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Customer Integration into Service Innovations by Developing Information Integration between Parties and Increasing Customer Opportunity to Influence FM Services

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Esipuhe ja kiitokset

Mahtava tunne, kun väitöskirja on enää alkusanoja vaille valmis. Tämä seitsemän vuoden oppimismatka on ollut antoisa ja jokainen hetki on ollut tarpeellinen tähän pisteeseen päästäkseni. Tämän väitöskirjan valmistumista on merkittävästi edesauttanut veljeni Ilkka, joka kerta toisensa jälkeen on ylipuhunut minut priorisoimaan väitöskirjan edistämisen edes hetkellisesti ystävien, lentopallon, matkustelun, muun urheilun ja yleisen fiilistelyn edelle. Ja motivoinut, kannustanut ja löytänyt ratkaisut jatkamaan silloin, kun suuntaviivat eivät ole olleet selkeät.

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Espoossa, 16.12.2017

Elina

Abstract

Customer integration into the service innovation process is essential when creating successful services that add value to the customer. In addition, common development and the integration of different resources has become the dominant view in service development research. This study focuses on that phenomenon in the facilities management (FM) service sector by investigating customer integration into service innovation from the viewpoint of information flow development and increasing customers' opportunities to have an influence.

To meet the objective of this dissertation, the following research questions were formulated:

- How can service innovations be classified and what are the prerequisites for service innovations in FM services?
- What are the necessary elements of information flow development between customer and service provider in FM services in order to create service innovations and increase the performance of services?
- What opportunities does the customer have to influence the development of FM services and partnership in order to improve the performance of services?

The empirical research focuses on Finland's FM service sector and was carried out in 2009 and 2010. A total of 23 interviews were performed with service providers and customers, and 23 individual service providers and built environment services professionals participated in the three workshops that were organised.

The main value that this research brings to FM research and its professionals is the new paradigm of common development and the three frameworks of service innovation development: the requirements for service innovation based on business levels, elements of information integration in FM services, and a framework for developing the customer's opportunities to have an influence.

This study presents two critical factors for the development of the whole FM field: there is a lack of common development, and the information is managed poorly. Service development is mostly undertaken by service providers without the existence of open innovation. Currently there is a focus on making the service process efficient instead of developing new and attractive services. Poor information management prevents the development of a virtual environment. Making information integration possible through the development of common data for real estate information systems can facilitate a new actor's entry into the market, increase competition, and speed up the development of the whole field.

Tiivistelmä

Asiakkaan integroiminen palveluinnovaatioiden kehittämiseen on tärkeää menestyneitä ja asiakkaalle arvo tuottavia palveluita kehitettäessä. Yhteinen kehittäminen ja eri resurssien yhdistäminen palveluiden kehittämiseksi on noussut oleelliseksi teemaksi viime vuosien palvelututkimuksissa. Tämä tutkimus keskittyy palveluiden kehittämiseen toimitilajohtamispalveluissa tutkimalla asiakkaan integroitumista palveluinnovaatioihin tiedonkulun parantamisen ja asiakkaan vaikutusmahdollisuuksien lisäämisen näkökulmista. Aihetta tutkitaan tarkastelemalla palveluntuottajan ja asiakkaan välistä suhdetta.

Seuraavat kolme tutkimuskysymystä ohjaavat tätä tutkimusta:

- Kuinka palveluinnovaatioita voidaan luokitella ja mitkä ovat edellytykset palveluinnovaatioiden syntymiselle toimitilajohtamispalveluissa?
- Mitkä ovat asiakkaan ja palveluntuottajan välisen tiedonkulun kehittämiseen liittyvät elementit palveluinnovaatioiden mahdollistamiseksi ja suorituskyvyn parantamiseksi toimitilajohtamispalveluissa?
- Mitkä ovat asiakkaan vaikutusmahdollisuudet palveluiden ja asiakassuhteen kehittämiseen palveluiden suorituskykyä parantamalla toimitilajohtamispalveluissa?

Aineisto tutkimukseen kerättiin Suomen toimitilajohtamispalvelumarkkinoilta vuosina 2009 ja 2010. Aineisto koostui yhteensä 23 sekä asiakkaille että palveluntuottajille tehdyistä haastatteluista ja kolmesta työpajasta, joihin osallistui yhteensä 23 palveluntuottajaa ja rakennetun ympäristön palveluiden ammattilaista.

Tätä tutkimus täydentää aikaisempia toimitilajohtamispalveluihin liittyviä tutkimuksia ottamalla yhteisen kehittämisen paradigman osaksi kehittämistä ja luo kolme mallia palveluinnovaatioiden kehittämiseksi: edellytykset palveluinnovaatioille liiketoimintatasoihin jaoteltuina, informaation integraation elementit toimitilajohtamispalveluissa ja malli asiakkaan vaikutusmahdollisuuksista palveluiden kehittämiseen.

Tämä tutkimus osoittaa kaksi kriittistä tekijää liittyen koko toimitilajohtamispalveluiden kehittämiseen: yhteinen kehittäminen on vähäistä ja tieto on johdettu huonosti. Palveluntuottaja kehittää usein palveluita ilman yhteistyötä eri toimijoiden kanssa ja siksi kehitys keskittyykin palveluprosessien tehostamiseen uusien ja kiinnostavien palvelukonseptien kehittämisen sijaan. Huono tiedonjohtaminen taas on esteenä koko virtuaalisen ympäristön kehittämiselle. Informaation integraation mahdollistaminen toimitilajohtamispalveluissa avaisi uusien toimijoiden tuloa markkinoille, lisäisi kilpailua ja nopeuttaisi koko alan kehittymistä.

Dissertation papers

Paper I Sillanpää E. & Junnonen J-M. (2012) “Factors affecting service innovation in FM service sector”, Facilities, Vol. 30 Iss: 11/12, pp.517 – 530

Paper II Sillanpää E. & Puhto J. (2010) “Developing Web-based Service Channel for Facility Management Services”, Art and Science of Service, Madrid, June 2-4,

Paper III Sillanpää E. & Sillanpää I. (2015) "Developing the elements of information integration in the real estate and user services", Facilities, Vol. 33 Iss: 7/8, pp.485 - 501

Paper IV Sillanpää, I., Shahzad, K. & Sillanpää, E. (2015) “Supplier development and buyer-supplier relationship strategies - a literature review”, International Journal of Procurement Management, Vol.8, No.1/2, pp.227 – 250

Paper V Sillanpää E., Junnonen J-M., Sillanpää I. & Saari A. (2016) ”A Customer’s possibilities to increase the performance of a Service provider by adding value and deepening the partnership in Facility Management service”, Management and Production Engineering Review, Vol. 7, No. 2, pp. 50 - 61

The author's contribution to the papers

Paper I

Elina Sillanpää was responsible for the literature review, methodology and empirical data gathering, analysis of the data and formulating the results.

Juha-Matti Junnonen provided comments and suggestions for the paper. In addition, he participated in the empirical data gathering and formulating the results.

Paper II

Elina Sillanpää was responsible for the literature review, methodology and empirical data gathering, analysis of the data and formulating the results.

Jukka Puhto provided comments and suggestions on the paper and participated in formulating the results.

Paper III

Elina Sillanpää was responsible for the literature review, methodology and empirical data gathering, analysis of the data and formulating the results.

Ilkka Sillanpää provided comments and suggestions on the paper and participated in the creation of the introduction and methodology sections.

Paper IV

Ilkka Sillanpää and Kuram Shahzad were responsible for the literature review, methodology, analysis of the data and formulating the results.

Elina Sillanpää participated in the literature review and the structure of the text.

Paper V

Elina Sillanpää was responsible for the literature review, methodology and empirical data gathering, analysis of the data and formulating the results.

Juha-Matti Junnonen provided comments and suggestions on the paper. In addition, he participated in the empirical data gathering.

Ilkka Sillanpää participated in creating the literature section.

Arto Saari provided comments and suggestions on the paper.

Contents

1 Introduction

1.1 Background

Service innovations are necessary for preserving the continuity of service providers (Antola, Pohjola 2006) and are a crucial factor in the financial performance of service organisations (Ordanini, Parasuraman 2011, Paton, McLaughlin 2008). Service innovation provides unique opportunities for developing competitive advantages, increasing profitability, expanding market share, generating employment, and positively influencing the development and growth of other sectors of the economy (Gebauer, Edvardsson et al. 2010, Kowalkowski, Witell et al. 2013, Miles 2005).

Customer integration into the innovation process is becoming increasingly important for the development of new and attractive services (Edvardsson, Kristensson et al. 2012, Carbonell, Rodriguez-Escudero et al. 2011) and is a reliable source of competitive advantage (Lorenzo-Romero, Constantinides et al. 2014, Carbonell, Rodriguez-Escudero et al. 2011). In addition, the view that value is co-created through interaction between providers, customers and other parties in service ecosystems, rather than being produced by organisations without interaction with their customers, has generally become the dominant view in service management research (Vargo, Lusch 2014). This study focuses on that phenomenon in the facilities management (FM) service sector by looking at customer integration in service innovation by developing the information flow between stakeholders and increasing the customer's opportunity to have an influence.

Facilities management (FM) is seen as an undeveloped business, even though buildings' ability to serve the users' needs have a direct effect on the wellbeing and functionality of the whole society. In Finland, real estate wealth accounts for over 60% of national wealth and over 40% of energy consumption and emissions, employs over 300,000 people, and creates residential, employment and free time environments for every citizen. It is essential to lead this wealth in a professional and sustainable way because of its huge social significance (KTI Finland 2015).

FM services are support services (Nardelli, Scupola et al. 2014) that involve the integrated management of people, processes and places with the purpose of supporting and improving the effectiveness of the core business of an organisation (Alexander 1992). FM services support employees in the daily implementation of their tasks and ensure the correct functioning of the organisation (Jensen 2008), which means that FM services enable the employees of organisation to focus on the task and activities of the core business without having to worry about FM services, such as building and outdoor maintenance, cleaning, security and catering (Nardelli, Scupola et al. 2014).

FM services have developed over the years into becoming an individual field of practice, and a discrete profession and market (Rasmussen, Andersen et al. 2012). In its first generation, FM was considered as a necessary cost for companies, which had to be

managed at minimum cost rather than optimum value (Scupola 2014, Lehtonen, Salonen 2006, Jylhä 2013, Lindholm 2008). Over the last three decades, FM services have regarded themselves as a key service sector (Nardelli, Scupola et al. 2014) and are now seen more strategically (Scupola 2014). In addition, researchers are starting to afford more attention to FM services and have produced specialised literature, such as the Journal of Facilities Management and Facilities (Nardelli, Scupola et al. 2014).

Innovation in the FM sector is often recognised but the innovativeness of FM organisations requires further research (Mudrak, van Wagenberg et al. 2005). However, it is important to include new developments and continuous innovation processes in FM organisations because these help them to stay in business, exceed customer expectations and add value to the core business of the customer. The rising level of global competition and the rapidly growing number of innovations are reasons why organisations today are forced to find new ways to attract, gain and sustain loyal customers in order to remain competitive (Lorenzo-Romero, Constantinides et al. 2014).

FM services have a complex value chain including top management, an internal FM unit, organisation employees and outsourced FM service providers, and can be described as complex business-to-business service systems. That brings about challenges in managing the innovation process in FM services because all parties have different needs and expectations and all of them have to be taken into account (Nardelli, Scupola 2013). In addition, the practices and process mechanisms between parties often result in a low level of effectiveness in terms of value creation (Jylhä, Junnila 2014b).

It is essential to learn from and with customers, because some of the common reasons why services do not succeed, in other words fail to create value for the customer, are that they do not fit the customers' needs, they are too complicated for customers, or services do not allow the customer to integrate or interact with other resources (Edvardsson, Kristensson et al. 2012). This is also seen in FM services where value creation is disrupted because the service process does not respond to the wishes of the customer (Jylhä, Junnila 2014b).

Customer integration is related to the co-operation and information sharing practices between a service provider and its customers, in order to better identify customer needs and requirements (Wong, Boon-itt et al. 2011). The services are led by information and all decision-making is based on information (Krause 1999). Therefore, the functionality of information integration is emphasised in the service sector (Lee 2000). Fluent information flow is essential for the functioning of services and customer relations, and is the foundation for the integration of activities between customer and service provider (Lee 2000).

There is a lot of information in the relationship between customer and service provider in FM services, but the information is managed poorly (Jylhä, Suvanto 2015, Jylhä, Junnila

2014b) and that causes both information flood and information scarcity. Customers are a potential goldmine of information for service development at every step of the service innovation process (Edvardsson, Kristensson et al. 2012), and that is why the information flow between the two parties has to work in order to develop successful services.

Information integration between the parties improves productivity, customer service and comprehensive performance in the market as well as coordination (Frohlich, Westbrook 2001, Frohlich, Westbrook 2002, Sengupta, Heiser et al. 2006) and increases the opportunity to react to sudden changes in an unstable demand environment (Lee, Whang 2000). Furthermore, it reduces storage costs and makes service production more effective (Lee 2000). Information integration also has a great deal of significance when carrying out coordination between organisations and establishing co-operation relationships (Lee, Whang 2000, Zeng, Pathak 2003, Ganesh, Raghunathan et al. 2008).

The low level of value creation and partnership in FM services can be assumed to be caused by the history of FM. Now FM is seen more strategically: 'the alignment between organizational structure, work processes and the enabling physical environment arguing that the organization's strategic intent must clearly reflect the facilities dimensions in its strategic plans'. (Scupola 2014)

FM services can add value for their users by supporting knowledge-sharing (Appel-Meulenbroek 2010), sustainability (Sashar, Pitt 2009) and innovations (Lindholm 2008), and in this way it has an important meaning to the customer's business. Customers are part of the service process and actively affect the quality and productivity of services (Dyer, Hatch 2006, Grönroos 2004). A customer's direct involvement in the development of a service provider' performance is also a key feature in improving and developing quality (Jylhä, Junnila 2014b). Therefore, customers can also affect the level of customer integration into service innovations.

Nardelli, Scupola et al. argued that FM services are services that include the interaction between the supply and demand side, where the interaction is based on the exchange of information on issues to be resolved and the needs and expectations to be satisfied. Thus, the FM service process is centred on the close interaction between the organisation that needs FM services and the FM service provider (Nardelli, Scupola et al. 2014).

Service providers have become a significant party for customers. Nowadays they are not only suppliers of services; they have become strategic partners, and this represents the importance of their role in the value chain (Kowalkowski, Witell et al. 2013, Kwon, Joo et al. 2010). The customer has a significant role as the builder of trust and the developer of the partnership (Jylhä, Junnila 2014b, Krause, Ragatz et al. 1999). Customers can communicate more efficiently with service providers if they put their efforts into service provider development, including evaluation, training and reward programmes (Krause, Ellram 1997).

In an FM service contract, the characteristics of the service to be provided are typically described in general terms, such as spaces needing to be cleaned once a day without including any details about the route that e.g. cleaners should follow. This creates dependency of demand on supply. In addition, it can be seen to emphasise the importance of the long partnership between the FM service provider and the customer, because the FM service provider who has operated in one property for years will have learnt the requirements of that property (Nardelli, Scupola et al. 2014).

1.2 Research aims and questions

This dissertation discusses the development of service innovation in FM services, from the perspective of customer integration and information flow development, in order to ensure that the customer's needs are observed and that new services add value to the customer. The overall objective of this dissertation is to create new knowledge on the development of service innovation by developing information integration between parties and increasing the opportunities that customers have in terms of influencing service innovations.

To meet the objective of this dissertation, the following research questions were formulated:

RQ1 How can service innovations be classified and what are the prerequisites for service innovations in FM services?

RQ2 What are the necessary elements for information flow development between customer and service provider in FM services in order to create service innovations and increase the performance of services?

RQ3 What opportunities does a customer have to influence the development of FM services and partnership in order to improve the performance of services?

RQ1 is designed to analyse the current research and practice in order to reveal the opportunities for academic and practical contribution related to service innovation development. Paper I is designed to answer RQ1 by investigating the service innovation process and the general requirements for service development. Research on innovation in FM services is scarce, and identifying classifications of service innovations in FM services lends them a more manageable format.The results of Paper I are related to the classification of service innovations and the factors that are requirements for service innovation development in FM services. The resulting understanding helps with the subsequent steps of the research by identifying the different innovation levels and the problems related to service innovation development.

RQ2 aims to luncover previous research related to information flow development between the key parties and explains the meaning of the combination of the physical and virtual environment for companies. Articles II and III are designed to answer RQ2. Article II considers e-business as an enabler for combining the virtual and physical environment.

The results of Article II are the customer's information needs for FM services and the challenges related to e-business development in FM services. Article III focuses on identifying the elements of information integration in FM services. This knowledge is needed to obtain an understanding of the current situation of the flow of information and information needs between service provider and customer, and also to realise the potential of information flow development and the elements that are required in order to develop it.

RQ3 focuses on the customer side by looking at the opportunities customers have to participate in service innovations, by increasing the performance of service providers and the level of partnership. Articles IV and V are designed to answer RQ3. Article IV focuses on previous studies of the theme by providing a framework for analysing the current understanding of buyer-supplier relationship approaches. Article V complements the framework in Article IV by clarifying the special features that FM services bring to that framework. The results help to increase customer integration into the innovation process by identifying the opportunities that a customer has to influence service development, service performance and the level of partnerships.

These research questions represent the thematic topics of the research. The five interrelated articles are designed to enhance understanding by relating their individual perspective to the themes (Table 1).

Research Question	Discussed in papers	Theme of the papers
RQ1	I	Service innovation process Service development
RQ2	II III	Combining the virtual and physical environments Information integration
RQ3	IV V	Supplier development by customer Relationship development Increasing the performance of the customer's services

Table 1 Overview of the research questions and research papers.

1.3 Structure of the dissertation

The research consists of five papers. The research process is divided into three different phases based on the research questions. Each phase follows the same research process. The first step in the process is to obtain a pre-understanding of the theme by studying the previous research and designing the research method. The second step is to carry out the data collection. After that, the data is analysed and the results are achieved. At the end of each phase the effects of the results on the next research phase and the whole project are studied to ensure the research is going in the right direction. Figure 1 presents the research process.

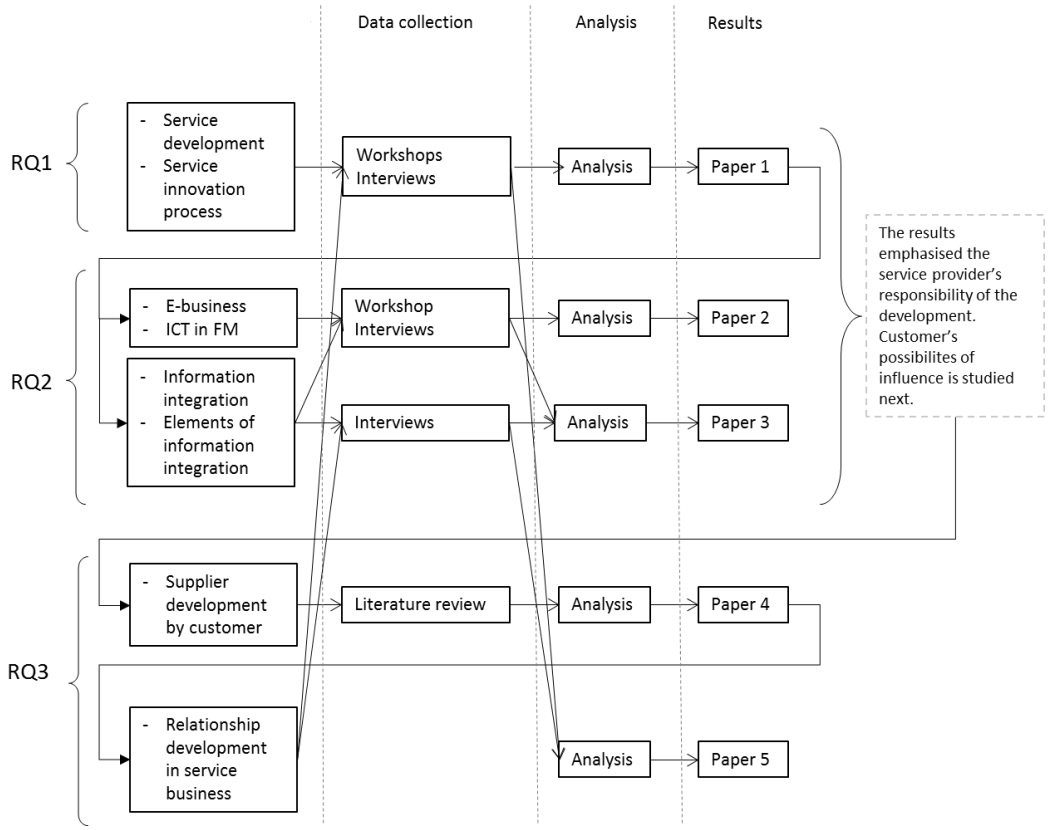

Figure 1 The research process.

1.4 Dissertation process

This study started at the beginning of 2009, when the author started her master's thesis. It focused on developing the FM service sector, firstly by investigating the allocation for service innovation in FM services and secondly the factors to create service innovation in FM services. The thesis was part of a research project founded by TEKES and industrial partners such as the service providers and buyers of the FM services. Based on the data of the research project, Paper 1 was produced during 2009.

The thesis can be considered as a pre-understanding and motivation for this dissertation. During the master's thesis, the author noticed the potential for expanding this undeveloped field. Specially, there was a need to develop the information flow, because services are led by information and without an effective flow of it, the development of the whole business is challenging. Moreover, the author was curious to see the potential that the combination of virtual and physical environment would bring to the field and what change it could bring about. In addition, the customers and service providers were willing to develop the industry in a way that increases the motivation towards the researched theme and the significance of the research topic.

After the master's thesis and the research project, one participating service provider launched a new research project together with TEKES to develop information flow and services in the FM sector. That project was a good continuum for the first research project. The author functioned as a main researcher in that project. The second research project started halfway through 2009 and came to an end two years later. Based on the data of that second research project, Paper II was produced in 2010 and Paper III between 2011 and 2013.

After these two research projects, the author was curious to see how the FM service works in practice and started to work as a technical property manager for an industrial company. The author experienced a new side of the FM service sector, but at the same time, the dissertation had to be completed on a part-time basis alongside this role.

The empirical data from the first and second research projects focused more on the service provider than customer side, i.e. it perceived that the responsibility for service development belongs to the service provider. That created the need for papers IV and V, where the customer's possibilities for service development is investigated first from the literature perspective and secondly in the FM service sector. Paper IV was performed between 2013 and 2015. Paper V is based on Paper IV and the data was gathered from the first and second research projects. Paper V was conducted between 2014 and 2016.

All the empirical data was gathered from the first and second research projects. The literature review was carried out mainly at the beginning of each paper. However, based on the nature of abductive logic, it returns back to the literature during the empirical phases in order to compare the knowledge and discover new publications from the researched area. The whole research process of this dissertation can be seen as a continuum, where each paper produces knowledge and exist as pre-knowledge for the next paper.

2 Theoretical foundations

2.1 Service innovation

Innovation research has its roots in early 1930, when Schumpeter described innovation as being the driving force for development and argued that anyone searching for profit must innovate (Schumpeter 1934). After that, innovation research focused mainly on the manufacturing sector (Drejer 2004, Toivonen, Tuominen 2009). However, over the last thirty years service innovation research has grown considerably whilst the share provided by services has increased in terms of gross domestic product (Koskela-Huotari, Edvardsson et al. 2016).

Research started to focus on customer involvement in the innovation process in the 2000s (Carlborg, Kindström et al. 2014). After that the customer role as an active participant in the service process and as co-creators of value started to increase (Vargo, Lusch 2004, Prahalad, Ramaswamy 2004) and research focused on learning from the customer and involving them more systematically in the innovation process (Carlborg, Kindström et al. 2014).

Innovation has been defined from different perspectives (Damanpour, Schneider 2006) and it has many different definitions depending on the perspective. The definition of service innovation used in this study is the following (Toivonen, Tuominen 2009):

> *A service innovation is a new service or such a renewal of an existing service which is put into practice and which provides benefit to the organization that has developed it; the benefit usually derives from the added value that the renewal provides to the customers. In addition, to be an innovation the renewal must be new not only to its developer, but in a broader context, and it must involve some element that can be repeated in new situations, i.e. it must show some generalizable feature(s).*

This definition is criticised because it focuses too much on the service provider side (Nardelli, Scupola et al. 2014), for example when compared to Salunke et al., who emphasised that a service innovation should bring value both to the firm and its customer (Salunke, Weerawardena et al. 2011). However, service innovation brings benefits to its developer through the added value it provides to the customers (Sundbo 1997) and through that the customer perspective has also been taken into account in this definition.

Added value is considered a complex concept, and none of the studies provides a clear definition of it (Kok, Mobach et al. 2011). In the past, added value was seen as a combination of price and quality (Treacy, Wiersema 1995), but nowadays it has to be studied from different perspectives. One common view of added value is the ratio between benefits and sacrifices for the customer (Porter 1985, Monroe 1991, Woodruff 1997). In

this study, services are seen as adding value to customer if the benefits are greater than the sacrifices.

The definition of service innovation emphasises that service innovation involves changes in practice, brings benefits to the organisation and adds value to the customer, is new to others than just the firm, and is repeatable in new situations. These are also the elements that distinguish innovation from development: innovation has to bring benefit, it has to be new in a broader context, and has to be repeatable. In addition, development typically follows the traditional R&D model as opposed to service innovation.

Toivonen and Tuominen (2009) have defined three different models leading to service innovation: the R&D model, the model of rapid application, and the practice-driving model.Basically, each model consists of the same three steps: the emergence of an idea, the development of an idea, and market applications. Nonetheless, their order varies across models. The R&D model is typical for product development and proceeds systematically. The model of rapid application takes the idea into practice quickly, where its development continues. In the practice-driven model, a service is developed together with the customer. Here, a significant change is noticed afterwards and the systematic development starts after that (Toivonen, Tuominen 2009).

Innovation in the FM sector is often recognised but the innovativeness of FM organisations requires further research (Mudrak, van Wagenberg et al. 2005). Due to the nature of FM, the sector deals mostly with business support services such as the management of workplace and workspace (Tay, Ooi 2001, Alexander 1999). FM provides a diverse range of services; however, these services are linked through matching organisational needs. The contextual factors that influence FM are organisational characteristics, facility features, the business sector, culture and context, and aligning/linking FM to the organisation (Chotipanich 2004). These factors indicate the complexity of the context in which innovation is introduced to FM.

In the FM sector, the changes or transformations are incremental day-to-day changes rather than radical improvements (Mudrak, van Wagenberg et al. 2005). Unique service entities tailored to the needs of the customer are becoming common in FM services and they hold a significant position in competitions and when choosing a service provider. Success can be increased by developing the innovation activity of FM service providers, and it is also a way for a business to set itself apart from its competitors (Cardellino, Finch 2006).

In last ten years, less attention has been paid to the differences between innovation in service and manufacturing firms. The most recent research has emphasised the integrated and multidimensional feature of service innovation, and it being a concept that could also include products (Carlborg, Kindström et al. 2014, Karniouchina, Victorino et al. 2006). Therefore, nowadays both service and manufacturing firms pay attention to service

innovation as a factor for increasing competitive advantages (Gremyr, Löfberg et al. 2010, Kindström, Kowalkowski 2009).

Service-dominant (S-D) logic removes the distinction of products and services and claims that services should be viewed as 'a broadening concept of all exchange and a transcending concept on which all economic science should be built.' S-D logic is one remarkable pacemaker towards network-centric, information-centric and experience centric innovation (Lusch, Nambisan 2015).

Service-dominant (S-D) logic means applying competencies through deeds, processes and performance for the benefit of another actor or the actor itself (Vargo, Lusch 2004) and argues that all actors are resource integrations (Lusch, Vargo 2011). In the network-centric innovation, the organisation evolves through the joint action of a network of different actors such as suppliers, partners, customers and independent investors (Chesbrough 2003).

Open innovation is the broader concept of resource integration between parties. The term 'open innovation' was coined by Chesbrough when he noticed that most organisations focused more on generating ideas and introducing them to the market by exploiting ideas and R&D from other companies (Chesbrough 2003). He defines open innovation as 'the use of purposive inflows and outflows of knowledge to accelerate internal innovation and expand the markets for external use of innovation respectively' (Chesbrough 2006). Open innovation is essential because of the increasing costs of R&D, shorter product life cycles and smaller product revenue (Chesbrough 2003).

Open innovation requires the organisation to open up its fixed boundaries and enable valuable knowledge to flow in from the outside in order to create opportunities for cooperation innovation with partners, customers and/or suppliers (Gassmann, Enkel 2004), and to flow out for the purposes of commercial exploitation. In addition, it requires the development of collaborative relationships with other organisations to achieve competitive advantages through the development of new or improved products (Chesbrough 2003). The degree of openness increases alongside the degree of radical innovation (Lichtenthaler 2008).

IT enables the creation of value networks and makes it possible to share and integrate resources and knowledge in networks. The role of information technology (IT) has been significant in intangible breakthrough innovations like Facebook, YouTube and Google, and has made the innovation technically feasible and economically viable (Lusch, Nambisan 2015). Chen et al. (2006) suggested that the highest priority in open innovation should focus on the acquisition and exploitation of new knowledge that enables new product and service development (Chen, Lin et al. 2006). IT has played a significant role in implementing and enabling the open innovation paradigm (Dodgson, Gann et al. 2006). The use of information technology to store, analyse and access data has increased rapidly

and that has the potential to share knowledge between organisations and through that to support the rapid identification of new markets or new product opportunities (Saussois 2003).

2.2 Information flow development

The use of information and communication technologies is seen to support the innovation process in FM services (Nardelli, Scupola 2013). Companies that improve their traditional business processes, and invent and implement new combinations of virtual and physical activities through e-business, will be the most successful (Phan 2003). E-business decreases costs, but improved customer services are seen as a primary reason for e-business development (Rodgers, Yen et al. 2002). Binding together internal and external systems is a significant challenge for most organisations (Barua, Konana et al. 2001).

E-business is defined as an upper concept of a business that runs via the internet. 'E-business is a dynamic set of technologies, applications and business processes that link companies, customers and communities through the electronic exchange of goods, services, transactions and information' (Chen, Ching 2002, Abu-Musa 2004, Kalakota, Robinson 2001). In FM services, the internet enables the creation of new methods of procurement and contracting, new forms of collaborative working and develops new kind of relationships with clients (Finch 2000).

E-business increases the constancy of customership, which produces profitability and operational efficiency for the service provider (Schultze 2003). The contents of e-business are crucial for providing good services and increasing the usability of e-business and the added value that e-business will create. Value-creating for the customer through e-business depends on how e-business helps to complete job tasks and enhance employees' own and their company's performance (Lai, Chen 2009, Bettua 1999). A fluent information flow and information integration are the foundations for combining virtual and physical activities.

Information integration is the sharing of essential data or information between the parties involved in production (Lee, Whang 2000). As mentioned above, information integration is the foundation of integration and it becomes emphasised in the service sector (Lee 2000). In the service sector, the supply chain (SC) centres on flows of information as well as the relationship between service provider and customer. The special characteristic of service sector SC is that the SC is bidirectional. In other words, a customer, apart from being a customer, is also one of the parties of the SC as well as a provider of input into the service process (Sampson 2000).

There are six aspects that have to be taken into consideration when developing information integration in the SC: processes and activities, information technology, information attributes, information sharing practices, collaborative foundation, and time-related aspects of integration (Uusipaavalniemi 2009).

Processes and activities implies integration of inter-party processes as well as information sharing between processes (Uusipaavalniemi 2009). Processes focus on the inter-organisational processes rather than the functional units and departments of one organisation (Trkman, Stemberger et al. 2007).

Information technology means data systems and their integration, whereas *information attributes* denotes the characteristics of the information shared in an SC, such as information form, quality and availability. *Information sharing* practices are the functions which have to be put into action so that information sharing in SC becomes efficient. Information sharing practices encompass the extent of information sharing practices as well as the frequency of interaction (Uusipaavalniemi 2009).

The use of information technologies (IT) increases efficiency and has a positive impact on innovation in FM services (De Jong, J. P. J., Bruins et al. 2003) by facilitating and improving the business processes that are intended to produce innovation (Nardelli, Scupola et al. 2014).

Collaborative foundation encompasses the level of partnership as well as present practices that increase cooperation and SC integration. It includes common goals, shared resources, confidence, commitment and performance measurement. The parties should engage to set goals together and make a plan for cooperation to achieve collaboration. *Time-related issues* imply speed and timeliness in information sharing. This encompasses the timing of information sharing and information lead time (Uusipaavalniemi 2009).Supplier development by the customer

Supplier development was first used to explain manufacturers' determination to enhance supplier's numbers and to improve their performance (Leenders 1966). Krause's research on supplier development states and explains the actions that come before the supplier development concept takes place, called 'antecedents' (Krause 1999). He identifies that:

- organisations need to manage their suppliers strategically for the competitive market,
- buying firms need to take a strategic viewpoint for suppliers, consider the purchasing function as a significant source of competitive advantage, and make investments in the development of suppliers' performance and capabilities,
- to increase supplier commitments, buying firms need to consider their suppliers as virtual extensions that help to motivate them to improve their performance,
- the relationship between a buyer and their suppliers identifies the opportunity to invest in supplier development programmes,
- communication and information sharing between the buyer and their suppliers is an important prerequisite for supplier development activities (Krause, 1999).

‘Suppliers’ have become a substantial party who are not only suppliers of goods these days – they have become strategic partners for the firm which represents the importance of their role in the value chain (Kwon, Joo et al. 2010). Supplier relationship management, or the buyer-supplier relationship, in a global supply environment refers to the concept of a management network that involves different skills and knowledge in a field and enhances the possibility of performance (Lintukangas 2011). Therefore, the relationship between buyer and supplier represents a pivotal prospect for firms to develop strategically global competitive advantage. These relationships have developed to the level of a strategic partnership relationship in a rather competitive way. (Loppacher, Cagliano et al. 2011).

Previous studies have stated that buying firms can communicate more efficiently with suppliers if they invest in supplier development including supplier evaluation, supplier training, and supplier reward programmes (Krause, Ellram 1997). Furthermore, they will communicate better if they perceive their suppliers as partners and place greater emphasis on a few serious issues (Krause, Ellram 1997). A buying firm’s tendency to engage in supplier development is affected by its perception of supplier obligation, its expectation of relationship endurance, and functional buyer-supplier communication (Krause 1999).

Partnership is understood as a bidirectional relationship that brings benefit to both parties and where both parties are committed to developing and maintaining it in a long-lasting way (Ellram 1995). A long-lasting partnership and its development is particularly emphasised in the service business, because the consumption of a service is part of the service process and not its output, as is the case with products (Grönroos, Ojasalo 2015). A partnership helps companies to minimise transaction costs, survive in an unsure market, decrease dependence on uncontrolled resources, reposition the company successfully in a dynamic market, share fixed costs, improve their core business, acquire access to complementary competence, and increase the entry speed to market (Ireland, Hitt et al. 2002, Nooteboom, Berger et al. 1997).

Jylhä and Junnila have found six factors as to why the level of partnership is low in FM services. These factors are: sub-processes are optimised instead of the entire process being optimised, prices are minimised instead of costs, the process does not respond to customer values, employees are constantly overloaded, there is an inability to make improvements, and information is poorly managed (Jylhä, Junnila 2014a).

In service actions, the customer and the FM service provider are in interaction with each other and that has a big impact when the customer forms an opinion on service quality (Zeithaml, Berry et al. 1996). FM services are intangible and they are created when the customer uses them; that is why the service provider cannot promise the kind of service the customer will get (Grönroos 2000).

Suppliers have an important significance to their customer's business and the customer's direct involvement in the development of supplier performance is a key feature in improving and developing quality (Krause 1999). In the service business, quality is estimated by how much value the service brings to the customer. That is why the service process as a whole must be studied rather than sub-processes, and why it should focus on decreasing costs without reducing value production to customers (Jylhä, Junnila 2014a).

3 Methodology

3.1 Research strategy and design

This study is a descriptive piece of research on customer integration into the service innovation in FM services. The goal of the descriptive research is to describe the phenomenon and its characteristics (Nassaji 2015) by understanding unique individuals and their meanings and interactions with others and the environment (Lopez, Willis 2004). The method is useful for investigating phenomena such as life events that are shared by groups and individuals and where the aim is to find out the meanings, patterns and themes that constitute them (Parse 2001) such as human behaviours, motives, views and barriers (Neergaard, Olesen et al. 2009).

Descriptive research has been important and appropriate for research questions focused on discovering the who, what and where of event (Sandelowski 2000) instead of how and why (Nassaji 2015). In addition, descriptive research is functional when the phenomenon is poorly understood (Sandelowski 2000) or previous research is scarce because of the feature of descriptive research being more descriptive than explanatory (Metsämuuronen 2010). The phenomenon of this study is descriptive in nature and lightly investigated, which makes the descriptive research method suitable for this study.

The aim of descriptive research is to describe the phenomena more clearly, to place the investigated phenomena in a more perceivable format, or to create a new thing or model from the things that have been discovered. Descriptive research attempts to describe and explain the phenomena without changing it, and it also contains some analysis such as classifications. However, the purpose of descriptive research is not to test hypotheses, to create forecasts, to find causes and effects or to create consequences. (Anttila 2006).

In descriptive research, it is typical that the theme is investigated from a naturalistic perspective and examined as a phenomenon in its natural state (Sandelowski 2000). Descriptive research is less theory-driven than some other qualitative approaches (Neergaard, Olesen et al. 2009) and that is why it fits well with a study that deals with human interaction (Lincoln, Guba 1985) such as FM, where the interaction of humans is highlighted. One commonly used data gathering method in descriptive research is interviewing to explore experiences, beliefs, attitudes and values of individuals or focus groups (Willis, Sullivan-Bolyai et al. 2016).

In this study, the philosophy of science is pragmatism, which emphasises the practical importance of acquiring knowledge. According to the pragmatism research and learning concept, knowledge and practice cannot be distinguished from each other; instead, all learning and teaching takes place in the context of practices and related skills (Shields 1998). As a philosophy of science, pragmatism can be seen as opposed to rationalist orientation according to which valid information can be obtained by reasoning and logic.

There are three key logics in scientific reasoning: deductive, inductive and abductive. Deductive thinking is based on the theory that observations of new phenomena can be mirrored and thus verified by results. Inductive thinking is in turn based on empirical data, which attempts to create a theoretical model through the things discovered in reality (Anttila 1998).

This study follows the abductive reasoning, which starts from something concrete that is theoretically structured before returning to concrete. Abductive logic thus starts from empirical evidence, but does not reject the theory of existence as a background. In abductive reasoning, the researcher should have both theoretical and computational understanding of the topic (Anttila 1998).

Qualitative interviews are divided into three categories: structured, unstructured and semi-structured interviews (Tutty, Rothery et al. 1996). In structured interviews the same set of questions are asked in the same order and using the same words. This is opposite to unstructured interviews, where standardised questions are not used and the interview is an interactive process between interviewer and interviewee.

This study uses semi-structured interviews that include some predetermined questions or key words used as a guide and lies somewhere between structured and unstructured interviews (Tutty, Rothery et al. 1996). In semi-structured interviews, the interviewee is free to present further questions based on the answer and to influence the issues to be discussed. This may result in finding out unexpected and insightful information and thereby also affecting the results (Hair, Babin et al. 2003).

3.2 Data

The empirical research of this study focuses on Finland's FM service sector and was performed in 2009 and 2011. A total of 23 interviews were performed, involving 28 interviewees, and 23 individuals participated in the three workshops that were organised. Thirty-one of the people involved in the data gathering process were service providers, ten were customers and nine were built environment services professionals. The empirical research consisted of four data gathering rounds:

(1) two professional workshops
(2) interviews with five customerships
(3) workshop and five interviews with a service provider company
(4) interviews with four key customerships of one service provider company

One feature of pragmatism is to focus on the research problem by using several approaches to understand the problem (Rossman, Wilson 1984). This study uses multiple methods to provide an understanding of the researcher theme. The method of each paper is presented next.

3.2.1 Paper I

The data gathering process for Paper I was divided into three phases: specialist workshop I, specialist workshop II and interviews with five customerships. The aim of the workshops was to define how the service innovations are understood and the viewpoints of the classification of the service innovations in the FM service sector. The first workshop was arranged for the five researchers of the built environment research group and the second workshop for four employees of KTI Property Information (an independent property market information and research firm). These groups were selected because they have knowledge of the theme and the FM market from working in several development projects in the FM sector.

The first workshop emphasised open conversation. The data of the researched theme was not revealed to the participants. This was done to ensure that it did not influence the conversation and so that participants could discuss their views of service innovations and the requirements and barriers related to them. The results from the first workshop were further developed in the second workshop. The second workshop was based on open conversation after the results of the first workshops were presented.

The interviews were based on the results of the workshops. The interviews were conducted with people from five customer relationships in order to obtain the viewpoints of both the supply and the demand perspective. This research is part of the 'customer-oriented and innovative FM services' development project. The selected service providers participated in that project and came from the largest FM service provider companies in Finland. The service providers suggested looking at a customership for deeper analysis. All the customers were user-customers. This was so that we could ensure we achieved the opinion of the end users. Initially, five customerships were selected, but the interviews started to repeat themselves so there was no need to increase the number of customerships.

All the service providers and customers were from large organisations, i.e. the number of employees was over 250. The length of the relationships varied from one year up to nine. The type of premises were mainly office buildings, whilst one relationship had massive equipment rooms in addition to offices. The services ordered were real estate, user and consulting services. One of the relationship has only user services, two have only real estate services, and the remaining two have both real estate and user services. In addition, there were consulting services in one relationship. A summary of the interviewed relationships is presented in Table 2.

Customer-ship	Length of the customership	Type of FM services	Type of premises	Employees of the service provider	Employees of the customer
A	3 years	Real estate services: building maintenance and repair services	office, equipment rooms	Approx. 1,500	Approx. 3,500
B	3 years	Real estate and user services: management of building and outdoor maintenance and repair services, cleaning, reception and post office services, and moving services	office	Approx. 9,000	Approx. 3,500
C	8 years	User services: cleaning	office	Approx. 9,000	Approx. 12,500
D	9 years	Real estate, user and consulting services: workplace and energy consumption services, security, reception, outdoor and building maintenance and repairs	office	Approx. 11,500	Approx. 300
E	1 year	Real estate services: building and outdoor maintenance and repair services	office	Approx. 6,000	Approx. 3,500

Table 2. A summary of the interviewed relationships.

The interviews were carried out separately with the service providers and the customers, but the interviews pertained to that specific relationship. The questions were sent to the interviewees before the interviews took place to make preparation possible. The duration of each interview was 50–90 minutes. Those interviewed were selected because they were responsible for that relationship and for the communication between service provider and customer. There were one or two interviewees in each interview, depending on the relationship and the responsible persons in that relationship.

The purpose of the thematic interviews was to clarify the factors that create requirements and barriers to service innovations in the FM service sector. These were discussed through the development of customership, because the word ‘innovation’ was considered challenging to understand. The interviews were divided into three themes: the development of the life cycle of the customership, engagement of the customership, and development of the entirety of the procurement. However, the interviews were based on open conversation and if the interviewees were familiar with the theme, the word ‘innovation’ was used more.

3.2.2 Paper II

Paper II focused on the e-business and information needs of the customer in FM services. The empirical part of Paper II studies the content requirements for the web-based service channel in FM services and challenges related to e-business. The data gathering was divided into two phases: a workshop and in-depth interviews. The data was collected from one of the biggest service provider companies in Finland in order to get a deep understanding of the theme from the service provider's perspective. The service provider organisation is a worldwide company with over ten thousand employees in Finland. The company has a board service supply and it offers overall real estate and user service solutions for organisations. The main services that it produces are cleaning, real estate, security and catering services.

The goal of the workshop was to identify the content requirements for a web-based service channel. The workshop was conducted with 14 employees from the service provider company: ten were customer relations managers, two were IT specialists and two were financial administration professionals. The participants were divided into four subgroups with a leader. The content requirements of the customer were discussed in relation to six categories, which came from the service provider's information systems. The categories were real estate and building information, service production and management, cost management, environmental management, relationship management and using e-commerce channels.

First, the workshop's participants explored the content requirements and prioritised them, and secondly they came up with development ideas for information integration. The analysis of the workshop was divided into three levels. Every content requirement received from the workshop was collected on a piece of paper and they were allocated based on the categories discussed in the first phase. In the second phase the content requirements were collected together in one Excel sheet to get a better overview of all the content requirements and their allocation. In the third phase, the content requirements were moved to mind mapping software in order to visualise all the material from the workshop and develop the allocation and the relationships between them.

The second phase of data gathering aimed to deepen the understanding of the special characteristics affecting the e-business development in FM services, and it included five interviews with service providers. The interviewees were responsible for the FM services offered to a particular customer segment, and they were selected because they have a wide perspective on the information systems used in service production and customer interface in different segments. The segments represented by the interviewees were industrial, public sector, shopping mall, retail and logistics, and they were based on the organisation of the service provider.

The interviews were semi-structured interviews, where the questions had been formulated in advance, but the interviewers could change the order of the questions. The questions were sent to the interviewees before the interviews to make preparation possible. The duration of each interview was 45–75 minutes. In addition, the responses were fixed in terms of response options – the interviewee could answer using his or her own words. This was done in order to achieve open discussion around the themes. The interview themes were: current FM systems, reporting to the customer, and factors affecting the development of a web-based service channel.

3.2.3 Paper III

Paper III focused on the information flow development from the perspective of information integration. Data related to this theme was gathered from the same service provider company as in Paper II, and it consisted of a workshop (the same as in Paper II) and interviews with four key customerships. The key customerships were selected because the development of the relationship, services and information flow had achieved a higher level in them. However, information flow development is still known to be undeveloped, even in key customerships. In addition, all the customers were user-customers – this was done to ensure that we acquired the opinions of end users.

The contracts between the service provider and key customers involves several different real estate and user services and are significant for service provider from both financial and strategical perspectives. All the key customers are large companies: three of them have over ten thousand employees and one of them over five thousand, which enables the huge contracts and future potential. Moreover, all the key customers have different kinds of premises in addition to offices: retail, manufacture, equipment rooms or distribution centres. A summary of the customerships is presented in the Table 3.

Customer-ship	How long spent as a key customer	Type of FM services	Type of premises	Employees of the customer
A	1 year	Real estate and user services: management of the building and outdoor maintenance and repairs, security, cleaning, catering, etc.	Office, retail	Approx. 19,000
B	8 years	Real estate and user services: building and outdoor maintenance and repairs, management of alterations and moves in offices, environmental and constructing consulting, cleaning and waste, etc.	Office, manufacture	Approx. 21,500
C	1 year	Real estate and user services: building and outdoor maintenance and repairs, cleaning, help desk service, etc.	Office, equipment room	Approx. 26,000
D	6 years	Real estate and user services: building and outdoor maintenance and repairs, and cleaning.	Office, retail, distribution centre	Approx. 5,000

Table 3. A summary of the customerships.

Four customers and four service providers were interviewed in order to get both aspects of the theme. The interviews were performed separately with the service provider and the customer but the interviews pertained to that specific relationship. The questions were sent to the interviewees before the interviews to make preparation possible. The duration of the service providers' interviews was 40–75 minutes and customers' 65–105 minutes. The interviewees were selected because they were responsible for that relationship and for the communication between the service provider and the customer. There were between one and three interviewees in each interview, depending on the relationship and the responsible persons relevant to that relationship. The interviews consisted of two parts: the questionnaire and the interview.

The first part of the interviews concentrated on analysing the information needs which came up in the workshop as well as prioritising these needs. The aim of this part was to recognise the customers' needs relating to FM services as well as to understand the current situation of information flow between the service provider and the customer in FM services. The theme was approached through a questionnaire, where the information needs were given a score of between 1 (not important) and 5 (important). The questionnaire was completed together with the interviewer in order to encourage open conversation related to the themes and the arguments for the score. The arguments were more interesting than the score because the scoring process was not comparable without the arguments.

The second part of the interviews gave further depth to the discussions about the information flow development in the specific relationship. This part was divided into three themes: information related to FM services, information distribution channels, and developing the information flow between parties. The interviews encouraged open discussion around the themes.

3.2.4 Paper IV

Paper IV is a literature review of buyer-supplier relationship development strategies. The literature on supply chain strategies was composed primarily from journals in the areas of strategic management, supply chain management, operations research and operations management. The target was to focus on recent journals from the last decade and that is why dissertations, textbooks, unpublished working papers and conference papers were excluded. The literature search incorporated journals published by numerous publishers and research was carried out using Scopus, which is one of the largest abstract and citation databases for research literature. Several hundred journal articles were found and that is why the research focused on the most relevant, most cited and most recent journals.

3.2.5 Paper V

The aim of Paper V was to clarify the opportunities a customer has to increase the performance of a service provider and to develop the service process in FM services, thus helping to improve partnership development. The data collection for this paper consisted of two rounds of interviews. The first round was the same as in Paper I and the second round was the same as that in Paper III. This paper uses the partnership development elements of both interview rounds.

The first round of interviews was conducted with people from five customer relationships. Five service providers and five customers were interviewed in order to obtain both the supply and the demand perspectives. The service providers came from the largest FM service provider companies in Finland. The interviews were divided into three themes: the development of the life cycle of the customership, the engagement of the customership, and the development of the procurement in its entirety.

The second round of interviews focused on the current performance of the service process and improving it. The data was gathered from four key customerships of one service provider company. The interviews were carried out with four customers and four service providers to get the perspectives of both parties. Relationship development was discussed from the viewpoint of information flow development between the service provider and the customer. The themes of the interview were divided into three parts: the current situation, the development needs of the service process, and the challenges related to the development. These themes are different from those in Paper III, even though the

interviews were the same, because this paper utilised only the partnership development element of the interviews.

The interviewees were selected because they were responsible for the relationship in question and for the communication between service provider and customer. The interviews were conducted separately with the service provider and the customer, but they focused on the particular relationship between them. There were between one and three interviewees in each interview, depending on the relationship and the responsible persons concerning that relationship.

3.2.6 A summary of the data gathering process

The data gathering process of this study consisted of interviews, workshops and a questionnaire. Service providers, customers and professionals from the FM sector participated in the data gathering. Each paper uses different data except Paper V, where the data is gathered in the same interviews than the data from Papers I and III. Paper V uses the partnership elements of these interviews that are unused in Papers I and III. However, there may be some overlap with the data used in Papers I and III because the data was gathered from the same interviews and is related to each other, and also interviewees repeat issues in between the interviews.Table 4 summaries the data gathering based on the papers.

Paper	Method	Theme	Customer	Service provider	Third party
I	Workshop	Classification of service innovations			5
	Workshop	Classification of service innovations			4
	Interviews	Requirements and barriers related to service innovation development	5	5	
II	Workshop	Customer information needs		14	
	Interviews	Information flow development		5	
III	Workshop	Customer information needs		14	
	Interviews	Information needs in FM services Information flow development	4	4	
IV	Literature review	Customer-supplier relationship development			
V	Interviews	The development of the relationship (same interviews as paper I)	5	5	
	Interviews	The development of the relationship (same interviews as paper III)	4	4	

Table 4. Summary of the data gathering

3.3 Data analysis

The purpose of data analysis is to describe, compare and create explanation (Glesne 2011). Data analysis is 'the identification of essential features and the systematic description of interrelationships among them' (Wolcott 1994). This study uses qualitative content analysis, which is a common strategy for data analysis in descriptive research (Neergaard, Olesen et al. 2009, Sandelowski 2000) because it allows researchers to stay close to the data and decreases the data transformation during analysis (Neergaard, Olesen et al. 2009). Content analysis should aim for generalisability, which means that the analysis must rely on theory and it must have theoretical relevance. That also supports to use the abductive logic for reasoning in this study. In addition, content analysis should be performed in a systematic way (Anttila 1998).

In this study the researcher arranged all the workshops and participated in every interview to ensure that the right themes were given more depth and the discussion went in the right direction. Every interview had two interviewers, which helps to achieve progress during the discussion and after interviews to compare thoughts and opinions about them. All the interviews were recorded and, transcribed and notes were taken.

The first analysis of the data was performed directly after the interviews and workshops, when the discussion was still fresh in the mind. The second analysis round was carried out after the transcription was conducted. This process also double-checks that all the themes were noted.

One typical feature of content analysis is data allocation through the creation of content categories either in words or otherwise, in a form that allows for further processing (Anttila 1998). Therefore the data analysis was started by categorising the themes that came up in the interviews. First, the themes were named based on the higher category, such as challenges, innovation development, good points related to development, etc.

Microsoft office was the software that was primarily used in data analysis. The classification was first made based on each interview and the interviews were read through several times and the categorisations were modified, inserted or deleted. As the analysis proceeded, more subcategories were assigned. The themes that did not deal with the research theme were removed from the analysis. In the end, the analysis led to a reduced and clear entity that enabled us to create our conclusions. The interviews were compared customership-specifically and exclusively by service provider and customer. Comparing the different interviews helps to identify the relationship between cause and effect. One key challenge related to data analysis is that the researcher simplifies the data and forgets the meanings of the data (Patton 1990). To eliminate that, following the analysis, we went through the original interviews again to ensure that the conclusions were coherent with what the interviewees said.

4 Summaries of the papers

4.1 Paper I – factors affecting service innovations in the FM service sector

The purpose of this paper is to clarify the concept of service innovation in the context of FM services and to map out the factors that are critical for service innovations. The research questions of this study are: how can service innovations be classified in the FM service sector, and what are the factors that create requirements and barriers to service innovations in the FM service sector?

Service innovations can be arranged on four levels: (1) industry level; (2) organisation level; (3) customer relationship level; and (4) production level. Service innovations can be found at all business levels, but they differ depending on the level. In addition, the business potential of innovations varies on each level.

This study shows that the innovation levels and the nature of service innovation has connections to each other. The network innovations are more likely to occur only at higher innovation levels and quality innovations at lower levels. Process innovations are more likely to be involved for middle innovation levels.

The opinions of service providers and customers related to the requirements and barriers of the service innovations in FM services are quite similar. The development concerns both the service provider and the customer, but the service provider has the main responsibility for development. The requirements and barriers related to the FM service innovation are mostly opposites of each other: if the requirement does not work it becomes a barrier.

Eleven factors were found that are considered requirements for service innovations. These requirements can be classified based on the innovation levels. At the industry level, the requirements for service innovations are networking and competition between parties. The industry level includes taking advantage of all knowledge and resources related to that business line. One example of a service innovation in the industry level is ESCO-service. Service innovations at that level affect the operations of the whole industry and change it. Networking makes it possible to develop the whole industry branch instead of a certain customership or company. Competition is necessary for any development – without any threat there is no need for improvements and innovations.

The organisation level is the upper level of an individual organisation and it contains the operations in that organisation. The level includes, among other things, customer segmentation and the formation of different service packages. These innovations can also be duplicated in other customerships. The examples of service innovations in organisational level are the formations of horizontal and vertical networks. At the organisation level, the requirements for service innovation are the development ability of the organisation, resources, professional personnel, and systematic innovation action. The

strategy has been formed to promote innovation activity in the organisation, because that creates a positive attitude towards innovation.

The customer relationship level contains actions in individual customerships. Organising the service provider's actions towards the customer, service blueprint and developing an individual customership are examples of innovation at the customer relationship level. The requirements for service innovation here are the identification of the customer's needs, diffusion of innovation, common development, and long contracts. Continuous interaction between the service provider and the customer is a requirement for creating an individual customer relationship and for offering necessary services and added value to the customer.

The production level is the level nearest to the customer and it includes production processes and individual performances. The time span of innovations shortens when the lower business levels are approached. The examples of service innovations in production level are multitasking and streamlining the production processes. The functioning of basic services are requirements for service innovations at the production level. In addition, the functionality of basic services is the basis of the entire innovation action and includes the consolidation of operations, engagement of personnel, and the fulfilment of promises. The whole organisation affects it but the main responsibility is at the production level.

4.2 Paper II – Developing Web-Based Service Channels for Facility Management Services

Paper II focuses on studying web-based service channels in FM services. The theoretical part was studied through e-business development and the results focus on the customer's information needs, the present FM systems and their development.

The purpose of this paper is to improve our understanding of the special characteristics of e-business development in an FM service business. In this study the content requirements for the web-based service channel in FM services are studied and in addition, some special characteristics of FM services affecting e-business development are identified. This study discusses the service science on the supply and the demand side and focuses on how ICT and the actions of the supply side can respond to customer requirements.

Based on the workshop, the content requirements for web-based service channels can be allocated to three main categories: FM service indicators, real estate information, and functions. Each element can then be allocated to the numerous different and more detailed subcategories.

Most of the identified requirements were located under the FM service indicators, which included service costs, service quality and productivity, environmental issues, building use and cooperation. Service indicators help the customer to monitor FM services. This makes

service production more transparent and increases the trust the customer has in the service provider.

The category of real estate information included FM service information that rarely needs to be updated. The subcategories under the fixed information are basic building information, contact information, and service contracts and documents. The category of real estate information helps customer to centralise information that is usually dispersedseveral different IT systems in one single web-based system.

The functions category included different operations related to e-business and had sub-categories like an e-commerce channel, a communication channel and a project management tool for common development projects. These functions support the customer to communicate and interact with the service provider and also to buy extra services through the service channel.

In-depth interviews focused on the present FM systems and FM-specific factors affecting the development of the e-business. Three factors were identified as challenging for the development of e-business for FM services: integration of information systems, customer segments, and business logic for e-services.

FM service organisations exploit a wide variety of different IT systems for service production. However, these are usually independent systems without any integration between them. The integration of different FM information systems for enhancing web-based customer service was seen as one significant challenge in e-business model development.

The second factor is the identification of dissimilar customer segments. The identification and segmentation of customers is needed for more effective e-business design. Dissimilar customer segments have different kinds of needs to fulfil.

The third factor is the business logic of e-services. One major question is how to get revenues from e-services. Three models for business logic were identified by the interviewees. The first model is that some e-services can be offered to all customers as part of the FM service contract. The second model is to offer more developed and tailored e-services to the key account customers as part of the FM service contract. The third model includes designing knowledge-intensive e-services that are offered at an additional cost.

4.3 Paper III – Developing the elements of information integration in real estate and user services

The aim of this study is to address the functionality of the information flow by looking into the meaning and development of the elements of information integration in real estate and user services. The purpose of the study is to formulate a model for information integration development. This paper studies the existing model of the elements of information integration and defines the meaning of these elements in real estate and user services and a sequence of development for these elements. The research problem can be stated in the form of the following questions:

- What are the elements of information integration in a service supply chain? How are these elements represented in real estate and user services?
- In which order are these elements to be developed when integrating information in real estate and user services?

The supply chain is described as "a network of organizations that are involved, through upstream and downstream linkages, in the different processes and activities that produce value in the form of products and services in the hands of the ultimate customer." (Christopher 1998) Based on the existing model of information integration, there are six aspects that must be taken into consideration when developing information integration in the supply chain (SC): processes and activities, information technology, information attributes, information sharing practices, collaborative foundation and time-related aspects of integration.

Processes and activities implies integration of inter-party processes as well as information sharing between processes. Real estate and user services are services that mostly support the customer's core business and in that way affect the customer's business processes. Real estate and user services are mostly produced in the customer's space and that is why the customer's and service provider's business processes connect in a concrete way. A customer's business area and strategy affect how significant real estate and user services are for customers.

Information technology use relates to the scope of information technology used in SC information integration and technology integration, and it encompasses data systems and their integration. In real estate and user services, customers and service providers use lots of different and separate information systems. Customers choose the systems they use and service providers should be content with that. The development and scope of information systems are related mostly to the customer organisations' information technology culture. The more positively they feel about information systems, the wider the information system use.

Information attributes encompass the characteristics of the information shared in an SC, such as information form, quality and availability. There is a huge amount of information and data being transferred in real estate and user services. The correct information is needed, but the knowledge of how to utilise the information is lacking. Therefore, there is a need to invest in the quality rather than quantity of information, information sharing, and ensuring that the relevant information is offered.

Information sharing practices are related to functions which have to be put into operation in order for information sharing in an SC to be efficient. There is lots of information in the relationship between different parties in real estate and user services, but usually it is not organised in a systematic way. The principles of information flow are agreed by the customer and service provider in each customership, because the information flow practices vary depending on the customer. Every customer has their own needs, depending on their strategy and business processes. Four information channels were observed in real estate and user services: face-to-face communication (planned and unplanned meetings), phone, emails and information systems (systems, programs, web browsers, common folders). The priority of information affects the channels used: the phone is used when the information has to move forward quickly, and emails or information systems are used when the priority is not so high. There is no one channel that fits all: every information channel has its own advantages and disadvantages.

Collaborative foundation encompasses issues related to the status of the cooperation relationship as well as present practices with which to feed cooperation and thus increase SC integration. It includes common goals, shared resources, confidence and commitment as well as performance measurement. Services are managed by information and therefore information flow is an essential thing for the functioning of services and customer relations. The customer is part of the service process and is therefore in a very significant position for producing and developing services. Real estate and user services are produced in customer facilities, which emphasises the presence of the customer. When the information is moving from one party to another, the common goals are clear. The open relationship will help during the exchange of information and the needs of different levels should be recognised.

Time-related issues imply speed and timeliness in information sharing. This encompasses the timing of information sharing and information lead time. There is a huge amount of stable and flexible information transfer in real estate and user services. Stable information is more stable for longer and flexible information changes over time and consists of measures and measured things. In both categories it is important that the information is relevant.

Based on the empirical data, it is essential to develop the information integration elements in the right order. Of these elements, collaboration as well as processes and activities are the basis of nearly all areas involved in developing the customer relationship. Thus they

are the basis for information integration in a service SC. After these two elements are in order, it is possible to start focusing on other elements. Information management is poor in FM services and that is why defining the information attributes is the first and the most important stage in developing information integration in a service SC. Defining the information attributes helps to pin down the information needs of an organisation by defining the form, quality and availability of information.

When the information attributes have been pinned down, it is possible to define the element of information sharing practices, that is, the channels through which it is cost-effective, functionally reasonable and necessary to both disseminate and receive information. The most essential of the information sharing channels are IT-related channels, because it is impossible to achieve an effective SC without IT. Adapting IT to information needs is a significant part of information development because it enables the automation of communication, storing, processing and refining of information and facilitates information sharing. The element of information sharing practices includes time-related issues; through these the elements of information attributes are defined. Regardless of this, channels of information sharing define largely how often it is possible to send information and how long it takes to deliver this information.

4.4 Paper IV – Supplier development and buyer-supplier relationship strategies – a literature review

This paper provides a framework for analysing the current understanding of supplier development strategies, its impact on performance, and buyer-supplier relationship approaches. There is an increased need for buyers and suppliers to strategically collaborate to build a stronger and longer-term relationship. The goal is to achieve extended understanding of the buyer-supplier relationship and supplier development strategies.

The main question of the study can be divided into the following sub-questions:

- What are the significant supplier development approaches in the literature which help buyers to improve the performance of suppliers?
- How can buyer-supplier relationships be developed to highlight and provide the important factors in the relationships for empirical examination?
- Finally, how can supplier development strategies be combined with the buyer-supplier relationship framework to answer empirical questions?

The result of this study is a framework which concludes the literature review and explains the different steps in the supplier development process and the supplier-buyer relationship. Supplier development and the buyer-supplier relationship need to be managed in a systematic way, which helps firms to organise the process and collaborate with suppliers for the improvement of product manufacturing capabilities. Supplier development involves a process that includes supplier assessment, competitive pressure, supplier incentives and

direct involvement that elaborates a detailed version of steps to gain competitive advantage and develop the buyer-supplier relationship.

The assessments and certified systems of a supplier's guarantees supplier performance and in that way motivates suppliers to develop their performance and competitive advantage continuously. The assessments and certified systems support the expectations of the buying firm related to the present and expected performance of the supplier, and to ensure that the supplier's performance and the expectations of the buying firm will be met. Assessments and certified systems are important tools in communications and motivate suppliers to develop their performance. The assessments and certified systems assess suppliers and are one of the main enablers for suppliers to develop their operations and the relationship of the buying firm and the supplier.

Competition motivates suppliers to develop their performance and quality. Companies have multiple suppliers in order to keep up the competitive pressure between them. Using multiple suppliers helps the buying firm to classify the competence and performance of the supplier and to develop a long-term relationship with selected suppliers. The threat of customers changing suppliers or losing business to other suppliers motivates suppliers to maintain their performance at a high level, develop quality further and maximise value creation for customers.

Buying firms can provide incentives to motivate suppliers to develop their performance, capacity and cooperation. The incentives could be, for example, to share achieved savings or other benefits, to achieve volume increases and to aid future planning. Supplier incentives are a key motivator when improving supplier performance and building long-lasting partnerships. Incentives are important in order for suppliers to be motivated to develop their performance and buying firms to really be interested in following up on the performance and competence of suppliers.

Direct involvement means that the buying firm cooperates with the supplier through a joint development programme. The target of direct involvement approaches is to improve supplier performance, to develop the partnership of the buying firm and the supplier, to secure a good market position, and to strengthen the performance improvement of the supplier and the buying firm. Direct involvement requires special attention, because it is an investment for the buying firm.

4.5 Paper V – A customer's possibilities to increase the performance of a service provider by adding value and deepening the partnership in FM services

The purpose of this study is to clarify a customer's opportunities to increase the performance of a service provider and to develop the service process in FM services and thus help to improve partnership development. This study complements the generic model of supplier development, as its impact on performance and the customer–supplier relationship has also been studied. Through the model, the customer can develop the performance of the service provider in FM services and thus improve the opportunities the service provider has to increase value creation for the customer. The research problem can be expressed by the following research question:

- What possibilities does the customer have to increase the performance of the service provider by adding value for the customer and deepening the partnership?

The generic supplier development model utilised in this study was developed in Paper IV. This model has been used in the context of FM services in this study. Three themes were found that have to be emphasised to enable service provider development in relationship development:

(1) Focus on maximising the value addition and productivity of the service provider and the customer. All companies want to maximise profitability. In manufacturing companies, this is gained by maximising inner productivity, whereas in service companies what must be maximised is the productivity of the customer in addition to the production of the service provider, because in some circumstances maximising only the productivity of the service provider decreases the value to the customer, they obtain poorer services, and the number of orders decreases. In that case the productivity and profitability of the service provider decrease.

The same also happens in the opposite scenario: when only maximising the productivity of the customer, the productivity and profitability of the service provider decreases in some circumstances and the service provider is not allowed to do profitable business. Based on the interviews, the key point is to identify the services that create value to the customer and in that way estimate the balance between the productivity of the service provider and the customer. Considering value addition, it creates profit for the service provider and value for the customer.*(2) The problematic related to service estimation.* Based on the interviews, there are often unrealistic expectations related to FM services and thus it is crucial that the customer and the service provider communicate about the customer expectations related to the added value that the service process brings and the limitations the services entail. The customer can easily build up expectations about the services because they know about the condition of the service object prior to the service process, and how much added value the service process brings to it.

Interviewing the customers and service providers showed that customers do not often know the quality requirements of the contract of the service provider when they estimate the service provider and the services. In such cases, the expectations of the customer and the obtained services do not meet and the quality of the service is experienced to be weak, even though the service provider has produced the services based on the quality requirements in the contract. When the service provider is evaluated, it is essential to find out what the service that has been ordered from the service provider is and compare this to the services that have been obtained.

(3) Develop the relationship together and continually. The customer is a part of the service process and automatically participates in it and knows a lot about it. That is why the knowledge and development ideas of the customer should be exploited when developing the efficiency of the service provider. Based on the interviews, it is noted that it is crucial that the development is made from the value addition perspective and that the effects of the development are estimated for the entire service process, thus ensuring that the whole service process is developed. Because the service is created in the interaction between the customer and the service provider, the processes of the customer, service provider and others who participate in the service process must be developed as a whole, rather than separately. Through the interviews, it is seen that the development of services is mostly carried out at the beginning or at the end of the relationship or contract period. Based on the interviews on the customer side, development made continually and together is essential for the achievement of a long-term relationship.

5 Discussion

5.1 Summary of the findings

This dissertation focuses on customer integration into service innovation, and three research questions were formulated to guide this study.

The first research question (RQ1) addressed how service innovations can be classified and what the prerequisites are for service innovations in FM services.

Based on this study, service innovation can be classified at the production, customer relationship, organisational and industry levels. The first three levels belong to one organisation, but the industry level involves the whole industry and the innovations at that level affect the operations of the whole business sector rather than those of one organisation.

This study discovered that service innovations are important at each level, but the innovations and requirements for innovations differ depending on the level. Based on this study the prerequisites for service innovation can be classified based on the innovation levels as follows:

- Industry level: networking, resource integration between organisations, and competition;
- Organisation level: organisation with development ability, professional personnel, systematic innovation activity and resources;
- Customer relationship level: identification of specific customer needs, diffusion of innovation, common development and long contracts;
- Production level: the functioning of basic services.

This study identified that when moving towards the higher innovation levels, the significance of resource integration and radical innovation increases, which are the prerequisites for innovation at the industry level. This is common with open innovation research, where the degree of openness increases alongside the degree of radical innovation (Lichtenthaler 2008). A summary of the innovation levels and the prerequisites for innovation is presented in Figure 2.

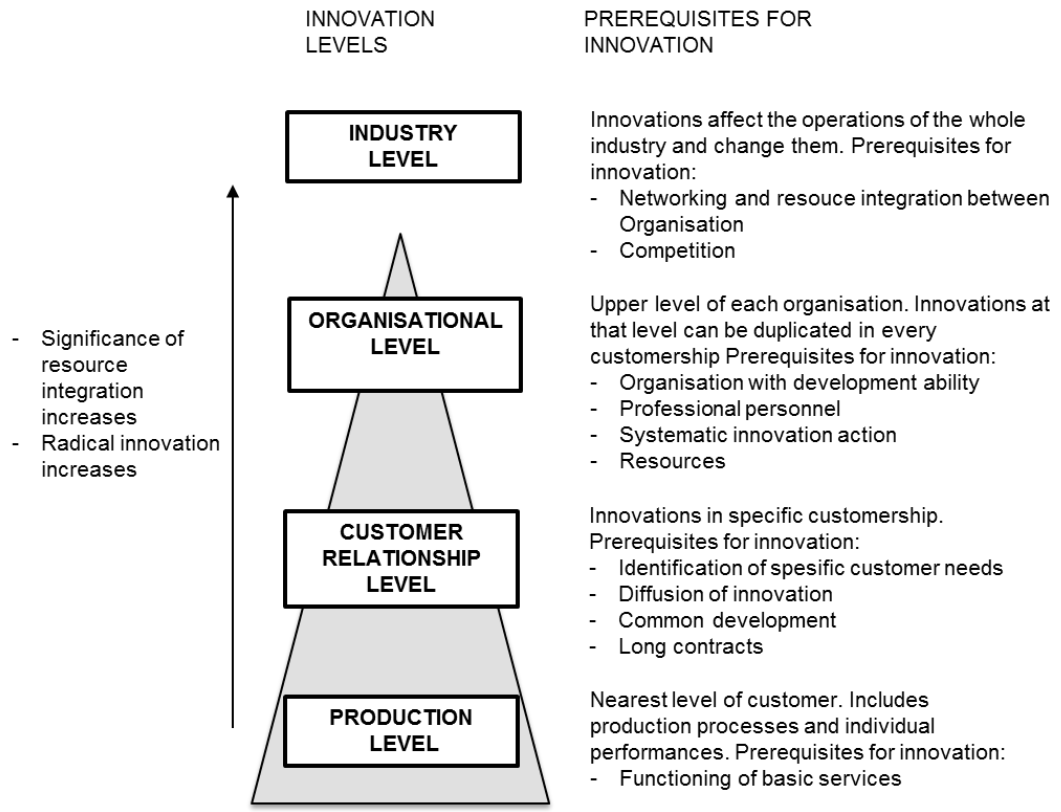

Figure 2 The innovation levels and prequisities for service innovation

In previous studies, innovations have been classified based on types into groups such as radical, improvement, architectural, formalisation and ad hoc innovation, for example (Nardelli, Scupola et al. 2014) adapted from (Gallouj, Weinstein 1997)), or based on types such as innovation in the offering, technology, organisational or business model innovation (Nardelli, Scupola 2013). However, these all are related more or less to the outcome of the innovation process. This study focuses on the innovation process itself and a different classification was needed to define innovation in a more manageable form.

The drivers for successful innovation have investigated in previous studies, and the results of this study support the findings of previous studies in terms of the factors relating to service innovation. Based on (Nardelli, Scupola et al. 2014) and Tether (2005) the five factors that impact on the success of service innovation are:

1. Human factors, such as knowledge, skills and expertise of the staff;
2. Cooperation between service provider(s), customers and suppliers;
3. Flexibility/adaptability to the dynamics of the environment;
4. Process management and efficiency;
5. Technology advances.

In addition, like this study, previous research also emphasised the significance of networking and resource integration outside the R&D department in order to develop successful services (Kristensson, Magnusson 2010, Sundbo 2008) and to integrate the customer in the development process. The interaction between customer and FM service provider has also been seen as important in previous studies, because it increases customer satisfaction, competitive advantages and the performance of service innovation (Nardelli, Scupola et al. 2014).

The second research question (RQ2) addressed the necessary elements for information flow development between customer and service provider in FM services in order to create service innovations and to increase the performance of services.

In this study, the elements of information flow development in FM services were investigated through an existing framework that consist of six elements for information integration: processes and activities, information technology use, information attributes, information sharing practices, collaborative foundation and time-related issues. By studying the information flow development in FM services, two key factors that influence information flow development were found:

1. identification of the value that FM information creates are missing;
2. information sharing practices are undeveloped.

This study shows that the information is managed poorly in FM services: there is both a flood and a scarcity of information. That is also seen in previous studies (Jylhä 2013). This shows that the value that FM information brings to the parties is overlooked. This study focuses on that problem by creating a model that focuses on the value that information will bring, i.e. information attributes, when developing information integration in FM services. This model is presented in Figure 3.

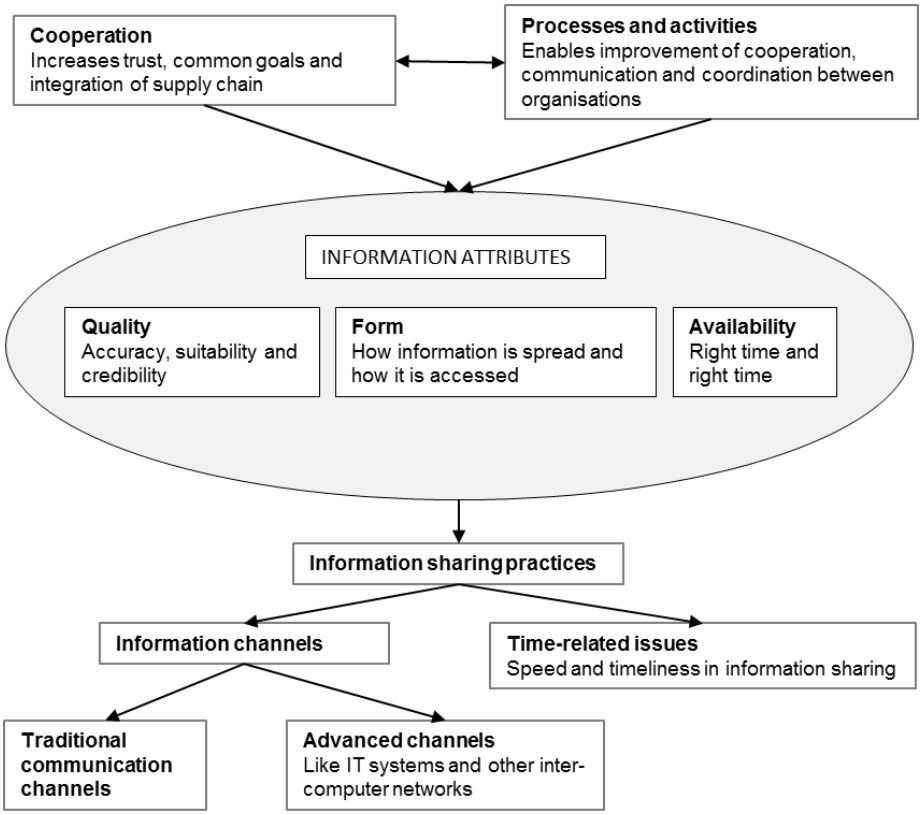

Figure 3 The model for developing information integration in FM services.

The results of this study demonstrate that information sharing practices are undeveloped in FM services. The parties have different information systems for real estate information, and integrating them is difficult because of the different data forms. Service providers are not willing to develop information integration, because it represents a big investment and it has to be developed customership-specifically. In addition, there is no certainty that the customership will continue.

Based on this study, developing information management in FM services requires innovations at the industry level and standards for information to be integrated. This has been noted in the previous studies as well, where the importance for centralised institutions to develop standards and regulations as support for the innovativeness of the ICT-based service sector are highlighted (Bauer 2010, Williams, Graham et al. 2011), as is the remarkable role of institutional rules in service innovation (Koskela-Huotari, Edvardsson et al. 2016). This study shows that developing service innovations customer-specifically can be seen as one reason why there are no radical innovations in FM services and in turn as a consequence of the lack of open innovations.

Based on this study, it can be assumed that increasing the number of open and radical innovations like standards for information to be integrated requires network and resource integration and the movement of innovation action from the lowest business levels to the highest. This is presented in Figure 4. The essential role of networking and resource integration in development has also been seen in previous studies, such as research into innovation, which has started to focus more on interactive processes in integrating both internal and external actors, and knowledge sources to enable new idea creation and promote innovation (Hienerth 2006, Brown, Eisenhardt 1995).

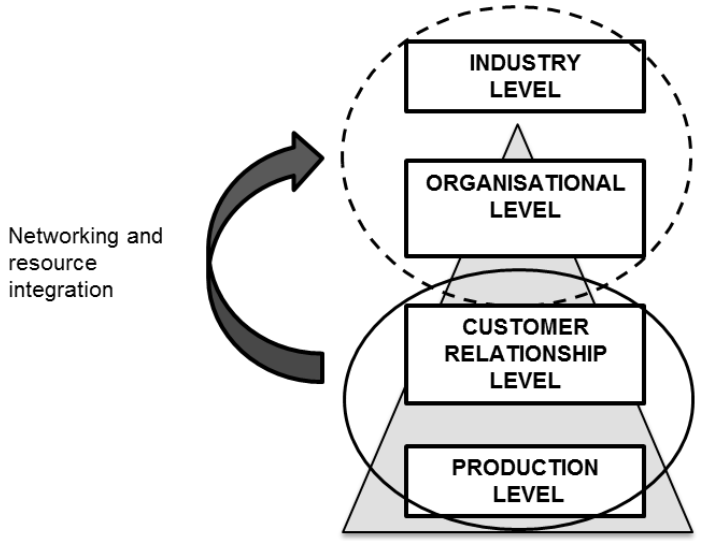

Figure 4. To move innovation action from the lowest levels to upper levels requires networking and resource integration, however, it is perquisite to develop the information flow in FM services.

The results of this study show that undeveloped information systems and flow are barriers to the development of the whole FM field, because it makes it difficult to develop the whole virtual environment. Services are managed by information and what cannot be measured cannot be managed. Currently, FM information focuses on the information that is obtained from the information systems of service providers and on measuring the efficiency of the service process, where the focus is on cost instead of value.

Based on this study, it can be assumed that by making the integration of different parties' information systems possible, it facilitates the entry of new actors into the market, increases competition, and speeds up the development of the whole field. In Finland, there are a few big service provider companies and several very small companies. The entry of new competitive actors into the market can assumed to be desirable, as it ensures the development of the whole FM field.

The third research question (RQ3) addressed what opportunities a customer has to influence the development of FM services and partnership in order to improve the performance of services.

This study approached the theme by investigating the previous research on supplier development. However, these focused mainly on the manufacturing environment and that is why this study created the first general model for supplier development to relationship development and subsequently investigated the features that a service business brings to that model. Figure 5 presents the general model for supplier development towards relationship development.

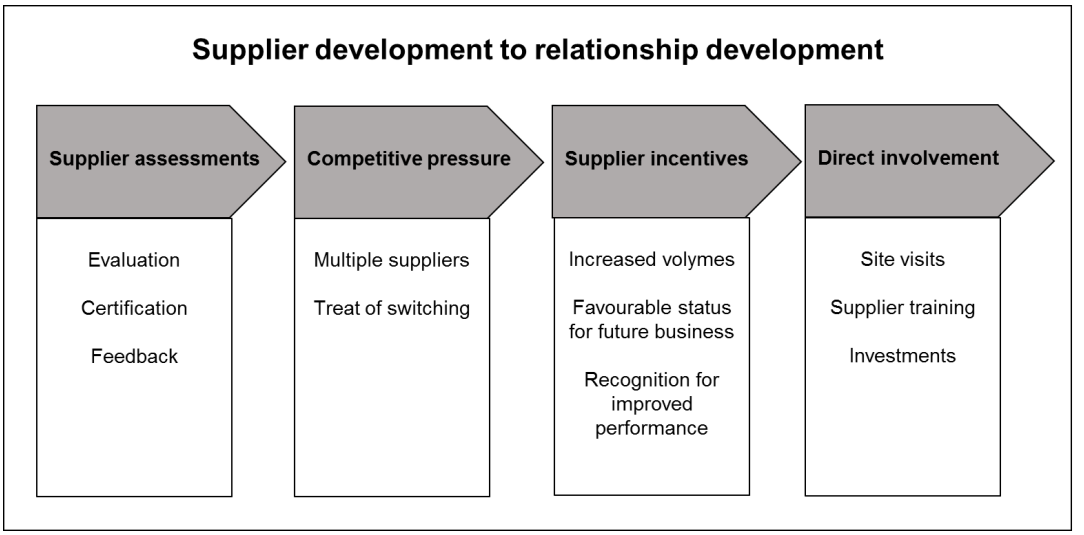

Figure 5 Supplier development to relationship development

Based on this study, three features have to be taken into consideration when using this general supplier development model in a service business:

- emphasising the maximisation of value addition and productivity for all parties,
- focus on the problem related to service estimation,
- development of the relationship and service ecosystem together and continually.

To emphasise these features, this study alters the steps of the general supplier development model to: supplier's assessments, competitive pressure, supplier incentives, and common development of operations. This relationship development framework from the customer's perspective, which is suitable for the service sector, is presented in Figure 6.

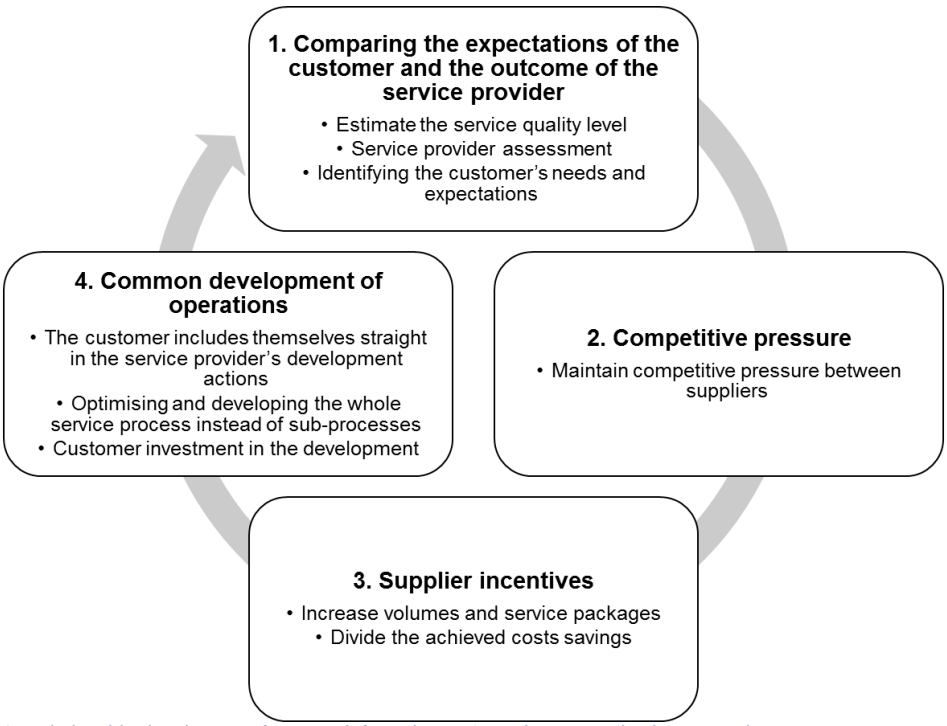

Figure 6. Relationship development framework from the customer's perspective in FM services.

The results of this study indicate that the relationship between customer and service provider in FM services is bidirectional and the service provider is also a strategically important partner for the customer. That is why it is essential to also clarify the possibilities that a customer has to improve the relationship and performance of service provider. In addition, it is seen as essential that the actors in service ecosystems, such as a service provider and a customer, engage others to make the value offering possible in ecosystems (Lusch, Nambisan 2015). Based on this study, it is essential to consider where in FM services the value creation starts to be limited (Jylhä 2013).

Based on this study, the customer wants to participate into the innovation process and sees common development as crucial in FM services. However, the thinking that the responsibility for service development belongs to the service provider is still strong. That is also seen in previous studies into customer engagement (e.g. (Brodie, Hollebeek et al. 2011) where the role of the customer as developer of the relationship is missing. To show the customer's possibilities to influence service innovations and the performance of the service provider, which are the results of this study, increases cooperation and allows for tools for the customer to develop the relationship.

5.2 Theoretical contributions

This study contributes to the fields of service management and FM service research by providing knowledge on customer integration into service innovations from the viewpoint of information integration and customer's opportunities to develop service innovations and service performance. The main value that this research brings to FM research include the new paradigm of common development and the three frameworks for service innovation development through increasing service performance, the co-creation of the classifications and factors for service innovation, elements for information integration and the supplier development model from the customer's perspective.

Research in the field of marketing and service management has emphasised the role of the customer as a value creator (Vargo, Lusch 2004, Grönroos 2000, Grönroos 2006, Edvardsson, Gustafsson et al. 2005) and the significance of customer and ecosystem integration into service innovation and development (Edvardsson, Kristensson et al. 2012, Andreassen, Kristensson et al. 2016). These pieces of research act as a foundation for this study, which in turn endorses the research in the field of marketing and service management by emphasising the customer role, networking, and resource integration in developing successful and value-productive services.

Research related to innovation in the FM sector is limited.However, a few studies have investigated innovation in the FM sector (Cardellino, Finch 2006, Pitt, Goyal et al. 2006, Pitt, Tucker 2008, Scupola 2012). To respond to that problem and to achieve an understanding of innovation in FM services the first research question (RQ1) focused on the current status of service innovation in FM and created the classification and factors for service innovation that represent a good grounding for future research.

The research related to the FM sector is mainly focused on the quality of the services (Yusoff, Ismail et al. 2008, Rasila, Gersberg 2007) and on developing the service process (Pitt, Chotipanich et al. 2014) to become more effective, productive and highly efficient, and research related to the development of new FM services or service innovation has been disregarded. This study respond to that research gap by investigating the factors that create service innovations and new models to foster service innovation in FM services. In addition, by classifying the innovation based on the business levels and defining the different nature of innovation at each business level it is noted that innovation action in FM services is in the lowest business levels, where the innovations are often minor improvements that focus mostly in specific customerships. Based on this study it needs networking and open innovation to move innovation action to the higher business levels, where the innovations are radical and change the whole business line.

In addition, previous research (Pitt, Chotipanich et al. 2014) has mainly focused on developing the service process based on product development, in other words it is based on costs and has overlooked the value creation phase. This study continues the strands of

previous research by investigating common development and bringing the features of services to this generic model and through that emphasising value creation instead of costs, which is essential in service businesses

The definition of FM highlights integration. Customer integration into the service process and the development of the service process has been researched (Coenen, von Felten 2014, Coenen, von Felten et al. 2011), for example through service blueprinting (Coenen, von Felten et al. 2011), where the service process is opened up and described accurately to indicate the involvement of the customer in the service process, to identify any unnecessary steps and to develop the service process. However, FM services are performed on the customer's premises, and the participation of the customer in the service process is apparent. The previous research shows the customer role in FM service production as a co-creator of production, and there is a research gap relating to the ways in which the customer can co-create value and influence production and development.

This study investigates the customer's possibilities to influence production and development and responds to that research gap. The theoretical contribution that this study brings to that theme is the framework for relationship development. The framework combines the previous research and empirical data and also allocates the differences between a customer's possibilities to influence between product-based and service-based environments. Through that, this study increases the knowledge of customers' possibilities to influence the service innovation and relationship development and in addition to increase the performance of the service provider.

Previous research has emphasised the importance of the identification of customer needs in creating successful FM services (Tulla, Vähä et al. 2009, Lok, Baldry 2016) and observing customer perceptions in strategic FM delivery (Tucker, Smith 2008). However, research into customer relationship management in FM services is scarce (Jensen, van der Voordt et al. 2014), and previous studies have emphasised the responsibility of the service provider to identify customer needs and fail to investigate the customer's ability to influence and interact. This study contributes to that gap by investigating the customer's role in service innovations and relationships development. The theoretical contributions that this study brings to that theme are the importance of common development, networking and resource integration when creating radical innovations and innovation that change the whole business line.

The value that the FM sector offers is also studied. The value that corporate real estate management brings to the customer organisation has been studied (Lindholm, Leväinen 2006, Jensen 2010), as has the value creation phase in FM service production (Jylhä 2013). The research related to value creation shows that value creation in FM services is interrupted because of poor information management and the lack of systematic improvements, among other things.

In addition, there is a research gap related to the development of information flow in FM services. The essential role of information sharing and poor information management in service innovations (Scupola 2012, Tulla, Vähä et al. 2009, Jylhä, Suvanto 2015), as well as the importance of innovation and communication relating to FM service development (Pitt, Chotipanich et al. 2014) have been stated, but previous research has not taken the theme further.

This study elaborates this existing research and makes few contributions to the theme. First, by drawing on the elements of information integration and describing their meaning in FM services, this study provide insights into the current status of information flow in FM services and the potential to develop it, and moreover into the changing nature of physical and virtual environment. Second, this study clarifies the focus of information flow development in FM services: open innovation, networking and resource integration should be increased and through that the focus should be shifted from lower organisation levels to higher ones. This would assist in planning the future research related information development.

All in all, this research continues the previous research in the field of FM services by investigating customer integration into service innovation from the viewpoint of information integration and increasing the customer's opportunities to influence. In addition, it brings the features of service management and service marketing research, such as value co-creation, common development and innovation in ecosystems to the field of FM services.

5.3 Practical contributions

This study contributes to practitioners, such as service providers, customers and institutions, by providing suggestions for service innovations, information flow development and customer integration. It is part of two research projects and the research questions came partly from the practitioners, which is why the results have many managerial implications.

This study classifies the innovations based on business levels and shows the special characteristics at each level, which helps service providers, customers and institutions to develop their innovations. In addition, this study shows the prerequisites for service innovations and explains the meaning of them in FM services. That helps practitioners to focus on these factors when creating service innovations. It is typical of FM service providers to develop services within the company without open innovation, even though it is seen as being crucial for developing new services. This study shows the importance of customer integration, networking and open innovations for creating successful services.

Information is managed poorly in FM services and there is both a flood and a scarcity of information. This study helps the service provider and the customer to develop the information flow by highlighting the elements of information integration and explaining the meaning of each element in FM services and the order in which to develop these

elements. In addition, this study investigates customer information needs and allocates them to the different categories. The main challenges relating to information integration is the integration of IT systems. There are no common standards for IT systems, and innovations at the industrly level are required in order to make integration possible.

Another challenge related to information flow and service innovation development is the lack of networking and open innovation. The development still focuses on developing the service process instead of new services, even though new services are more valuable to customers. As long as the border with service provider companies is closed and there is no open innovation, development will continue to focus on the core business, that is, the service process. The aim of service innovation is collaboration and finding new ways of integrating resources such as knowledge.

FM services are performed on the customer's premises, and a customer is automatically a part of the service process. That still does not mean that the customer is integrated into the service process and service innovations. This study provides tools for the service provider and the customer to increase the customer's interaction and their level of influence.

5.4 Limitations and applicability

The selected research design and methodology creates limitations to this study. First, the theoretical foundations of this study were selected from the field of service innovation and management, facilities management and supply chain management by going through the most valid and cited journals. Research in the field of service management is quite young, whereas research into supply chain development is largely product-based. Attention should be paid to the features of the service before using them in a service context. The challenge was to select the most relevant journal articles related to the research theme.

The theoretical choices mainly affect Papers III, IV and V. Information flow development was investigated through the existing framework of the elements of information integration in Paper III and the framework for supplier development was first developed through the product-based supply chain management research in Paper IV. The elements that service business brought to that framework were also examined in Paper V.

The second limitation comes from the choices related to data gathering and analysis. These processes are transparent and well-documented to ensure that the data gathering can be repeated and the same result can be achieved. The data was collected from Finland's biggest FM service providers and their customers between 2009 and 2010. That creates limitations on the research, but many choices have been made to increase the generalisability of the results: the service providers were the biggest service providers in Finland in data gathering round 1, whereas in data gathering rounds 2–4 the service provider was a global company.

In addition, the customers were user-customers in different industries with different service packages. This was so that we could directly acquire the customer's views and increase the generalisability of the results. On the customer's side, those involved in the data gathering process were responsible for the relationship, and the customer organisation was not interviewed in depth. This constitutes a limitation of this study.

The researched theme was not concerned with finer details – it was more interested in the entirety. This means that the results will stand the test of time. The service process is developing in each service company all the time, but the problems related to developing new services and the whole FM service branch remain the same.

This study investigates service innovations in the FM sector, but the results can also be exploited in other sectors if the features of FM are considered. The main features of FM services are that they are B2B-related services that take place on customer premises.

5.5 Recommendations for further research

Service management and service marketing research has shifted the focus on to understanding the nature of services as activities and interactions instead of quality. Services are open systems, where the customer participates in the production and through that, in productivity as well. The driving force of service innovation is collaboration, because that helps to integrate resources.

One suggestion for future research into FM services is that it should go in the same direction as research in the field of service management and service marketing. Customer satisfaction and service quality have been the main elements of business, but they are no longer sufficient: service providers have added value to customers and have created service innovations.

This study shows that innovations are created more to make the service process efficient than to create new services. In addition, service innovations are made within a service provider company and may even concern one single customership. Open innovation is seen as crucial in order to develop new services, and one theme for future research could be to open borders and develop networking and open innovation in FM services.

Research related to networking and open innovation also helps practitioners. Information is poorly managed in FM services because there are no common standards for information systems. Developing information management in FM services requires innovation and development at the industry level, where competitors, customers, institutions, IT specialists, etc. commonly develop the information flow.

6 Conclusions

This study investigates customer integration into service innovations in FM services by developing information integration between parties and increasing the opportunities customers have to exert their influence. Previous research into FM services has focused more on developing the service process to become more effective than creating new services, even though new services are crucial for adding value to customer and staying in business. In addition, when the development focuses on making the service process efficient, it has been performed mostly within the service provider company, even though the integration of the customer and other parties into service innovation is seen as crucial for developing new and attractive services.

The main value that this research brings to FM research is the new paradigm of common development and the three frameworks for service innovation development through increasing service performance and co-creation. The first framework focuses on the allocation of service innovation and the prerequisites of innovation. The prerequisites were described and allocated based on the innovation levels.

The second framework focuses on information integration in order to increase service innovations, the value and productivity of services and customer participation. Eight information integration elements were found and their meanings were described in terms of FM services. In addition, the framework shows the order in which to develop information flow between parties by emphasising the value of provided information.

The third framework focuses on the customer's side and demonstrates their opportunity to have an influence on service innovations by improving service performance. The service process is an open system and developin service performance also increases customer performance. In addition, service providers are important parties for the customer's core business and it is also in the customer's interest to develop new services and the performance of services.

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Appendix 1: The questionnaire for the information needs

		Importance of the information	Information source						
		5 = Important 1 = Unimportant	Produced by a service provider	Self- produced	Produced together with a service provider	Possible to produce together with a service provider	Produced by another company	Service not yet provided	Comments
1. Contracts and documentation	1.1. Contract content								
2. Location / object's file	2.1. Cooperation objectives (annual plan, shared calendar)								
	2.2. Working hours per individual								
3. Documentation	3.1. Meeting memos and minutes								
	3.2. To-do lists								
	3.3. Implementing agreed-upon items in practice								
4. Environmental instructions	4.1. Standards and legal obligations								
5. Contact information	5.1. A service provider's and customer's contact information at different levels								
	5.2. Responsible people, on-call personnel, roles								
	5.3. A service provider's subcontractors								
	5.4. Service providers								
	5.5. A property owner's contact information and history								
	5.6. User profiles and duration of use								
6. Property information	6.1. Information on technical systems								
	6.2. Energy efficiency of facilities								
	6.2.1. Energy certificates and ecological footprint								
	6.2.2. Impact of facility changes on energy efficiency								
	6.2.3. Impact of equipment changes on energy efficiency								
	6.3. Facility information								
	6.3.1. Dimensions in square metres and cubic metres								
	6.3.2. List of facilities								
	6.3.3. Critical situations for users								
	6.3.4. Drawings and other facility graphics								
	6.4. Information from condition monitoring								
	6.4.1. Planned repairs								
	6.4.2. Completed repairs								
	6.5. Condition assessment information								
	6.5.1. Long-term plan								
	6.5.2. Repair needs								
	6.5.3. Maintenance needs								
7. Building utilisation indicators	7.1. The facilities' utilisation rate								
	7.2. Number of visitors at the facility, number of people								
8. Environmental indicators	8.1. Consumption information on heat, electricity and water								
	8.2. Waste collection efficiency, costs and amounts of waste								
	8.3. Energy conservation monitoring								
	8.4. Energy reviews								
	8.5. Ecological impact of production method								
9. Cooperation indicators	9.1. Customer and user friendliness at different levels								
	9.2. Service provider's personnel satisfaction								
	9.3. Smoothness of interaction								
10. Service production indicators	10.1. Statistics on service quality								
	10.2. Statistics on service personnel								
	10.3. Conditions monitoring (e.g. humidity, temperature)								
	10.3.1. The conditions' effect on sick leave levels								
	10.4. Statistics on service requests								
	10.4.1. Response time, duration of visit, acknowledgments								
	10.5. Feedback on every service request								
11. Financial indicators	11.1. Monitoring and comparison of service production costs								
12. Communication channel	12.1. Discussion forum								
	12.2. Reporting complaints								
	12.3. Noticeboard for current affairs								
	12.4. A separate channel for joint development projects, i.e. 'a project bank'								

ORIGINAL PAPERS

I

FACTORS AFFECTING SERVICE INNOVATION IN FM SERVICE SECTOR

by

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Factors affecting service innovations in FM service sector

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Abstract

Purpose – The purpose is to clarify the concept of service innovation in the context of FM service and to map the factors that are critical for service innovations in the FM service sector. The research questions are: how can service innovations be classified in the FM service sector and what are the factors that create requirements and barriers to the service innovations in the FM service sector?

Design/methodology/approach – The nature of this study is qualitative. The data were gathered from two specialist workshops and from semi-structured interviews. The people interviewed worked for the largest service provider companies in Finland and their customers.

Findings – Results yielded by this study comprise the classification of service innovations and the factors that create requirements and barriers for the service innovations in the FM service sector.

Research limitations/implications – This study focuses on examining the innovation process and its development and on developing innovation activity in large-scale service provider companies in Finland.

Practical implications – This study promotes innovation activity in the FM service sector. It helps a service provider to minimize the barriers of service innovation and maximize the related requirements.

Originality/value – This study promotes innovation activity in the FM service sector. It helps a service provider to minimize the barriers of service innovation and maximize the related requirements.

Keywords - Service innovations, Allocation, Requirements and barriers, Facility management services, Customer service management, Management services, Finland

Paper type - Research paper

Introduction

Innovations are necessary for preserving the continuity of organizations. Innovations promote economic growth, competitiveness, regeneration, and prosperity (Antola and Pohjola, 2006). Numerous studies have been conducted in the field of innovations but they have mainly focused on product innovations. However,

the growth of the service sector and rise of the service sector to its formidable position in economy has increased interest for service innovations (Toivonen and Tuominen, 2009).

The theories of product innovations cannot be adapted to services as such (Cardellino and Finch, 2006). The main difference between service and product innovations is that the role of the customer is emphasized at every stage of the service innovation process. In addition, the special characteristics of the services, i.e. intangibility, simultaneity and heterogeneity, are to blame for the insignificant interest towards service innovations (Voss et al., 1992). Consequently, services development has been seen as quite unimportant compared to product development (Cardellino and Finch, 2006).

Product and service organizations have the same frame for the innovation process but the tasks between the different stages vary (Tidd and Hull, 2003). In addition, the durations and stresses of different stages of the innovation process vary in service and product innovations. Therefore, these models must be significantly modified (Drejer, 2004). The service innovation process emphasizes the starting phase and initialization and requires interaction between the service provider and the customer (Gro ¨nroos et al., 2007).

Innovation in the FM sector is often recognized but the innovativeness of FM organizations requires further research (Mudrak et al., 2005). However, it is seen as important to include new developments and continuous innovation process to Facility Management (FM) organizations because these help them to stay in business, exceed customer expectations, and add value to the core business of the customer.

Due to the nature of FM, the FM sector deals mostly with business support services such as the management of workplace and workspace (Tay and Ooi, 2001; Alexander, 1999). FM provides a diverse range of services; however, these services are linked through matching organizational needs. Chotipanich (2004) outlined contextual factors that influence FM; organizational characteristics, facility features, business sector, culture and context, and aligning/linking FM to the organization. These factors indicate the complexity of the context in which innovation is introduced to FM.

In the FM sector, the changes or transformations are incremental day-to-day changes rather than radical improvements (Mudrak et al., 2005). Unique service entities tailored to the needs of the customer are becoming common in FM services and they are in a remarkable position in competitions and when choosing a service provider. Success can be increased by developing the innovation activity of FM service providers, and it is also the way to differ from the competitors (Cardellino and Finch, 2006).

The objective of this study is to establish a classification of FM service innovations and identify the factors that affect the service innovation in FM services. The introduction is followed by an overview of service innovation and the general requirements for service innovations. Then the empirical part with methodology and results is presented. The paper concludes the findings in the discussion chapter.

Overview of service innovations

Definition

Innovation has been defined from different perspectives (Damanpour and Schneider, 2006), and it has many different definitions depending on the perspective. The definition of service innovation used in this study is the following (Toivonen and Tuominen, 2009 pp. 893):

> *A service innovation is a new service or such a renewal of an existing service which is put into practice and which provides benefit to the organization that has developed it; the benefit usually derives from the added value that the renewal provides to the customers. In addition, to be an innovation the renewal must be new not only to its developer, but in a broader context, and it must involve some element that can be repeated in new situations, i.e. it must show some generalizable feature(s).*

A service innovation can be a technology-based modification in the service product or in the service process. The novelty value of a service is often non-technological, and that is why the innovativeness of the service is seldom measured from the technology viewpoint.

Innovativeness in services has been discussed in some studies (e.g.Sundbo,1997). It is difficult to notice because service companies do not often have a separate their R&D department or they use different terms for innovations, for example increase in customer satisfaction or improvementof quality (Gallouj, 2002;Sundboand Gallouj, 2000;Preissel, 2000). In addition, the nature of innovations has changed: along with radical technological innovations also smaller improvements and new insights have been seen important for productivity and competitiveness (Toivonen and Tuominen, 2009).

Service innovations, rather than causing big upheavals, are often unsystematic and continuous gradual improvements. Toivonen and Tuominen (2009) have defined three different models leading to innovation the:

(1) R&D model;
(2) model of rapid application; and
(3) practice-driving model (Figure 1).

Basically, each model consists of the same three steps: emergence of an idea, development of an idea, and market applications; nonetheless, their order varies across models. The R&D model is typical for product development and proceeds systematically. The model of rapid application takes the idea quickly to practice where its development continues. In the practice-driven model, a service is developed together with the customer. In this model, a significant renewal is noticed afterwards and the systematic development starts after that. (Toivonen and Tuominen, 2009)

General prerequisites for service innovations

Edvardsson and Ohlsson (1996) argue that the concept of service consists of customer outcome, customer process, and prerequisites for the service. The prerequisites for services come from the viewpoint of the service provider whereas the customer outcome and the customer process emphasize the demand side. Edvardsson and Ohlsson (1996) divide the prerequisites for services into three different elements:

(1) service concepts;
(2) service system; and
(3) service process.

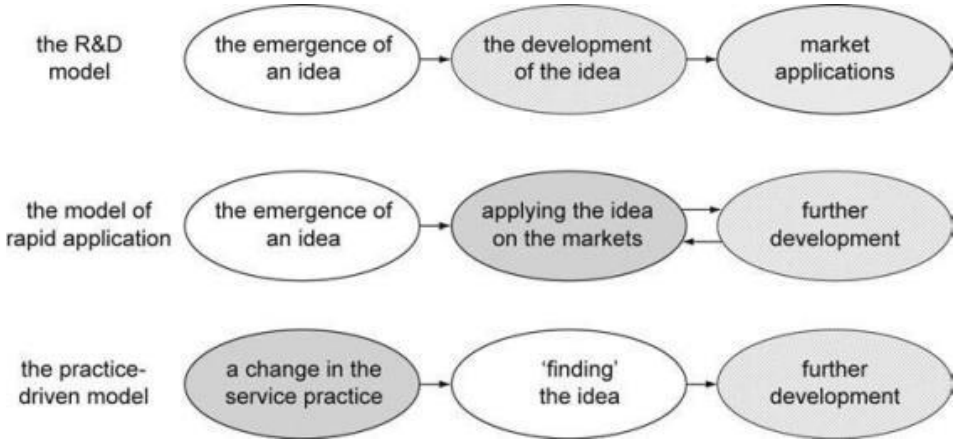

Figure 1 Different process leading on service innovation

These elements have to be taken into account when new services and service innovations are developed.

A service concept is a description of customer needs and the ways in which the service provider fulfills these needs. A service contract between the customer and the service provider is essential because it defines the requirements of the customer and the tasks of the service provider. Customer needs can be divided into primary and secondary needs. The primary needs act often as a trigger, and they are the reason why the customer wants the service. The secondary needs support primary needs. Usually, primary needs create the need for secondary needs. The service provider creates core services to meet the primary needs and support services to meet the secondary needs. Producing only core services is not a key to success, as a wide range of services is required (Edvardsson and Ohlsson, 1996).

A service system constitutes the resources through which the requirements of the service concepts can be executed. The service system consists of different parts: the personnel of the service provider, users and customers, physical and technical resources, and organizing and control. The parts have to be allowed to operate together and also separately to produce good services (Edvardsson and Ohlsson, 1996).

A service process consists of a chain or chains of parallel and sequential activities. It consists partly of activities at the premises of customers and partners and that is why the service provider may experience difficulties in controlling all the activities of the service process. Still, the service provider can control all service process. Each part of the service process is important but some parts of the service process are easier to control than others. In addition, some parts of the service process are more critical than others (Edvardsson and Ohlsson, 1996).

Various studies illustrate the necessity of innovativeness in FM services. Cardellino and Finch (2006) argue that FM providers must prepare for a competitive future where they can adapt and evolve in a constantly changing market. To change in an organization, FM should become more proactive than reactive (Lindkqvist and Elmualim, 2010). FM must have innovative abilities in order to be proactive and competitive. However, Nutt (2002) has noticed that whereas in stable periods FM functions to safeguard the routine operations of an organization. In unstable periods FM can be a key strategic function in reducing risks and gaining advantages for the organization in facility resources issues.

Service innovations are usually developed in co-operation with the customer, and customer interaction is a key feature for service innovations. In FM services, the cooperation between different service providers is essential for producing the service package and service innovations that meet the customers' needs. Kuusisto and Riepula (2008) argue that the role of the customer is seldom intensive but often decisive. In FM services, the customers' way of action and their needs are changing, which creates challenges for the service provider.

Service innovations are multidimensional, and that is why the entire organization and its ways of action have to be taken into account when services are being developed. Non-technological innovations usually affect the whole structure of an organization. Different innovations occur at the same time because they are related to each other or at least they support each other (Statistics Finland, 2008). The service innovations change the way of action, processes, and structure between different organizations. Hence, in different stages of the innovation process a successful organization needs different parties (Apilo and Taskinen, 2006).

There is a lot of research on innovation requirements. Rilla and Saarinen (2007) emphasize innovation management for innovation action. Innovation management consists of innovation culture, structure, resources, strategy, and process (Apilo and Taskinen, 2006). A study by Mudrak et al. (2005) shows that usually FM organizations do not have effective and successful innovation management due to a lack of a sophisticated portfolio of progressive innovative routines. Martikainen (2008) argues that an innovation strategy is crucial because it creates direction and purpose for innovation activity. Edvardsson et al. (2000) stress a systematic development activity, co-operations between different parties and, specifically, the customer's role in the innovation process. According to them, an organization has to create a customer-focused strategy and service culture.

The barriers for innovations can be divided into economic factors, internal factors of the organization, and other factors. The economic factors include costs of innovation, economic risks, and lack of funding. The internal factors of the organization consist of personnel, market information or the lack of it, structure of the organization, and lack of technical information. Other factors refer to, for example provisions and the customers' lack of interest (Martikainen, 2008).

Methodology

The objective of this study is to discover the factors that create requirements and barriers for service innovation in FM services. In addition, this study examines how service innovations can be classified in FM services. The study focuses on examining the innovation process and its development. The nature of this study is qualitative. Its data gathering was divided into two phases:

(1) specialist workshops; and

(2) theme interviews.

The aim of the workshops was to define the aspects of the classification of the service innovations in the FM service sector. Two specialist workshops were organized: the first for the researchers of the facility service research group and the second for the employees of the institutions that offers benchmarking, research and analysis services for the Finnish real estate sector. These focus groups were chosen to get comprehensive and real time information about the examined theme.

The first workshop emphasized open conversation. The basic data were not revealed to the participants. This was intended to ensure that the introduction does not influence the conversation and that the participants would discuss the themes of the workshops: i.e. the views on service innovations in FM services and the requirements and barriers related to them. The results of the first workshop were further developed in the second workshop. Using the results of the workshops and applying theory, viewpoints on innovations for further work can be found in FM services. Theme interviews were based on the results of the workshops.

These interviews were conducted with five customer relationships. Five service providers and five customers were interviewed to obtain the viewpoints from both the supply and the demand perspective. To get a wide perspective of the researched theme, the service providers were chosen from different companies with different service packages. The interviews were conducted separately with the service provider and the customer but pertained to that particular relationship between them. The service providers came from the largest FM service provider companies in Finland.

The purpose of the theme interviews was to solidify and deepen the results of the workshop. In addition, the theme interviews clarified the factors that create requirements and barriers to service innovations in the FM service sector. The interviews were divided into three themes:

(1) the development of the life cycle of customership;
(2) engagement of customership; and
(3) development of the procurement in its entirety.

These themes are based on the main points of the workshop: sale, customership, and production – through these, innovations can increase the profitability of an organization. All the interviews were taped and documented. The analysis of the interviews consists of three steps: identification of board themes, their further development and finding similarities between different interviews. The same two interviewers conducted each interview to increase the reliability of analysis.

Results

Classification of service innovations Service innovations can be arranged on four levels, based on the business levels in the FM sector:

(1) industry level;
(2) organization level;
(3) customer relationship level; and
(4) production level (Figure 2).

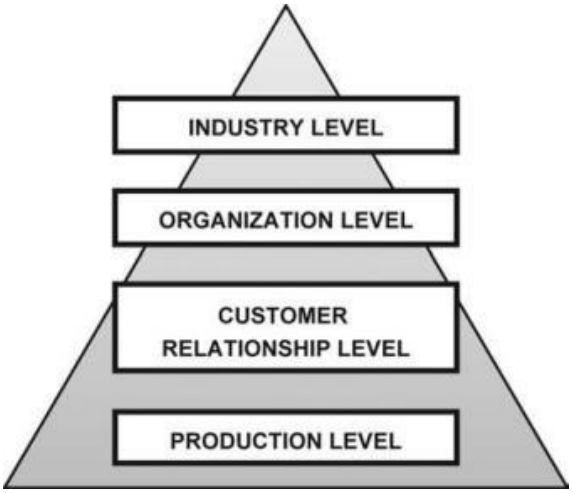

Figure 2 Innovation levels in FM services

Service innovations can be found in all business levels, but they are different depending on the level. In addition, the business potential of innovations varies on each level. The industry level includes taking advantage of all knowledge and resources related to that business line. Service innovations in that level affect the operations of the whole industry and change it. The organization level is the upper level of an individual organization and contains the operations in that organization. The level includes, among others, customer segmentation and formation of different service packages. These innovations can be duplicated also in other customerships.

The customer relationship level is comprised of actions in individual customerships. Organizing the service providers actions towards the customer and developing an individual customership are examples of the customer relationship level. The production level is the level nearest to the customer and it includes production processes and individual performances. A customer interface approaches and the time span of innovations shortens when the lower business levels are approached.

Requirements for service innovations in FM services

The opinions of service providers and customers related to the requirements and barriers of service innovations in FM services are quite similar. The development concerns both the service provider and the customer but the service provider has the main responsibility for the development. The requirements and barriers related to the FM service innovation are mostly opposites of each other: if the requirement does not work it becomes a barrier. The requirements to the service innovations in FM services and solutions can be classified based on the innovation levels in FM services (Table I).

The industry level. In the industry level, the requirements for service innovations are networking and competition between service providers. Innovations in the industry level particularly require co-operation

with several organizations because existing practices must be changed in order to bring about innovations and to change the way of action at the industry level.

Networking is usually necessary to provide a functional entirety of services. The advantages of networking become apparent in the ability to focus on core services and provide other expert services in that area. Due to various challenges, only few examples of networking in service innovations in the FM service sector are known. However, there is networking between traditional partners.

Competition between different parties is a requirement for service innovations. Is it necessary to develop innovation action if the markets in the business area concerned are small? Or is eliminating small and middle-sized organizations, for example by making acquisitions, enough? Eliminating competitors increases the probability of becoming selected as a service provider. Competition decreases as a result and creates disadvantages for the customer.

However, innovation action is necessary to obtain a dominant position in the markets and to be the only service provider that can fulfill the needs of the customer. In this case, innovations might be more focused on eliminating the competitors than on developing the services for the needs of the customer and on increasing the satisfaction of the customer. All in all, the competition between a large number of actors and is a requirements related to the innovations that can meet the customer's need.

INDUSTRY LEVEL	**Networking** Creating a functional network Taking different areas into innovation action	**Competition between service providers**			
ORGANIZATION LEVEL	**Organization with development ability** Strategy supports innovation Trust towards innovation Courage to address innovation Allowing disappointments Positive attitude towards innovation	**Professional personnel** Personnel retention Taking care of personnel Giving responsibility and trusting Continuous ability of observation Motivation Activation Engaging Rewarding staff Multi-service units Create functional teams Exhaustive orientation to work and customer organization Appreciation of own field	**Systematic innovation action** Separated development department Service provider participation to the meetings in customer organization Systematic service innovation process Developing idea to the last stage Generate service innovations through control Accurate implementation	**Resources** Developing large entities Packaging services Networking Segmenting customership	
CUSTOMER RELATIONSHIP LEVEL	**Identification of customer needs** Continous interaction Organizing actions towards customer Customer data collection in a systematic way Stabil personnel Standardized practices for meeting Right ways to transcribe and exploit customer information Customer information in electronic format Negative feedback Differentiate user types Developing service blue print	**Diffusion of innovation** Inform customer and service provider of the innovation Suggestion boxes for ideas Increasing the control of keeping innovation in practises Preparing consumers to implement the innovation	**Common development** Regular meetings Discussing development issues in the meetings Common development projects Participation in the external development projects Progressive development program Identification of customers' changing needs	**Long contracts** Functional customer relationship Trust Completion of agreed work Participation of responsible person at the early stage of customership Functional people relations of the content of the contract Openness Functional chemistry Systematic meetings Reconciliation of strategic and tactical action	
PRODUCTION LEVEL	**Functioning of basic services** Engagement of personnel in operational level Consolidation of operations Stressing the starting phase of the relationship Common viewpoints, strategy and values Openness Development of the service blue print				

Table 1 Requirements for service innovations classified into innovation levels in FM services.

The organization level. In the organization level, the requirements for service innovation are the development potential or ability of the organization, resources, professional personnel, and systematic innovation action. A strategy has been made to promote innovation activity in an organization that has development ability. That creates a positive attitude towards innovation. Other solutions to obtain development ability include trust towards innovation, courage to address innovation, and allowing disappointments.

Large organizations, the development of vast entities, packing services, networking, and the segmentation of customership entail resources to service innovation. Large organizations have larger interests and better resources for service innovations than do small organizations. The customership between large organizations can focus on developing bigger entities: large service provider organizations can usually offer larger service packages and large organizations (both on the side of service provider and customer) usually have a different development department to promote innovations. In addition, large organizations can further develop their branch and they usually make a pleasant partner in cooperation.

Those service providers that produce overall services have better possibilities and more substantial resources for service innovation than those that produce only single services. Services, taken as a whole, enable innovations related to several services and can attain synergy of different services. Innovations and proposals to add new or extended services to a single service are hard to realize because of the service provider's lack of knowledge about the content of the services produced by other service providers. In addition, single services have usually been described and defined exactly. This causes difficulties when adding new services to contracts.

Resources become barriers mostly in technical FM services because the resources available for development are less adequate than in user-concentrated FM services, in which viable customership and deep understanding of the needs of the customer are emphasized. Active development of the customership as well as base production and the functionality of the routines are also important in user-concentrated services. Functionality of services and customer satisfaction are more important than their costs. Also in user-concentrated FM services, service innovations require long-span development and seeing the benefits in the long term.

In the technical FM services, the customership is more superficial than in the user-concentrated FM services but it still has to work in both services. The service innovations focus mainly on the effectiveness and on lowering the costs. In addition, those lowering costs influencing the price directly and evidence of short repayment periods are important features in these service innovations. Other important features are quality, reliability, and technical knowledge. The importance and functionality of communication are emphasized in the technical FM services because even a minor flaw in the functionality or service concerned can backfire.

With technical FM services, innovations are usually product innovations that need different a innovation process compared to service innovations. Creating networks is not essential because here we usually deal with core services of the service provider. Nevertheless, networks can be observed in stable subcontracting relationships.

Professional staff and personal relationships play a unique role in service innovations. The service provider's personnel are expected to have a continuous observational ability to see the improvements in the proposal and to develop them further. Challenges for service innovations focus on activating, motivating, and engaging the personnel. Creating a functional service providing teams and taking care of the personnel promote service innovations. The personnel should be exhaustively orientated towards their work and customers' organization in order to make them assume routines fast and in that way improve the service innovations.

A separate development department increases systematic innovation activity. The department collects ideas, develops them further and takes them into practice in co-operation with other departments. A functional and

systematic service innovation process helps to generate service innovations through control, and to develop as well as to implement them. A great number of small development projects in the FM service sector have been conducted, but they lack follow-up and closure, including end-reports and implementation.

The customer relationship level. The customer relationship level includes the identification of the customer's needs, diffusion of innovation, common development, and long contracts. Continuous interaction between the service provider and the customer is a requirement for creating an individual customer relationship and for offering necessary services and added value to the customer.

The factors that promote the identification of the customer needs are correct interpretation and exploitation of information, organizing actions towards the customer, negative feedback, standardized meeting practices, stable personnel, and discussion of development issues in meetings. Customer information should be collected in systematic and varied ways, and it should be processed to a utilizable format. The problem is the abundance of customer information and problems in finding right ways to interpret and exploit that information.

An innovation needs to be disseminated more widely in order to gain optimal benefit. This can be done by informing customers and service providers of the innovation and placing suggestion boxes for ideas. Adoption of new knowledge is related to the introduction of innovation. Increasing control and preparing consumers for proper implementation of innovations facilitate keeping innovations in use.

Service innovations require a mutually favorable attitude towards development. Common development projects, participation in external development projects, and drafting a progressive development program improve service innovations in customerships. Devotion to customership is normal at the early stage of a relationship.

Fixed-period contracts are typical in the FM service sector in Finland. It is usual that the service provider is devoted to service innovations and development in the initial and final stage of the contract although the customer is constantly hoping for new service innovations. Long contracts help to understand the customer's needs and actions in depth and to offer the services suitable for the customer. It might take several years to understand and learn the operations of a real estate. That is why there are more service innovations in long contracts. To obtain long contracts, it is essential to fulfill the promises given. In addition, trust towards the service provider improves when the content of the contract is shown to the customers and their clients. Other factors extending the length of the contract include functional customer relationship, openness, and tactical and strategic cooperation.

FM services are often demand-led services in Finland, which creates barriers to service innovations. In demand-led services, the customer specifies the services desired and enquires the price from the service provider. The customer defines the improvements (innovations) that s/he wants, and the service provider has a limited say in developing the services. In addition, the old policy and procurement methods are strong and do not give space for new ideas or innovations.

The production level. The functioning of basic services is the basis of the entire innovation action and includes the consolidation of operations, engagement of personnel, and the fulfillment of promises. The whole organization has an affect on it, but the main responsibility is on the production level. The factors assisting the functioning of basic services include engaging personnel in the operational level, stabilizing activities, openness, stressing the starting phase of the relationship, and common viewpoints, strategy, and values. Developing a service blueprint forms a good ground for developing the functionality of basic services because the blueprint can show the main activities and the links between them.

Discussion

This study demonstrates the four different innovation levels in FM services the:

(1) industry level;
(2) organizational level;
(3) customer relationship level; and
(4) production level.

Based on this study, the basic elements for service innovation in FM services are customer orientation, the functionality of the basic services, and the packing of the services. Customer orientation involves identifying customer needs as well as building openness, confidence, and interaction between the service provider and the customer. The functionality of the basic services includes normalizing the action, engaging the personnel and fulfilling the promises. The packing of the services allows for benefits of synergy between several different service providers and service innovations between different services. In addition, it adds resources to the development.

These basic elements are the basis for service innovations in FM services. Still, these elements alone are not enough for creating new service innovations in FM services. They require a wide range of other factors: networking, resources, skilled personnel, systematic innovation action, organizations capable of developing, dissemination of innovation, common development with service providers and customers, and long contracts.

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II

DEVELOPING WEB-BASED SERVICE CHANNEL FOR FACILITY MANAGEMENT SERVICES

by

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Developing Web-Based Service Channel for Facility Management Services

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Abstract

This paper discusses electronic business (e-business) in Facility Management (FM) services. The goal of the paper is to improve the understanding of e-business development for FM services. The nature of this study is qualitative and data was collected by a workshop and five interviews. This study is the first part of two years research project made in co-operation with ISS Finland Ltd and Aalto University. This study identifies four main development areas for e-business development in FM services: the content of web-based service channel, integration of information systems, customer segments and business logic for e-services.

Keywords: e-business, e-commerce, business-to-business, facility management

1 Introduction

E-business plays a major role in the world economy today (Phan 2003). Companies are trying to improve their competitive position in the market and are striving for the implementation of a successful e-business strategy (Rodgers et al. 2002). Organizations redesign their processes in ways that strengthen their competitive advantage and try to integrate internet technology to their processes in order to reap benefits from e-business. The potential of e-business is estimated to be significant and many believe that e-business makes up the basis for "the new economy", the decisive factor for the future success of business organizations (Phan 2003). In addition, many companies have started to use Internet as a channel to enhance and support their traditional marketing and sales (Rowley 2006, Coltman et al. 2001).

The importance of e-business is increasing in several business sector (Amit & Zott 2001). However, e-business models are still rare in real estate sector and especially in facility management (FM) services. Facility Management is defined in EN15221-1 (2006) as the "integration of processes within an organization to maintain and develop the agreed services which support and improve the effectiveness of primary activities". FM integrates the principles of business administration, architecture, engineering, and building construction, and the behavioral science (Sievert 1998).

FM services are facilities-related business to business (B2B) services. FM services include services like real estate maintenance, technical maintenance, cleaning, grounds maintenance, waste management, security, lobby, catering, postal and courier, and removal services (Ventovuori 2007). FM services are typical support services for the most of the organizations and in many cases they are outsourced to external service provider (Bröchner et al. 2002).

The purpose of this study is to improve understanding on the special characteristic of e-business development in FM service business. E-business is rather new topic in FM service business. There is not any e-business related research in the scientific journal of FM sector. This study lays the foundation for deeper research of e-business in FM sector. This study discusses the service science both in the supply and the demand side and focuses on how can ICT and the actions of supply side respond to the requirements of customers. The research questions that guides this study are

- What is the role of e-business to corporations?
- How has e-business been researched in FM sector?
- What are the special characteristics that FM service sector creates to e-business development?

This study is the first part of the larger research and development project commenced by ISS Finland Ltd in co-operation with Aalto-University in autumn 2009. The goal of the overall project is to develop an e-business model for ISS to enhance and support their traditional marketing and sales activities as well as improving their key account management function.

ISS is one of the Finland's premier FM organizations. ISS's revenue of the year 2008 was 472 million euro and it has over 12 000 employees in Finland. ISS is a worldwide company. It operates in 53 countries and is one of the world's largest FM service company. ISS has more than 480 000 employees and more than 200 000 B2B customers worldwide. Aalto-University is new university which has formed by merging three universities Helsinki University of Technology, Helsinki School of

Economics and Helsinki School of Art and Design. Aalto-University is the leading university in the fields of technology, economics and art in Finland.

This paper focuses on the development of e-business for FM services. After the introduction an overview to e-business and the state-of-art in FM is made. Then the empirical part with methodology and results are presented and the paper concludes the findings in the chapter discussion.

2 Overview of e-business and its implications in FM industry

2.1 Definition of e-business

E-business is defined as an upper concept of the business through Internet. “E-business is a dynamic set of technologies, applications and business process that link companies, customers and communities through the electronic exchange of goods, services, transactions and information (original Abu-Musa 2004: Chen Ching, 2002; Kalakota and Robinson, 2001, Laudon and Laudon 2004). E-business transforms business operations like good, service, money and knowledge digitally through networks and increases knowledge management and data transforms between different parties (Lai and Chen 2009).

E-business includes two dimensions: e-commerce and electronic service (e-service). E-commerce usually focuses on buying and selling of physical goods/products while e-service emphasizes services (Ghosh et al. 2004). E-commerce typically centers on monetary exchange whereas e-service can include both paid and free services (Voss 1999). E-commerce and e-service are not completely separated; they can rather be seen as partly overlapping concepts (Ghosh et al. 2004).

Rodgers et al. (2002) define e-commerce as buying and selling activities over the Internet including placing orders, making payments and tracking delivery of orders on the Internet. In e-commerce an individual can do actions typically within a client/server based environment, via the Internet or extranet. Thereby e-commerce needs human interaction before storing information into databases. E-commerce typically focuses on the customer side rather than on an organization's own employees or its suppliers, and includes much information to improve the marketing capabilities of an organization.

De Ruyter et al. (2001) have defined an e-service as an interactive, content-centered and Internet-based customer service, driven by the customer and integrated with related organization. E-service can be perceived as an interactive information service. According to Rowley (2006) "e-service is deeds, efforts or performances whose delivery is mediated by information technology (including the Web, information kiosks and mobile devices). Such e-service includes the service element of e-tailing, customer support and service, and service delivery". Information gathered from or provided by customers can be used to develop and to improve customer relationship by service provider (Schultze, 2003).

2.2 Benefits of e-business

E-business increases the constancy of customership which produces profitability and operational efficiency to the service provider (Schultze, 2003). In addition, it delivers functions and services and helps collecting, analyzing and retrieving data. E-business assists to produce information to the useful format to employees' jobs and tasks. That ability to deliver functions and services will help employees to complete jobs and tasks efficiently. The service delivery process between service provider and customer is often a personalized and customized interaction. Contents of e-business are crucial

to provide good services and to increase usability of e-business and the added value that e-business will make. Value creating to the customer by e-business depends on how e-business helps to complete job tasks and enhance employees' own and their company's performance (Lai and Chen 2009, Bettua 1999; Balchere 2001).

E-business decreases costs but still improved customer services are seen as a primary reason in e-business development. The satisfied customers are life-line to the company and they try to serve their customers as good as possible to get better tie and to increase loyalty. Another advantage of e-business is it's interconnectivity between organizations. Interconnectivity can be both internal and external. Cooperation between service provider and its suppliers creates improved services and satisfaction and moreover increases efficiency of operations and the performance of business. In addition, it reduces profit margins because Internet increases competition among suppliers and quickens operations and data export (Rodgers et al. 2002).

Binding together internal and external systems is a significant challenge for most organizations (Barua et al. 2001). E-business makes it possible to deploy and implement an enterprise application of the other parties in the business network. It also provides the means for integrating various information systems and technologies between the different organizations. Typical examples of such information systems include enterprise resource planning systems (ERP), supply chain management systems (SCM), customer relationship management systems (CRM) and knowledge management systems (KM) (Kalakota & Robinson 2001; Laudon and Laudon 2004; Avlonitis & Karayanni 2000; Borders et al. 2001).

E-business is said to be the next step in the technological revolution created by Internet. A successful e-business strategy is important to every flourishing firm that

attempt to improve efficiency and stay ahead of their competitors (OECD 2004, Rodgers et al. 2002). Internet usage continues to grow strongly throughout the world and, in contrast to the failed dotcoms, many traditional firms have found viable applications for Web technology (Coltman et al. 2001). Companies, that try to improve their traditional business process and invent and implement new combinations of virtual and physical activities with e-business, will be the most successful. (Phan 2003)

2.3 Previous research on e-business

Ngai & Wat (2002) find that the nature of e-commerce research has been emphasized to the four categories: applications, technological issues, support and implementation, and others. The applications of e-commerce are the most published area and the support and implementation is the least. Standing et al. (2010) have studied previous research on electronic marketplaces and have classified them as follows: e-commerce with significant e-marketplace discussion, e-markets, system, adoption/implementation and organizational issues. The systems issues have the most proportion of research (54 %), other have notably less: adoption/implementation 16 %, e-markets 13 %, organizational issues 11 % and e-commerce with significant e-marketplace discussion 6 %.

All signs refer that the research of e-business will significantly increase in future, especially the research related to technical standards in e-commerce that ensure compatibility across the entire network (Ngai & Wat 2002). According to Standing et al. (2010) there is a need for more research on the organizational implications, because to adapt e-marketplace as a part of the company´s business is a major organizational decision and have many risks. In addition, there exists a lack of

research on quality standards and efficiency in e-markets. This can be increased through a research on relationship between issues of supplier and efficiency. The previous studies on e-business have concentrated only briefly on employees. Still the employees are a critical issue in implementation and management of e-business and play increasingly more important role in effectiveness of e-business (Lai and Chen 2009).

Osterwalder (2004) has studied the concept and the basic structures of business models in e-business. According to Osterwalder business model transforms a company's strategy into concrete business decisions and distributes them to the operational level. He divides a business model in four basic units: product, customer interface, infrastructure management, and financial aspects. "Product" relates to what business the company is in and which are the products and the value propositions offered to the markets whereas "Customer interface" explanes to who are the company's target customers, how it delivers them products and services, and how it builds a strong relationship with them whereas "Infrastructure management" describes how and with whom the company efficiently performs infrastructural and logistical issues. "Financial aspects" describes what the company's revenue model is, the cost structure, and the business model's sustainability are like.

2.4 E-business and FM

Getting through the main facility management journals published after year 2000 indicates that there is no deeper research on e-business in FM sector. Many articles show the significance and the impact of ICT in FM sector but still the previous researches of e-business are rare and focus more on perspective of development of programming and software.

Based on the literature review there are two main topics related to ICT in FM: intelligent building and Computer aided Facility Management (CAFM). Both topics emphasized the importance on ICT in FM sector to meet the needs and requirements of different parties in the demand and the supply side. Intelligent building focuses on the building maintenance and discusses the concepts, opportunities and benefits of intelligent buildings and their operations within FM whereas CAFM focuses on the software in FM applications.

Buettner et al. (2008) and Madritsch and May (2009) have studied IT implementation process in FM. Buettner et al. (2008) define and structure the FM implementation processes in their conference paper *FM implementation processes supported by IT*. This paper is one part of the research project that develops a computer-based software system to support FM users and consultants in implementing FM efficiently. Madritsch and May's (2009) Journal article *Successful IT implementation in facility management* provides a model and recommendations for a successful IT implementation in FM sector. Elmualim and Pelumi-Johnson (2009) connected these two topics, intelligent building and CAFM, in their article *Application of computer-aided facilities management (CAFM) for intelligent buildings operation*. Their article studied the concepts of intelligent building and the opportunities that CAFM systems can offer to it.

Finch (2000) considers the activity that is likely to take place when FM focuses the virtual and the physical value chain in his article *Third-wave Internet in facilities management*. He says that Internet will enable the creation of new methods of procurement and contracting, new form of collaborative working and develops new kind of relationships with clients. Roberts & Daker (2004) show the meaning of

information in corporate real estate management in their article *Using information and innovation to reduce costs and enable better solutions*. The management information system for corporate real estate perspective comes from Fransson & Nelson's (2000) article *Managing information systems for corporate real estate*. All in all, there are several articles of information systems in FM but no articles of e-business.

3 Methodology

The purpose of this study is to improve understanding on the special characteristic of e-business development for FM services. In this study the content requirements for the web-based service channel in FM services are studied and in addition, some special characteristics of FM services affecting to e-business development are identified. This study provides pre-understanding of the development of e-business in FM service for the use of the next phases of the research project.

The data gathering were divided into two phases: a workshop and in-depth interviews. The data were collected from the service provider's side in this first part of the research project. The goal of the first phase was to identify the content requirements for web-based service channel and it was carried out by the workshop. The workshop was made with 14 employees from the service provider company: ten of them were customer relations managers, two of them were IT-specialist and other two of them were person from financial administration. Participants were divided to four subgroups with a leader. The content requirements of customer were discussed according to six categories, which are relevant for new IT-based services. The categories were real estate and building information, service production and

management, cost management, environmental management, relationship management and using e-commerce channel.

The workshop participants explored first the content requirements and secondly provided development ideas which were also prioritized. The analysis of the workshop was divided into three levels. Every content requirement received from the workshop was collected into piece of paper and they were allocated based on the discussed categories in the first level. In the second level the content requirements were collected together in one excel sheet to get better overview of all content requirement and allocation of them. .In the third level the content requirement were moved to the mind map software to visualize all material from the workshop and develop the allocation and relationship of them forward.

The second phase of data gathering aimed to deepen the understanding of the special characteristics affecting the development of e-business for FM services and included five in-depth interviews. The interviewees were responsible for FM services offered to a particular case organization, and have a wide perspective to the information systems used in service production and in customer interface.

The interviews were half structured interviews where the questions had been decided in advance but the interviewers were able to change the order of the questions. In addition, the answers had not been fixed to given answer alternatives but the interviewee could answer in his or her own words. That was made to get an open discussion around the themes. The interview themes were: present FM systems, reporting ways toward customer and the factors affecting the development of web based service channel.

All interviews were recorded and transcribed to make analysis easier. The analysis of the interviews was divided into three levels. The first level included the identification of the board themes and used the words of the interviewed person. The second level developed the board themes forward and reformulated text in more theoretical words. The third level constructed a model by looking similarities between different interviews.

4 Results

4.1 The content requirements for web-based service channel in FM services

The workshop focused on to find out the content requirements for web-based service channel in FM services. The workshop produced over 386 different attributes to include into a service channel. Based on the analysis these attributes were allocated to three main categories: FM service indicators, real estate information, and functions. These categories are a basic structure for an e-business channel in FM services. Each category can be subcategorized forward to the numerous different and more detailed subcategories. Figure 1 presents the first three levels of the subcategories.

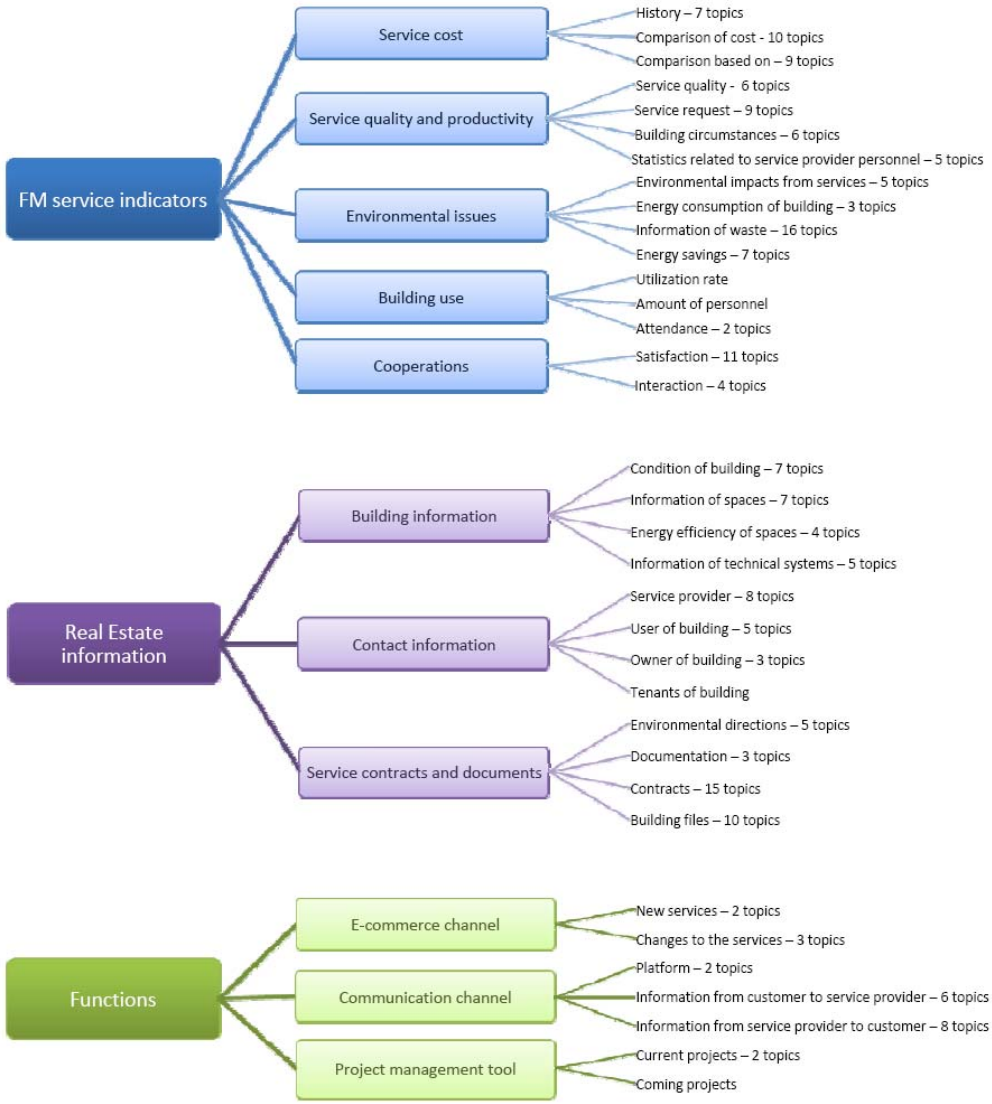

Figure 1. Content requirements for web-based service channel in FM services

The most of the identified requirements were located under the FM service indicators, which included service costs, service quality and productivity, environmental issues, building use and co-operations. Service indicators help customer to monitor FM

services. This makes service production more transparent and increases the trust of the customer to the service provider.

The category of real estate information included FM service information that needs to be updated seldom. The subcategories under the fixed information are basic building information, contact information, and service contracts and documents. The category of real estate information helps customer to storage information that is usually dispersed in several different IT systems into a single web-based system.

The functions category included different operations related to e-business and had sub categories like e-commerce channel, communication channel and project management tool for common development projects. These functions support customer to communicate and interact with the service provider and also to buy extra services through service channel.

4.2 Special characteristics of FM services affecting the development of e-business

In-depth interviews focused on the present FM systems and FM specific factors affecting the development of the e-business. Three factors were identified to be challenging for the development of e-business for FM services: integration of information systems, customer segments and business logic for e-services.

FM service organizations are exploiting a wide variety of different IT systems for service production. However, these systems are usually independent systems without any integration between them. There are not comprehensive and interactive information systems acting between the service provider and the customer in FM services today. The integration of different FM information system for enhancing

web-based customer service was seen as one significant challenge in the e-business model development.

The second factor is the identification of dissimilar customer segments. The identification and segmentation of the customers is needed for more effective e-business design. The dissimilar customer segments have different kind of needs to fulfill. Customer segments can be done based on the type of organizations. There is usually large variety of client organizations; public, private, large, small and firms from the different branch of industry. They all have specific needs for e-business.

Furthermore there are several dissimilar customer groups inside the single customer organization. Following user groups were identified by interviewees; client unit (usually real estate department), top management, business units, and the end-users of FM services. The client unit is usually the primary customer of e-business but also the needs of other user groups should be considered. Providing e-business for several user groups increases the satisfaction of the customer and thereby increases the commitment of the customer to a long term relationship with the service provider.

The third factor is the business logic of e-services. Major question is how to get revenues from e-services? Three models for business logics were identified by interviewees. The first model is that some e-services can be offered to all customers as a part of the FM service contract. These e-services are easy to produce to all customers without any extra cost. This kind of e-services helps FM service company to market its services more effectively and to have more new customers.

The second model is to offer more developed and tailored e-services to the key account customers as a part of the FM service contract. Producing e-services – for example service cost, service quality and customer satisfaction reports - makes service

production more transparent and usually increases the trust of the service provider from the point of view of the customer. Trust increases the commitment of the customer to a long term relationship with the service provider and the long term relationships are usually more profitable.

The third model includes designing knowledge intensive e-services that are offered with extra price. FM services company could substitute some consulting services that customers are buying from consulting companies today. This kind of services could be for example audits of energy consumption, condition surveys, and environmental management services. This third model creates a new kind of businesses for FM service companies.

5 Discussion

Based on the previous studies and the nature of FM service there is a research gap in e-business in FM sector. To take e-business as a part of FM service sector is seen crucial to keep track on competition. E-business is divided into two dimensions: e-services and e-commerce. Nowadays e-services are used in FM sector, because organizations have different kind of FM information systems (IS) acting between organizations like IS for environmental and economical issues. Still the customer need more developed information and report of FM services, and at the same time require more simplified IS. To respond that need the service provider has to develop forward e-services in FM service sector. To develop e-services for FM service sector helps to simplify the structure of IS by developing one channel to cover all IS of FM services. Based on the result there are not much or none e-commerce in FM service sector. To develop e-commerce as a part of FM services opens up a totally new business line.

Taking electronic environment as a part of FM services develops the collaboration between the customer and the service provider. In addition, the electronic environment increases an opportunity to integrate and synchronize different information systems. This study identifies the characteristics that need to be noticed when developing e-business for FM services. These characteristics are a content of web-based service channel, integration of information systems, customer segments and business logic development.

Osterwalder (2004) e-business model gives a good ground to further development of e-business for FM services. His e-business model consists of four main e-business model pillars: product, customer interface, infrastructure management and financial aspects. The main research questions related to this e-business model are who, what and how. The organization should ask themselves who they should target as a customer, what products or services they should offer and how services or products can be delivered best to a customer. The main question related to the financial aspects is how to get profits of e-business.

The result of this study can be linked to the pillars of Osterwalder's (2004) e-business model. A content of web-based service channel answers the question of what, customer segmentation answer the question of who and integration of information systems answer the question of how. The research of business logic development gives the answer of the financial aspects that is how to get profits of e-business.

In the following phases of the research project the focus will be on the customer segments, content of web-based service channel, integration of information system and business logic development. Further research is needed in order to answer the questions like how customers are profiled in e-business in FM services, what are

customer expectations for e-business in FM services, what is the information that needs to be received from the information systems of other parties and what are the factors that define the revenue model of e-business.

A weakness of this study is in the small amount of empirical data, however it serves the purpose of the orientation phase of the project. The results provide the guidelines for the future research of e-business development in FM service sector. The data gathering of the future research will be extended to both supply and demand side to get wide view of e-business development.

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III

DEVELOPING THE ELEMENTS OF INFORMATION INTEGRATION IN THE REAL ESTATE AND USER SERVICES

by

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Developing the elements of information integration in the real estate and user services

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Abstract

Purpose: The service supply chain is managed with information and therefore the functionality of the flow of information is an essential part of service business. The aim of this study is to address this issue by looking into the meaning and development of the elements of information integration in real estate and user services. The purpose of the study is to formulate a model for the information integration development.

Design/Methodology/approach: This paper is a qualitative research into elements of information integration and developing them in real estate and user services. Collecting the data for the study consisted of three stages: a workshop and two rounds of interviews. ‘

Findings: The finding of the study is a model for developing information integration in a real estate and user services. The model presents the meanings of the six elements which integration consists of and which need to be developed in order to increase information integration

Limitations: In services, the supply chain is typically shorter than in production. This study is limited to analyse the supply chain between a customer and a service provider since these are the most significant and often the only parties in the supply chain of real estate and user services.

Practical implications: The results can be utilized when developing information integration in the service supply chain and developing service providers operations.

Originality/Value: The research results bring additional value to the previous studies regarding elements of information integration by developing a model for the sequence of development of these elements.

Introduction

Integrating a supply chain is an essential part of improving the performance of a supply chain (SC). Information integration lays a foundation on an extensive integration of a SC and is an essential part of a service SC. (Krause 1999, Sriram, Stump 2004) Information integration is the sharing of essential data or information between the parties involved in production (Lee, Whang 2000). Information integration is the foundation of integration, and it becomes emphasized in the service sector (Lee 2000). With the help of

information integration the parties get easier access to the information required, are better able to understand the needs of customers and are able to reduce lead times more than their competitors do (Sezen 2008).

All decision-making is based on information. Information flow is critical e.g. in identifying demand, distributing information and receiving feedback (Krause 1999, Sriram, Stump 2004). With the help of information integration the parties get easier access to the information required, are better able to understand the needs of customers and are able to reduce lead times more than their competitors do (Sezen 2008). Therefore information has to be available to the parties from the first stages of planning until the very end of the life cycle. Sharing information among the parties of a SC has a positive effect on the product or services provided to a customer. (Krause 1999, Sriram, Stump 2004)

The previous studies on integrating a SC have had their emphasis on production. In the service sector, on the other hand, SC centres on flows of information as well as the relationship between a service provider and a customer. The special characteristic of service sector SC is that the SC is bidirectional. In other words, a customer, apart from being a customer, is also one of the parties of the SC as well as a provider of input to the service process. (Sampson 2000)

This research focus on Real Estate and User services. Real Estate services are services focused on maintenance of properties. They can be further divided into real estate management services and repairs and replacements services. Real estate management is regular action having to do with maintenance – action with the help of which the conditions of a property are retained at a desired level. Repairs and replacements is action relating to maintenance of a property. It is retaining properties of a given building or facility by replacing or repairing faulty and worn out components without substantially altering the relative quality standard of the building or facility. User services are defined as services aimed at the users of a property, its facilities and their facilities. (Rakli 2012)

Real Estate and User services are mainly produced in the customer's premises and therefore the interface between a customer and a service provider is extensive (Nikander et al. 2007). Real Estates and customers' needs are different and therefore Real Estate and User services have to be planned in a property-specific manner. This increases the importance of long-term customer relationships. (Sillanpää, Junnonen 2012) Information integration increases possibilities to react to sudden changes in the unstable demand environment (Lee, Whang 2000).

Information integration between the parties improves productivity, customer service and comprehensive performance in the market as well as coordination (Frohlich, Westbrook 2001, Frohlich, Westbrook 2002, Sengupta, Heiser & Cook 2006). Furthermore, it reduces storage costs and makes the chain more effective (Lee 2000). Information integration has also a great deal of significance when carrying out coordination between organizations and establishing co-operation relationships (Lee 2000, Zeng, Pathak 2003, Ganesh, Raghunathan & Rajendran 2008).

Information has a major role in service management in Real Estate and User Services and therefore the functionality of information integration plays a key role in the success of a service process as well as in producing services which meet customers' (Sillanpää, Junnonen 2012). Sharing information among various parties has a significant positive effect on operative performance (rate, production and quality). In the service sector, a supplier's ability to adapt services or products according to the customer's wishes – and to do this better than competitors – has greater impact on performance than in industry (Sengupta, Heiser & Cook 2006).

This study aims to address the problems of information integration development by looking into the elements of information integration and the sequence of development of these elements with Real Estate and User services as a case. Previous researches of information integration have mainly focused on the elements of information integration (Uusipaavalniemi 2009), performance of information integration (Sriram, Stump 2004, Carr, Kaynak 2007, Fabbe-Costes, Jahre 2007, Paulraj, Chen & Flynn 2006, Sanders 2007) and the

value of information integration (Lee 2000, Ganesh, Raghunathan & Rajendran 2008). This study provides a new viewpoint of the information integration and develops the previous research forward by looking the sequences of the element of information integration.

The elements of information integration

Elements of information integration

Information integration is about sharing information and knowledge between the parties involved in SC. Furthermore, it encompasses planning, prediction and improving functions in co-operation. Information integration comprises exchanging both information and knowledge between the parties. The parties share information related to demand, stock status, plans regarding capacity, production schedules, promotion plans, and predicting demand and transport schedules, thus improving the functionality of the entire chain. (Lee 2000, Berente, Vandenbosch & Aubert 2009, van der Vaart, van Donk 2008)

There are six aspects that are to be taken into consideration when developing information integration in the SC: processes and activities, information technology, information attributes, information sharing practices, collaborative foundation and time-related aspects of integration (Table 1) (Uusipaavalniemi 2009).

Element	Definition	Contents/Operationalisation
Processes and activities	The extent of process integration and the scope of information sharing in the processes.	Process coverage of information sharing Degree of process integration
Information technology use	The extent of information technology use and technology integration in the supply chain information sharing.	Information systems coverage Information systems integration
Information attributes	The characteristics of information to be shared in a supply chain.	Information form Information quality Information availability
Information sharing practises	The extent (volume) of information sharing and frequency of activities undertaken to advance information sharing in a supply chain.	The coverage (extent) of information sharing practices The frequency of communication / interaction
Collaborative foundation	Status of the relationship issues and practices underpinning the collaborations and thus integration in a supply chain.	Shared goals Shared resources Trust Commitment Performance measurement
Time-related issues	The speed and timeless in information integration	Timing of information sharing Information lead-time

Table 1 Elements of information integration (Uusipaavalniemi 2009).

Pinning down the factors that have to do with information integration facilitates identifying information integration-related obstacles and improves the flow of information. Furthermore, understanding these factors facilitates sharing of high-quality information between the parties. These elements related to information integration are covered in more detail in the following.

Processes and activities

The processes and activities implies integration of inter-party processes as well as information sharing between processes (Uusipaavalniemi 2009). Process point of view focuses on inter-organizational processes rather than functional units and departments of organizations (Trkman et al. 2007). Process integration studies functions of all parties and thus enables the organizations to function as an ensemble in order to achieve a shared goal. Process integration enables improving co-operation, coordination and communication between organizations. Thus it helps in incorporating the functions related to information, resources, applications and people, thereby facilitating the flow of material, information as well as controlling in the entire business environment. (Tang 2004)

In integrating business processes, promoting timeliness, usability, granularity and transparency is essential. Usability implies the easy accessibility of information for functions whereas timeliness implies information being available when it is needed. Transparency secures intelligibility of information and granularity shows that information is at the correct level of detail. (Berente, Vandenbosch & Aubert 2009, Trkman et al. 2007)

Information technology use

Information technology use stands for scope of both information technology used in SC information integration and technology integration and it encompasses data systems and their integration (Uusipaavalniemi 2009). Data system integration aims at providing continuous information support throughout an organization so that the organization is able to overcome the variable challenges of market (Bhatt 2000). Internal information sharing has to be in order before starting to share information externally among the parties of the SC. Data system integration can be understood as a multidimensional phenomenon which consists of two interrelated dimensions: data integration and integration of communication networks. (Narasimhan, Kim 2001)

It is impossible to establish an efficient SC without information technology. Information technology reduces uncertainty because it helps in sharing information with dispatch among the parties of the entire SC and thus upgrades availability and accuracy of information. Developing a web-based platform enables a higher level of communication between organizations. Therefore, improving information flow and creating seamless integration in the totality of the SC is important. (Sanders 2007, Gunasekaran, Ngai 2004, Devaraj, Krajewski & Wei 2007, Thun 2010)

Information systems have been divided into four different levels (Cardellino, Finch 2006):

1. Operational-level systems support operational management by following up an organization's basic functions and costs. The function of these systems is to answer day-to-day questions and follow the organization's transaction flow. This information has to be easily accessible, up-to-date and correct.
2. Information-level systems support knowledge workers. The purpose of these systems is to assist business by finding, organizing and integrating new information into business as well as to help the organization deal with any amount of paper documents.
3. Management-level systems are designed to service mid-level management. The facilities of these systems are related to monitoring, controlling, decision making and administrative functions.
4. Strategic-level systems help senior management to tackle and concentrate on strategic issues and long-term trends both inside the organization and its external environment. The most important function of these systems is to match the existing capacity of the organization to changes in the external environment.

The emergence of IT in customer relationships changes not merely the physical communication devices but also the amount and depth of the information exchanged outcome and thus involving IT affects the climate of the entire customer relationship (Leek, Turnbull & Naude 2003). Studies show that when moving from face-to-face communication to IT, the communication between parties becomes psychologically distant, impersonal, more task-oriented and less spontaneous (Rutter, Rutter 1984).

Information attributes

Information attributes encompass the characteristics of the information shared in a SC, such as information form, quality and availability (Uusipaavalniemi 2009). Information form describes the mode and medium of shared or conveyed or what is the medium with which information is made available (Freiden et al. 1998). Therefore, information form describes how information is spread and how it is accessed. Information form can be divided into four categories (Uusipaavalniemi 2009, Minkus, Nobs 2006):

- data and information in a database, information stored in data systems and local databases.
- documents shared in electronic form; locally stored information or information which is shared on network drives or by e-mail
- paper-based documents; information exchanged by handing it out personally or by fax and e-mail.
- information distributed in an informal manner; information shared through informal contacts such as through telephone, meetings, e-mail or conversations.

Quality of information includes the following points of view: accuracy, timeliness, suitability and credibility (Monczka et al. 1998a, Monczka et al. 1998b). Sharing information among the parties of an SC improves performance of the chain and therefore it has to be considered which information is shared as well as when, how and to whom it is shared (Holmberg 2000).

Information sharing practices

The information sharing practices has to do with the functions which have to be put into operation in order for information sharing in an SC to be efficient. Information sharing practices encompass extend of information sharing practices as well as the frequency of interaction. (Uusipaavalniemi 2009)

The communication channels an organization uses to interact with its customers can be divided into two main categories: traditional and advanced means of communication. The traditional communication channels are telephone, fax, e-mail, written documents and face-to-face contacts. Advanced means of communication are related to inter-computer connections, EDI connections and ERP connections. (Carr, Kaynak 2007) Advanced means of communication do not replace face-to-face conversations, but offer more possibilities for sharing information (Wognum, Fisscher & Weenink 2002). Furthermore, advanced technologies have an effect on the frequency of information (Sriram, Stump 2004).

A great deal of varied technical, commercial and organizational information is exchanged between companies. The nature of exchanged information defines the channel of communication used. Independent channel is used when exchanging technical or commercial information. Individual communication channel is used for softer information such as information regarding use of the product, status of contracts, basic details of the parties, etc. The way an organization communicates affects customer relationships. (Leek, Turnbull & Naude 2003)

Collaborative foundation

Collaborative foundation encompasses issues related to the status of co-operation relationship as well as present practices with which to feed co-operation and thus increase SC integration. It includes common goals, shared resources, confidence and commitment as well as performance measurement. Collaborative foundation is related to the scope in which the parties commit to the planning of co-operation and setting of goals. (Uusipaavalniemi 2009)

Co-operation has been defined in several studies as a key issue of SC integration and often investing in management of information flow is considered to be unsuccessful should there not be a fundamental cooperation relationship among the parties of the SC. (Sanders 2007, Ritchie, Brindley 2007, Stank, Keller & Daugherty 2001, Pagell 2004)

The choice of a channel of communication affects the quality of co-operation relationship. Building up confidence is a social process which has been based on face-to-face interaction between personnel of organizations. It is possible that the emergence of new technology has decreased the amount of face-to - face interaction, led to task-orientated job descriptions, done away with compromises and personal interaction and thus diminished trust. (Leek, Turnbull & Naude 2003) Even though more developed means of communication are useful as well, previous studies show that traditional means of communication are more profitable in sharing information between organizations (Carr, Kaynak 2007, Carr, Kaynak 2007, Leek, Turnbull & Naude 2003).

Time-related issues

Time-related issues imply speed and timeliness in information sharing. This encompasses timing of information sharing and information lead time. Time is a key quantity in measuring SC performance and it has to be taken into account also in information integration. (Uusipaavalniemi 2009)

Research method

The nature of the study

This study is a qualitative research regarding the elements of information integration and their meaning and sequence of development in an SC of Real Estate and user services. This study defines the meaning of these elements in Real Estate and User services and a sequence of development for these elements. The research problem can be stated in the form of the following questions:

- What are the elements of information integration in a service SC? How these elements are shown in Real Estate and User Services?
- In which order are these elements to be developed when integrating information in Real Estate and User Services?

The study was conducted as a case study research, which has been widely used in industrial economics. Case study research is a research strategy that aims at understanding the internal dynamics of an individual case. Case study research method was deemed suitable for this research problem, since with the help of case study research method it is possible to explain complex social events, such as organizational processes and problems of an industry. In addition, case study research aims at understanding comprehensive and relevant phenomena of real life. (Eisenhardt 1989, Yin 2009)

Case study research is regarded as a valid research method when the research problem can be described with the help of questions how and why. The method is very useful when a researcher cannot control the target. Furthermore, it is useful when the focus is on concurrent events in a real time manner especially when the border between the event and context is not clear. (Eisenhardt 1989, Yin 2009)

Data collecting and data analysis

In case study research, the data can be collected using various means. The six most used and most important means to obtain data for case studies are the following: documents, archives, interviews, direct observations, participatory observations and items / devices. In case study research, the researcher has an opportunity to change or even add data collection methods during the study.

Collecting data for the study consisted of three stages: a workshop and two rounds of interviews. The themes of data collection encompassed surveying the needs for information and the current practices of flow of information as well as of significance and development of information integration related elements in the SC of facilities services and user services.

The workshop had its emphasis on recognizing the information needs of customers. Participants of the workshop were people who specialized in various tasks in service organizations: service managers,

controllers, salespersons and IT managers. This ensured a wide perspective of the information needs of customers. In the workshop, the information needs of customers per a given service were reflected upon in small groups.

The first round of interviews concentrated on analysing the information needs which came up in the workshop as well as prioritizing these information needs and understanding the present situation of information flow. Both service providers and customers were interviewed to get a mutual view. The aim of the first round of interviews was to recognize the customers' needs relating to facilities services and user services as well as understanding the present situation of information flow between service provider and customer in facilities services and user services.

The aim of the second round of interviews was to test elements of information integration in facilities services and user services as well as to decide the sequence of development of these elements. The elements were tested in four customer relationships by interviewing both the service provider and the customer. The interviews were divided into three themes: information related to facilities services and user services, information distribution channels and developing flow of information.

All interviews were recorded and transcribed to make analysis easier. The analysis of the interviews was divided into three levels. The first level included the identification of the board themes and used the words of the interviewed person. The second level developed further the broad themes and the text was reformulated towards a more theoretical direction. The third level constructed a model by looking at similarities between different interviews.

Case description

The Case of this study is Real Estate and user services in Finland. Real Estate and user services are the integration and alignment of the non-core services, including those relating to premises, required to operate and maintain a business to fully support the core objectives of the organisation. (Tucker, Pitt 2009) Real Estate and user services are applicable to all organisations since it relates to the uses of space in a workplace and it plays a supporting or in enhancing the performance of a firm. (Noor, Pitt 2009)

The central parties in real estate and user services are user, owner of real estate and service provider. It is, however, difficult to define both the exact roles of the parties and their interrelationship, since they differ from one situation to another. The owner of a real estate is the person or company with title to the property or to part of the property. Owners can be divided into two types: owner-users and owner/investors. Owner users use the property for their core business, whereas owner/investors have invested in the property and want profit from this investment. Thus the owners can be both customers and suppliers for the real estate and user services.

A user is a person, an organization or a commonwealth which acts in the premises either as a tenant or an owner. Furthermore, the customers who use premises of an organization or a commonwealth are users as well. Users have two roles, especially in user services: they are users of the services and they participate in producing the services. The role of users in facilities services, however, is secondary, because facilities services focus primarily on maintaining the technical condition of a property.

Service providers are organizations which deliver various services that meet the needs of users, customers and owners of real estates. Customer's wishes and the value creation process are of great significance when a service provider is creating an organization's strategic perspective. A service provider has to recognize the long-term needs and wishes of the customers. Furthermore, a service provider has to be able to offer its customers a comprehensive supply of services instead of mere value included in the technical settlement of a product or service. Comprehensive supply of services may include, amongst other things, delivery, installation, repair, maintenance, tuning and information regarding the best methods of usage. In order to obtain a comprehensive supply of services, a service provider often has to co-operate with organizations producing various services.

Findings

Elements of information integration in Real Estate and User Services

Processes and activities

Real estate and user services are services that mostly support customer's core business and in that way affect customer's business processes. Real estate and user services are produced mostly in customer's space and that is why customer's and service provider's business processes connect in a concrete way. Real estate and user services increase capital value, enhance marketing and sales, increase innovations, employee's satisfaction, productive of the work, flexible and help cost controlling. (Lindholm 2008)

Customer's business area and strategy affect how remarkable real estate and user services are for customers. The information received from real estate and user services give added value for core business and support corporate to get their strategy goals. The SC of real estate and user services are usually short, because service providers use their own organizations and resources to produce services.

Information Technology use

Customers and service providers use lots of different and separated information systems. There is paid little attention to the information needs of different business level in the information systems, they are created more universal systems. The information systems of customers are typically maintenance system, space controlling system, finance controlling systems, enterprise resource planning and energy consumption system. The information systems of service provider are typically related to service production, like help desk and customer controlling systems, but they also have different business controlling systems.

The maintenance system is the most development and widespread system. Some customer's maintenance systems are integrated into the service provider's systems, like help desk, but the integrations between service provider's and customer's systems are not common, although it is seen important. The maintenance book is legal to every building in Finland and that have helped its development.

The use of information systems has customer's market in real estate and user sector. Customers choose the systems they use and service providers should be content with that. Customers want to manage their real estate and user services. To own these systems makes customer independent of service provider and makes possible to change service provider if necessary. In addition, customers can use same systems for long time.

The development and scope of information systems are related to customers' organizations information technology culture. The more positively they concern to information systems the wider is the information system use. In addition, the more important role of real estate are for core business the more the customer are willing to invest in the information systems of real estate and user services.

Information attributes

There are huge amount of information and data transferring in facilities and user services. The correct information is needed, but the knowledge how to utilize the information is lacking. Therefore there is a need to invest the quality of information instead of the quantity of the information, information sharing and that the relevant information is offered. Service provider and customer have partly different information needs. Service provider easily thinks that if customer don't need some information, it will be unnecessary also for the service provider.

The quantity of the information is not the most important thing, but the relevant information should be collected from the information flow. When sending information it should be investigated what is the relevant and usefulness information for the receiver. Service provider should be able to create data from provided service, which serve the information needs of customer in a strategic, tactic and operational organization level. In the operational level information is related to day to day issues, tactical level the information is

more consolidated but there is also a need to go deeper into the information sources. For the strategic level the relevant information should be consolidated and the information should be visualized and presented as overview. That is why the information for strategic levels is presented as a summary or an overview which is supporting the strategic decision making.

In technical services information needs are focused into quality measures, to secure quality, financial measures and statistic related to service produced. In user services the focus of the information is related to quality and cooperation. The customer relationship and user satisfaction are not so relevant in technical services, because in technical rooms there are no customers as users. Real estate's users are also one interface for the service provider and customer. Real estate's users are interested how their working environment is sensible and amused related information which are for example cleanliness and safety.

Real estate and user service information flow is related to day to day service operations and its success. Service related information needs and workable service related information is important, for example quality, customer satisfaction, claims, reaction time and feedback. Service related measured information is needed but it is challenging to define measures of the services. Measures related to quality and costs seem to be extremely important.

One of the service provider important information needs is the information related to future. Service providers would like to get information related to customer's future needs and what is the customer expectation from the service providers so that service providers are able to respond these needs in real time. Real estate and user services are take a place in customers real estates and that's why it is critical for service operations to know every changes or modifications related to these real estates, because those has the straight impact to service process. The earlier there is information related to changes, that better it is possible to react to the needed changes for the service process.

The accuracy of information related to the service calls is important in technical services. Service calls should be enough detailed and as accurate as possible, so that the service provider are able to start operations targeting into the right things. Especially a lead time and an urgency level are critical information for the technical services. Clear scope of technical service increases service level, quality and efficiency.

There are flexible and stabile information related to real estate and user services. The flexible information is usually measured which is changing during time and stable information are more stable in longer time. Informing has huge part of these services. Informing is related among other things to the changes of facilities, organizations and personnel.

Information sharing practices

There are lots of information between different parties in real estate and user services, but usually it is not organized in a systematic way. The principles of information flow are agreed with customer and service provider in each customers, because the information flow practices varies depending of customers. Every customer has their own needs coming from strategy and business processes, and the information.

The four information channels were observed in real estate and user services: face-to-face communication (planned and unplanned meetings), phone, emails and information systems (systems, programs, webbrowser, common folders). The priority of information affects to the used channels: phone is used when the information has to go quickly forward and emails or information systems when the priority is not so high. In addition, it is important to think what the message is and which the best channel is. There are no one channel that fits all: every information channel has advantages and disadvantages.

Phone and email are the most used information channels and usually available to every party in real estate and user services. The phone is used when the issue needs quick react. The email is used to transfer reports and information that do not need quick reaction.

There are lots of different information systems in real estate and user services, but the information systems have low integration level because of the disadvantages related to them. Customers usually own the information systems, because they own the properties and businesses and the service providers use customers systems. That is the way to ensure that the systems do not change even though the service provider change.

The low integration level is one reason why the information reports related to real estate and user services are usually undeveloped. In addition, it is usually difficult to get usable information to the core business when the different information systems, for example service desk and business controlling systems, do not communicate to each other.

There is a common way to act when the information systems are used and lots of different variation when the other information channels are used. Customers usually have many different service providers in their real estate and wish similar report from different service provider to compare the reports.

Collaborative foundation

Services are managed by information and there for the information flow is an essential thing for the function of services and customer relations. The related customs for the information flow and reporting in the real estate and user services are undeveloped. The demands of customers for even better reports and the information flow in the organisation helps developing the information flow in the customer relations.

The customer is the part of the service process and hence in a very significant position producing and developing services. The real estate and user services are produced in the facilities of customers, which emphasises already the presence of customer. The information flow is in a key position functioning in the collaboration between the service producer and customer. When the information is moving from a party to party, the common goals are clear.

It is important for the information flow that same things are discussed and that the service provider and customer share a common language. The relationship between the service provider and customer has to be sustained maintaining the confidence. All actions should not be automated, because the confidence is build up at great part for the face-to-face contacts. Targeting the automating to the specific functions, it will bring time to the face-to-face collaborations.

The open relationship will help at the exchange of information and the needs of different levels should be recognized. All action is starting from bilateral confidence. The common practices are substantial: for example if all the service calls are not taken to the system, the confidential measures and data are not achieved. The systems are not allowing not to be used and that is why the people are considered for one of the main risks in the system chain.

Time related issues

There are a huge amount of stable and flexible information transferring in real estate and user services. Stable information are more stable for longer times and flexible information is changing during time and consist of measures and measured things. In both categories it is important that information is relevant.

In real estate and user services the information should be accurate, because non-accurate information is not usable and not relevant for any parties. Real estate and user services related service calls should be reacted quickest. Information flow and reaction time seem to be critical in these services mentioned above. This has an effect which information channel is suitable to use: a telephone is used when urgent issues should be done right away and a customer has to get a response that issues are going to be solved.

Real estate and user services are in use days and nights depending when users are using facilities, for example security systems. In real estate and user services there are wide SC's and that is why there is a possibility that the information is not up to date before it reaches the end of a SC.

Developing the elements of information integration

Based on the empirical data, in developing information integration it is essential to develop its elements in the right order. Of these elements, collaboration as well as processes and activities are the basis of nearly all areas having to do with developing of customer relationship. Thus they also form the basis for information integration in a service SC. Collaboration among the parties lays the foundation for continuity of the customer relationship as well as for trust. Reconciliation of processes and functions among the parties, then, enables improving of co-operation, communication and coordination between organizations. Co-operation and the element of processes and activities affect each other. The functioning and depth of co-operation have an effect on the degree of integration of the processes and activities between the parties. The degree of integration of the processes and activities, then, affects the depth of co-operation.

After these two elements are in order, it is possible to start focusing on other elements of information integration. In the analysis of the data it was noted that defining the information attributes is the first and the most important stage in developing information integration in a service SC. Defining the information attributes helps to pin down the information needs of an organization by defining the form, quality and availability of information. Defining information attributes helps in finding out, amongst other things, in which form the information must be, how it should be available and how timeless it should be in order for it to create additional value for the organization.

Pinning down the information attributes is a significant element since only the necessary information is important for an organization, and a large number of organizations suffer from information overload. Defining the information attributes is the basis of pinning down the practices of information sharing. Figure 5 illustrates the development sequence of the elements.

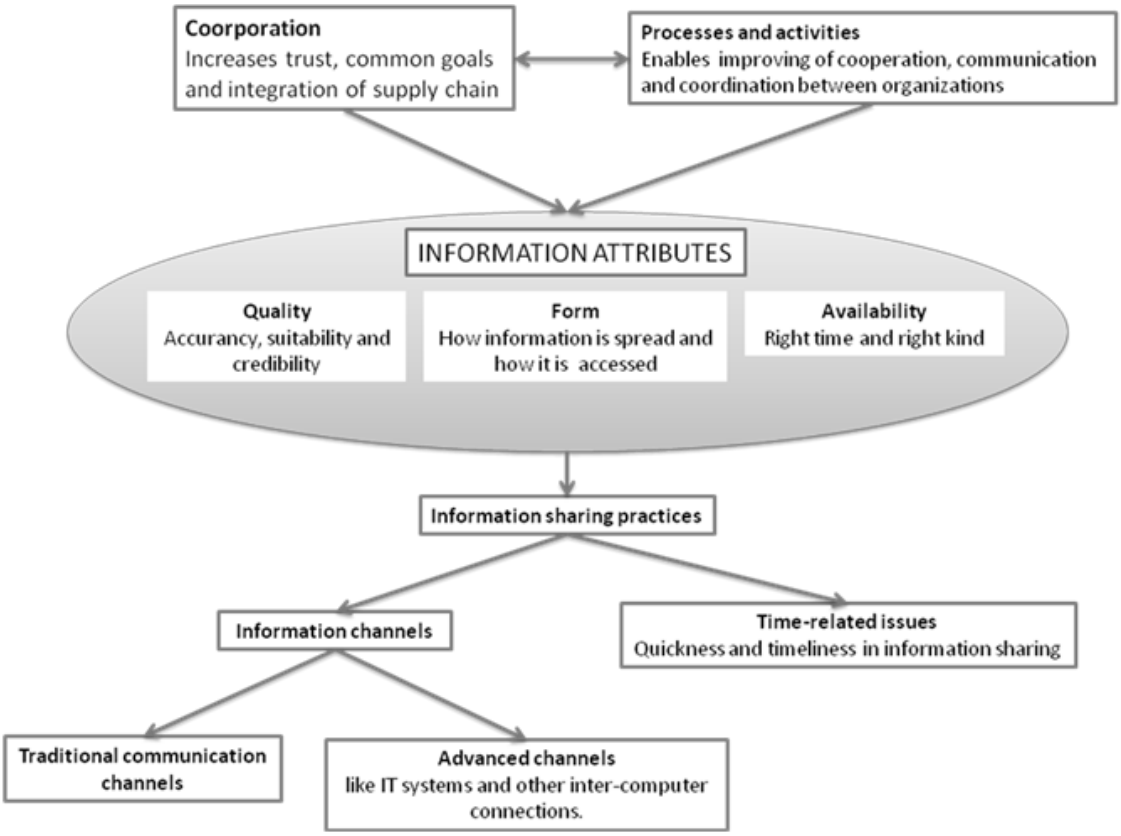

Figure 1 Developing information integration.

When the information attributes have been pinned down it is possible to define the element of information sharing practices, that is, the channels through which it is cost-effective, functionally reasonable and necessary to both disseminate and receive information. The channels through which information is shared can be divided into traditional and advanced channels of communication. The traditional communication channels include, for example, telephone, fax, e-mail, written documents and face-to-face contacts. The advanced channels are more technical than the tradition channels, and include, for example, IT systems and other inter-computer connections.

The most essential of the information sharing channels are the IT-related channels, because it is impossible to achieve an effective SC without IT. Adapting IT to information needs is a significant part of information development because it enables automation of communication, storing, processing and refining of information and facilitates information sharing. Yet there are a large number of challenges in IT development between two organizations. The traditional channels should not, however, be forgotten since especially with the facilities services and user services concerned, these traditional channels are often indispensable, or at least through them the parties immediately make sure that the message has reached the recipient.

The element of information sharing practices includes time-related issues, though these are defined in the elements of information attributes. Regardless of this, channels of information sharing define largely how often it is possible to send information and how long it takes to deliver this information.

Conclusion

The bigger the organization is the more the function of information flow and the needs of information are emphasized. That is the way to get the real-time information and the right decisions. If the information flow does not work it will affect negative way both to the customer and to the service provider. That is why both parties are interested to develop the information flow and information integration.

In this study, the flow of information was analysed with the help of elements of information integration. In the study it was noted that defining information attributes appeared as a prerequisite for developing information integration, since defining information attributes – that is form, quality and availability – helps defining the information needs of a customer. Furthermore, defining information attributes forms the basis for defining channels of information distribution.

The most important theoretical contribution of this study is the conceptual framework for the sequence of development of the elements of information integration. It addresses the sequences and the relationships of the elements of information integration and makes the complex phenomenon of the development of information integration simpler. Information has a major role in service management and therefore advancing communication, including information integration, plays a key role in functionality and development of services.

In addition, this study has a number of practical implications. Customers demand a more and more sophisticated information flow and reporting practices. In particular, complications in information flow have been regarded as one of the obstacles for progress in the field. The current practices in the information flow related to real estate and user services are immature even though sharing information has become more and more important to customers as well as to service providers. The findings helps service provider and customer to develop the information flow between service provider and customer by determining the relationships between the elements of information integration and identifying the right order how to develop the information integration. Many service companies have mostly similar main characteristics, which makes the generalization of the study easier.

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IV

SUPPLIER DEVELOPMENT AND BUYER-SUPPLIER RELATIONSHIP STRATEGIES - A LITERATURE REVIEW

by

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Supplier development and buyer-supplier relationship strategies – a literature review

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Abstract: Academic and corporate interest in supplier development and buyer-supplier relationship has increased substantially in recent years. This paper provides a framework for analysing the current understanding of supplier development strategies, its impact on performance, and buyer-supplier relationship approaches. There is an increased need for buyers and suppliers to strategically collaborate to build a stronger and long-term relationship. The goal is to get extended understanding in buyer-supplier relationship and supplier development strategies. Supplier development is a process of understanding including four steps: 1) supplier assessment; 2) competitive pressure; 3) supplier incentives; 4) direct involvement. Future research can be more empirically focused including multiple case study in global environment to validate the supplier development strategy approaches and help the organisation to develop their supplier's strategies. The presented literature review offers supplier development strategies for empirical case studies and a systematic way to build buyer-supplier relationships to improve the performance.

Keywords: supplier management; supply chain integration; buyer-supplier relationship; supply chain management; supplier development; procurement management.

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1 Introduction

Supplier development was used by Leenders (1996) first to explain the determination by manufacturers to enhance the supplier's numbers and to improve their performance. After that, researchers in supply chain management started a discussion of supplier development. In the same time, organisational theorists began discussion of complex-product businesses that incline to be considered as high degree of mutual interdependence of transitional module makers and ultimate assemblers (Pfeffer and Salancik, 1978; Thompson, 1967).

One of the supplier development literature part states and explains the actions before supplier development concept takes place called 'the antecedents' (Krause, 1999). He identifies that

1 organisations need to manage their suppliers strategically for the competitive market

2 buying firms need to take a strategic viewpoint for suppliers, consider the purchasing function as a significant source for competitive advantage, and make investments in development of suppliers' performance and capabilities

3 to increase the supplier commitments, buying firms need to consider their suppliers as virtual extensions that helps to motivate them to improve their performance

4 a relationship between buyer and suppliers identifies the opportunity to invest into the supplier development programmes

5 communication and information sharing between buyer and suppliers is an important prerequisite to supplier development activities (Krause, 1999).

Moreover, supplier performances and capabilities have significant existence and play a pivotal role maintaining the manufacturing firms' competitive advantage (Humphreys et al., 2001; Krause, 1997; Watts and Hahn, 1993). Supplier development may include goal setting, supplier evaluation, performance measurement, supplier training, and other related activities (Krause et al., 2007). Supplier development approaches could be summarised into Table 1.

Table 1 Supplier development approaches

Factor	*Author*	*Explanation*
Communication	Krause (1997), Galt and Dale (1991), Wen-Li et al. (2003) and Wagner and Krause (2009)	Interaction between supplier and buyer
Competitive pressure among suppliers	Krause (1997), Galt and Dale (1991) and Wen-Li et al. (2003)	Use of two suppliers to create competition
Contract	Galt and Dale (1991)	Contract between the buyer and supplier
Customer base	Chakraborty and Philip (1996)	Suppliers number of customers
Demographic information	Watts and Hahn (1993) and Krause and Scannell (2002)	Information like gross annual contract sales, number of employees, etc.
Direct involvement	Krause (1997) and Krause and Scannell (2002)	Buyer firm site visits, product knowledge, training of suppliers personnel, investment to suppliers operation
Green supplier development	Blome et al. (2014), Dou et al. (2013), Igarashi et al. (2013), Fu et al. (2012), Lee and Kim (2011) and Bai and Sarkis (2010)	Green and sustainable supplier development
Interdependence	Chakraborty and Philip (1996)	The relationship with buyer and supplier
Level of involvement in supplier development programmes	Watts and Hahn (1993) and Krause and Ellram (1997a)	Management support for supplier development projects
Local versus international sourcing	Galt and Dale (1991)	Product is produced locally or sourced from abroad
Product development involvement	Chakraborty and Philip (1996), Arumugam et al. (2011) and Talluri et al. (2010)	The role that the supplier plays in product development
Supplier base	Krause (1997) and Galt and Dale (1991)	Number of suppliers in buyer firm supplier base
Supplier certification	Galt and Dale (1991) and Krause and Scannell (2002)	Buyer nominate best performing suppliers
Supplier development incentives	Krause (1997) and Krause and Scannell (2002)	Promising current benefits, promising future business, recognition achievement
Supplier development outcomes	Hartley et al. (1997)	Result-oriented, process-oriented

Table 1 Supplier development approaches (continued)

Factor	*Author*	*Explanation*
Supplier development programme objectives	Watts and Hahn (1993) and Arráiz et al. (2013)	To improve quality, on time deliveries, technical capability, etc.
Supplier development programme perspective	Watts and Hahn (1993), Krause and Ellram (1997a) and Arroyo-López et al. (2012)	New sources or long term cooperation.
Supplier development programme team	Watts and Hahn (1993)	Nominated teams for supplier development.
Supplier evaluation	Krause (1997), Watts and Hahn (1993), Wen-Li et al. (2003), Krause and Ellram (1997a), Hahn et al. (1990) and Humphreys et al. (2004)	Buyer personal is assigned to study the present system followed by supplier or supplier itself providing the required data about their present system to the buyer
Supplier involvement in product development and innovation	Johnsen (2009)	Supplier involved in product development and innovation which shorter time to market and improved quality.
Supplier satisfaction	Ghijsen et al. (2010)	Indirect influence strategies and promises encourage supplier satisfaction.
Supplier selection	Galt and Dale (1991), Igarashi et al. (2013), Ordoobadi (2009), Ho et al. (2010), Lee (2009), Önüt et al. (2009) and Chen and Li (2008)	Selection of suppliers according piece, quality, on time deliveries, etc.
Supplier training	Krause (1997) and Galt and Dale (1991)	Training programme with supplier organised by buyer firm
Task structure	Chakraborty and Philip (1996)	Unstructured, semi-structured, structured
Vendor selection methods	Chakraborty and Philip (1996)	Open tender, closed tender, direct selection

The term ‘suppliers’ has become a substantial party who are not only suppliers of goods these days but they have become strategic partners for the firm which represents the importance of their role in the value chain (Kwon et al., 2010). Supplier relationship management or buyer-supplier relationship in a global supply environment is the concepts of management network that involves different skills and knowledge into the field and enhance the possibility of performance (Lintukangas, 2011). Therefore, the relationship between buyer and supplier provide a pivotal prospect for firms to develop strategically global competitive advantage. These relationships have developed to the level of strategic partnership relationship rather competitive (Loppacher et al., 2011). There are some success factors which influence supplier development including:

1 effective communication

2 an attitude of partnership

3 mutual commitment

4 top management support.

These factors really define the aspect of supplier development and its success which ultimately is a resource to develop buyer-supplier relationship and continuous performance improvement through competitive advantage (Sucky and Durst, 2013).

The process of supplier development is a dimension of supplier development research. For the purpose, Hartley and Choi (1996) suggest a process model which consists of five factors. These five factors are:

1 supplier's team leadership

2 supplier's top management commitment

3 capable joint-development team

4 data driven changes

5 success of a model line.

Previous studies state that buying firms can communicate more efficiently with suppliers if they put efforts in supplier development including supplier evaluation, supplier training, and supplier award programmes (Krause and Ellram, 1997b). Furthermore, they perceive their suppliers as partners and place a better emphasis on some serious issues (Krause and Ellram, 1997a). Buying firm's tendency to engage in supplier development was affected by its perception of supplier obligation, its anticipation of relationship endurance and operative buyer-supplier communication (Krause, 1999). In the following, there are factors to increase supplier's performance and competences and infrastructure factors of supplier development (Humphreys et al., 2004).

Table 2 Factors to improve performance and supplier development

Infrastructure factors of supplier development	*Factors to improve supplier performance*
Strategic goals	Increasing supplier performance goals
Effective communication	Providing the supplier with training
Long term commitment	Equipment, technological support and investment
Top management support	Personnel exchanging
Supplier evaluation	Evaluation of supplier performance
Supplier strategic objectives	Recognising supplier progress in the form of awards
Trust	

Source: Humphreys et al. (2004)

More specifically, the determinations of the systematic review are to highlight the supplier development strategies, and buyer-supplier relationships to meet the short and long term supply needs with the help of detailed and updated literature. This will lead to examine the impact of supplier development on buyer-supplier performance and will provide a research framework to identify the step by step process of supplier development and improved buyer-supplier relationships. Moreover, this study explores the examples and literature on supplier development strategies and relationships to

identify areas for future research to provide a platform based on the detailed literature review (Krause et al., 1998; Krause, 1997, 1999; Giunipero, 1990).

The idea of this study is significantly objective which clarifies the supplier development strategies and approaches, their impacts, and developing buyer-supplier relationships. Thus, this important study collaborates and combines the framework of supplier development approaches which lead to develop a strong relationship and provide the answers to the following research question of the study:

- What approaches support to develop suppliers' performance to improve buyer-supplier relationships?

The main question of the study can be divided into the following sub-questions:

1 What are the significant supplier development approaches in the literature which help buyers to improve the performance of suppliers?

2 How buyer-supplier relationships can be developed to highlight and to provide the important factors in the relationships for empirical examination?

3 Finally, how to combine supplier development strategies with buyer-supplier relationship framework to answer empirical questions?

This research identifies and addresses above mentioned questions by investigating a link between different strategies of supplier development and buyer-supplier relationships performance outcomes.

The following section reviews the research methodology used in this research paper. Based on this review and methodology, a detail literature review is presented in Section 3. Section 4 presents research framework based on the literature. Discussion/conclusions, future research perspectives/implications are discussed in Section 5 and Section 6 respectively.

2 Research methodology

A literature review is a critical summary and assessment of the range of existing materials dealing with knowledge and understanding. The purpose is to discover the research project, to customise its context or background, and to provide insights into previous work (Blaxter et al., 2010). One of the critical primary responsibilities of a researcher is to find out and analyse the existing literature concerns to a research topic (Kumar, 2011). It consists of a comprehensive research through a variety of resources such as books, journals, electronic journals, and abstracts. According to Kumar (2011), a literature review has three functions. First, it explains and emphasis the research question helping researcher to understand the subject area completely and different theoretical approaches applied previously. Secondly, it may develop the methodology. Literature review helps researcher to observe the other investigators' approach to study the chosen phenomena and validity of methodologies. Third, a literature review helps to expand the researcher's knowledge of the area and provide a better command of the chosen area and relevant issues. The greater understanding on existing research area reinforces the validity and findings (Rudestam et al., 2007).

This research paper follows the ideologies for systematic literature review proposed by Tranfield et al. (2003) to ensure the consistency and significance to the practice. In this study, a literature review was employed as the research methodologies to develop a supply chain strategy framework. The literature on supply chain strategies was composed primary from journals in the areas of strategic management, supply chain management, operations research and operations management. The target was to focus on latest journals from last decade and that is why dissertations, textbooks, unpublished working papers, and conference papers were excluded. The literature search incorporated journals published by numerous publishers and research was done using Scopus which is one of the largest abstract and citation database of research literature. Several hundreds of journal articles were found and that is why the research has to focus the most relevant, cited and newest journals.

3 Supplier development

3.1 Supplier development strategies

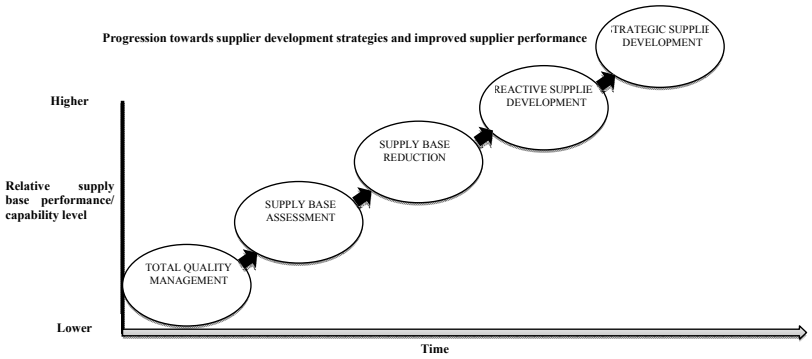
Hahn et al. (1990) proposed a theoretical model for supplier development and document industry practice. Krause et al. (2000) characterise following useful supplier development strategies:

- *Competitive pressure:* Multiple suppliers are more important to develop competitive pressure which help and motivate other suppliers to enhance quality and maintain improved performance (Tezuka, 1997).
- *Evaluation and certification systems:* Supplier evaluation and certification system ensures the suppliers' performance and organisation's expectation of performance. It motivates suppliers to improve performance consecutively (Krause et al., 2000; Carr and Pearson, 1999).
- *Incentives:* Buying firm can offer incentives to motivate suppliers to develop their performance and capabilities which include achieved cost savings sharing, increased volumes consideration, future aspects for business, and recognising them through awards (Monczka et al., 1993; Krause et al., 1998).
- *Direct involvement:* Organisations follow a pre-emptive method to develop suppliers' performance through direct involvement (Krause et al., 2000; Monczka et al., 1993). Direct involvement can be investments in operations or manufacturers can acquire supplier firm (Dyer, 1996).

According to Krause et al. (1998), buying firms follow an evolutionary path to develop suppliers' performance. In the adoption of TQM, respondents specified that they had implemented many or all of the TQM involvements, i.e., focus on customer requirements, supplier partnerships, cross-functional teams, use of scientific methods for performance measurement, and use of quality tools. Moreover, external suppliers focus helps companies to conduct a thorough supply base evaluation of acknowledgment to develop material quality, lower development costs, reduce purchase prices, and improve supplier responsiveness. After the supply base evaluation, organisations emphasis on amalgamation of purchased volumes with fewer suppliers to remove the suppliers'

incapability of meeting expectations. To further improve the performance and capabilities of their supply bases, respondent firms engaged in supplier development (Krause et al., 1998).

Figure 1 Progression towards supplier's development strategies and improved performances



Source: Krause et al. (1998)

Table 3 Overview of differences between reactive and strategic supplier development

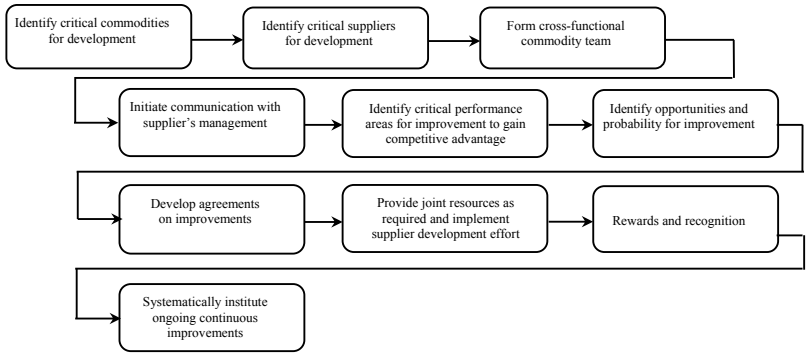
Factors	*Reactive*	*Strategic*
Primary question	A supplier performance problem has occurred – what is needed to correct the specific problem?	We have dedicated resources to develop the supply base – where should resources be allocated for the greatest benefit?
Primary objective	Correction of supplier deficiency	Continuous improvement of supply base
	Short-term improvements	Long-term competitive advantages
Unit of analysis	Single supplier	Supply base
	Supplier development project	Supplier development programme
Selection/ prioritisation process	Supplier self-selects through performance or capability deficiency	Portfolio analysis
	Problem-driven	Pareto analysis of commodity/suppliers
		Market-driven
Drivers (examples)	Delivery dates missed	Supplier integration into the buying firm's operation
	Quality defects	Supply chain optimisation
	Negative customer feedback	Continuous improvement
	Competitive threat for buying firm	Value-added collaboration
	Production disruptions	Technology development
	Change in make/buy decision	Seek competitive advantage

Source: Krause et al. (1998)

Krause et al. (1998) presents reactive and strategic supplier development approaches. In the strategic supplier development, initiatives are typically carried out by an executive-level team, with an execution plan being articulated and carried out by a cross-functional commodity team. In this way, reactive firms were not efficient enough in supplier performance assessment and further they recognised as candidates for supplier development only after a problem actually occurred. Table 3 explains some of the major differences between strategic (systematic) and reactive (remedial) approaches to supplier development (Krause et al., 1998).

Krause et al. (1998) present a generic process model for supplier development including ten steps to make systematic supplier development in process-oriented way. It includes critical commodities for development, identify critical suppliers for development, form cross-functional commodity team, initiate communication with suppliers management, identify critical performance areas for improvement to gain competitive advantage, identify opportunities and probability for improvement, develop agreements on improvements, provide joint resources as required and implement supplier development effort, rewards and recognition and finally systematically institute ongoing continuous improvement (Krause et al., 1998).

Figure 2 Strategic supplier development process



Source: Krause et al. (1998)

3.2 The impact of supplier development on buyer-supplier performance and relationship

Supplier development activities can be categorised into transaction-specific and organisational structure of supplier development. The factors of supplier development infrastructure affect the performance of buyers and suppliers (Humphreys et al., 2004). In this vein, transaction-specific supplier development is the basic practice for buying organisations to develop suppliers' performance and capabilities (Krause, 1999). Moreover, supplier development includes direct investment in assets focused to buyer and supplier perspective and training with transaction-specific knowledge (Joshi and Stump, 1999). Krause (1999) explains that buyer's direct involvement to develop suppliers' performance is a key approach for the development and improved quality performance.

The clarity of long-term strategic goals determines the effectiveness of supplier development. Supplier development efforts should focus on future capabilities in technology and product development rather than on current quality and cost (Watts and Hahn, 1993). Effective communication plays a key role between buyers and suppliers to motivate them (Newman and Rhee, 1990; Giunipero, 1990); it enhances the mutual understanding of both parties and reassures the conflict resolution (Spekman, 1988). A long term commitment of buying firm assures a relationship with suppliers where suppliers willingly can make changes in their operations to fulfil the requirements of buyer (Lascelles and Dale, 1989). Supplier evaluation is another important strategy to improve buyer-supplier performance. For the purpose, buyers should select suppliers carefully and evaluate them regularly. Supplier evaluation results could provide valuable information about general areas of weakness where performance improvements were needed. When suppliers follow further developments of its performance and capability by itself to improve competence, a rational and tactical match come into exist between buyer and supplier management which increases possibilities of success in the cooperation (Stuart and McCutcheon, 1995). Trust between buyer and supplier is needed to improve the performance and capabilities of supplier and specially when they jointly investing into a business. Transaction-specific investments help to increase the buyer's reliance on the particular trading association and expose them to larger risk and uncertainty (Krause, 1999). Buyers must safeguard themselves against the hazards of opportunism of suppliers. Buyer trust in the supplier would enhance the effect of buyer assets specificity on joint action in buyer-supplier relations (Humphreys et al., 2004).

According to Humphreys et al. (2004), performance consequences are defined in various extents in the purchasing literature. Giunipero (1990) suggested that capability to handle suppliers' quality, delivery, and lead time, and also to control the acquisition cost has a significant dimension where purchasing function's efficiency can be measured. Watts and Hahn (1993) explained that supplier performance improvement indicator is most important factor to measure the result of supplier development. Moreover, Monczka et al. (1993) stated the key objectives supplier development which a buying firm initiate to increase the competitive advantage of buyer and to improve the relationship between buyer and supplier. In this vein, Humphreys et al. (2004) presented three dimensions of supplier development outcomes, i.e.,

1 supplier performance

2 buyer competitive advantage

3 buyer-supplier relationship improvement (Humphreys et al., 2004).

Furthermore, Hahn et al. (1990) state that upgrading existing suppliers' performance and capabilities help in supplier development to fulfil the changing competitive requirements. Improvements in supplier performance focus on perception of buyers about the quality, delivery, cost, inventory, lead time, and the rate of new product introduction aspects. Further, linking a purchasing strategy with buying firm's overall corporate competitive strategy objectively develops the long-term relations and suppliers' performance and capabilities. Competitive advantage development of a buying firm should be one indicator of efficiency in supplier development (Hahn et al., 1990). Thus, Stuart and McCutcheon (1993) suggested that competitive advantage of buying firms includes market share gains, quality, cost reduction and quick product development. On the other hand, Heide and John (1990) noted that firms efficiently make alliances when

there is some scope and possibility of joint activities. For the purpose, the performance results of buyers are mainly reliant on the performance outcomes of their suppliers. In manufacturing industries, buying firms have four key competitive priorities in their end markets, i.e., cost, quality, delivery time and reliability, flexibility, and outcome of promise (Krause et al., 2007).

Buying firms' development in the product cost is reliant partially on subcomponent suppliers' improvement that means it can be a reduction in rework, scrap, and downtimes. The benefits by reducing the supplier's cost should be partially transferred to the industrial customers in low prices form (Clark, 1989; Human and Provan, 1997; Turnbull et al., 1992). In automotive and electronics industry, the manufacturer follow a low costs of their supplied inputs, lower in final assembly and to provide a competitive price to the consumers (MacDuffie, 1995). Organisations have a key concern about the manufacturing flexibility to meet the changing needs of their customers but flexibility of assembler can be perceived to be a function of suppliers' quality, delivery time, reliability, and flexibility (Krause et al., 2007; Dyer, 1996; Liker and Wu, 2000; Meredith, 2000; Womack et al., 2007).

Performance improvements are often only possible required by buying firms when they make a long-term relationship commitment with their key suppliers (Krause et al., 2007). Previous research suggests that suppliers will be reluctant to promise or commit a relationship specific investment if buying firms are unwilling to sustain long term relationships and mutual investments to improve suppliers' performance (Krause, 1999). Moreover, suppliers consider relationship specific investments as susceptible to resourcefulness when commitments are not tangible or approaching from buying firms (Krause et al., 2000). In this way, supplier development efforts from a buying firm for a purpose to develop the performance or capabilities are more significant to analyse the influence on the its performance and competitive strategy within the buyer-supplier relationship domain (Krause et al., 2000, 1998; Wagner, 2006). For the purpose, Wagner and Krause (2009) stated that to understand the performance improvements in cost, quality and delivery and advantage from increased supplier capabilities, the buyers and suppliers need to jointly involve in relationship focused investments. They may also contribute resources for the development, i.e., information sharing and investing in physical and human assets (Hunter et al., 1996; Dyer and Nobeoka, 2000).

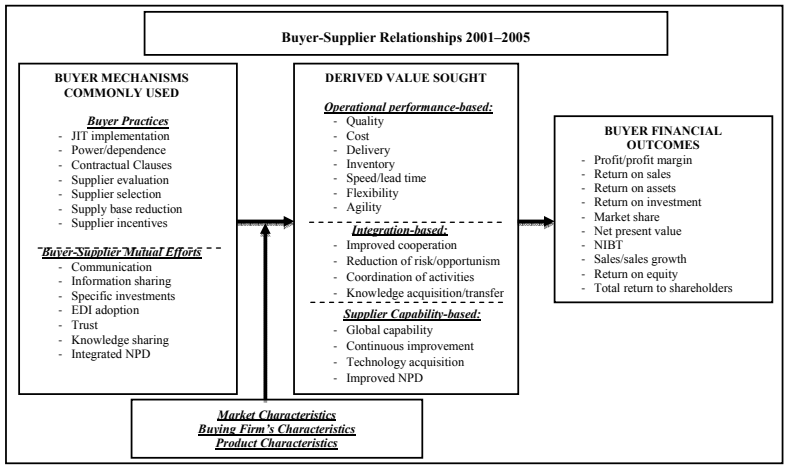
Wagner and Krause (2009) highlighted the research gap in supplier development and explained that research has been lacking because of missing distinction in between supplier development objectives and performance achievements. The relatively less research does not clarify the various goals for supplier development efforts that can be affected on the relationship between buyers and suppliers. For the purpose, Wagner and Krause (2009) presented the important study of supplier development goals. They presented a study where the difference between goals which are short-term in nature and immediate (delivery, order cycle times, and quality) and long-term goals in nature (strengthening a supplier's managerial, product development, and processes competences) are highlighted (Wagner and Krause, 2009). Further, supplier development goals will emphasise and focus on the measurable results of suppliers. On the other hand, a combined value creation needs much more efforts from buyers and suppliers; harmonised and combined capabilities, and a long-term focus on suppliers' performance and capabilities (Wagner and Krause, 2009). Supplier evaluation and feedback may be the significant activities to develop suppliers while training them, by sharing and

transferring employees from one to another, and some other related activities (Monczka et al., 1993; Wagner, 2006).

Moreover, Terpend et al. (2008) explained that empirical outcomes of studies propose the performance of a purchasing organisation which is achieved through integration of buyer/supplier firms generally and specially by integration of product development, collaborative planning, and integration of information system (Ellram and Liu, 2002; Frohlich and Westbrook, 2002; Narasimhan and Kim, 2002; Rosenzweig et al., 2003; Droge et al., 2004; Petersen et al., 2005b). Further, supplier development factors effect an organisation financially, i.e., it has effect on sales of buying company, return on equity (ROE), total return to shareholders, and net present value (NPV). Many studies explain that supplier development also has a significant impact on operational performance improvement, i.e., cost, quality, and cycle time (Rosenzweig et al., 2003; Tracey, 2004; Petersen et al., 2005a).

Park et al.'s (2001) propose that suppliers with maximum performance assessment have a strong impact on process development competences but those who emphasise conformance quality; they will not have strongest process development capability. In this vein, McGinnis and Vallopra (2001) established that a strong connection of purchasing function of buying firm assists supplier process development competencies and making sure supplier participation with high priority which is significant for the supplier development to improve performance and capabilities. Moreover, Krause and Scannell (2002) stated that product-oriented organisations are more expectedly depend upon the encouragements, drives, motivations, direct connection, and participation than service-based organisations. Further, operational factors like communication develops the performance of suppliers and play a key role in supplier development whereas collaborating and sharing information endorses reduction in cycle time and improve financial performance of buying firm and expand supplier's commitment (Rosenzweig et al., 2003; Tracey, 2004; Petersen et al., 2005a).

Figure 3 Buyer-supplier relationships



Source: Terpend et al. (2008)

Liker and Choi (2004) presents a research on supplier relationships in automotive industries Toyota and Honda. He suggested that supplier relationships are followed by six distinct steps: First, they understand how their suppliers work (supplier's business, works, capabilities and commitment). Secondly, they turn supplier rivalry into opportunity by (sourcing, compatible production and system, and setting up joint ventures). Third, they supervise their vendors by (monthly reports, constant feedback, and involving managers to solve problems). Fourth, they develop their suppliers' technical capabilities by (building up skills, a common lexicon, and innovation capabilities). Fifth, they share information intensively but selectively considering (specific time and place, rigid formats for sharing information in a structured fashion, and accurate data collection). Lastly, they conduct joint improvement activities (i.e., exchange best practices, initiate kaizen projects, and supplier study groups). Toyota and Honda have succeeded not because they use one or two of these elements but because they use all six together as a system (Liker and Choi, 2004).

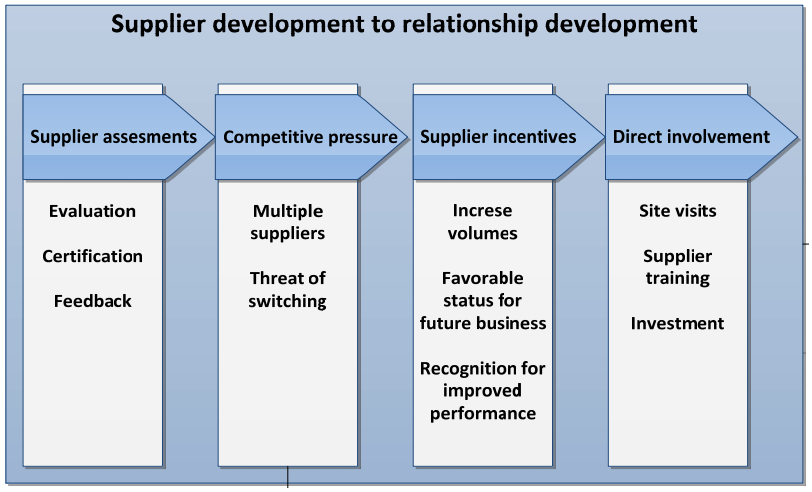
Prahinski and Benton (2004) presents that buyer-supplier relationship is the supplier's perception of the buying firm's behavioural and operational relationship attributes: buying firm's commitment, cooperation and operational linkages. Moreover, he presents two buyer-supplier relationship approaches. The first approach explains the relationship which is based on transformation process, i.e., from awareness, exploration, expansion, and commitment to dissolution whereas second approach is based on the mechanism of buyer-supplier relationship at one point in time, i.e., organisational governance ranging from a transactional-based relationship to a strategic association or vertical integration (Cooper and Gardner, 1993; Webster, 1992), or the continuum between competitive and cooperative positioning (Ellram, 1995).

4 Research framework

Reviewing literature there are researches which examine supplier development from supplier's perspective through buyer-supplier relationship studies and highlights the important supplier perspective. Therefore, Krause (1999) highlights the importance of suppliers and emphasises that buying firms consider its suppliers as virtual extension of the firm which will in result increase the motivation of suppliers towards the buying organisation. Moreover, communication between buyer and supplier firms is significant prerequisite which creates an environment of supplier development (Wagner and Krause, 2009; Krause et al., 1998; Krause and Handfield, 1999). Some authors suggest that supplier commitment and a level of inter-firm communication are seen as antecedents to supplier development. The successful supplier development factors are focused on perception of suppliers as partners and their virtual extensions. For the purpose, higher management collaboration and commitment along with supplier acknowledgment, direct investments into the operations of suppliers, effective communications in between the buyer and supplier firms, and a secure multiple contact point are the success factors for supplier development to improve their performance and capabilities (Krause, 1997; Krause and Ellram, 1997a, 1997b). Further, critical success factors included supplier commitment, trust, and alignment of organisational cultures which are more important in supplier development strategy (Handfield et al., 2000; Hartley and Choi, 1996).

Moreover, purchasing literature emphasis the significance of supplier development favouring an organisation's operations strategy and makes sure the suppliers performance and competences. The focus remains on supplier development drivers and it helps to explore the impact of these initiatives on performance and competences (Hahn et al., 1990; Monczka et al., 1993; Hartley and Choi, 1996). Figure 4 elaborates a detailed research framework and a structural analysis which concludes the literature review and explains different steps for the supplier development process and supplier-buyer relationship.

Figure 4 Operational breakdown of the values of buying firms' approaches to develop supplier performance (see online version for colours)



Supplier development and buyer-supplier relationship need to be in a systematic way which helps firms to organise the process and collaborate with suppliers for the improvement of product manufacturing capabilities. Supplier development carries a process including:

1 supplier assessment

2 competitive pressure

3 supplier incentives

4 direct involvement that elaborates a detail version of steps to get a competitive advantage and to develop buyer-supplier relationship.

In the same vein, research framework indicates that companies follow an evolutionary route to develop their supplier's performances and relationships. They try to focus on adoption of total quality management (TQM) followed by evaluation and culmination in

supplier development strategies (Krause et al., 1998). Moreover, Modi and Mabert (2007) stated following supplier development strategies:

4.1 Competitive pressure

Companies use different supplier sources and market forces to develop competitive pressure. This strategy not only helps the organisations to analyse their suppliers' competence and performance and to build the long-term relations but motivates others develops their performance quality. Purposefully, firms use multiple suppliers to keep a competitive pressure among different suppliers. This support buying firms to get improved quality process services and they can inspire suppliers to keep the quality, delivery, or whatever supplier performance characteristics high by rewarding them with huge volume of the business over time (Tezuka, 1997). Therefore, buying firms apply this method to its suppliers when they need competitive offers from different suppliers to attain a comparatively cheaper purchase price (Krause et al., 2000). The threat of switching suppliers or losing business to other supplier creates a possibility or condition to provide suppliers a motivation to keep the competitiveness up with high quality supply at a low cost. Buyers expected to have developed relations with more than one supplier while dealing with manifold or parallel sourcing but buyers try to develop a strong relation with only one supplier dealing with sole sourcing. However, if there are certain switching costs (firm specific investment costs) involved, the buyer will hesitate to threaten supplier for a specific deviation in quality (Richardson and Roumasset, 1995).

4.2 Evaluation and certification

Evaluation and certification system supports the organisational strategies regarding current and expected performance of suppliers and ensures the suppliers about their performance and business prospects of organisation. For the purpose, evaluation and certification system is an important tool of communication between buyer-supplier and a motivational process for the suppliers to improve their performances. This evaluation and certification system comes under supplier assessment which is a key enabler in between supplier development activities and buyer-supplier relationship development. Supplier assessment is not only an important tool for buying firms to calculate the performance of suppliers in comparison of several other suppliers but it also allows buying firms to set future direction standards of suppliers' performance (Krause et al., 2000). Supplier assessment tool explains and elaborates the detailed evaluation of suppliers' managerial competencies, quality, technical competencies, cost, and delivery capabilities (Giunipero, 1990; Hahn et al., 1990). Therefore, it is very useful in providing feedback to its suppliers about their performance index and competencies. In fact, feedback is the evaluation and comparison of expectations and outcomes of suppliers' activities which integrates the competitive strength of the market to address the current performance and encourage them in improving performance (Krause et al., 2000).

4.3 Incentives

Incentives play a vital role in developing the motivation and interest of suppliers towards their capabilities and competence including; awards, cost savings, consideration for

increased volumes, etc. Supplier incentives are the key motivators for suppliers to improve their performance and in building strong and long-term relationships. Moreover, if incentives are not offered and awarded, suppliers are unwilling or reluctant to keep up and build long-term relations with buying firms. Therefore, literature suggests that supplier incentives may enhance the possibility and suppliers' will and satisfaction to follow the buyers' required demand (Ghijsen et al., 2010). However, supplier assessment and supplier incentives have indirect influence on performance of suppliers (Krause et al., 2000). Positive supplier's incentives for improved performance can be in the form of *increased business volume* and vice versa. Keeping this in view, suppliers focus more on the delivered performance to the buyer and maintain the required standard for *future business considerations* which usually has a positive impact on operational knowledge transfer activities (Modi and Mabert, 2007). These activities involved in suppliers' incentives allow buying firms to evaluate continuous improvements in suppliers' performance by increasing the performance expectations and *recognition for improved performances*. Thus, supplier's incentives activities foster the momentum of suppliers to provide continued performance to strengthen the buyer-supplier relationship (Krause et al., 1998).

4.4 Direct involvement

Companies use proactive method through direct involvement and make sure their existence by making capital and equipment investments, acquiring supplier firm operations partially, and by investing human and organisational resources to develop suppliers' performance and competence. Buying firms are eager to get directly involved in the supplier development programmes which include different activities and actions regarding investments in supplier development resources. In this vein, Williamson (1985, 1981) provides a holistic picture of transaction-specific investments in buyer-supplier relationship and supplier development activities and direct involvement can be a reason to reduce transaction cost and uncertainty of buying firms. On the other side, suppliers' involvement into buyer-supplier relationship also enhance the strength of relationship (Ghijsen et al., 2010). Many variables in direct involvement label the supplier development activities and enhance the performance of both buyers and suppliers (Krause and Ellram, 1997a, 1997b; Humphreys et al., 2004; Sánchez-Rodríguez and Martínez-Lorente, 2004). These supplier development activities involve *site visits*, *training and education programmes*, *technical assistance* and *investments with suppliers*. Continuous site visits allow suppliers to focus on the required quality by the buyers and enhance the process capability. These efforts are really important in supplier development actions which lead to enhance the performance (Modi and Mabert, 2007).

Firms are employing the supplier development programmes and strategies progressively to develop suppliers' performance and to build strong relationships with them to continue competitiveness in the market. According to Modi and Mbert (2007), supplier's development strategy has a strong link in developing suppliers' performance and capabilities and involving top management into the process to build purposeful relationship with suppliers. This link creates operational knowledge transfer activities and assistance to select a set of suppliers which triggers supplier development activities.

Therefore, this paper explores the possible supplier development strategies that are useful for buying firms for supplier development. Moreover, this study develops a

research framework where each building block explains different ideas to develop strong relationships with suppliers. Finally, overall research framework provides the opportunities where supplier development and buyer-supplier efforts ultimately improve the performance of firms.

5 Discussion/conclusions

In this paper, a detailed literature overview of supplier development strategies and buyer-supplier relationship is presented. Many of different activities can be used to improve the performance of suppliers including low involvement actions (supplier evaluation) to more elaborative and resource demanding action (investing in production equipment and supplier's employees training) tasks (Wagner and Krause, 2009; Arroyo-López et al., 2012, Modi and Mabert, 2007). Supplier development activities can be summarised as:

1 introduction of competition to the supply base

2 supplier evaluation for further development

3 supplier certification

4 elevation of performance expectations/goals

5 recognition and rewards

6 promise of future benefits

7 training and education of suppliers' staff

8 direct investment in the supplier by the buying firms

9 exchange of personnel between buyer and supplier organisations

10 supplier plant visits

11 intensive information exchange with suppliers

12 collaboration with suppliers to improve the material and development of new materials

13 involvement of suppliers in new product development process (Krause, 1997; Krause and Ellram, 1997a, 1997b).

One objective for supplier development is to transfer competences from the customer to the supplier. These capabilities gradually develop the basic skills to guarantee the performance index towards continuity of development and innovation. For the purpose, this transmission of competencies may be accomplished through different actions and the execution of organisational procedures facilitating an association and interactions, sharing the information, and integration of best practices to strengthen or enhance the

quality of knowledge to be transferred (Hartley et al., 1997; Krause et al., 2000; Sako, 2004; Dyer and Hatch, 2004). Moreover, there are some critical elements in supplier development that play an important role to improve supplier performance. These elements include the involvement of buyer building a perception as partners. Moreover, two-way multifunctional communication, top management interest, and building cross functional teams are most significant factors making supplier development strategies (Krause and Ellram, 1997a).

Furthermore, supplier development has an effect on financial performance indicators such as sales, ROE, total return to stakeholders, and NPV (Rosenzweig et al., 2003; Tracey, 2004; Petersen et al., 2005a). For the purpose, it is examined that supplier development has a vital impact on operational performance improvement, i.e., cost, quality, and cycle time. Supplier development is a key factor and positively effects on buyer's performance specially in product development integration, collaborative planning and information system integration (Frohlich and Westbrook, 2002; Narasimhan and Kim, 2002; Rosenzweig et al., 2003; Droge et al., 2004; Petersen et al., 2005b; Ellram et al., 2002). Suppliers with high performance rating have strong process improvement capabilities with involvement of purchasing function and considering it with top priority (Frohlich and Westbrook, 2002; Narasimhan and Kim, 2002; Rosenzweig et al., 2003; Droge et al., 2004; Petersen et al., 2005b; Ellram et al., 2002). In the same vein, information sharing is a significant factor which foresees the competitive existence of a buyer and helps to measure the process of supplier assortment (Kannan and Tan, 2002).

Most of the firms prioritise their supplier development goals according to the delivery, order, cycle times, quality, product development, and operational capabilities (Wagner and Krause, 2009). For the purpose, companies follow an evolutionary path to increase supply base performance. They consider TQM interventions, i.e., supplier collaboration, customer requirements, cross-functional teams, measuring performance through scientific methods, and quality tools usage. Therefore, external suppliers are also much more important to be focused to conduct a supply base evaluation on the acknowledgment to develop the material quality, lower development costs, reduction in purchasing prices, and to improve the responsiveness of suppliers. Once supply base performance is assessed, companies focus on the consolidation of purchased volumes with fewer suppliers in order to eliminate suppliers incapable of meeting expectations (Krause et al., 1998).

6 Future implications

Most of the organisations hold a relationship and develop a key strategy for constant competitive achievement. In the supplier development process, buyers and suppliers need to consider the amount of investment and aligning processes and cultures to improve the supplier performance and capabilities. After the formation of buyer-supplier relationship, buyers need to realise the structure to maintain a reasonable relation with better suppliers how to develop them for long-term relations. On the other hand, suppliers need to be proactive and focused with the mutual interest and development processes of buyers.

This study elaborates the theoretical point of view for the supplier development and buyer-supplier relationship and gives only a theoretical proof. Future research should consider a comprehensive case study with the given theoretical research framework adding empirically analysis of transaction cost economics and social exchange concept.

Buyer-supplier relationship analysis with variables of transaction cost and social exchange theory will help organisations to get a detailed view of supplier development and sustainability of buyer-supplier relationship. Moreover, future empirical research will help organisation to form cross-functional teams, involving top management role, checking alternative rewards and recognitions, determining the criteria to identify better suppliers and efforts towards sustaining the long-term relationship with suppliers. For the purpose, the structural factors of transaction cost economics (i.e., bilateral investments in specific assets to reduce the transaction cost and enhance the transaction value) and social factors (i.e., trustworthiness, information sharing) will be beneficial for the academia to understand the concepts of supplier development process. In fact, knowing the social factors and structural arrangements of buyer-supplier relationships that lead to reduction of transaction costs and enhancement of transaction value will help the managers to effectively manage their buyer-supplier relationships and development.

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V

A CUSTOMER'S POSSIBILITIES TO INCREASE THE PERFORMANCE OF A SERVICE PROVIDER BY ADDING VALUE AND DEEPENING THE PARTNERSHIP IN FACILITY MANAGEMENT SERVICE

by

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A CUSTOMER'S POSSIBILITIES TO INCREASE THE PERFORMANCE OF A SERVICE PROVIDER BY ADDING VALUE AND DEEPENING THE PARTNERSHIP IN FACILITY MANAGEMENT SERVICE

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Abstract
Reliable and good suppliers are an important competitive advantage for a customer and that is why the development of suppliers, improvement of performance and enhancement of customership are also in the interest of the customer. The purpose of this study is to clarify a customer's possibilities to increase the performance of a service provider and to develop the service process in FM services and thus help to improve partnership development. This research is a qualitative research. The research complements the existing generic model of supplier development towards partnership development by customer and clarifies the special features that facility management services bring to this model. The data has been gathered from interviews of customers and service providers in the facility management service sector. The result is a model of customers' possibilities to develop the performance of service providers from the viewpoint of value addition and relationship development and in that way ensure added value to the customer and the development of a long-term relationship. The results can be beneficial to customers when they develop the cooperation between the customer and the service provider toward being more strategic and more partnership focused.

Keywords
relationship development, service development, facility management, performance increase, value addition.

Introduction

Partnership is understood as a bidirectional relation that brings benefit to both parties and that both parties are committed to develop and maintain in a long-lasting way [1]. The target of a partnership is to create a long-lasting customership instead of producing single transactions [2]. A long-lasting partnership and its development is emphasized especially in the service business, because the consumption of a service is part of the service process and not the output of the process, as it is with products [3].

The customer often has the possibility to require improvements in the supplier's performance only when they are in a partnership [4–7]. A partnership helps companies to minimize transaction costs, survive in an unsure market, decrease the dependence on uncontrolled resources, reposition the company successfully in a dynamic market, share fixed costs, improve companies' core business, acquire access to complementary competence and increase the entry speed to market [8, 9]. Relationship development increases performance and productivity [10]. In the service business, to increase productivity, both

the productivity of the service provider and the productivity of the customer must be considered [11, 12].

Suppliers have an important meaning to customer business and the customer's direct involvement in the development of supplier performance is a key feature in improving and developing quality [13]. In the service business, quality is estimated by how much value the service brings to the customer. That is why the service process as a whole must be studied, instead of sub-processes, and focused on to decrease costs without reducing value production to customers [14].

In relations that are based on a partnership, cost savings are expected in the long run and most companies have gained good results of partnerships [15]. Companies that focus on long customerships are more productive than companies that focus on single transactions [16]. Partnerships and their development help a service provider to produce value for customers with services [14], decrease prices and increase the level of service and add new technology, innovations and methods [17].

There are a lot of challenges related to partnerships and that is why they are not a savior in every situation. A partnership is only justified when better results are gained with it than without it. It is expensive to establish a partnership because it requires much communication, co-ordination and distribution of risks [18]. Still, the costs that partnership requires are expected to come back with the development of service production [19] and satisfied customers [20].

It is often perceived that the service provider is responsible for the development of service production even though several researches (e.g. [21, 22]) emphasize the significant role of the customer as the builder of trust and the developer of the partnership. Facility Management [FM] services are operational support services for several organizations, where the acquiring criteria for services are the same as with products: cheaper prices are often experienced as more attractive acquiring criteria than total quality. This often causes the service to be experienced to be of poor quality and the search of a new service provider starts [2].

Jylhä and Junnila [20] have found six factors as to why the level of partnership is low in FM services. These factors are: sub-processes are optimized instead of the entire process being optimized, prices are minimized instead of costs, the process does not respond to customer values, employees are constantly overloaded, there is an inability to make improvements, and information is poorly managed [14].

In price-based business relationships, quality is related to price and results and the whole process behind the defects is not seen. Changing the service provider is a low-risk but painful process from the viewpoint of the buyer. In addition, the buyer often has a dominant role and can get advantages more easily in negotiations in price-based business relationships. Thus, a long-lasting and trust-based partnership cannot be created and, at the same time, the advantages that the partnership would bring will be lost [2].

Clarifying the role of the customer in the development of the service process helps the customer to see the whole process that affects the service production. Moreover, it helps to see developing the service process as an alternative to changing the service provider in a situation where the service relations are not working. In this study, the model of supplier development towards partnership development by the customer is completed with the features of FM services. When both parties, especially the customer, understand their role in the development of the service process, it will help in creating long-lasting partnerships.

Research methodology

This study is a qualitative study of a customer's possibilities to support a service provider with the development of service process performance and the development of partnership. The purpose of this study is to clarify a customer's possibilities to increase the performance of a service provider and to develop the service process in facility management [FM] services and thus help to improve partnership development. This study complements the generic model of supplier development as also its impact on performance and the customer – supplier relationship has been studied. Through the model, the customer can develop the performance of the service provider in FM services and thus improve the possibilities of the service provider to increase value creation to the customer. The research problem can be given with the next research question:

What are the customer's possibilities to increase the performance of the service provider by adding value to the customer and deepening the partnership?

The generic supplier development model utilized in this study was developed in the manufacturing industry. This model has been completed in the context of FM services. The research strategy of this study is a case study. Case study research aims at understanding the internal dynamic of an individual case [23]. With the help of the case study research it

is possible to explain complex social events, like organizational processes and problems of an industry. In addition, the case study is one of the most widely used methods in industrial economics [24].

Research design is the logic that links the data to be collected and conclusions. After a relevant research problem was found, the first research process was literature research of the research theme and FM services. The empirical data of this study was obtained from the FM service sector. The data collection consisted of two rounds of interviews. The first round of interviews was conducted within five customer relationships. Five service providers and five customers were interviewed to obtain the viewpoints of both the supply and the demand perspectives. The interviews were divided into three themes: the development of the life cycle of the customership, the engagement of the customership, and the development of the whole of the procurement in its entirety.

The second round of interviews focused on the present performance of the service process and improving it. The interviews were held with four customers and four service providers to get the aspects of both parties. The development was discussed from the viewpoint of information flow development between the service provider and the customer. The themes of the second round of the interviews were divided into three parts: the present situation, the development needs of the service process, and the challenges related to the development.

To get a wide perspective of the researched theme, the service providers were chosen from different companies with different packages of services. The interviews were conducted separately with the service provider and the customer but they focused on the particular relationship between them. The service providers came from the largest FM service provider companies in Finland.

All of the interviews were taped and documented during the interview. The analysis of the interviews consisted of three steps: the identification of the broad themes, the further development of the broad themes, and finding similarities between different interviews. There were two interviewers in each interview to increase the reliability of the analysis.

Presentation of the Generic model

The Supplier development framework was created in past research to enable supplier development to relationship development lead by buying firm [10]. The target of the framework is to develop a supplier relationship into a partnership relationship from the viewpoint of the buying firm. The research environment of the framework is in the manufacturing industry and thus the framework does not include the special characteristics of FM services. The developed framework was created based intensively on a literature review. The buying firm should develop suppliers systematically, so that the supplier's performance would increased as well as both parties being able to gain competitive advantage from this partnership [10].

The supplier development to relationship development framework consists of four approaches: supplier assessments, competitive pressure, supplier incentives and direct involvement. The first approach, supplier assessment, remains close to the traditional purchase function, where suppliers are evaluated based on selected criteria. When moving closer to the direct involvement approach, the relationship grows closer and deeper and gets new characteristics.

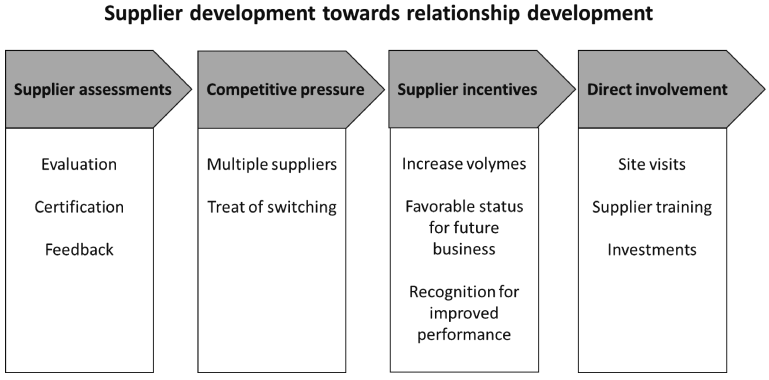

Fig. 1. Supplier development framework to develop suppliers towards relationship development [10].

Supplier assessments

The assessments and certified systems of suppliers guarantee supplier performance and in that way motivate suppliers to develop their performance and competitive advantage continuously [25]. The assessments and certified systems support the expectations of the buying firm related to the present and expected performance of the supplier and ensure that the supplier's performance and the expectations of the buying firm will meet. Assessments and certified systems are important tools in communications and motivate suppliers to develop their performance. The assessments and certified systems assess suppliers and are one of the main enablers for suppliers to develop their operations and the relationship of the buying firm and the supplier [10].

Supplier assessments are not just an important tool for the buying firm to measure and compare suppliers' performance, but they also make it possible to clarify future expectations [25]. Supplier assessment tools assess, for example, management, quality, technical capabilities, costs, and supply capacity [26, 27]. It is very important to give feedback to the suppliers to ensure that development activities are done. The feedback from supplier assessments compares the buying firm's expectations and the supplier's performance. The given feedback states the present performance and encourages suppliers to perform better [25].

Competitive pressure

Competition motivates suppliers to develop their performance and quality. Companies have multiple suppliers to keep up competitive pressure between the suppliers. Industry rivalry, like the bargaining power of suppliers, the threat of substitutes, the bargaining power of buyers, and the threat of new entrants, keeps competition ongoing [28]. Using multiple suppliers helps the buying firm to classify the competence and performance of the supplier and to develop a long-term relationship with selected suppliers. When the buying firm is able to motivate suppliers to keep quality, cooperation and other performance on a high level, the suppliers are able to have a higher volume and increase volumes [29]. The production costs do not often increase at the same ratio as volume increases. Thus, production costs can be split between several departments and, in that way, unit cost will decrease. Buying firms seek volume benefits when selecting suppliers and making volume allocations [25].

The threat of customers changing suppliers or losing business to other suppliers motivates suppliers to keep and develop their performance on a high level, develop quality and maximize value creation for customers. Buying firms usually have multiple suppliers, but they focus on developing a partnership with selected suppliers. Buying firms should analyze the change risks and costs of suppliers if suppliers should be changed [10].

Supplier incentives

Buying firms can provide incentives to motivate suppliers to develop their performance, capacity and cooperation. The incentives could be, for example, to share achieved savings or other benefits, volume increases and future planning jointly [30, 31]. Supplier incentives are a key motivator when improving supplier performance and building long-lasting partnerships. Incentives are important in order for suppliers to be motivated to develop their performance and buying firms to really be interested in following up on the performance and competence of suppliers. If there are no supplier incentives available, suppliers are not motivated to develop long-term partnerships and development activities [10].

Supplier incentives increase customer willingness to monitor the satisfaction of suppliers and improve the possibilities to respond to customer demands [32]. The assessments and incentives of the supplier have an indirect effect on suppliers' performance [25]. Supplier incentives, like increasing volume, are positive recognition for the supplier and motivate suppliers to develop delivery performance and to achieve requirements set by buying firms [33]. The buying firm can offer incentives to motivate suppliers to develop their performance and capabilities, which include achieved cost savings sharing, increased volumes consideration, future aspects for business, and recognizing them through awards [30, 34]. Incentives play a vital role in developing the motivation and interest of suppliers towards their capabilities and competence, including awards, cost savings, consideration for increased volumes [35].

Direct involvement

Direct involvement means that the buying firm cooperates with the supplier through a joint development program [30, 36]. There are several supplier development activities in direct involvement approaches, like investments in the supplier's production equipment, investing in joint ventures [10], site visits, training and educational programs, technical assistance, and investments with the supplier [33].

The target of direct involvement approaches is to improve supplier performance, to develop the partnership of the buying firm and the supplier, to secure a good market position [33], and to strengthen

the performance improvement of the supplier and the buying firm [10, 37–40]. Site visits enable suppliers to concentrate on the requested quality of the buying firm and to develop the development processes [33].

Direct involvement requires special attention, because it is an investment from the buying firm [41, 42]. In the long run, direct involvement activities aim to decrease the buying firm's transaction costs and uncertainty towards delivery. The investments used for direct involvement include a risk to the buying firm because the investments can be moved back to the buying firm, and it cannot get the benefits that the direct involvement brings if the contractual relationship between the supplier and the buying firm is terminated. Companies use proactive methods through direct involvement and ensure their existence by making capital and equipment investments, acquiring supplier firm operations partially, and by investing human and organizational resources to develop supplier performance and competence [43].

Service business as a research environment

The special features of services

The special features of services change the generic supplier development model presented above. Two features that differentiate a service from a product are immateriality and the connection to the customer [3]. In addition, services are heterogeneous, transient, and produced and consumed at the same time. Immateriality can be seen as the central feature of services, because the other features are a result from it [44].

A service is an action, a function or a performance where something immaterial is offered to a customer, that is produced and consumed at the same time and that brings added value to the customer. The service occasion is immaterial, but the service production can be connected to something concretely material [45]. Grönroos [46] determines a service as follows:

Service is a process that consists of a set of activities which take place in interactions between a customer and people, goods and other physical resources, systems and/or infrastructures representing the service provider and possibly involving other customers, which aims at assisting the customer's everyday practices [46].

To understand service management, it is necessary to understand that service consumption is more consumption of the process than consumption of the output. The customer experiences the service process as a part of the consumption because the customer does not experience consuming only the output of the process as is often thought with physical products [3].

The participation of the customer in the service process can be studied by comparing the service process and the production process of industrial products. In the production process, the material flow goes from the supplier to the customer and the money and feedback flow goes from the customer to the supplier. In the service business, the customer does not only receive the product but the customer is a part of the service process by bringing input into it. The input by the customer brings added value to the service process and thus the customer gets value from the service process [47].

The customer is a part of the service process and thus a co-producer of resources and processes with the service provider [48]. Because customers are part of the service process they actively affect the quality and productivity of services [49–51] and, at the same time, the service provider participates in the value creation together with the customer [48].

The service process is a chain or chains of parallel and sequential activities that must function if the service is to be produced. The activities can be done in both the customers' and the partners' premises and that is why it is difficult for the service provider to get full control of each part of the service process [52].

The service process is typically shorter than the manufacturing process because the basic phases of the service process, the order request, the service process, and giving the input, can occur at the same time. In services, the service provider does not often pay for the input that the customer brings to the service process, because the customer will get that input back increased with the added value in the result of the service process. In the production process, the material brought to the process is paid for [47].

Value creation in the service process

In business, interaction means that two or more parties are in contact with each other. Through interaction, the parties have the possibility to actively get to known and participate in each other's activities and thus affect the processes of each other. During the interaction, the service provider can actively and directly affect the experiences of customers and also value creation [48].

According to the service logic, value creation is related to the customer's environment and value is created during the time when customers use the existing resources [48]. According to the service log-

ic, the customer is always the value creator [53] but the service provider supports the value creating process of the customer with resources and interactive processes like products, service actions, and information [48, 54].

The service provider is fundamentally the service enabler and produces the services available to the customer. The customer creates value by using the existing resources. Still, the service provider has the possibility to get in the value creation process of the customer in the moment of interaction with the customer and in that way create value together with the customer and give direct support to the value creation of the customer. According to the service logic, customers create value by themselves; the service provider cannot create value alone but can be one party of the value creation [48, 54].

The target of the service provider is to engage the customer by creating value to them and through that create value to the service provider company. The value creation process to the customer is a vague process, because it is created individually and the same product or service can create different values, such as physical and mental value, to the users [48]. The interaction and the value creation process can occur through development, planning, production or delivery. This makes it possible to engage the service provider in the value creation process of the customer [48]. Value co-creation creates value both to the customer and the service provider [55].

The productivity of the services

Productivity is defined as the ratio of a producer's output to input. This producer-oriented definition works well in a manufacturing contexts because the output in such contexts can be measured relatively unambiguously in terms of units produced in a manufacturing facility. The traditional producer-oriented view of productivity for the service domain is questionable because most services are "performances" that are typically produced and consumed simultaneously through interactions between producers and customers [11].

A productivity model based on traditional manufacturing may guide managers in the wrong direction in services [56]. In services, higher productivity for the service provider could lead to lower productivity for the customer, because the customer experiences and perceives poorer services and lower value [12]. In manufacturing, production outputs, products, are produced in a factory and without much additional customer contact [56].

The major thing in the productivity of services is to understand the relationship between operational and customer productivity [12]. Productivity from the customer's perspective – defined as the ratio of the service output experienced by a customer to the inputs provided by that customer as a participant in service production – suffers when managers in service companies blindly follow productivity improvement methods conventionally used in manufacturing contexts [11].

The relationship between operational productivity and customer productivity and satisfaction is not always positively or negatively related. In some circumstances, increases in operational productivity can reduce customer productivity and satisfaction, and in other circumstances it can increase customer productivity and satisfaction [12]. The two perspectives need not to be considered independently – improvement in one type of productivity will likely be accompanied by deterioration in the other [11].

The special features that FM services bring to the model

The estimation of services

In facility management [FM] services, the customer is always a part of the value creation and that makes service estimation difficult compared to products. Service quality is an essential part of service estimation [57]. Customers experience the service in different ways because several factors affect it: technical and functional quality, image of the corporation, and factors outside of the corporation, such as communication and marketing [46]. In service actions, the customer and the FM service provider are in interaction with each other and that has a big effect when the customer creates an opinion of the service quality [58].

FM services are intangible and they are created when the customer uses them and that is why the service provider cannot promise what kind of a service the customer will get [44]. People create the service and there are no two services alike [44] and that is why the customer cannot estimate the quality of the service in advance, which increases the risk of the customer [59]. Because of the intangibility, the service cannot be stored, saved, sold forward or returned. This creates challenges, for example, in managing demand, mass production and centralized production and makes it difficult to use the advantages of these in services [60].

FM services have to be created based on the real estate, because every real estate is different. This highlights the importance of long-lasting cooperation. Another feature typical for FM services is that

they are repeated and seasonal. Planning and winter tasks are examples of seasonal tasks and work based on devices is an example of repeated tasks [61].

Increase volumes

It is impossible to store services, and thus it is difficult to get the advantage of volume increase in the service business. Based on the interviews, in FM services volumes are often standard and small. That is why using several service providers in one service is often not sensible for the customer and also increasing volumes is not necessary. In FM services, the customer orders primary services and can increase the volume of the service provider by ordering secondary services that support the primary services. In addition, the customer can increase volumes by ordering bigger service packages and whole services. Ordering services only from one service provider makes it difficult to change the service provider.

Incentives and decrease of costs

Decreasing the costs related to service production may often have a positive effect only within the service provider. This often results in actions and incentives that support the wrong actions [62], such as actions that decrease costs but also decrease the satisfaction of the customer. That is why when developing the incentives, the starting point should be to maximize the value creation of the customer and to optimize the whole process instead of sub-processes.

Direct involvement and development

Constant development actions are motors to effectively increase value creation in FM services [20]. FM services can be separated from other services because they are produced on the property of the customer and thus the service provider has a lot of interaction with the end users [19, 63].

The service is produced and consumed at the same time and that makes tailored services based on hopes and needs of the customer possible [60]. From the viewpoint of the customer, FM services are mostly productions that occur on customer premises and that is why the contact area of the customer and the service provider is wide [61].

The value that is created in the interaction has the biggest effect on the development of the relationship and brings benefits to both parties more certainly. That is why the knowledge of the customer and the willingness to take part in the service process are critical in making productive and high quality services [51]. The value created in interaction makes it possible to decrease or delete extra costs, improve quality, and increase speed and flexibility. Learning capabilities in customerships have a very strong and positive effect on productivity [64].

The results

Three themes were found that have to be emphasized to enable service provider development to relationship development:

[1] Focus on maximizing the value addition and productivity of the service provider and the customer. All companies want to maximize profitability. In manufacturing companies, this is gained by maximizing inner productivity, whereas in service companies what must be maximized is the productivity of the customer in addition to the production of the service provider, because in some circumstances maximizing only the productivity of the service provider decreases the value to the customer, they obtain poorer services and the number of orders decreases. In that case the productivity and profitability of the service provider decrease. The same also happens in the opposite case: when only maximizing the productivity of the customer, the productivity and profitability of the service provider decreases in some circumstances and the service provider is not allowed to do profitable business. Based on the interviews, the key point is to find out the services that create value to the customer and in that way estimate the balance between the productivity of the service provider and the customer. Considering value addition, it creates profit to the service provider and value to the customer.

[2] The problematic related to service estimation. Based on the interviews, there are often unrealistic expectations related to FM services and thus it is crucial that the customer and service provider communicate about the customer expectations about the added value that the service process brings and the limitations related to the services. The customer can easily build up expectations about the services because they know what the condition of the service object is before the service process and how much added value the service process brings to it.

Interviewing the customers and service providers showed that customers do not often know the quality requirements of the contract of the service provider when they estimate the service provider and the services. In such a case, the expectations of the customer and the obtained services do not meet and the quality of the service is experienced to be weak even though the service provider has produced the services based on the quality requirements in the contract. When

the service provider is evaluated, it is essential to find out what the service that has been ordered from the service provider is and compare this to the services that have been obtained.

[3] Develop the relationship together and continually. The customer is a part of the service process and automatically participates in it and knows a lot about it. That is why the knowledge and development ideas of the customer should be exploited when developing the efficiency of the service provider. Based on the interviews, it is noticed that it is crucial that the development is made from the value addition viewpoint and that the effects of the development are estimated for the entire service process thus ensuring that the whole service process is developed. Because the service is created in the interaction of the customer and the service provider, the processes of the customer, service provider and others who participate in the service process must be developed as a whole, not separately. Through the interviews it is seen that the development of services is mostly made at the beginning or at the end of the relationship or contract period. Based on the interviews of the customer side, development made continually and together is essential to gain a long-term relationship.

When searching for the changes that FM services bring to the generic model, the model showed in Fig. 2 is found. The model emphasizes maximizing the value addition and productivity for both parties, the problematic related to service estimation, and developing the relationship together and continually. And that is why the stage 1 of the original generic model, "Supplier assessment", has been changed to "Comparing the expectations of the customer and the outcome of the supplier" and stage 4 "Direct involvement" to "Mutual development of operations". The circular shape of the model emphasizes that continual development of both parties is needed to gain the advantages of cooperation.

FM services include several kinds of services, such as maintenance of building technology, cleaning, reception services, and maintenance of outdoor areas. FM services differ from one another, for example, in how much the personnel of the service provider is in contact with the personnel of the customer and how much the customer's actions affect the service outcome. Below, there is an example of how the result of this article can be used practically in FM services.

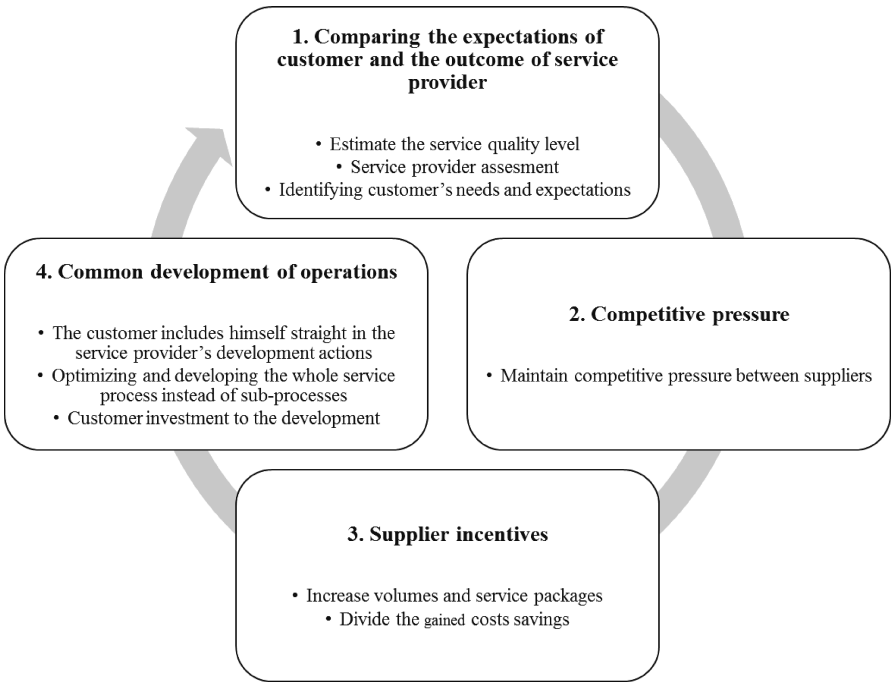

Fig. 2. Relationship development framework in service sector.

Maintenance services for building technology

The customer has ordered three maintenance companies to change the filters of ventilation units in twelve properties two times a year [Stage 2 Competitive pressure]. The first maintenance company performs the changes on time, properly and does the acknowledgement that is needed. The second maintenance company signs the tasks as done, but later on it is revealed that all filters have not been changed and an old filter has been left in the engine room. The third maintenance company does the changes on time, properly and does the acknowledgement that is needed. In addition, the service person reports the defects that he observes, such as the broken belt in the heat recovery, and offers to fix them [Stage 1 Comparing the customer expectations and the supplier assessments].

It follows that the first company gets the same number of properties in the next year, but the customer urges them to improve actions and observe defects. The problems with the second company are told to them and their properties decrease to one. In addition, they are told what the service outcome should be so that they would have the prerequisites to continue the cooperation. The third maintenance company gets three more properties and the volume increases to the maintenance inspections of the ventilation unit once a year and the service work related to the ventilation unit when necessary [Stage 3 Supplier incentives].

In the next year, the costs of the third company increase because of the large number of kilometers driven and the increase of material prices. The customer wants an explanation for it. The problem from the side of the maintenance company is that the materials are not directly obtained and the tasks have to be ready quickly. Development is done together and the solution is that the customer arranges a space in the property for material storage and invests in typical materials in the storage. The consequence of that is that the costs fall [Stage 4 Operations' mutual development].

When contemplating this example and the results, it is noticed that it is not enough to fulfill the order of the customer, but the service provider has to find out the expectations of the customer and fulfill them. This is typical in services: often the customer does not know what he needs and expects, and the service provider who finds it out can get competitive advantages. Like it is seen in the example, competitive pressure helps service providers to develop their actions and customers to compare the different service providers. Incentives motivate the service provider to do good work and develop their operations and the customer gets good services.

Discussion

The purpose of cooperation is to produce benefits to the customer and the service provider and that is why both parties have engaged in developing and maintaining the relationship in a long-lasting way. The development of the service provider improves the customer's performance and competitive activities and thus it is also in the interest of the customer. Understanding customer demand and providing services for customer satisfaction in highly competitive facility management [FM] services can establish long-term partnerships.

In this study, the generic model of supplier development towards relationship development is supplemented by bringing the features of the special characteristics of FM services into it. In this study three key elements are found that should be taken into account when the model is adapted to FM services:

- focus on maximizing the value addition and productivity of the service provider and the customer,
- the problematic related to service estimation, and
- developing the relationship together and continually.

As a result, four stages are found in how the customer can improve the performance of the service provider from the viewpoint of value addition and relationship development:

- comparing the expectations of the customer and the outcome of the service provider,
- creating competitive pressure,
- incentives of the service provider, and
- mutual development of operations.

The model highlights the significance of efficient information management and communications processes. Developing the relationship also requires monitoring and relevant ways of measuring progress. In addition, we conclude that the potential benefits of relationship development should be well understood in both the service provider's and the customer's organizations.

Managerial implications

The generic model that was completed with the special characteristics of services was developed in the context of manufacturing. Today, a growing number of product manufacturers are moving towards a service business mode [56]. This supports the usefulness of the result model that includes the features of services. It is often perceived that the service

provider is responsible for the development of service production even though several studies [21, 65] emphasize the significant role of the customer as the builder of trust and developer of partnership. Hence studies related to service process development lead by the customer are scarce, but they are increasing today when the role of services in businesses is growing. This study creates new knowledge of service development from the customer's side by developing a framework of service provider development towards relationship development. It also complements previous studies of the service sector.

The results helps to develop the customer-supplier relationship from transaction based towards partnership based relationship. Both customers and service providers can utilize the results and in addition, researchers can use the results in their study and also develop the framework forward.

The general opinion is that the service provider has the main responsibility of the development. This study and the results help customers to notice that they are one part of the service supply chain and they can affect how the relationship and services develop. In addition, the results help the customer to find out ways to improve them actions in developing relationship and services.

From the service provider view this study and the results encourage them to take customer as a part of the developing processes. Moreover, the results gives knowledge and tools to increase the customer participation in developing the partnership and services.

Generalization

In case study research the challenges are data collection methods, results generalizations and reliability of the results [24]. The data of this study was gathered from FM services. FM services have the main special characteristics of services and the result can be implemented in other services as well. The interviewed customers operate in Finland's market. The customers were from the largest Finnish service provider companies, including a globally operating company, and the service providers produce different FM services and service packages, which is seen to increase the reliability and generalizability of the findings [24]. Both customers and service providers were interviewed to get both aspects on the topic. There were two interviewers in each interview, which increases the construct validity of the research [24]. In addition, the research process is well documented, which is seen to make the analysis and research reliable [24]. The number of interviewees was decided beforehand, and there was no need to increase the number during the research because the answers of the interviewees began to repeat themselves.

Future research

There are many possibilities to continue and develop this study forward. One point of view would be to extend empirical research to the different service segments for example B2C services or to different services more deeply like technical services, information services, public services etc.

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