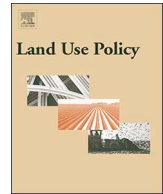




ELSEVIER

Contents lists available at ScienceDirect

Land Use Policy

journal homepage: www.elsevier.com/locate/landusepol

Customer-oriented approach in cadastral procedures – Case study from Finland

Kimmo Sulonen^{a,*}, Kirsikka Riekkinen^b, Seija Kotilainen^c

^a Tampere University, Department of Civil Engineering, Finland

^b Aalto University, Department of Built Environment, The National Land Survey of Finland, Finland

^c Helsinki, Finland



ARTICLE INFO

Keywords:

Customer-orientation
Real property development
Public processes
Land use
Cadastre

ABSTRACT

This paper is presenting research on with possibilities and benefit of applying a customer-oriented approach in public cadastral procedures.

Public service providers have raised awareness towards customer-oriented approaches in their procedures during recent decades. This study discusses the relevance of adopting a new approach in cadastral procedures by presenting a new method to obtain a subdivision procedure. This is done by conducting a literature review followed by a description of this new method in Finnish local government, the city of Tampere. After that, the study presents views of customers involved in the procedure collected by interviews. The results show that customers of the subdivision process value direct contact with authorities to ensure their interests to be taken into consideration. Eventually, the study proves that new co-operative methods with and within authorities are essential as well re-evaluating organisational culture values and methods.

1. Introduction

Customer-orientation is an interesting issue in the use of public services. The issue mainly reflects on the values of the public sector, especially in comparison to the private sector. For instance, [Chen et al. \(2004\)](#) imply the public sector might encounter different challenges to private sector in meeting the needs of customers. In particular, fairness justice and transparency are perceived to be the ultimate principles of the public sector. According to [Fountain \(2001\)](#), there is a paradox where customer service techniques and tools applied to government may lead to increased political inequality, even if some aspects of services are improved.

As competition increases and customers become more demanding, service organisations recognises the need to become not only more marketing-oriented but also customer-oriented since the term is associated with market orientation ([Price and Brodie, 2001](#)). [Andreassen \(1994\)](#) claims that if public services can offer high utility for their users' resources (e.g. customer satisfaction), the need to deregulate or privatise public services or markets will be reduced. Altogether, satisfying user requirements is recognised as a critical success factor for organisations aiming for progress and prosperity ([Todorovski and Lemmen, 2007](#)). The recognised challenge lies in offering public services more in line with the needs of the users with fewer resources and increased user

expectations. The issue is present in most European countries, where the public sector is very large and comprehensive and the governments encounter challenges in maintaining the dynamic public sector in the future, for instance due to reduced tax revenue ([Andreassen, 1994](#)). As for example, [Muggenhuber \(2006\)](#) argues that increasing economic pressure demanded to focus public administration's attention on citizens' interests, advocating a customer-orientation comparable to the private sector. Furthermore, [Salge and Vera \(2012\)](#) promote benefits from innovative activity in the public sector for new perspectives.

[Nwankwo \(1995\)](#) states that many organisations have difficulties with the inappropriate vision of customers and their needs, since the service means a lot more than the delivery of a personal skill. For instance, does the organisation view itself through its customers' eyes or through its products, and does the organisation see itself as producing products or as a customer-satisfying organism? (*ibid* 1995). [Farley and Webster \(1993\)](#) and [Brady and Cronin \(2001\)](#) describe customer-orientation as a set of beliefs that puts the customer's interests first while not excluding those of all other interest parties. In her studies of customer-orientation in land consolidation, [Wallius \(2007\)](#) suggests customer-orientation was perceived to clarify the needs of the landowners, hear their wishes or opinions, and ensure the participation and co-operation of landowners, utilising local knowledge and equal and fair treatment.

* Corresponding author.

E-mail addresses: kimmo.sulonen@tuni.fi (K. Sulonen), kirsikka.riekkinen@aalto.fi (K. Riekkinen), siekotil@gmail.com (S. Kotilainen).

<https://doi.org/10.1016/j.landusepol.2019.104209>

Received 4 March 2019; Received in revised form 2 September 2019; Accepted 4 September 2019

0264-8377/ © 2019 The Authors. Published by Elsevier Ltd. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

The cadastral system and its maintenance are facilitated by public administration in most countries and is also key to the economic functioning of society. One part of the system is the maintenance of the system by altering rights, restrictions and responsibilities e.g. by subdivision procedures. (See [Niuukkanen, 2014](#)). There have been similar discussions on reforming the cadastre on customer-oriented principles (e.g. [Stuedler, 2002](#); [Markkula and Dipoli, 2006](#)). Because of the need to develop new methods to maintain and improve public services, alternative voluntary approaches are being tested in cadastral processes, for instance in land consolidation procedures in the Netherlands,¹ in Central and Eastern Europe² and Finland.³ Notably in the Netherlands, the participatory approach involves strong co-operation and a co-creative element between authorities and participants (see [Louwsma et al., 2014](#); [Beunen and Louwsma, 2016](#)).

1.1. Scope of the research

To elaborate the issue, there are discussions in Finland on how to overcome the challenges of the public sector in many perspectives for instance on improving the durability of city planning (see [Ahonen, 2017](#)) or cadastral procedures. The future of Finnish cadastral system in cadastral processes and cadastre itself are under discussion (see e.g. [Riekkinen et al., 2016](#); [Krigsholm et al., 2017](#)) for example on how changing uses of cadastral information affects the administration dynamism ([Krigsholm et al., 2018](#)). One basis of the discussion is that in comparison with other Nordic countries the overall duration of the subdivision in Finland was clearly the longest ([Eriksson, 2007](#)).

Subdivisions are one of the most common types of cadastral procedures in general (see e.g. [NLS, 2018](#) and [Sevatdal and Hegstad, 2006](#)). However, despite their frequency in the field, this area has remained rather unstudied in cadastral sciences, to the authors' knowledge. This article aims at filling this gap by providing useful information and background for more streamlined public processes with design principles of including customer-orientation into public processes. This article contributes to the field of land administration as public administrative process by providing support for efficient changes on government-led cadastral processes, by presenting an example.

1.2. Research problem and definition

The research problem can be divided into three questions: What does customer-orientation mean in subdivision procedure? (Q1) How can the customer-orientation be improved in subdivision procedure? (Q2) What are the benefits for applying a customer-oriented approach in subdivision procedure? (Q3). The study answers the first question by analysing available literature of the topic, defining concepts to this article e.g. the customer in this case, and the second question by analysing methods used in an experimental model of subdivision in specific case. The last research question is answered by backing of the first two questions with empirical data of those customers defined in earlier.

The definition of customer connects the research on concepts related to service development on public administration and private enterprises. However, defining a customer in public processes is unstraightforward and should be examined by case. For instance, all stakeholders can be regarded as the public organisation's customers ([Chen et al., 2006](#)). In cadastral processes, there are multiple interest-parties in different roles like private landowners, land developer, utility companies, various public organisations, or citizens, etc. (stakeholders).

¹ A participatory voluntary approach in the Netherlands (see [Louwsma et al., 2014](#); [Beunen and Louwsma, 2016](#)).

² Agreement based / integrated approaches in Denmark and Central and Eastern Europe (See [Hartvigsen, 2015](#); [Haldrup 2015](#)).

³ Farm based voluntary approaches in Finland (see [Sulonen and Kotilainen, 2016](#)).

In this context, to gain a perspective for the study following statements can be made. The landowner or land developer may be the one who is responsible for applying the process based on their need, where neighbours or other public organisations may have diverse interests. Significantly, [Todorovski and Lemmen \(2007\)](#) make a distinction between external and internal cadastral data users for customer satisfaction surveys performed by Dutch Kadaster. In this perspective, our focus is on external users of cadastral services. Further, [Krigsholm et al. \(2018\)](#) divide external users in authoritative and non-authoritative users. An analysis of the customer identification is presented later (chapter 3.1), but in this context the customer is considered a party applying the process, outlining also authoritative-users.

2. Study design

The study evaluates methods used in subdivision procedures in relation to customer-orientation by utilising subdivisions conducted in Tampere, Finland in 2017. In this research, the main customer of the procedure is the applicant or party representing the applicant. Customer-orientation to the other interest parties of the procedure requires additional studies.

The study is divided into two phases. The first phase of the research concentrates on answering the first research question by defining concepts of customer-orientation and public subdivision procedures in this context. The data acquisition in the aforementioned phase is based on analysis of literary sources (secondary research).

The second phase of the research answers the following research questions by analysing methods used in the experimental subdivision procedure in a viewpoint of customer-orientation. Since there was only limited written data related to customer experiences available from the analysed subdivisions, themed interviews with the customers of the appropriate field were conducted to provide such data (primary research).

As in qualitative analysis, the aim of the research is to highlight possible factors affecting customer-orientation and analyse their reactions if used in actual processes. Additionally, to better understand the framework of the research, the key terms are defined for the case and the system upon which the research is primarily based is acknowledged.

The workflow diagram ([Fig. 1](#)) explains research structure in chronological order where the first phase consists at concepts of customer-orientation and public subdivision procedures for the research (Chapter 1–2 & 3–4) and the second phase an empirical study (themed interview) (chapters 5–6).

2.1. Customer interviews and analysis

To evaluate how the used methods in experimental subdivision affected customer-orientation, we interviewed customers who participated in the project. Since the data were collected primarily through interviews, open-ended questions were used ([Hsieh and Shannon, 2005](#)). The interview-frame was constructed, based on discussion themes formed into questions (semi-structured interview), where the themes were derived from the first research phase (framework) and prior customer feedback from the development project. Based on [Kvale and Brinkmann \(2009\)](#) the semi-structured interview provided efficient and convenient means of gathering information and allowed to disclose important facets of the customer perspectives and perceptions of subdivision. The pre-designed themes, which allowed the interviewer to adopt a conversational style during the interview, are presented in [Appendix 1](#). As for interpretation of the data, a thematic analysis was used to examine emerging topics from the survey data. By distinguishing the content analysis from thematic analysis, their differences lay in the possibility of quantification of data in content analysis by measuring the frequency of different categories as [Vaismoradi et al. \(2013\)](#) suggest, where in this case the outcome was purely qualitative favouring themed analysis. Thereby, a further thematic analysis was

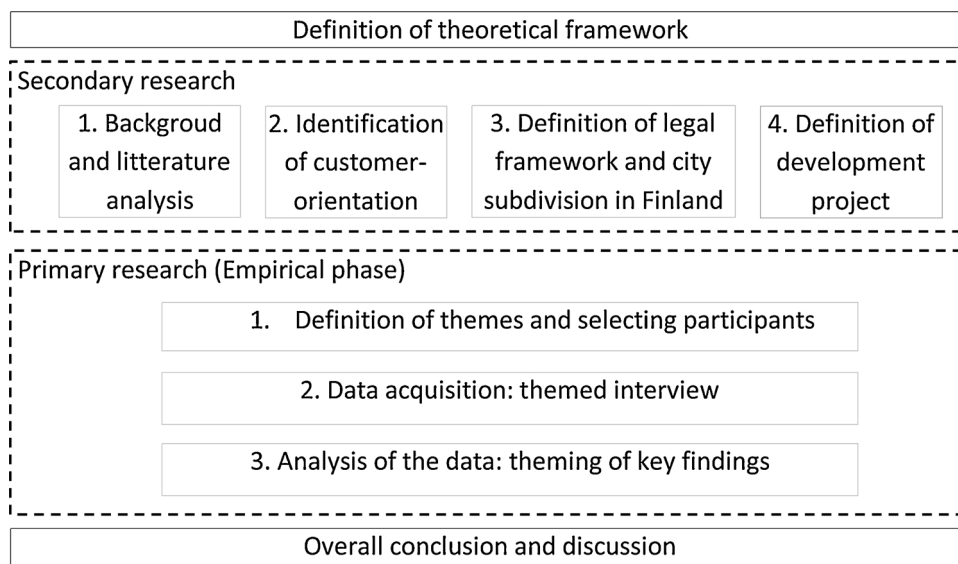


Fig. 1. The Workflow diagram of research structure.

Table 1
Different groups present in the interview sample.

Group	Notes
More experienced and less experienced subdivision applicants.	The less experienced had to establish new contacts with the authorities where more experiences usually had existing contacts with them.
Private and public representatives	Public representatives conveyed experiences of third-party land developers (<i>lease holders as their own customers</i>)
Large or medium scale landowners	Large scale landowners in the city developed generally block size or larger landmasses, where medium scale landowners generally developed partial block areas or single plot areas

used to identify key categories that summarised the interview data.

Participants were selected from the contacts of completed subdivision procedures in the city of Tampere in 2017 to ensure they had experience of both traditional and experimental procedures for the comparison of tested methods. A factor that limited the number of interviewees was that single-plot owners or small business enterprises apply or participate rarely in subdivision procedures, thus providing no compatible interviewee who participated in both subdivision models. Representatives of larger land-owners or enterprises participate more commonly in such procedures, providing qualified participants for the interview such as private construction companies, joint alliance model representatives and public communities like municipalities. The total number of eight interviews were conducted (respondents of the interview) representing eight different parties.

The majority of selected parties were companies operating in the house-building business (6 parties), but a representative from local government as a major (public) landowner and a representative from a joint alliance model for constructing a light railway system were included. The experience of the participants from the examined field varied from several to many years and also varied in terms of involvement in different types of subdivision cases. The participants were individually interviewed in their offices (separate meetings for ½-1 h) and the interviews were recorded.

The significance of including local government as landowner in the interview was to add diversity to the focus group, since they operate in many cases with leaseholders developing lands for their purposes. The local government is major landowner in the area; thereby land lease is common in the area. The sample would allow experiences of several groups presented in Table 1.

The key factor was to test out different methods in experimental process, allowing to verify and analyse customer experiences on them. In this context, selected participants represented major actors on a

studied area who required subdivision services. The single-plot owners or small business enterprises were not directly included.

3. Customer-orientation in public service

To study customer-oriented perspective in public processes, it is essential to firstly identify for instance who are the customers and how to satisfy their needs. In this perspective, the model for a customer-oriented service system (Chen et al., 2004)⁴ for the public sector and implications for customer-oriented organisations (Kohli and Jaworski, 1990) are utilised to construct a framework to define customer-orientation in public services for this case (Fig. 2).

3.1. Identifying customers

The definition of customer is a key component to define their status, needs, etc. In this context, internal and authoritative users of cadastre are not included based on Todorovski and Lemmen (2007) and Krigsholm et al. (2018) distinctions.

In the private sector, the customer is generally the party buying goods or services that the private enterprise produces. The categorisation can be identified for instance as internal-users (creating and

⁴ The model for a customer-oriented service system for the public sector, including the following five-stage sequence of system design and management.: 1. customer identification – the public agency identifies its customers; 2. customer-needs survey – the public agency focuses on customer needs and customer voice; 3. service-system design – the public agency develops the service system and process to meet customer needs; 4. service delivery – the employees in a public agency deliver service to customers; and 5. recovery – the public agency has an effective mechanism to deal with customer complaints. Chen et al. (2004 p. 415, 417)

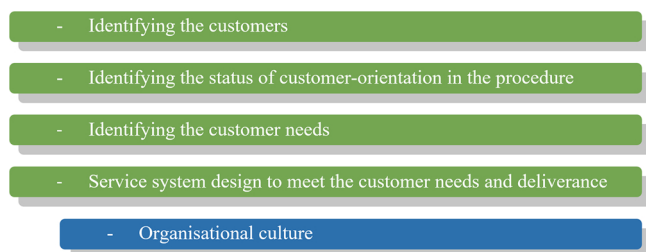


Fig. 2. The framework of customer-oriented services for this research derived from Chen et al. (2004) and Kohli and Jaworski (1990).

producing the products and services) or external-users (users of the product and services) (Todorovski and Lemmen, 2007). In the public sector, the definition of customer is more difficult or the actual term itself may be inappropriate. The challenge is that, not all customers will pay for the public services directly (Wisniewski and Donnelly, 1996).

In public processes, a perspective can be gained by examining the interest parties of the processes. For instance, the ownership right may be seen as a central right to which other types of rights may either be beneficial or restricting (see Paasch, 2012). Thereby, Finnish real-estate formation legislation defines the landowner applying the cadastral procedure (e.g. subdivision)⁵ (CRE⁶ section 6) and in some cases, the leaseholder as the participant (REFA⁷ section 22). However, the applicant is not usually the sole participant of the process. Finnish legislation defines the interest parties further by stating that the applicant and any other party whose rights the procedure immediately concerns constitute interest parties in the procedure (REFA section 17). The other interest parties involved in the procedure may therefore also have a status in the procedure.

The applicant usually has the strongest interest in conducting the procedure. The aforementioned legislation regulates that the costs of cadastral procedures are divided between the interest parties to be paid according to the benefit they have obtained from the cadastral procedure (REFA section 209). Most commonly, the party benefitting from the procedure is the applicant.

Identifying the customers in public processes is not self-explanatory and must be specified and acknowledge the strength and limitations of the specification. In this context, the applicant (of REFA) is defined as a customer who has usually has the strongest interest of completing the procedure and covers the accumulated costs. The definition excludes other interest parties who may have different needs. However, such needs may focus more on the outcome of the procedure than the methods of the procedure itself. Further studies are needed if the definition is enlarged.

3.2. Identifying the current status of customer-orientation

The customer-orientation in public sector can be seen in many ways. For instance, Fountain (2001) evaluates the problem as paradoxes of customer service in the public sector where she states the aggregation of individual preferences may weaken perceptions and the understanding of the fundamental obligations of citizens and public servants. Furthermore, Andreassen (1994) argues that, to offer high utility, the public sector must be more market-oriented, i.e. offer more differentiated services. He says that local governments' long-established practice of giving one homogeneous offer to all users is a major challenge in this strategy.

⁵ In Finnish legislation a cadastral procedure is a procedure conducted by government or local government. There cadastral procedures are defined in the Real Estate Formation Act (REFA). For instance, the subdivision is considered a cadastral procedure (REFA section 6).

⁶ Code of Real Estate (540/1995).

⁷ Real Estate Formation Act (554/1995).

In modern times, the socio-cultural environment of the (Finnish) cadastral system has changed towards a customer-oriented approach (Riekkinen et al., 2016; Krigsholm et al., 2017; Kotilainen, 2014). To inspect customer-orientation from a viewpoint of Finnish subdivision, principles are mentioned in the preparatory work of the Real Estate Formation Act (REFA). For instance, government services should be organised such that participants are not required to participate in tasks designated for authorities, and dealing with matters in the procedures is arranged so simply that citizens can usually manage to control their interests by themselves (HE 227/1994). Hyvönen (1998) suggests that the principle highlights the customers' needs during the procedures rather than the actual purpose being a form of the procedure. He says the services must be arranged from the customer's point of view in a flexible and service-friendly way.

3.3. Identifying customer needs and designing a system to meet them

Depending on viewpoints e.g. definition of customer-or local current legislation, customer needs may vary between processes. In this case, the need of the applicant of the subdivision procedure is studied.

To identify customer needs, authorities may use their experience and customer feedback to gain assumptions of them, but the outcome is arbitrary. Chen et al. (2006) imply that public organisations find it difficult to interview real customer needs and they should, for example, conduct interviews systematically, scientifically, and periodically. Price and Brodie (2001) imply it is easy to inadvertently improve performance in areas that are not important to customers or equally, improvement might be achieved, but the customer may not notice. Therefore, the voice of the customer needs to be used to frame the project in the first instance (ibid). An important source of becoming accustomed to real customer needs comes from the customers themselves. Thereby, this justifies the interview of the customers, conducted in this study.

The customer's need may derive from the overall objective, especially in chain of multiple processes. In case of Finland, according to the Land Use and Building Act (LUBA section 81) a key prerequisite for applying for a building permit in urban areas is completed subdivision of plots (areas of binding plot division). Since the procedure is required for the aforementioned tasks, a subdivision is usually initiated when there is a need to apply for new building permits, for example for new constructions or renovation projects.

Svensson (2018) describes the significance of information quality in the use of the Real Property Register⁸ in Sweden, allowing authorities to co-operate and make quick decisions, thus reducing the overall lengthy process of building housing until the residence is in place. It is therefore important for authorities to discuss the reasons why the subdivision procedures in urban areas are applied to allow better understanding of customer needs.

3.4. Service system design to meet customer needs and deliverance (implementation)

Managers in public agencies should focus more on developing processes to meet customers' service needs, since meeting such needs is the most important issue in designing any service system (Chen et al., 2006). In this approach, a new design of existing subdivision procedure (the service) is introduced. The structure and methods of the subdivision and the new design are presented later in Table 3.

In addition to system design and management, the service must be delivered to the customers, e.g. by the employees in a public agency (Chen et al., 2004). Furthermore, Chen et al. (2004, ibid) highlights the significance of fostering efficient organisational culture, though

⁸ E.g. to use cadastral parcel units as base unit to for land use or land cover related information (see. Jansen, 2006).

changing the culture may be difficult.

4. A development of subdivision procedure in the domain of local government in Finland

This section describes the methods of cadastral procedures in Finland. Subdivision is conducted solely by authorities, either by governmental authority⁹ or local authority (municipality), based on where the land is located. However, the applicant of the process is typically a land owner. The procedure differs slightly based on which authority conducts the procedure. For instance, ownership right (on land/real estate/property) is always registered by the NLS. The development process described in this context focuses on subdivision procedures conducted by a municipality (the City of Tampere). The subdivision procedure is described later in Table 1. The procedure begins when applied, mainly by a landowner or their representative¹⁰ (as customers¹¹ in this context), if they aim to alter the dimensions of their real property. The basic form of the subdivision procedure is described in Table 1.

4.1. The experimental subdivision procedure - part of development process

Because of the need to investigate possibilities for customer-oriented approaches, a development project (experimental subdivision) was launched as part of the land use development programme of the City of Tampere, Finland, at the beginning of 2017. The aim of the programme was to embrace customer-oriented values and efficient methods in public land use processes. The project utilised an experimental approach, where alternative methods aiming to improve the aforementioned values were tested in ongoing processes, thus signifying that there were parallel processes in use: experimental and traditional.

The elements tested in the experimental procedures were based on improved efficiency principles and customer needs, derived from direct customer feedback and later from short customer interviews in 2017.¹² The feedback and interviews indicated that customer needs concentrated on having an efficient and straightforward procedure that held to its timetable, so methods focusing on non-complexity and shorter duration were applied. Based on the customer needs two principles were used for designing the experimental subdivision procedure: the focusing of the applied procedure and decreasing the duration of the procedure. A more detailed description of applied methods and outcomes of the development process is presented in Table 2.

The decreasing the duration of the procedure was primarily achieved for two reasons. Firstly, by better interaction between the cadastral authorities and customers allowing them to compose needed tasks as soon as possible. Unnecessary steps were left out e.g. additional discussions, meetings in the middle of the procedure or elements of the procedure e.g. appeal periods. Secondly, shortening the waiting periods, therefore limiting the need to get acquainted to the task multiple times.

As an outcome, the duration of the average cadastral procedures in the city of Tampere, reduced from 117 days in 2016 to 17 days in 2017 as well as 16 days in 2018.¹³ The reduced duration of one procedure and increased efficiency allowed the cadastral authority to allocate

spared resources to other purposes like more complicated procedures improving the quality of the cadastre.

4.2. Methods of the experimental subdivision procedure in contrast to the traditional one

To completely highlight the differences, the traditional and experimental subdivision procedures are compared (Table 3). The comparison is constructed on the basic form of public subdivision procedure based on Mattsson's (2011) categorisation of cadastral procedures in Northern Europe.¹⁴ The subdivision procedure is divided into four phases: initial preparation, preparation within the actual procedure, cadastral decision and registration and conclusion in the form of registration of ownership.

An assessment of customer needs was the first element implemented in the experimental subdivision procedure to find out customer needs case by case. The assessment was principally carried out by contacting the customers by phone, email or direct meeting whenever possible to uncover their needs.

The forming of new real properties is the basis of subdivision procedure. Other elements like demarcations and new rights were introduced in the procedure with the customers' consent. The option was set, since it gave flexibility to the procedure.

In this context, it is essential to distinguish differences of physical demarcation (e.g. land identification and measurement) and legal demarcation (defines property rights in consent of neighbours). For instance, the mandatory legal demarcation may lead to undertitling and overdemarcation, where in particular, owners may inefficiently anticipate boundary-related litigation. In practice moving towards voluntary land titling and parcel demarcation, is a universal effort. (Arruñada, 2018).

5. Results and analysis of the customer interview

This chapter presents the results of the customer interview conducted and analyses the viewpoints of customer-orientation in both the traditional and experimental procedures.

5.1. Customer needs

To define customer needs for the subdivision procedure, landowners and their representatives operating in Tampere were asked why they applied for the procedure and what they expected from it. The participants acknowledged that the need to apply for subdivision derives from the need to apply for a building permit for the site. The need reflects the requirements in Finnish legislation in the areas of binding plot division,¹⁵ where a building permit may not be granted if the plot has not been entered in the Real Estate Register (LUBA Section 81).

There were needs concerning how the procedure was conducted. A respondent indicated the importance of having the procedure conducted as quickly as possible or at least knowing the estimate of the duration of the procedure as accurately as possible. Several respondents pointed out the importance of a fluent process and the easy reachability of authorities responsible of the procedure. The need to receive guidance from the authorities during the procedure was highlighted by multiple responses, especially when the timetable for the procedure is

⁹The National Land Survey of Finland (NLS).

¹⁰A party applying the procedure is mainly the landowner or leaseholder stated in Finnish Real Estate Formation Act (REFA).

¹¹By definition in chapter 3.1.

¹²Short interviews were conducted with three selected customers to gain base data for the upcoming experimental procedure. The customers represented different construction companies (Skanska, YIT, Lujatalo) operating in the city of Tampere and various other local authorities.

¹³In 2016, 66 cadastral procedures were conducted in the domain of the city of Tampere (applying traditional methods). In 2017, 56 and in 2018, 116 cadastral procedures applying experimental methods were conducted.

¹⁴Mattsson compares procedures in Denmark, Norway, Iceland, Sweden and Finland. Globally, conducting cadastral procedures varies greatly based on, for example, different national legislation, historical background, etc. The system in Northern European countries involves public authorities but varies from private surveyor involvement (e.g. in Denmark) to only public surveyor involvement (e.g. in Sweden and Finland). (Vitikainen, 2004; Mattsson, 2011).

¹⁵In the domain of the local authority of City of Tampere, binding plot division is applied in every block (LUBA Section 78).

Table 2

A description of principles of concentration on the applied procedure and decreasing the duration of the procedure and methods used in them.

Basic principle	Method	Effects
Concentration on the applied procedure.	Demarcation of borders is separated from the subdivision procedure. (Possible in urban zoned areas with a binding plot division plan, REFA section 185.1).	The demarcation can be applied later if needed.
Concentration on decreasing the duration of the procedure.	No formal convening for the procedural meeting. The participants agree on informal invitation (possible if all the participants agree, REFA section 170.2).	Affect the duration of the subdivision procedure. Affects the duration of the procedure since otherwise a formal letter needs to be sent 10 days prior of the meeting and allows better flexibility. The method is more easily obtainable if demarcation and subdivision are dealt with in different procedures.
	No 30-day appeal period after the end of the procedure (possible if all participants agree, REFA section 192.1).	Affect the duration of the procedure considerably. The agreement is more easily obtainable if method 2 is applied and the demarcation is separated from the procedure.

Table 3

The description of the subdivision procedures, traditional (current) and experimental based on [Mattsson \(2011\)](#).

The basic form of public subdivision procedure	Methods applied in the traditional procedure	Methods applied in the experimental procedure
<i>Initial preparation</i>	Customer applies to the cadastral authority Authorities investigate the formal criteria for the procedure	Customer applies to the cadastral authority Authorities investigate the formal criteria for the procedure
<i>Preparation within the actual procedure</i>	Measurement: demarcation of boundaries and investigation of rights Meeting with interest parties (<i>formal convening</i>)	Customer is interviewed, for example by phone, email or separate meetings, depending on the extent of matters to be discussed By default, no demarcation or assessment of new rights. (<i>Based on customer's wishes</i>) Meeting with interest parties (<i>informal convening date is agreed during the interview if possible</i>)
<i>Cadastral decision and registration</i>	Cadastral decision by surveyor (<i>related to new property unit and rights</i>) Appeal period Property unit and rights are registered. End of the procedure. Information sent to land registration authority, participants and possibly other authorities.	Cadastral decision by surveyor (<i>related to new property unit and rights</i>) Appeal period, if not agreed by participants Property unit and rights are registered. End of the procedure.
<i>Conclusion in the form of registration of ownership</i>	Land registration authority registers ownership	Information sent to land registration authority, participants and possibly other authorities. Land registration authority registers ownership

tight or if need for the subdivision procedure occurs rarely.

Customer needs can be categorised to external needs where the needs derive from other needs such as to complete a construction project, or internal needs considering the quality of the procedure.

5.2. Customer-orientation in the traditional procedure

The participants were asked how they perceived customer-orientation during the traditional procedures, for example how their needs were taken into account. The nature of the experiences differed greatly. For instance, one customer said that the procedure was not customer-oriented at all, but rather based on meeting formalities. Another said that the desire to serve customers varied depending on the personalities involved; some authorities co-operated closely with customers and others took a more formal and distant role. Most of the respondents said that they received help for the procedure eventually, if they asked for it. Altogether, experiences were dependent on the willingness of an individual authority to serve the customer and on how well the respondents were accustomed to the authorities beforehand. Better equality may be achieved by granting all the customers the ability to discuss the principles and elements of the procedure, even if they do not have direct contacts with the authorities.

[Chen et al. \(2004 and 2006\)](#) emphasise that successful organisation always has an embedded customer-oriented organisational culture. Therewith the lack of it may cause the service to be experienced based on a certain individual's willingness to adopt customer-oriented principles rather than the whole organisation's willingness.

Another viewpoint is that public organisation may value customer needs but employ values that are not important for the customer. Challenging the conventional wisdom of technical specialists is important with regard to how their tools and resources can be better developed to get results for customers ([Price and Brodie, 2001](#)). In perspective, one may say that the purpose of challenging the conventional ways is not to prove them wrong but to develop better alternatives in the current situation, especially in line with customer feedback.

5.3. Customer-orientation in the experimental procedure

Participants were asked about their experience of customer-orientation during the experimental procedure. The question was divided into three separate questions based on the methods used in the experimental procedures, the assessment of customer needs, concentration on applied procedure (e.g. no demarcation) and concentration on decreasing the duration of the procedure.

The respondents clearly viewed the assessment of the customer needs at the beginning of the procedure as positive and the proper kind of development following modern principles, especially if done in informal manner. Most of the respondents positively highlighted the initiative of the authorities towards customer cases where the first contact allowed the authority to be closer to the customer right at the beginning of the procedure. A prior interview with the interest parties in a broader context is carried out, for example as has been done land consolidation procedures in Europe (see e.g. [Hartvigsen, 2015](#); [Vitikainen, 2004](#); [Sulonen et al., 2018](#)).

At the interview, the customers were urged about their genuine need of service in their subdivision procedure to clarify whether the procedure should concentrate solely on the applied real property formation as default. In contrast in the traditional service, other tasks like demarcation, assessment of rights, etc. were mostly included automatically by authorities. Most of the respondents said that they had no need for demarcation in subdivision procedure, were able to measure the boundaries themselves and were interested in the possibility to concentrate on applied real estate formation. Some respondents clearly noted that they had no need for demarcation, since physical boundary marks typically get moved during the construction process. However, a respondent noted that they didn't have enough experience to tell if the future tenants of newly formed properties require the boundary marks and that, in any case, they apply demarcation afterwards. As a whole, multiple respondents highlighted the option to discuss available possibilities with authorities during the procedure.

The demarcation process was typically included in the traditional procedure and was not included if the customer specifically requested so on their own initiative. The method derives from a principle where the authorities may act on behalf of the participant if they feel that they should protect the participant's interests. In cadastral processes, this principle has been understood for instance as the authority's responsibility to choose which cadastral processes the applicant needs in subdivision (Hyvönen, 1998, HE 227/1994). In her presentation of transactions that are violated in the public sector, Kelly (2005) suggests that that the transaction is involuntary, i.e. legally coercible. The government is typically a monopoly provider such that the citizens do not have a choice among competing products and have a limited voice in the composition of the services they receive (ibid). When studying experimental land consolidation procedures, Sulonen et al. (2018) suggest that customer-orientation relates to the voluntary approach, where the wishes of the participants are highlighted but do not contradict each other's wishes (non-coercible). In this case, allowing customers to influence the processes that should be included in the procedure involves a shift from straightforward decisions on one's behalf to a co-operative approach between the authorities and the customers.

Because of the aims of the development project, the customers were asked about the importance of concentration on decreasing the duration of the procedure. The outcome from the respondents strongly verified the need to efficiently conduct the subdivision procedure as briefly as possible. The wish to complete the procedure as quickly as possible was almost unanimous, and some of the respondents pointed out the need to have an exact timetable for the procedure. The participants connected the subdivision procedure to part of larger concept, such as starting a construction project or selling partitioned land to someone interested in constructing thereon.

As Svensson (2018) describes, modern qualification means that demands are constantly increasing, and everyone is striving to get more cost-efficient business and to use digitalisation in order to reduce planning and building process and make swift decisions. One respondent explained that market demands may have diverse needs in the near future, making it harder to predict future needs as far as overall city planning processes and the processes of building housing are concerned. The schedule for subdivision is therefore mostly tight, as the majority of respondents underlined, and the procedure should not dictate the entire project's schedule. The needs emphasise the efficient and less time-consuming subdivision procedure, allowing them to complete the general goals related to subdivision.

The participants were asked about the future development needs of the subdivision procedure. Digital development was favoured, for example to allow easy access to services. Several respondents claimed that they did not have much to say about how to develop subdivision procedure since they have already been able to discuss their needs with the authorities and felt that the procedure was sufficiently fluent at the time. Other respondents highlighted the need to have a better connection and co-operation with the authorities as well as between the

separate authorities themselves. The latter shows that the governmental, local authorities and their suborganisations¹⁶ should work efficiently together. Several respondents did consider co-operation between different authorities as favourable, especially when the authorities were able to agree on the terms of how to co-operate to advance the cause. The need for authorities to fluently co-operate is emphasised since, the subdivision was part of a more large-scale project (e.g. construction project) for customers. In such cases, they typically had to initiate several various processes within the responsibility of separate authorities. One respondent identified a problem in authorities issuing inconsistent natured statements on the same matter in subsequent phases of the overall process. It is apparent that such non-cooperation is time- and resource-consuming for customers and authorities alike. This outline a problem discussed in knowledge sharing between public organisations for better fulfilment for e.g. customer needs (See eg. Muggenhuber, 2006 & Markkula and Dipoli, 2006). Muggenhuber (2006) suggested, that public management needs knowledge exchange across organisation and inter-institutional co-operation to achieve best practice exchanges together as they do not have competitive incentive to keep them secret like commercial enterprises. Furthermore, Markkula and Dipoli (2006) describes changes in work culture require emphasising values e.g. openness, trust, collaboration and knowledge sharing between people and organisations. Moreover, lack of establishing such values can cause non-fulfilment of customer needs.

Some respondents argued that there is a need for cultural change in public authorities if the aforementioned co-operative and discursive approach is adopted with and between authorities. Several other respondents' statements backed up the viewpoint, stating that authorities should not hide behind formalities but rather be personally available and have interactive relationships with customers and other participants. The response the customer needs from the public cadastral authority may shift from, for instance, valuing the coherent and homogeneous outcome of the procedures to valuing fulfilment of customer's needs case by case, as Nwankwo (1995) contemplates. A respondent, however, acknowledged that changing the culture and way of acting is not simple and requires planning for how to conduct the change. Even so, the individual values over organisational values may actualise on inefficient knowledge exchange or only partial-optimisation of the process. Potsiou, and Ioannidis (2002) Describe more of cultural issues on lack of strong coordination for efficient public land management as for instance differing perception of the meaning of competition.

From a legal perspective, one respondent proposed a possibility of making minor modifications to outcome of the processes (city plans, plot divisions, cadastral procedures, etc.) in a flexible way rather than requiring them to repeat the overall process all over again. This option should be possible especially if all of the interest parties so agree. The suggestion was reasoned since future needs are changing rapidly, making principles drawn up at the beginning of the large-scale processes partially obsolete. The respondent suggested the principles of flexibility, smoothness and the shortening the timetable as key development ideas. This perspective conforms to Svensson's (2018) description of the need to produce quick decisions in reducing the lengthy process of building housing, since the situation in Finland follows the same trends. For instance, the average duration of the city planning process alone takes 10.3¹⁷ months in Finland, if not appealed in court (Tarasti, 2007).

In overall, there was indications that that single-plot owners or small business enterprises highlight the significance of more proactive and open relations from authorities to customers who do not enjoy prior

¹⁶ For instance, in case of the City of Tampere, there are different branches of authorities such as cadastral authorities, authorities controlling building permits, authorities responsible for city planning, etc.

¹⁷ In 2004-2005 (Tarasti, 2007).

contacts to the authorities from the responses. Some respondents, especially those from local government. However, the aspect was derived from indirect sources.

6. Discussion

The aim of this research was to analyse how customer-orientation is considered in subdivision procedure. The first research question (Q1) examined what does customer-orientation mean in subdivision procedure. To examine customer-orientation, several factors were defined such as customer identification and the status of customer-orientation in the public sector. To examine customer needs and how to deliver them, analysis methods used in the experimental procedures were employed.

The second research question (Q2) examined ways to improve customer-orientation in subdivision procedure. Customer needs were further studied by interviewing the customers participating in the subdivision procedures (traditional and experimental) of the area. Comparing customer experiences of these procedures allowed better analysis if the methods employed in experimental methods were favourable to customer-orientation.

In response to the third research question (Q3), the assessment of customer needs was considered as a favourable and key method applied in experimental procedure. The method highlighted the desired need of authorities to be more proactive and closer to the customers rather than formal and distant, especially at the beginning of the procedure. Moreover, the need for authorities to be accessible at all times was apparent, especially if the timetable of the procedure was tight. Altogether, the first contact should systematically allow various needs to emerge at the very beginning of the procedure, allowing authorities to better tailor their services to customer needs.

Another way to examine the different role of the authorities includes seamless interaction with other authorities within or outside their organisation. Such action was considered as favourable in the interviews, especially since the customer need was to complete a more comprehensive chain of procedures than subdivision alone, involving different authorities. In practice, promoting seamless interaction between different government authorities would allow obtaining necessary information or permissions to reduce unnecessary delays due to queuing times or misinterpretation of the needs.

To efficiently increase the interaction of authorities in the organisations, a cultural change favouring willingness and feasibility for change is required. This change would require the adoption of customer-oriented values as an organisation's own values rather than allowing a variety of individual values on the matter. Individual values over organisational values may actualise on inefficient knowledge exchange or only partial-optimisation of the process.

Overall, public organisations adopting customer-orientation should define their values and the status they are willing to grant to the approach. For instance, when considering customer-orientation in public services, a dilemma exists in how it is perceived and how customer-orientation affects, for example, the equality of services. Should, in this case, the organisation concentrate on upholding homogenous services or offering differentiated ones based on customer needs, or at least offer a greater variety of service options? Another question is whether actions weaken or strengthen other values like benefits for the whole community. The answer to these questions defines the organisational values.

From a perspective of the legal framework, the suggestion to allow greater flexibility in processes, if all interest parties so agree, is a fascinating issue. Since the overall process from the city plan to building housing is extremely time-consuming, the design principles applied at the beginning of the process can easily become partially obsolete by the end of the process, therefore affecting the usability of the outcome. This impacts on potential investors in the area. Possibilities to reduce the duration of the process should be further studied.

To evaluate how well the sample of participants represented the customer-group and reach maximum saturation of information there are several issues. Identifying the customers in public processes is not self-explanatory and defining the customer as applicant of the procedure has its limitations. Additionally, the definition excludes other interest parties who may have different focusses, thereby requiring further examination if this viewpoint is studied. It is possible the results may have varied if there were more participants, more specifically single or small plot owners. Their experiences were conveyed through the interviewed participants e.g. local government representatives. However, to verify the actuality of those experiences, the aspect requires further studies. The key difference between the large landowners and small landowners are the amount of investment and significance of their project for the community. However, in their point of view, the project aims are same: an investment of a large portion of their capital into a project of which they wish to have their investment returned later. The needs to have more proactive and easier to approachable authorities is more important if the customer is not accustomed to the authorities beforehand as stated in responses of the interview.

In general contribution, this article provides insights of possibilities of including customer-orientation into public processes as well as benefitting the efficiency and flexibility of the process. This result applies on areas or countries of similar conditions, especially on growing urban areas where the overall development is fast. For instance, nationally, the local governments operate under same legislation. It would be beneficial to implement and examine similar methods in elsewhere and evaluate whether the results in line of this study.

Legislation

The Finnish legislation can be accessed on the internet service Finlex.

Accessible: <http://www.finlex.fi/en/>

HE 227/1-994	Government's proposal to Parliament to reform Real Estate Formation Act" Hallituksen esitys Eduskunnalle kiinteistönuodostamista koskevan lainsäädännön uudistamisesta"
CRE	Code of Real Estate (540/1995)
LUBA	Land Use and Building Act (132/1999)
REFA	Real Estate Formation Act (554/1995)

Acknowledgement

This research was supported by Tampere University, Civil engineering department, Finland.

Appendix 1. Themes of the questionnaire and quality analysis of selection of participants

The interview was conducted to evaluate how used methods affected the customer-orientation by interviewing cadastral surveyors from different local authorities, national authorities and customers operating in domains of different authorities.

Participants

The participants for the interview are acquired from contacts of conducted procedures (domain of the local government, the city of Tampere, Finland).

- Participants should operate on domains of multiple authorities
- Participants should have experience from traditional and experimental procedures.

Themes of the questionnaire that led the discussion

Details of the respondent & Short history of working experience
Customer needs in subdivision procedure

Customer-orientation in **traditional** subdivision procedure
 Customer-orientation in **experimental** subdivision procedure

- *Initial customer contact*
- *Concentrating on subdivision – e.g. No demarcation of borders.*
- *Concentrate on improving duration of the procedure e.g. no formal convening or appeal period*

Future development aspects and methods of customer-orientation

References

- Ahonen, A., 2017. Tarjonnain tiellä rakentamisen sääntely ja paradigmaattisen muutoksen tarve. Kilpailu- ja kuluttajaviraston selvityksiä 1, 2017.
- Andreasen, Tor Wallin, 1994. Satisfaction, loyalty and reputation as indicators of customer orientation in the public sector. *Int. J. Public Sect. Manag.* 7 (2), 16–34.
- Arruñada, B., 2018. Evolving practice in land demarcation. *Land Use Policy* 77, 661–675.
- Beunen, R., Louwsma, M., 2016. Participatory approaches to land re-allotment: on the interplay between institutional frameworks and trust. In: Conference: Symposium on Land Consolidation and Land Readjustment for Sustainable Development. Apeldoorn, the Netherlands. 2.11.2016.
- Brady, M.K., Cronin Jr, J.J., 2001. Customer orientation: effects on customer service perceptions and outcome behaviors. *J. Serv. Res.* 3 (3), 241–251.
- Chen, C.K., Yu, C.H., Yang, S.J., Chang, H.C., 2004. A customer-oriented service-enhancement system for the public sector. *Manag. Serv. Qual.: Int. J.* 14 (5), 414–425.
- Chen, C.K., Yu, C.H., Chang, H.C., 2006. ERA model: a customer-orientated organizational change model for the public service. *Total. Qual. Manag. Bus. Excell.* 17 (10), 1301–1322.
- Eriksson, G., 2007. In: *Cadastral Procedures in the Nordic Countries—A Comparison of Prices Costs and Handling Times. Strategic Integration of Surveying Services, FIG Working Week 2007. Hong Kong SAR, China.*
- Farley, J., Webster, F., 1993. Corporate culture, customer orientation, and innovativeness in Japanese firms: a quadrad analysis. *J. Mark.* 57 (January), 23–27.
- Fountain, J.E., 2001. Paradoxes of public sector customer service. *Governance. Int. J. Public Policy Adm. Res.* 14 (January (1)), 55–73 Blackwell Publishers.
- Hartvigsen, M., 2015. Land Reform and Land Consolidation in Central and Eastern Europe After 1989 – Experiences and Perspectives. Ph.D. Thesis. Aalborg University.
- Hsieh, H.-F., Shannon, S., 2005. Three approaches to qualitative content analysis. *Qual. Health Res.* 15, 1277–1288.
- Hyyönen, V., 1998. Kiinteistönuodostamisoikeus I - Yleiset opit. Ky Veikko O. Hyyönen & co., Espoo P. 712.
- Jansen, L.J.M., 2006. Harmonization of land use class sets to facilitate compatibility and comparability of data across space and time. *J. Land Use Sci.* 1 (2-4), 127–156. <https://doi.org/10.1080/17474230601079241>.
- Kelly, J.M., 2005. The dilemma of the unsatisfied customer in a market model of public administration. *Public Adm. Rev.* 65 (1), 76–84.
- Kohli, A.K., Jaworski, B.J., 1990. Market orientation: the construct, research propositions, and managerial implications. *J. Mark.* 1–18.
- Kotilainen, S., 2014. Developing Conflict Resolution in Highway and Railway Projects - Perspective of RealProperty Owner. Orig. Konfliktinratkaisun kehittämiskohteista maantie- ja rautatiehankkeissa—kiinteistön omistajan näkökulma. Aalto University. Department of Real Estate, Planning and Geoinformatics Doctoral dissertation 82/2013. 293 p.
- Krigsholm, P., Zavialova, S., Riekkinen, K., Stähle, P., Viitanen, K., 2017. Understanding the future of the Finnish cadastral system – a Delphi study. *Land Use Policy* 68, 133–140. <https://doi.org/10.1016/j.landusepol.2017.07.032>.
- Krigsholm, P., Riekkinen, K., Stähle, P., 2018. The changing uses of cadastral information: a user-driven case study. *Land* 7 (3), 83.
- Kvale, S., Brinkmann, S., 2009. *Inter Views: Learning the Craft of Qualitative Research Interviewing.* Sage, Los Angeles, CA.
- Louwsma, M., Van Beek, M., Hoeve, B., 2014. A New Approach: Participatory Land Consolidation. FIG Congress 2014. Engaging the Challenges – Enhancing the Relevance. Kuala Lumpur, Malaysia 16 – 21 June 2014. .
- Markkula, M., Dipoli, T.K.K., 2006. Creating favourable conditions for knowledge society through knowledge management, eGovernance and eLearning. In: *Proceedings of FIG Workshop. Budapest, Hungary.* pp. 30–52.
- Mattsson, Hans, 2011. Purchase and subdivision processes in the nordic countries. In: In: Hepperle, E., Dixon-Gough, R.W., Kalbro, Th., Mansberger, R., Meyer-Cech, K. (Eds.), *Core -Themes of Land Use Politics: Sustainability and Balance of Interests 1.* Hochschulverlag an der ETH Zürich, pp. 321–331.
- Muggenhuber, G., 2006. Knowledge management as a useful tool for implementing projects. In: *Proceedings of E-Governance, Knowledge Management and E-Learning, FIG Workshop. Budapest, Hungary.* pp. 215–222.
- NLS, 2018. NLS Annual Statistics 2013 – Official Statistics of Finland. Helsinki 2013. .
- Niukkanen, K., 2014. On the Property Rights in Finland—the Point of View of Legal Cadastral Domain Model. Aalto University. Department of Real Estate, Planning and Geoinformatics Doctoral Dissertation. 163/2014. 176 p.
- Nwankwo, S., 1995. Developing a customer orientation. *J. Consum. Mark.* 12 (5), 5–15.
- Paasch, J., 2012. Standardization of Real Property Rights and Public Regulations –The Legal Cadastral Domain Model. Dissertation. Royal Institute of Technology (KTH), Real Estate Planning, Stockholm, Sweden 30 p.
- Potsiou, C., Ioannidis, C., 2002. The necessity for nation-wide public-public coordination for effective Land administration. In: *Proceedings (on CD) of WPLA Workshop. Vienna, Austria.*
- Price, R., Brodie, R.J., 2001. Transforming a public service organization from inside out to outside in: the case of Auckland City, New Zealand. *J. Serv. Res.* 4 (1), 50–59.
- Riekkinen, K., Toivonen, S., Krigsholm, P., Hiironen, J., Kolis, K., 2016. Future themes in the operational environment of the Finnish cadastral system. *Land Use Policy* 57, 702–708.
- Salge, T.O., Vera, A., 2012. Benefiting from public sector innovation: the moderating role of customer and learning orientation. *Public Adm. Rev.* 72 (4), 550–559.
- Sevatdal, H., Hegstad, E., 2006. Dannelsen og transaktioner vedrørende fast ejendom i de nordiske lande. - Property Formation in the Nordic Countries. Kort & Matrikelstyrelsen, pp. 2006.
- Stuedler, D., 2002. Benchmarking cadastral systems. In: Kaufmann, J. (Ed.), *International Federation of Surveyors.*
- Sulonen, K., Kotilainen, S., 2016. Lessor's status in land consolidation in Finland. *Nord. J. Surv. Real Estate Res.* 11 (1), 18–36.
- Sulonen, K., Hiironen, J., Kotilainen, S., 2018. International voluntary-based land consolidation approaches and their adaptability to experimental farm-based land consolidation in Finland. *Nordic J. Surv. Real Estate Res.* 12 (1), 59–84.
- Svensson, A., 2018. Information quality - a critical Success factor how to make it all right!. In: *FIG Working Week 2018. 6-11 May, 2018 Istanbul, Turkey. International Federation of Surveyors (FIG).*
- Tarasti, L., 2007. Kaavoituksen sujuvoittaminen tonttitarjonnain lisäämiseksi. Ympäristöministeriön raportteja 27 / 2007. Ministry of Environment, Finland Edita Prima Oy, Helsinki 2007.
- Todorovski, D., Lemmen, C., 2007. Analysis of user requirements: the first step towards strategic integration of surveying and cadastral services. In: *FIG Working Week 2007: Strategic Integration of Surveying Services, 13-17 May, 2007. Hong Kong SAR, China. Copenhagen: International Federation of Surveyors (FIG).*
- Vaismoradi, M., Turunen, H., Bondas, T., 2013. Content analysis and thematic analysis: implications for conducting a qualitative descriptive study. *Nurs. Health Sci.* 15 (3), 398–405.
- Vitikainen, A., 2004. An overview of land consolidation in Europe. *Nordic J. Surv. Real Estate Res.* 1, 25–44 2004.
- Wallius, K., 2007. Tilusjärjestelyjen asiakaslähtöisyys, Master's thesis. University of Vaasa.
- Wisniewski, M., Donnelly, M., 1996. Measuring service quality in the public sector: the potential for SERVQUAL. *Total. Qual. Manage.* 7 (4), 357–365.