# How to improve market transparency

Dipl.-Ing.

## Rene Gudat

(PhD student and scientific assistant at Leibniz University Hanover)

Email: gudat@gih.uni-hannover.de

Telephone: 0049/ (0) 511/ 762 3389

Rene Gudat
Geodetic Institute at Leibniz University Hanover
Nienburger Strasse 1
30167 Hannover
Germany

**BIOGRAPHICAL NOTES**
Rene Gudat was born in May 1982 in the north of Germany. He finished school in 2000. From 2002 to 2007 Rene studied geodetic engineering in Hanover and focuses on land and real estate management. Since 2007, he is PhD student at the chair of Professor Winrich Voß for land and real estate management at the Leibniz University of Hanover. Rene's research project deals with the improvement of transparency on the land and real estate market. His PhD thesis focuses on estimation of a ranking of important characteristics of the land and real estate market by using Multi-Criteria Decision Making (Decision Theory). Besides this, Rene is a member of different working groups that are specialised on valuation of property and the analyses of the land and property market.

# How to improve market transparency

## 1   Abstract

In the economic research market transparency is the knowledge about goods, their prices and their allocation. Competitive market transparency requires a competitive market. Unfortunately, caused by heterogeneous and immovable real estate the land and real estate market isn't a competitive market. Nevertheless, improvement of market transparency is a major goal of market research.

The land and real estate market is divided spatially and factually. This paper will present empirical and theoretical efforts to improve transparency of the land and real estate market. It presents the preliminary results of a research project started in 2007. While the final report of the research project deals with empirical aspects, the doctoral thesis deals with a theoretical model to improve market transparency.

Requirements to improve transparency of the land and real estate market can be derived by an empirical study of current situation. Therefore, four issues have been analyzed. To begin with, market information that is currently published on a national level has been analyzed. Market information could be grouped by publisher and characterized by content: Different publishers focus on different aspects. For the second place, published information from different countries has been compared internationally. Different countries have different legal and economic frameworks. To fit requirements of users both frameworks should be considered within a comparison of market information and market transparency. For the third place, market participants have been asked for their demand for market information. For the fourth place, scientific and practical papers point out aspects of market transparency or demand for market information of market participants. All issues were combined to a system to improve nowadays markets transparency. The idea of the empirical study is to identify very important factors (key factor) to describe the land and real estate market.

Another effort is deriving key factors theoretically. It can be done by comparing different suggestions written in literature or by modeling the demand for market information used in different services. However, different services like valuation, market and location analyses or forecasting - each supporting transparency – require different parameters. These services can be formed to a model of market transparency. This model allows considering all aspects of market transparency. The parameters of different services are combined in the doctoral thesis. The weights of different parameters are estimated by using Multi-Criteria Decision Making. Due to quantitative parameter the decisional problem is fuzzy. The doctoral thesis will handle these problems by using methods like PROMETHEE, ELECTRE and AHP. Various benefits of these methods are going to be connected. The theoretical model results a set of key factors.

The key factors derived in the empirical study are going to be tested practically. The results of the doctoral thesis are going to be compared with the results of the empirical study and the statements of market participants derived in the survey. Although the research is located in Germany, ideas and results could be transferred into other countries.

## 2 Market transparency and market information

### 2.1 Land and real estate market

Real property is characterized by various attributes: Real Property is fixed on location, complex in its constructional physics, the divisibility and ability for substitution are limited, the lifetime cycle is very long and the investment volume is high. The attributes leads to a heterogeneous characteristic of real estates and the market.

Due to the different characteristics of real estate the market differentiates factually and spatially. Factually the market is characterized by the use especially of the building. The majority of buildings are used for residential uses. But in fact, residential uses can be separated further info single-family houses, semi-detached houses or multi-family houses. And even this could be divided by different characteristics like features of the facilities. The commercial real estate market is separated into office, retail, logistic, hotel and different special purpose uses. Special purpose uses is a general term of uses with a limited marketability. Often there is even no market for single facilities. As residential real estate commercial real estate can be separated by characteristics of land and building (Schulte, et al. 2008).

An efficient and competitive market implies an economic allocation of uses. An economic market finds the right location for the right use of land. A bad location cannot be substitute a good use. Due to the allocation the market separates in different location. So, for retail location there are 1a-, 1b, 2 and more irrelevant locations like the suburbs. While in 1a-locations the price is high, in the suburbs the price for retail facilities is much lower. For every single use of land and real estate there are different preferred locations. An economic market consider the effects: for office building often there are only representational branches left in the city center, while the back office is in more opportune locations.

However, the market is also segmented by the agreement of the property. Property can be leased or purchased. There are different kinds of leases: Beside leases there are rental agreements with different contents of contract under private law. Purchases can be done as freehold absolute or with some more restrictions as leasehold. There is a variety of agreements in different countries. In Germany, purchase prices (in the meaning of freehold absolute) and rents are the most important results of the market.

All of these aspects lead to a heterogeneous and widespread market. The aspects should be considered in coping with market transparency and market information to suit requirements of market participants.

### 2.2 Aspects of market transparency

Competitive market transparency is an ideal of economics. A market is transparent if every market participant got complete knowledge about the market, demand and supply (Henrichsmeyer et al. 1993). In fact it is only fulfilled in competitive markets. As shown above the land and real estate market isn't a competitive market. SCHULTE ET AL. define the land and real estate market as transparent if it is obviously how the market operates and which factors are relevant (Schulte et al. 2005). Other Authors like JAEGER limit market transparency on information based on market valuation (Jäger 1998). Indeed the German government introduced market valuation in 1960 to establish mar-

ket transparency. But, since 1960 the market and its participants changed a lot: The market and its participants are much more affected by economic behavior and effects.

Market information is selected, rehashed and analyzed information about the market. Selection means the definition of the market that should be analyzed and parameters that should be described within information (see section 2.1). Often the collected data need to be rehashed: Outliers need to get eliminated or data need to be normalized. The Analyses of data includes the transformation of data to information: on the one hand it could be a mean value, one the other hand the result of a multiple-regression model or hedonic analyses. In this content data means raw data and information are analyzed data. But, the questions remain which parameters are necessary to describe the land and real estate market and to improve market transparency. These very important parameters are going to be called key factors. The following sections describe an empirical and a theoretical way to improve market transparency.

Market information is published by market participants and by market observer. Real Estate Agents, brokers, bank officials or investors are markets participants. Market analysts and valuation experts are market observers. Theoretically market observers provide an objective view on the market, without any interest on the impacts of their result. While markets participants are involved in the market with an own interest, market observers are more independent in their activities. Certainly, market participants have the benefit to be next to the market.

# 3 Empirical effort to improve market transparency

Requirements to improve transparency of the land and real estate market can be derived by an empirical study of current situation. Therefore, four issues have been analyzed. To begin with, market information that is currently published on a national level has been analyzed. For the second place, published information from different countries has been compared internationally. For the third place, market participants have been asked for their demand for market information. For the fourth place, scientific and practical papers point out aspects of market transparency or demand for market information of market participants. All issues were combined to a system to improve nowadays markets transparency. The idea of the empirical study is to identify very important factors (key factor) to describe the land and real estate market.

## 3.1 Survey of published information

Published Information could be analyzed to conclude requirements of market transparency. There are six groups of publishers in Germany:

- Official authorities
- Broker
- Bank and mortgage agencies
- Professional research companies
- Supplier of geodata
- Databanks of information about the land and real estate market

Market information could be grouped by publisher and characterized by content: Characteristics of the information are factual and spatial distribution. But, also information about periods, statistical models and sources of data had been analyzed.

Information about the German land and real estate market is published by different authorities: The federal statistic bureau collects data about residential uses and unbuilt real estates. For commercial real estate the federal statistic collects hardly any information. However, there are economic departments on different federal level (national, federal state, city), which provide information for the commercial real estate market. At economic departments rents, yields and sometimes vacancy rates are available. The information published by the statistical bureau and the economic department comes from market participants and the official committee of valuation experts. The committees of valuation experts collect contracts of purchases in purchase price collections. They analyze this collection and provide information especially about residential real estate. In Germany there is hardly any information published by the land register and the tax authorities. There is a lack of information about the commercial real estate market and rents for both commercial and residential real estates.

During the last decade many - esp. internal or national - brokers became service provider for the land and real estate market: Besides marketing they offer valuation, maintenance, market analyses and other services. Brokers publish information about the commercial real estate market and focus on rents, yields and vacancy rates. Information provided by brokers is published for the largest cities in the country or regions with an increasing economic activity. The considered data volume is not clear, sometimes there is no information and only a feeling on the market is given. Even if brokers provide very important information they are still market participants with an own interest.

The information of Banks and mortgage agencies are similar to those published by brokers. Banks generates their data from their own activity as market participants, valuation in the mortgage lending process and investment in investment funds. Almost every bank that is involved in the land and property market publishes information about the market.

Geodata is information about a special location. This information exists of cadastral information, the land register and data provided by market participants and market observer. Geodata is related to a specific real estate. This information is provided by specialized suppliers that only distribute the data; analyses are not included.

Databanks are special services with different aims. Some are specified to support market analyses other foster valuation. In Germany there are more than ten different databanks that collect information for different factual and spatial submarket. For each of the existing data banks there are advantages and disadvantages. Some data banks can convince a very good quality of data, but they are limited in their geographic coverage. Some data banks dealing with special market segments and probably have incomplete, but nationwide records (Gudat 2010).

There are different kinds of information. The provided parameter in different information can be analyzed by quantity. While public information concentrates on purchase prices and activity of residential real estate information by commercial publisher dealing with rents for commercial spaces. There is a lack of information for commercial real estates in rural areas and even suburbs or smaller cities. The quality of information is very diverse. To operate with different kinds of information quality standard would be necessary. For some information the process of analysis is clear, for others there is just a figure that could not be validated by the analyst. The market analyst should know every about the used data like sample size, definition of parameter or time reference (Gudat and Voß 2009).

## 3.2  Demand of information of market participants

Market participants join the land and real estate market in a specific field like investment, market analyses or valuation. They offer different services to support market transparency (see Section **Fehler! Verweisquelle konnte nicht gefunden werden.**). Some concentrate on only one service, other offer a large variety of services. These market participants need different market related data or information. As market participants they also regard future developments how to run services, e.g. changes in aw or state of the art standards. In fact, one possibility to improve market transparency is to ask these participants.

This approach has been tested within this study. A questionnaire consisting of 18 questions has been developed. All questions dealing with the field of activity of the asked market participants, the market information used by them, problems of market transparency and their suggestion to improve special points of market transparency as quality or missing parameters. The major aim was to find key factors. To test the questionnaire a so called pre-test had been done. A Pre-Test is done to check the significance of questions and answers. The question was asked without fixed answers but the variety of given answers is limited. For the Pre-Test eight market participants had been asked in interviews. The asked experts are accounted for their competence; they are experts. The sample of experts encompasses the whole market.

**Figure 1: services provided by the asked experts (multiple answers possible)**
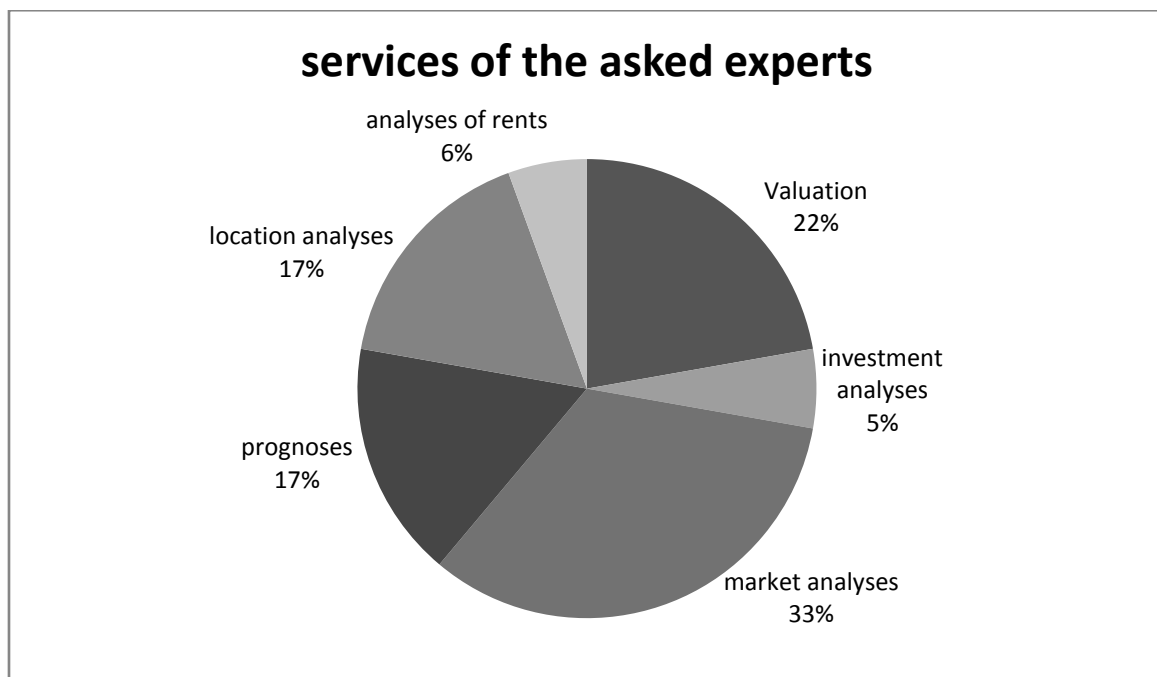


The asked experts favor market analyses (see figure 1). Obviously, because market analyses are previous studies for valuation, investment analyses, forecasting and location analyses. On the one hand valuation is part of investment analyses, but on the other hand valuations often require analyses of rents.

**Figure 2: Quantity of answers given by the experts.**
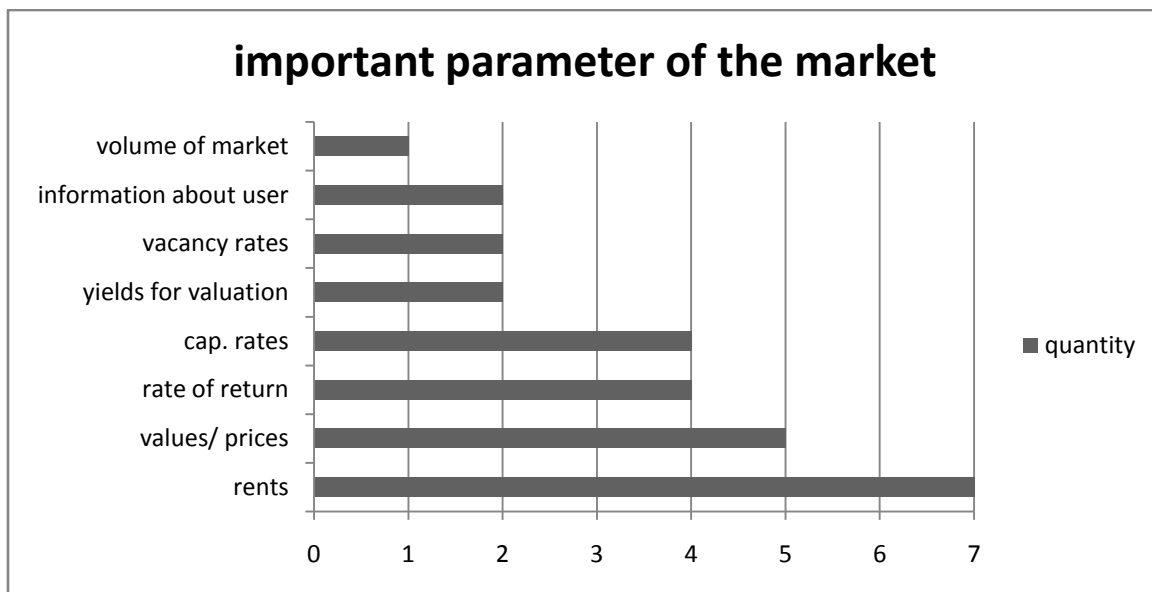


Asked for the most important parameters to describe the land and real estate market the experts named rents, values and rates of return (and the reciprocal of rate of returns: cap. Rates; see figure 2). These parameters are used in different services. Rents are necessary for market analyses, forecasting, rent analyses and valuation. So they seem to be very important.

The experts uses various sources of information, all of them are included in the survey for section 0. But, the experts also mentioned to be aware of the quality of the published information (see section 2.2). Some sources have to be excluded from use because of their poor or unknown quality. Often information with poor quality is used as fuzzy information to have an idea of market's behavior.

However, the German land and real estate market is told to be intransparent. So the aim should be to improve market transparency. Therefore, the experts were asked for parameters and information they would need to improve their services and activities. In general, the experts don't know further information or parameters due to their activities on different international markets or their activity on the national market. One former idea of the empirical study was to import concepts used in countries that are told be more transparent than Germany. But again, the experts mentioned that data should be comprehensively available for every location in a got quality. As already noticed in the survey of section 0 there is a lack of information in suburb and rural areas and as well for commercial real estates.

But the pre-test of the questionnaire also pointed out, that market participants are limit in their understanding of the market due to their own activity. For instance, valuation experts for residential real estate don't have an idea of requirements how to do forecasting. Furthermore, the ideas to improve market transparency were limited on services that are currently used on the market. Both aspects lead to the conclusion that a survey of experts, which are only partly involved in the market, is not that good to emphasize key factors of the land and real estate market. So the pre-test showed that the survey itself would fail.

## 3.3 Experiences of foreign markets

The German land and real estate market is told to be intransparent (Schulte et al. 2008). Within Jones Lang LaSalle's Real Estate Transparency Index 2010 Germany is ranked number 10. It is still a very transparent country but there are nine countries told to be more transparent. Concentrating on market information Germany is ranked number 2 in this Sub-index. In fact, the Real Estate Transparency Index itself is a survey of investment experts for commercial real estates of Jones Land LaSalle. The survey was a questionnaire, but the questions were not published. Besides the market information the Real Estate Transparency Index surveys performance measurement, listed vehicles, regulatory and legal issues and the transaction process (Jones Lang LaSalle).

The empirical research of the project analyzed six countries that are told to be more transparent than Germany: Australia, Finland, the Netherlands, Sweden, the United Kingdom and the United States have been analyzed. The focus of the research is the market information published in those countries. The information is systematized like those in section 0. So the information published in different can be compared. To get a comprehensive impression of different countries, the framework in those countries should be discussed. The survey shows the economic and legal framework for every country. The economic framework includes the use of land and real estate for both residential and commercial real estate and it development in the past. The legal framework discusses the structure of real property (direct and indirect ownership), the cadastral and ownership registration, the planning system, the tax system and the valuation of land and real estate.

In summary, the system of cadastral and ownership registration and taxation differ between countries. In all countries these register offer an enormous amount of information. The Information is linked to specific real estates and often analyzed. In those countries that are told to be more transparent the security of personal data is much below than that in Germany. The information collected by commercial supplier of market information is comparable or even below than that offered in Germany. But once again, the lower security of personal data enables commercial companies to use and analyze public information. Collecting data is very expensive and the number of user of information about the real estate market is limited in particular if the information is very specific. Information collected for the tax, the cadastral or the ownership register has a high quality standard. In Germany, due to security of personal data the use of public data is limited. The use of the purchase price collection is limited on valuation issues only.

In fact, there are some very interesting findings in different countries: In the United States were information is publically available very good GIS-applications are available. On the website of the county the owner can find information about property, its value, the ownership and the tax paid. However, information about a single property is not information about the land and real estate market. So the information provided by the county used to be analyzed.

## 3.4 Literature review on improvement of market transparency

There are only some few articles dealing with market transparency and how to improve it. Market transparency, of course is quite important, but papers dealing with that topic often present updated available information. These articles concentrate on specific submarket like market analyses, valuation or forecasting (Thomas 1997; Seidel 2005; Schulte et al. 2005; Rußig and Dorffmeister 2005; Kauffmann and Nastansky 2006; Gudat 2010). Presenting market information in that matter means articles don't offer ideas for new parameters. These papers point out difficulties of market information or services. They cannot improve market transparency completely.

As showed in section 3.2 the quality of information is very important. However, only some few articles dealing with quality of market information for the land and real estate market (Körner and Schmidt 2006; Ge and Harfield 2007; Gudat and Voß 2009). There is really no concept how to publish good quality data. Here may be some lack of research and standardization.

# 4 Theoretical effort to improve market transparency

Key factors for the land and real estate market could be derived theoretically. This can be done by comparing different suggestions written in literature or by modeling the demand for market information used in different services. However, different services like valuation, market and location analyses or forecasting - each supporting transparency – require different parameters. These services can be combined to a model of market transparency. This model allows considering all aspects of market transparency. The parameters of different services are combined in the doctoral thesis. The weights of different parameters are estimated by using Multi-Criteria Decision Making. Due to quantitative parameters the decisional problem is fuzzy. The doctoral thesis will handle these problems by using methods like PROMETHEE, ELECTRE and AHP. Various benefits of these methods are going to be connected on a higher level. The theoretic model also results a set of key factors.

The review of literature (see section 3.4) as well as the experiences from national and international markets (see section 3.1 and 3.3) and requirements of the market participant showed that transparency of the land and real estate market is achieved by different services. For different submarkets there are different services, sometimes the services have to be modified to suit the market. The major services are market and location analyses, analyses of rents, different valuations, risk analyses, ratings, marketability analyses, forecasting and due diligence (see figure 3). They are connected with each other: e.g. to run a valuation it is necessary to do a market analysis before (see section 3.2).

**Figure 3: Model of services providing market transparency**
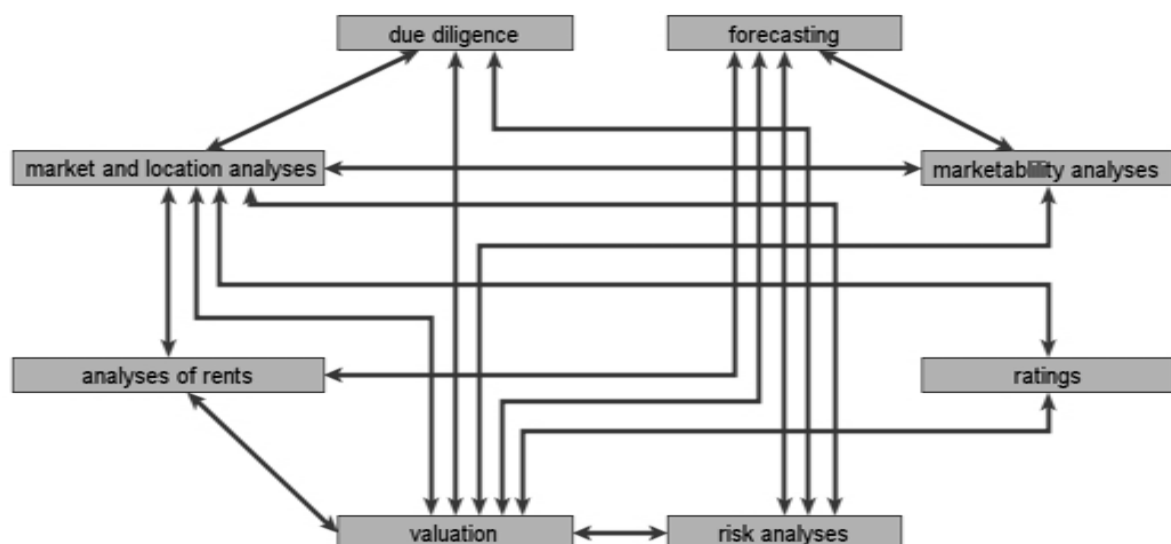


Some services could be divided into subservices which can be run separately: valuation could be a market valuation, estimation of loan value, investment analyses or estimation of tax value. For market participants these services fulfill requirements of market transparency if they are run correctly (section 3.2). But the question still remains: Which are the most important factors?

**Figure 4: Different subservices for valuation**
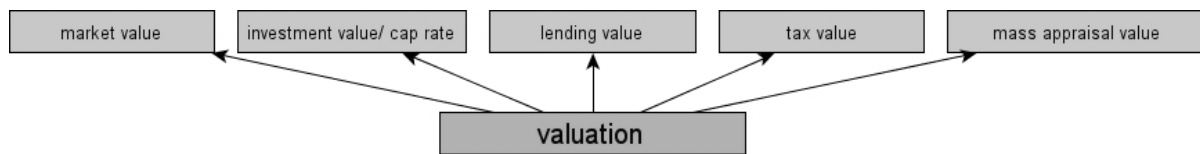


For every service there are advices of their usage. In Germany, there is a legal framework for market and lending valuation. It describes which parameters to use. For other services there are state of the art standards given in specific literature. Literature point factors out which are necessary for various factual submarket. Often there is very specialist information, e.g. forecasting for office market (Bönner 2009; Wernecke 2004) or valuation (Kleiber 2010). But as also showed before, market transparency is not limited on a special service. By way of examples, there is a model of parameters that are necessary forecasting. Forecasting models include information about change of stock, regional employment, vacancy rates, rents and cap rates (Füss 2007; Subroweit 2007; Subroweit 2008). For other services it's quite similar. To regard the complete land and real estate market is quite complex so a model is required. A model is a partial abstraction of the real world.

So as a first result, parameters effecting different services or subservices have been selected. Besides, there is a hierarchy of subservices and services leading to market transparency. As a matter of fact, the problem is similar to those in operation researchs. The question of the research project: Which are the key factors to describe a land and real estate market could be transformed directly into an economic problem. Economic problems could be solved by using decision making techniques.

This decisional problem deals with different alternatives, parameter or services. At the beginning, all alternatives are equal: Every parameter could be the most important for the service and every service could be the most important one. The problem is sort of a ranking. The alternatives can be derived directly from the model above. To rank the alternatives criteria regarding the aim of decision are necessary. It has to be clarified what is important. Of course, all parameters are necessary to do the services but there are some that are more important: Are statistically correct parameters important? Or are easy to handle parameters are important. All aims have to be regarded, so different criteria are necessary. Some criteria are conflicting; others are independent in their meaning. It is a typical question for multi-criteria decision making.

To combine alternatives and criteria in multi-criteria decision making various techniques could be used. There are some for strict problems like the multi-attributive utility theory (MAUT) and the analytic hierarchy process and others for a fuzzier or more uncertain environment like PROMETHEE and ELECTRE. The MAUT fails if there are attributes with a qualitative meaning. PROMETHEE and ELECTRE are perfect for fuzzy problems with a limited number of alternatives, but got problems in hierarchical decisional problems. However, the AHP has advantages in estimating weights in a hierarchical structure, but disadvantages in modeling preferences. In the doctoral thesis PROMETHEE and AHP should be combined to rank parameter of different services in a complex system and emphasize key factors for the land and real estate market.

# 5  Conslusion

## 5.1  Combination of empiric and theoretic way

The key factors derived in the empirical efforts are going to be tested practically. The results of the doctoral thesis are going to be compared with the results of the empirical study and the statements of market participants named in the empirical study. So the empirical research is validated directly on the real world while the theoretical model is validated directly on results of the empirical effort and indirectly on the real world. Although the research is located in Germany, ideas and results could be transferred into other countries.

## 5.2  Timetable

The research of the empirical efforts started in 2007. The information published in Germany and the six countries have been collected and analyzed yet. The pre-test for the survey had also been done. The survey itself will not be done, because of the results of the pre-test. The results for the empirical efforts are derived. In 2010, the validation of the derived model started in the city of Brunswick (250.000 inhabitants) in lower Saxony. The validation is not finished yet, but as a result could be mentioned, that it is complicated to get data to fulfill key factors that have been derived. The major problem is the quality of information and the accessibility of data. The validation will be finished in summer 2011. The report covering the analyses of empirical information discussed in section 3 will be released in the autumn of 2011.

As mentioned before the land and real estate market could also be divided into different services performed by the market participants to create market transparency. The theoretical efforts discussed in section 4 are covered in the doctoral thesis. The doctoral thesis also got some preliminary results, but the analyses are still going on. One major aspect is the estimation of criteria. The doctoral thesis is going to be released in 2012. The doctoral thesis will refer on the research report to evaluate the theoretic results.

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