of the results. At the same time it compares the responses of different groups and clarify what is more critical and important exactly for them.

The results of analysis for Company A are at the semi-strong market test [5] stage as the decisions

made on the results' basis have been already applied. The results of Company B have gone through weak market test [6] as were supported only by the experts' opinion. The main limitation of the research is the small sample – little number of cases to be tested. The additional problem is difficulty in finding case companies to be compared, as none of them will to share the strategic, therefore confidential information.

## Building the method

*“The CFI method is a measurement tool to indicate which attribute of a business process is critical and which is not, based on the experience and expectations of the company's employees, customers or business partners”[2].*

Balanced Critical Factor Index (BCFI) is the stabilized and developed from of CFI index with higher reliably in detection of the critical factors. Nevertheless, both methods are utilized in the study for getting more data to operate with. (B)CFI spreads the measured attributes (different in BSC and OP questionnaires) among three categories: critical (red color), potentially critical (yellow color) and non-critical (green color). Due to the gray scale of printing, the colors are following: critical (black), potentially critical (dark grey) and non-critical (light grey). In principle, the lighter the color is the less critical attribute it represents. The listed colors are utilized in the graphical representation of the results in a way to improve the visual perception of the categories.

Table 1 demonstrates what kind calculation took place for BCFI to get the complete results which are presented in the following chapter (Results).

Table 1  
The list of formulas for BCFI [3] calculation.

Gap Index (GI)	$\left  \frac{(\text{av. of expr} - \text{av. of expc}) * 1,3}{10} \right  - 1$
Deirection of Development Index (DDI)	$\left  \frac{(\text{better \%} - \text{worse \%}) * 0,9}{100} \right  - 1$
Importance Index (II)	$\frac{\text{average of expectation}}{10}$
Performance Index (PI)	$\frac{\text{average of experience}}{10}$
Standard Deviation Expectation Index (SD expc I)	$\left( \frac{\text{SD of expectation}}{10} \right) + 1$
Standard Deviation Experience Index (SD expr I)	$\left( \frac{\text{SD of experience}}{10} \right) + 1$
BCFI Final Formula	$\frac{\text{SD expc I} * \text{SD expr I} * \text{PI}}{\text{II} * \text{GI} * \text{DDI}}$



(B)CFI is a supporting tool for the strategic decision-making. In the knowledge intensive business environment the correct allocation of resources, their fast adoption and development can become the key competitive advantage. In this sense it is crucial to take the right decisions upon the areas of business interest and concentration and provide the made decisions with right amount of needs. To have it done, the company should be able to predict future changes on the market.

The study proposes to compare the results of the case companies with each other in a way to find similarities in critical areas, therefore to detect a possible trend of the housing market development. Through gaining such kind of knowledge, a company is well prepared for the future changes/moves and becomes a winner in any situation.

## Results

The results were gained by utilization of two types of questionnaire BSC and OP used for (B)CFI calculation. BSC (Balanced Score Cards) questionnaire is targeted on strategic holistic resources, and OP (Operations) questionnaire is enquiring holistic operational resources to be measured in different manners. BSC questionnaire has 18 attributes to be measured; 21 attributes stand for OP questionnaire.

There are two case companies representing the study's sample. Due to confidentiality issues the real names of the companies will not appear in the article; they were replaced by 'Company A' and 'Company B'.

The questionnaires were applied for three different groups of respondents for better reliability of the results ('the voice of organization'): 'Hosting', 'Management' and 'Rent'. Nevertheless, due to the limited length, the article represents only the results of the combined calculation - from all the three groups of respondents together.

In case of Company A, 10 respondents took place in research and 8 respondents participated from the side of Company B. The number of participants may be considered as sufficient for making strong judgments and suggestions. But the number of participating companies could be bigger.

### BALANCED SCORE CARDS (BSC)

It is reasonable to begin with tracing similarities in what the case companies expect to achieve in the future, therefore consider more important for the future competitiveness.

Fig. 1 demonstrates the comparison between the experiences and expectations of the companies (up-

per picture – Company A; lower one –Company B). The attributes with the biggest gap between experience (past/present) and expectation (future) are the strongest ones.

The matches between the expected positive changes for the companies are marked by rectangles over the attributes.

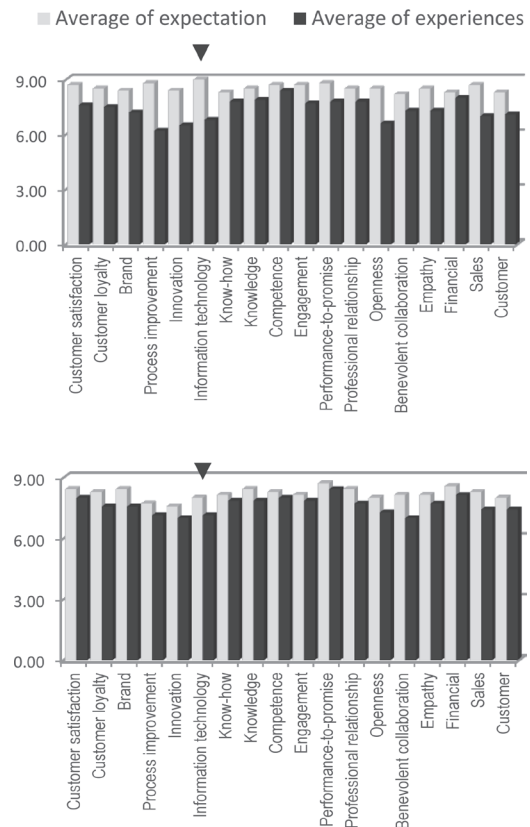


Fig. 1. PERFORMANCE (BSC): Expectations vs. Experiences among Companies A and B.

The above listed graphic implies that among the attributes with the biggest gap only one is expected to improve in both companies – 'Information technology'. Therefore, both companies feel that they are lacking in the mentioned attribute and expect it to be better in the future.

Figure 2 demonstrates the results of CFI (BSC) calculation for both companies. The article aims at finding similarities among the critical areas affecting the business performance of the companies; both critical (black) and potentially critical (dark grey) attributes belong to the extremes and should be considered as critical/potentially critical. As for the pre-

vious figure (1) the matches are marked by rectangles over the attributes. The graphic shows that three attributes may become critical in the nearest future: ‘Brand’, ‘Information technology’ and ‘Benevolent collaboration’; that is why the companies need to pay attention to them.

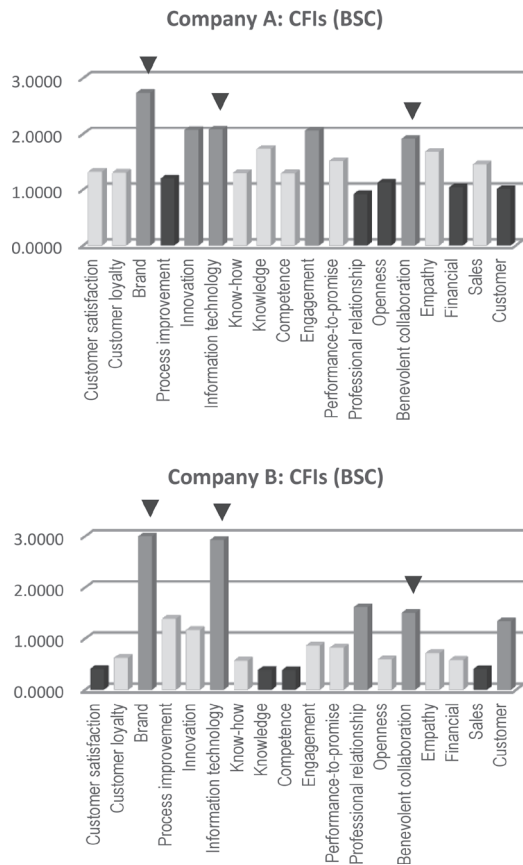


Fig. 2. CFI: Matches of the extreme attributes among Companies A and B (PERFORMANCE – BSC).

The following Fig. 3 uses the same logic with the only difference – it refers to BCFI (BSC) calculation. Now matches were traced in both extreme groups: (critical (black) and potentially critical (dark grey)). It is clearly seen that the following attributes have potential to become critical for the companies’ business performance: ‘Brand’, ‘Information technology’ (as in case of CFI (BSC) calculation).

At the same time, the following attributes are critical already for both case companies: ‘Openness’ and ‘Customer’.

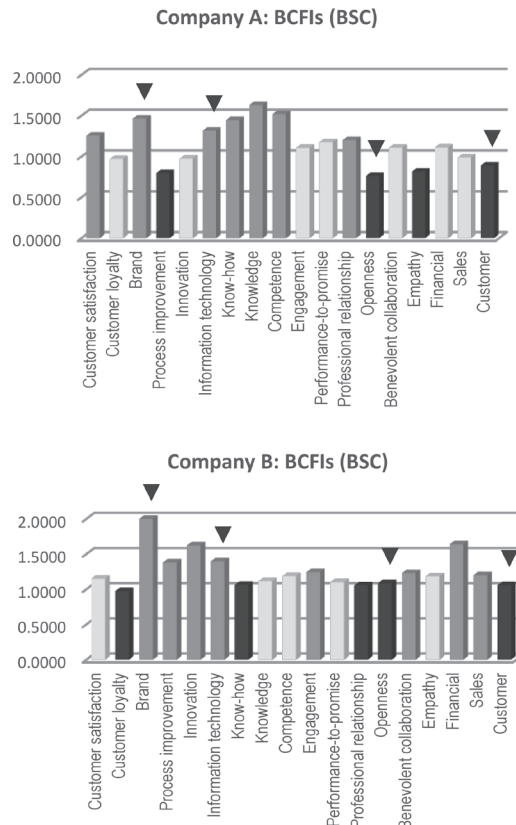


Fig. 3. BCFI: Matches of the extreme attributes among Companies A and B (PERFORMANCE – BSC).

**OPERATIONS (OP)**

As in the previous sub-chapter, we begin with the investigation of experiences, expectations and gaps between them inside the two case companies. The target is to understand, which of the attributes (from resource point of view) are taken by the companies more seriously and wanted to improve.

Figure 4 demonstrates the comparison between the experiences and expectations of the companies (upper picture – Company A; lower one – Company B). The most interesting for us are the attributes with the biggest gap between experience (past/present) and expectation (future).

Figure 5 demonstrates the results of CFI (OP) calculation for both companies. The similarities among the critical areas of the companies are marked by rectangles over the attributes.

The graphic shows that two attributes are critical for both companies: ‘Adaptation to knowledge and technology’ and ‘Utilizing different types of organizing systems (projects, teams, processes...)’. The com-

panies need to improve the attitude to the listed attributes in a way to harmonize the flow of internal processes.

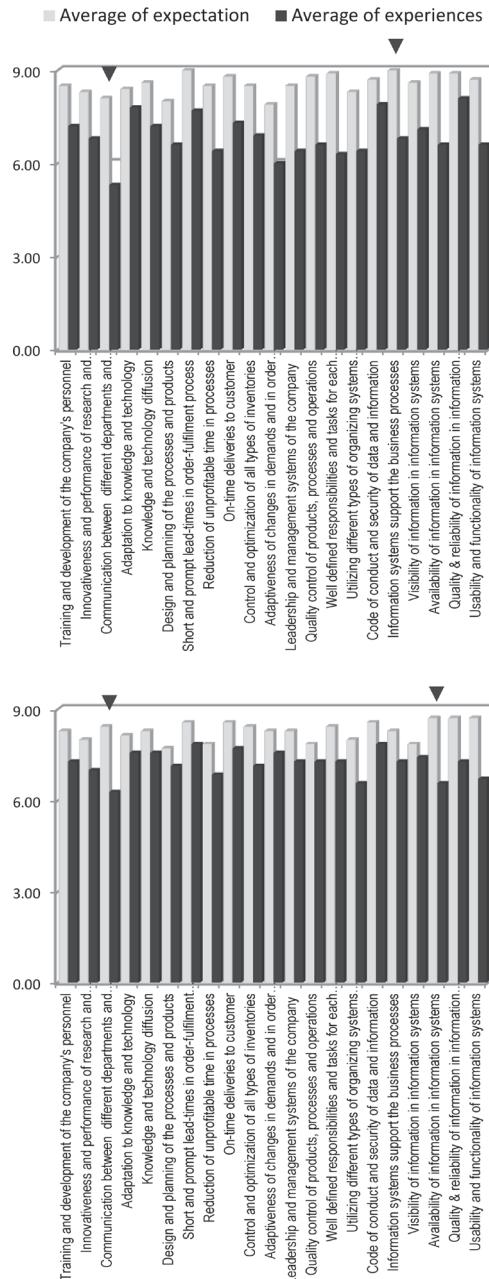


Fig. 4. RESOURCES (OP): Expectations vs. Experiences among Companies A and B.

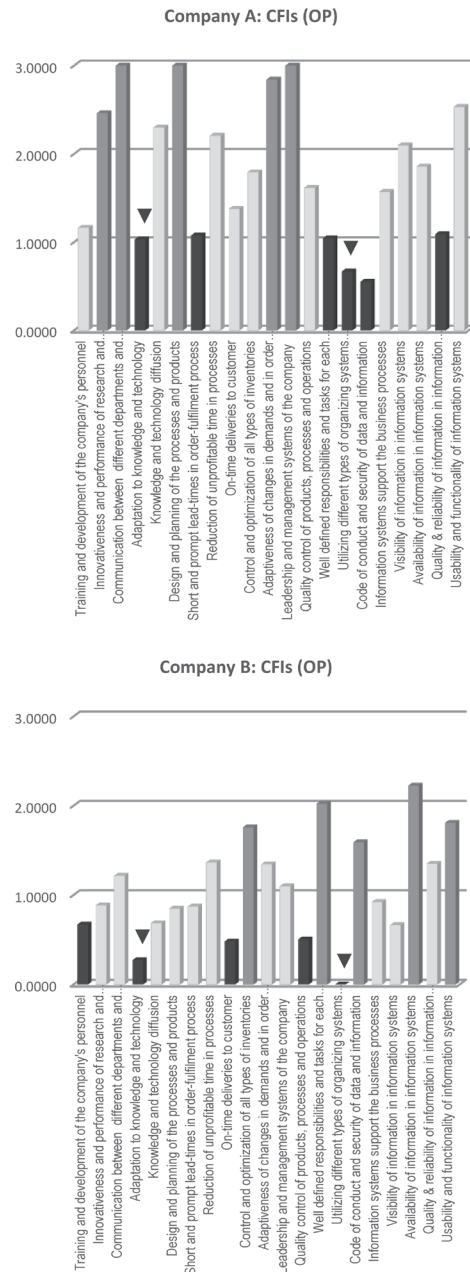


Fig. 5. CFI: Matches of the extreme attributes among Companies A and B (RESOURCES - OP).

The following Fig. 6 uses the same logic with the only difference – it refers to BCFI (OP) calculation. Now matches were traced in both extreme groups: critical (black) and potentially critical (dark grey).

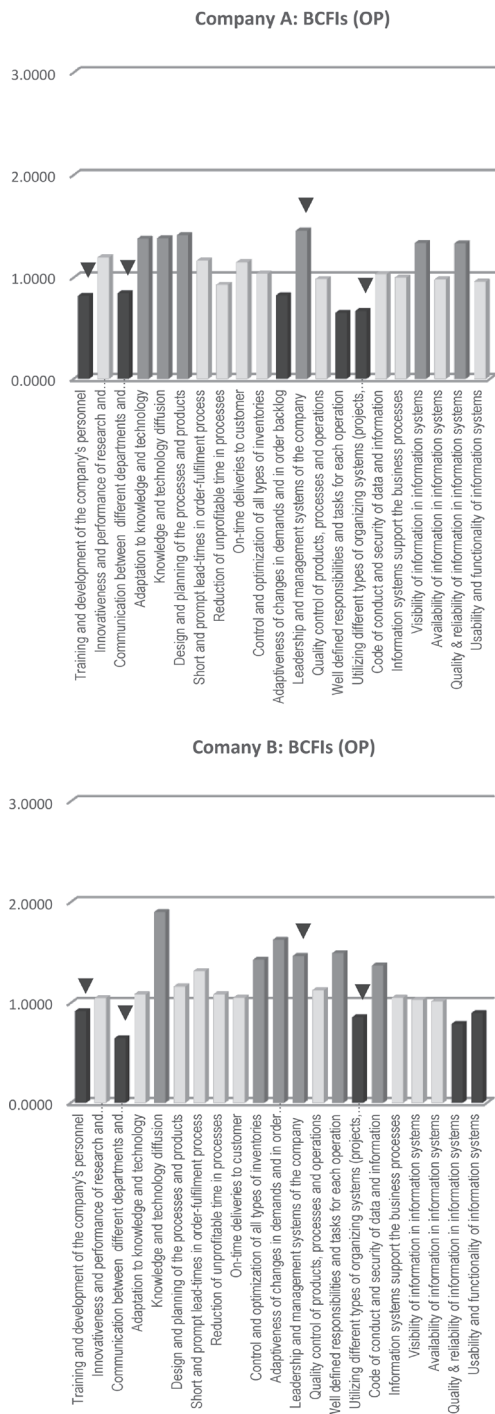


Fig. 6. CFI: Matches of the extreme attributes among Companies A and B (RESOURCES – OP).

The following attribute has potential to become critical for the companies' business performance: 'Leadership and management systems of the company'. At the same time, the following attributes are critical already for both case companies: 'Training and development of the company's personnel', 'Communication between different departments and hierarchy levels' and 'Utilizing different types of organizing systems (projects, teams, processes...)' (as in case of CFI (OP) calculation).

Through the simple analysis of BSC and OP cases by (B)CFI methodology application we found out which areas of the companies' business performance and resources (internal process flow) are critical and may become critical. Hence, it became possible to trace tendency which takes place internally and externally of, at least, two companies operating on the housing market of Finland.

Having more participating companies gives the ability to predict the behaviour of the whole Finnish housing market, what might be considered as the very strong tool of strategic planning and decision-making.

### Validation

The significance of results' validation is hard to underestimate in any research, as it says for reliability and correctness of the study made. In additions it takes the duty for detection of the study's drawbacks and judgment upon the further research in the area.

The results of analysis for Company A are at the semi-strong market test [5] stage as the decisions made on the results' basis have been already applied. For example, the following ways to reduce costs of house exchange have been utilized:

- Modify the process to be less expensive;
- Use less expensive resources - use more expensive and skilled employees only when needed; otherwise use less expensive employees;
- Contracts – make it beneficial to terminate housing contract well before the move.
- Reduce the amount of house exchanges: for example by repairs while the residents live in the apartment – they don't need to move when they want an updated home; repairs are less expensive for the company than house exchange.
- Choose customer groups, who do not move often: for example residents, whom competitors do not want as customers – a poor living history, bad behavior, payment difficulties etc.

At the same time, some ways of the company's development have been proposed based on the received results of the analysis:

- New business models: pricing; operation costs;
- Development of estates;
- They could choose to their customer group people, who have difficulties to find housing; this customer group has little variety of apartments; other companies do not want them as customers.

The results of Company B have gone through weak market test [6]. It was carried out, by asking the commitment of the management (one manager of expert is enough for weak market test) to propose an improvement (efficiency and effectiveness) of the attributes found critical, for example: 'Communication between different departments and hierarchy levels' and 'Utilizing different types of organizing systems (projects, teams, processes...)'.

It is worth to mention that the main limitation of the research is the small sample – little number of participating case companies. In addition, typically companies do not want to share their internal confidential information; therefore another problem appears on the stage of the study's sample selection.

## Conclusions

A new method for dynamic resource allocations in the operative processes in housing, especially in the renting, where the customers move from one apartment to another one, has been proposed, and in preliminarily validated and verified by weak and semi-strong market tests.

Through the applied methodology we found out which areas of the companies' business performance and resources (internal process flow) are critical and may become critical. Hence, it became possible to trace tendency which takes place internally and externally of, at least, two companies operating on the housing market of Finland. With more participants the method has a huge potential to predict the behaviour of the whole Finnish housing market, what might be considered as the very strong tool of strategic planning and decision-making. Another benefit is

comparatively simple applicability of the method to other market segments and industries.

The investigation has shown high level of expertise for the answers obtained and sufficient level of the overall reliability. The case study is at the semi-strong and weak market test stages (Companies A and B). Nevertheless, the method is at the very early stage of development, therefore has been tested only with two participating company. It can be called as the main limitation at the moment. Further development and validation is required for getting stronger data about trends and correlations existing in the proposed method.

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