

Sanna Koskela

**INFO SCREENS AS INSTRUMENTS FOR
VALUE CO-CREATING**

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CASE: VEHICLE INSPECTION INDUSTRY



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ABSTRACT

Koskela, Sanna

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The objective of this study is to explore how value is co-created to produce positive service experiences at vehicle inspection stations in the context of info screens. Info screens represent the newest technology adopted for marketing and service functions at a specific service providers inspection stations. This research is an interpretive case study, including data collection with interviews using a laddering technique, and data analysis with thematic approach in order to transform the data into meaningful graphical presentations. The case organisation in this study is a private provider of vehicle inspections, vehicle registrations, and driver's examinations, among others, in Finland as well as in Northern Europe. As a framework for this thesis the framework for value co-creation in Consumer Information Systems (CIS) was selected to investigate how value is co-created in the case organisation, and how their customers (=26) perceive value co-creation. Furthermore, the study explores what are the system value propositions enabling value co-creation, and the value drivers driving actors, or customers, to co-create value in the context of info screens at vehicle inspection stations.

Based on findings from this study, value co-creation is present at vehicle inspection stations, although it has not been recognised and utilised as effectively as it could be. The findings also indicate that the most important value driver element is *service process experience*, defined as *Customer-oriented services*. Also, value propositions *Social nature of use*, as *Sharing and receiving information* related to vehicle industry and *Context of use* as *Use and operating environment of info screens* are important from the perspective of value co-creation. The main values revealed are easiness for customers as well as to the personnel, safety, reducing negative feelings such as uncertainty, and gaining information about owning and maintaining vehicles as well as gaining information about inspections. More comprehensive and broader understanding of value co-creation in the environment of vehicle inspection via info screens is needed, as the industry is in need for new innovations in order to stay on top of the development of automotive industry.

Keywords: Vehicle inspection industry, value co-creation, service, Service-Dominant logic (S-D logic), customer experience, consumer information systems (CIS), information and communications technology (ICT)

TIIVISTELMÄ

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Tämän tutkielman tavoitteena on tutkia miten arvo on yhteisluotu autokatsastusasemilla infotaulujen, uusin käyttöönotettu teknologia markkinoinnissa ja palveluntuottamisessa tapauksen yrityksellä, kautta positiivisen palvelukokemuksen tuottamiseksi. Tutkimus on tulkitseva tapaustutkimus, jonka tiedonkeruu on suoritettu haastattelujen kautta ja analyysissä on käytetty temaattista näkökulmaa, jotta data on pystytty muuttamaan mielekkääksi graafiseksi esitykseksi. Tutkielman tapausyritys on yksityinen katsastusalan toimija, joka tarjoaa katsastuksien lisäksi ajoneuvorekisteröintejä ja kuljettajantutkintoja, muun muassa. Yritys toimii Suomen lisäksi Pohjois-Euroopassa. Tutkielman viitekehyykseksi on valittu *arvon yhteisluonnin viitekehys kuluttajatietojärjestelmissä*, jonka avulla tutkitaan miten arvo on yhteisluotu tapauksen yrityksessä ja miten heidän asiakkaat kokevat arvon yhteisluonnin. Lisäksi tutkitaan mitkä ovat arvon yhteisluonnin mahdollistavat arvoehdotukset ja mitkä ovat tekijöiden, tai asiakkaiden ajurit, jotka rohkaisevat arvon yhteisluontiin infotaulujen yhteydessä katsastusasemilla.

Tutkimustulokset osoittavat, että arvon yhteisluonti on jo olemassa katsastusasemilla, mutta sitä ei ole tunnistettu eikä otettu käyttöön. Lisäksi tuloksien mukaan tärkein asiakkaan arvon ajuri on *palveluprosessikokemus*, tarkoittaen *asiakaslähtöisiä palveluita*. Tärkeiksi arvoehdotuksiksi nousivat *käytön sosiaalinen luonne*, joka on määritelty katsastusalaan liittyvän *tiedon jakamiseksi ja vastaanottamiseksi*, sekä *käytön konteksti*, joka puolestaan tarkoittaa *infotaulujen käyttö- ja toimintaympäristöä*. Tuloksien mukaan haastateltavien tärkeimmät arvot ovat helppous, niin asiakkaan kuin henkilökunnan näkökulmasta, turvallisuus, negatiivisten tunteiden, kuten epävarmuus, vähentäminen sekä informaation saaminen ajoneuvon omistamisesta ja huoltamisesta, sekä katsastuksista. Kokonaisvaltainen arvon yhteisluonnin ymmärtäminen katsastusosalalla on tärkeää, koska mahdollistaa uusien innovaatioiden kehittämisen, joka puolestaan auttaa pysymään autoalan jatkuvan kehityksen tahdissa.

Asiasanat: Autokatsastusala, arvon yhteisluonti, palvelu, palvelukeskeinen loogiikka (S-D logic), palvelukokemus, kuluttajatietojärjestelmä (CIS), tieto- ja viestintäteknologia (ICT)

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1 INTRODUCTION

The field of vehicle inspections is interesting for its nature, and also how it has evolved because of its lifecycle from administrator to service provider. The field has experienced many changes over the last decade, but its history dates back to the 1900s, when inspections were carried out by national government administrators. Since then, vehicle inspections have been opened for competition and changed its image from administrator to service provider, while still having to function by laws and regulations. (A-Katsastus, 2015.) In recent years, regulations and laws have been altered to give the industry more freedom to answer to changing markets. The customer's role has changed from the early days and today customer is able to influence on the performance of the industry for example by selectin which firm to use. Competition is fierce and it is boosted by the newest revision of vehicle inspection legislation that entered into force on 1st July 2014, enabling vehicle repair workshops to provide inspection activities. (A-Katsastus, 2015; Finnish Transport Safety Agency [Trafli], 2015a.)

In addition, the new legislation allowed inspection stations expand their offerings to other automotive services, thus enabling them answering to increasing competition. With this, the case organisation has launched new product line of vehicle accessories and utilised new technology, info screens, at the stations in order to market the new product line. The purpose of this study is to exam how value is co-created at inspection stations from the point of view of one factor in the value chain, in order to create positive service experiences. The study focuses on the case organisation's inspection stations new marketing channel, the info screens. Furthermore, how value is co-created via info screens, how and with what content the info screens could be utilised more effectively in order to engage the customers more profound. The study is based on the framework for value co-creation in Consumer Information Systems (CIS). Main motivation for this study is the ultimate goal and question, can a vehicle inspection station be altered into a motorists service centre. The framework for value co-creation in (CIS) provides understanding of how value is co-created in CIS taking into account both consumers' requirements and system value propositions. For this study the framework provides basic understanding of developing

CIS and how value is co-created through system value propositions and customer value drivers. (Tuunanen, Myers & Cassab, 2010.)

Although vehicle inspection is a service, the field has been struggling to fully adopt the Service-Dominant (S-D) logic by Vargo and Lusch (2004). The inspection of a vehicle is still difficult and scary happening for many customers and the inspector is still seen, in some level, as government official. However, over times the industry has been forced to develop its functions towards more customer-centric, mainly because of increasing competition. Customers' needs, wishes, and behaviour have changed, changing the industry as well. (Saarni, Pohjola & Koponen, 2012.) Furthermore, the nature of service exchange has also gone through developments due to emergence of information technology (IT) enabling new business opportunities. The digitalisation has made service object of exchange, rather than a product, and value is in the use of the service (value-in-use), not in exchanging it (value-in-exchange). S-D logic emphasises that value is always determined by the beneficiary, in interaction with a network of resource integration, resulting in service experience. (Vargo, Lusch & Akaka, 2010.)

The focus in vehicle inspection industry has been centred in the vehicle inspections, rather than on customer service, which the business actually consists of. The industry has been studied mainly from technical perspective, leaving customer service and marketing aspects undiscovered, resulting in lack of understanding customers' needs. As competition in the field of vehicle inspection has been growing rapidly during last decade, understanding the customer and how the value is created adds to the competitive advantage and enables to develop the services sustainably.

1.1 Research questions

This research focuses on the employers BtoC (the consumer markets) business in Finland. View point here is focused on customer, his/hers needs, and on value co-creation in the context of info screens. The objective of this study is to explore value co-creation at the industry of vehicle inspections in order to create positive service experiences. The main research question is:

1. *How is value co-created in the context of info screens at the vehicle inspection stations in order to create positive service experiences?*

In order to understand how value is co-created at inspection stations in the context of info screens, the way customers perceive value, their desired value drivers, and value propositions are important to recognize. The sub questions are:

1. *What are the needs and wishes of the customers that can be fulfilled at the inspection station with the assist of info screens?*

2. *In what other ways can info screens be used to create a positive customer experience?*

This study investigates co-creation of value and customer experiences at vehicle inspection industry in the context of info screens. In order to achieve desired understanding, a conceptual study and an empirical study were conducted. The conceptual study consists of existing literature in the field of service marketing and customer experience. The literature supports the selected theoretical framework for value co-creation of the CIS, which is designed to support the development of digitalized services. The framework provides settings for exploring value co-creation from the perspective of different actors and it enables answering the sub questions by utilizing the aspects of value propositions and value drivers.

The thesis is conducted by using interpretive approach. The study is a case study, which enables to investigate a contemporary phenomenon in its environment. The case organisation is the leading private provider of vehicle inspections, registrations, driver's examinations, vehicle damage inspections and testing, crash repair and maintenance services in Northern Europe. The data collection was conducted with interviews utilizing the laddering technique by Reynolds and Gutman (1988). The laddering technique is traditionally used to model consumer value structures in relation to preferences for products and their features. Laddering technique has been later adjusted by Peffers, Gengler and Tuunanen (2003) to answer on the information systems research needs to understand reasoning behind preferring some IS features over other. (Peffers, Gengler & Tuunanen, 2003.)

The case participants were from the case organisation's customers from four different vehicle inspection stations, in four cities. The analysis was done by utilising a two-step thematic approach in order to create meaningful graphical presentations from the data. Furthermore, the Critical Success Chain model was used to create chains that reveal the attributes, consequences and values from the data. The analysis provided an appropriate model for answering the research questions with understanding of value co-creation when using the CIS framework.

1.2 Thesis outline

The first chapter is an introduction to the thesis topic by presenting the motivation for the study, the objectives and research questions. Introduction outlines the design of the thesis. The conceptual study is presented in chapters two and three as literature review introducing the main theoretical frames for the thesis. First, perspectives to the concept of service compared to the traditional product-centred perspective are presented. Second, value co-creation is introduced, and the framework and the theories behind the framework are presented. Service experience is introduced more deeply in chapter three.

The fourth chapter introduces the methodology used on the research including the research approach and strategy with presentation of the case organisation and participants. Furthermore, the chapter explains data collection methods and introduces the stimuli list used in interviews, based on the CIS framework. Also, the data analysis is explained. The findings are presented in the fifth chapter. The theme maps, which represent the outcomes of the thematic analysis, are introduced individually in the fifth chapter to provide quick understanding on value co-creation in this environment and context. The findings are discussed more thoroughly in sixth chapter to answer on the research questions. Also, implications for research and practice are presented. The seventh and final chapter summarises the thesis and presents contributions to research and practice, limitations of the research, and lastly future research ideas.

2 SERVICE AS A FOCUSPOINT IN BUSINESS STRATEGY

Rapid development of technology and information systems has given customers access to large amount of information which in turn has affected the service industry, among others. The customers are more empowered than ever and firms are in need of new ways to gain competitive advantage, as mere service differentiation is not enough anymore. Creating value and experiences together with the customer has been recognised as a possibility to in developing services and products. This chapter aim is to provide understanding of the concept of service, and perspectives surrounding the concept. Furthermore, value co-creation is introduced, and the framework of this study is being presented.

2.1 The definition of service

The service research has been struggling with defining the service concept and its terminology. Before acknowledging the service marketing, goods-dominant logic ruled marketing disciplines strongly and marketing science was not able to provide applicable guidance, terminology or practical rules for service concept. Goods-dominant logic, view of economic exchange, concentrates on manufacturing and distribution activities and considers value to be created by the firm and consumed by customers. (Vargo, Lusch & Akaka, 2010; Vargo & Lusch, 2004.) In goods-dominant logic service was seen as undesirable for the reason that it was difficult to standardize, produce away from customers and to store. As such, it was considered as value-adding activity, a necessary function, such as distribution or sales, which enabled product industries success instead of a function that enables value for a customer. (Vargo, Lusch & Akaka, 2010.) Qualities mentioned above, that made services undesirable, were characters that were later used to defend the concept of service and to develop the discipline, better known as IHIP characters (intangible, heterogeneity, inseparability and perishability). (Edvardsson, Gustafsson & Roos, 2005).

Since the emergence of interest in consumer behaviour in the 1960s, service marketing has been developed into a higher level discipline by rethinking and reshaping the classic marketing concepts and practices. (Fisk, Brown & Bitner, 1993.) From the 1970s, academics from three schools of service marketing, the French, the American and the Nordic, contributed on service related research and the amount of research and scientific publications grew rapidly. (Grönroos & Ravald, 2011.) The shift in focus to services meant a shift from the means and the producer perspective to the utilisation and the customer perspective. (Vargo & Lusch 2004.)

The definition of service is being developed from recognising and understanding the intangible “product” as a service. In literature the concept of service has been determined in many ways, although there exists one common characteristic that can be recognized: the customer’s role is central. The definition consists of the premise that services are deeds, processes, and performances, and that service is a value supporting process whereas products are value supporting resources. (Grönroos, 2001 in Edvardsson et al., 2005; Grönroos 2008.) According to Vargo et al. (2004; 2010) services are the application of specialised competences (knowledge and skills) for the benefit of another and that service is the fundamental basis of exchange. Grönroos (2001) defines service as an activity or series of activities of a more or less intangible nature. Services normally take place in interaction between the customer and service employees and/or physical resources, or goods and/or systems of the service provider, which are provided as solutions to customer problems. By continuing Grönroos argues that interactions are considered as the differentiating issue from physical products. (Grönroos, 2001.) Gummesson’s (1995) approach adds to Grönroos’s view that the customer buys offerings to his or her problems instead of goods or services. (Gummesson, 1995 in Edvardsson et al., 2005.) In addition Gustafsson and Johnson (2003) also point out how services as customer problem solvers or supporters of solving problems should work out: “the service organization should create seamless system of linked activities that solves customer problems or provides unique experiences”. (Gustafsson & Johnson, 2003 in Edvardsson et al., 2005.)

2.2 Towards service minded logic

The focus in marketing and as such, in firms, is shifting away from tangibles and towards intangibles, away from producer towards the customer. Marketing inherited a model of exchange from economics, which had a dominant logic based on the exchange of “goods”. This usually meant a manufactured output focusing on intangible resources, co-creation of value and relationships. This means the processes that take place when value is created in a mutually reciprocal manner, through systems of exchange. In service-centred view marketing is a continuous series of social and economic processes that is largely focused on operant resources, such as knowledge, with which the firm is constantly

striving to make better value propositions than its competitors. Service-centred view sees marketing as a continuous learning process aimed to improve operand resources. In table 1 the goods-centred view and service-centred view are put alongside to present their basic attributes. Determination of service-centred view is largely consistent with Resource Advantage Theory (Conner & Prahalad, 1996; Hunt 2000; Srivastava, Fahey & Christensen, 2001) and Core Competence Theory (Day 1994; Prahalad & Hamel, 1990).

TABLE 1 Goods versus services (summarised from Vargo & Lusch, 2004).

Goods-centred view (summarised in 5 points)	Service-centred view (summarised in 4 points)
The purpose of economic activity is to make and distribute things that can be sold	Identify and develop core competences, the fundamental knowledge and skills of an economic entity that represent potential competitive advantage
To be sold, these things must be embedded with utility and value during the production and distribution processes and must offer to the consumer superior value in relation to competitors' offerings	Identify other entities (potential customers) that could benefit from these competences
The firm should set all decision variables at a level that enables it to maximise the profit from the sale of output	Cultivate relationships that involve the customers in developing customised, competitively compelling value propositions to meet specific needs
For both maximum production control and efficiency, the good should be standardized and produced away from the market	Gauge marketplace feedback by analysing financial performance from exchange to learn how to improve the firm's offering to customers and improve firm performance
The good can then be inventoried until it is demanded and then delivered to the consumer at a profit	

After Vargo and Lusch's 2004 article "Evolving to service-dominant logic for marketing" service marketing research became an interest of a larger group of marketing scholars and was noted as important step in setting service marketing as logic for marketing. Vargo and Lusch believe that the perspectives are converging to form a more comprehensive logic for marketing: a service-dominant logic (S-D logic). In S-D logic the service, goods or both, are seen as the basis of all exchange and the process nature of services considers service as the process of doing things for and with other entities. It is the application of specialised competences, using operand resources for knowledge and skills. (Vargo & Lusch, 2004; 2006.)

S-D logic represents a shift from an emphasis on the exchange of operand resources (tangible, inert resources) to an emphasis on operand resources, (dynamic resources) that act upon other resources. The focus of economic exchange in S-D logic is applied, specialised skills and knowledge, which are also the

fundamental foundation upon which society is built. Central to S-D logic is using and combining firm's resources to produce value and gain advantage through operant and operand resources. Operant resources are defined in literature as knowledge and skills, which produce effects, whereas operand resources are tangible, physical resources, as raw materials and equipment. Resources function in collaboration towards mutual objectives so that operant resources act on operand resources. Operant resources are vital for S-D logic to obtaining competitive advantage, whereas operand resources are primary to goods-centred dominant logic. (Constantin & Lusch, 1994 in Vargo & Lusch, 2004).

The terms related to S-D logic are important in understanding the concept. As mentioned above, the term *service* can be summarised as the use of resources for the benefit of another party. More specifically 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. Service as dominant logic is a process that supports customer value creation in their everyday activities through interaction. Implementing S-D logic in firms' actions does not merely mean investing in service aspect, but adopting a new business logic model as well. (Grönroos, 2008.)

Edvardsson et al. (2011) define operand resources as physical products or raw material products, and operant resources such that are typically human: skills and knowledge of customers and employees, organizational as routines, cultures and competencies, informational as knowledge about markets, competitors and technology, and relational as relationships with competitors, suppliers and customers. Operand resources tend to be static in nature, while operant resources in turn are dynamic and can be refreshed and reinforced. Value (for customer) is defined by Grönroos (2008) as a feeling good sensation after being assisted in their process. Michel, Vargo and Lusch (2008) use Normann's (2001) definition of value which is consistent with S-D logic's ideas of consumption, value-creation networks and the interplay between value-in-use and value-in-exchange (market value, price). (Michel, Vargo & Lusch, 2008.)

All of these definitions are relevant for S-D logic and the meaning of these terms may be dependable of the context in which they are used. In the academic literature it has been suggested that S-D logic provides the appropriate theoretical framework and language for discussing and studying service science and service systems. In fact, Maglio and Sphorer (2008) claim that S-D logic may well be the philosophical foundation of service science and the service system may be its basic theoretical construct. They define *service systems* as value co-creation configurations of people, technology, value propositions connecting internal and external service systems, and shared information. In addition, they define *service science* as the study of service systems, aiming to create a basis for systematic service innovation. (Maglio & Sphorer, 2008.)

Vargo and Lusch (2006) have presented eight foundational premises (FP) that summarise the S-D logic and provide basis for S-D logic framework. They

have since revised the FP's and added two FP's (Vargo & Lusch, 2008). The modified FP's are presented in table 2 and discussed more detailed below.

TABLE 2 Foundational premises of service-dominant logic (Vargo & Lusch, 2008).

Foundational premise		Foundational premise	
FP1	<i>Service</i> is the fundamental <i>basis</i> of exchange	FP6	The customer is always a <i>co-creator</i> of value
FP2	Indirect exchange masks the fundamental <i>basis</i> for exchange	FP7	The enterprise cannot deliver value, but only offer value propositions
FP3	Goods are a distribution mechanism for service provision	FP8	A service-centred view is <i>inherently</i> customer oriented and relational
FP4	<i>Operant resources</i> are the fundamental source of competitive advantage	FP9	All social and economic actors are resource integrators
FP5	All economies are <i>services</i> economies	FP10	Value is always uniquely and phenomenologically determined by the beneficiary

According to FP1 and FP5 the foundation of S-D logic is that the service, application of special skills and knowledge, is the basis of all exchange suggesting, that service is exchanged for service and all economies are service economies (FP5). By presenting S-D logic Vargo and Lusch aim to answer on the need for more comprehensive and wider view of the utility creation process, including reorganizing concepts and language (Alderson, 1957; Shostack, 1977; Levitt, 1960 in Vargo & Lusch 2004, 2006). S-D logic argues that the shift is not so much from products to services but rather from tangible and static operand resources to intangible and dynamic operand resources consequently making the operand resources fundamental sources of value and drivers of value creation (FP4). Furthermore, resources of value creation are not limited to the firm, also customers and other stakeholders constitute operand resources and contribute to value creation. (Vargo & Lusch, 2004; Vargo, Lusch & Akaka, 2010.)

Firms service exchange processes have changed over time into broad, bureaucratic and hierarchical organizations, leading employees reducing interactions with customers and making service exchange masked. Still, the basis of service exchange process remains the same regardless the organization type. The S-D logic recognizes the intermediaries related to direct service-for-service exchange process that affects the fundamental basis of exchange process (FP2), even though service is seen as central driver of economy in S-D logic. In FP3 goods are a distribution mechanism for service provision, which is in line with Gutman (1982, in Vargo & Lusch, 2004); goods derive their value through use, which is the service they provide. (Vargo & Lusch, 2004.) FP6 and FP7 emphasize the customer's role in the process of value creation. According to these FP's value is always created in co-operation with customer and other stakeholders. The value creation process is seen as continuous process where customer's role

is shifting from being the operand resource to being co-creator (operant resource) of value. According to FP7 the firm cannot create value by itself and competitive advantage is created by offering better and more appealing value propositions for customers. Value is created when customer (or other beneficiary) integrates and applies resources of a particular service provider with other resources. Thus, value is always derived and determined by the beneficiary (FP10) and a service-centred view is inherently customer oriented and relational (FP8). Resource-integration process (FP9) occurs within and among service systems as resources are exchanged to create value for all participants. (Vargo & Lusch, 2004; Vargo, Lusch & Akaka, 2010.)

2.3 Changing the role of customer: value co-creation

Central to S-D logic is the proposition concerning how value is created in service logic. Value co-creation as a concept has grown from the need to satisfy customers who are more and more knowledgeable and increasingly aware of their negotiating clout by having better access to more specified information. At the same time the firms are finding challenges in developing products that differ from competition. In the traditional concept of value creation the consumer's role is to consume the value provided by the firm (Prahalad & Ramaswamy, 2004). The concept has gone through significant change from customer participating in production aiming to reduce production cost and lower prices, to the paradigm where the firm is only a provider of value propositions and the customer defines and consumes value as he or she uses the product or service. The focus is shifting towards personalised consumer experiences with value co-creation. (Bendapudi & Leone, 2003; Prahalad & Ramaswamy, 2004; Vargo & Lusch, 2004; Grönroos, 2008.)

In S-D logic the concept of value co-creation is made into a foundational premise drawn from the literature concerning value creation, which stated that the marketing is heading towards a paradigm of "real-time" marketing to meet customers unique, changing needs, and that the market has become a venue for proactive customer involvement (Oliver, Rust & Varki, 1998; Prahalad & Ramaswamy, 2000). The aim was to create fundamental basis for new way of thinking by stressing the interactive and continuous process of value creation, regardless whether it is the tangible good or service the customer is buying. By using a product, whether it is manufactured good or appliance that provides services, the customer is continuing the marketing, consumption and value creation, and delivery process. (Vargo & Lusch, 2004.)

Originally Vargo and Lusch (2004) used the term co-production in their foundational premises, which describe the concept itself in order to define the participation of customer in value creation by pointing out the customer as operant resource (co-producer) acting on operand resource. However, the term was questioned in the following literature and Vargo and Lusch (2008) change the term to refer to co-creation. The emphasis in value co-creation in S-D logic

was intended to be on the collaboration, although they still argue that co-production is a component of co-creation of value, especially when goods are used in the value co-creation process. (Vargo & Lusch, 2008.) The earlier literature presented in Bendapudi's and Leone's (2003) article views the concept of customer participation as Prahalad and Ramaswamy has defined in their article (2004b) what co-creation is not: transfer of activities from the firm to the customer as in self-service, customer as product manager or co-designing products and services, staging experiences. In addition, Edvardsson, Tronvoll and Gruber (2011) argue that value co-creation is affected by social forces, is reproduced in social structures and can be asymmetric for the actors involved. Their study contends that value should be understood as value-in-social-context and that value is a social construction. (Pralhad & Ramaswamy, 2004b; Bendapudi & Leone, 2007; Edvardsson, Tronvoll & Gruber, 2011.)

According to Prahalad and Ramaswamy (2004a) the co-creation of unique value begins by recognising that the role of the consumer has changed from isolated to connected, from unaware to informed and from passive to active. Payne, Storbacka and Frow (2007) define the process as involving the supplier in creating superior value propositions, with customers determining value when a good or service is consumed. Firms can no longer act autonomously, designing products, developing production processes, crafting marketing messages, and controlling sales channels without being connected and interact with the consumer without consequences, such as losing customers. The impact of the new kind of consumer can be seen in many ways, such as increasing information access, which can be challenging for industries that are not accustomed enabling the flow of information to consumers. In addition, geographical limits to information access are eroding fast, changing the rules of business competition. Networking consumers are also revolutionising emerging markets and transforming established ones. Experimentation and product development, especially digitally, is one example of value co-creation where the consumers have shown their power. Lastly, activism as providing feedback to firms and to each other is one major impact of powerful consumers. (Pralhad & Ramaswamy, 2004a; Payne, Storbacka & Frow, 2007.)

The responsibilities of firms and consumers will likely be a hot topic for long time, even though it can be safely assumed that consumers will increasingly participate in co-creation of value and demand to be fully informed of the risks of products and services. (Grönroos & Voima, 2013.) As business systems become more accessible, creating new levels of transparency becomes increasingly desirable to the firms. Need for transparency in prices, costs, and profit margins is seen as important part of value co-creation, although there are many ways for firms to act on this need. When all building blocks of value co-creation are taken into action, they provide opportunities to firms to co-create value with customers and influence also in their future purchasing and consumption behaviour. (Pralhad & Ramaswamy, 2004a.)

Grönroos and Voima (2013) note that co-creation is a process that includes actions by both the service provider and customer making value creation an all-

encompassing process without any distinctions between the service provider's and the customer's roles and actions in that process. According to Prahalad and Ramaswamy (2004b), both must recognise that interaction between the two must be built on critical building blocks. The process starts from access and transparency and it must become voluntary. Transparency and access are of little value if the firms do not create the infrastructure for dialogue, which requires both parties to invest time and effort to understand the economics of experience and develop systems to come to agreements rapidly. In addition, the consumers are getting more educated and to that, they are more likely to make an intelligent selection in making trade-offs, even though the firms are still not obligated to enable all selections for consumers. Finally, the consumers have realised that the co-creation is a two-way street and they must take some responsibility for the risks they consciously accept. (Prahalad & Ramaswamy, 2004b; Grönroos & Voima, 2013.)

2.4 A Framework for consumer information systems (CIS)

While business perspectives and marketing have moved towards service minded strategies effecting on the role of the customer, and the development of information technology (IT) has increased the amount of information, new opportunities to exchange information have emerged. New business models cannot be explained with goods dominant logic as the object of exchange is a service and value perceived is not the value-in-exchange but value-in-use. S-D logic views that the value is created through network of resource integration and includes various different actors. (Vargo, Lusch & Akaka, 2010.)

However, the S-D logic does not offer specific frameworks or models for value co-creation in information systems research, even though value co-creation is crucial factor in IS development and particularly in requirement elicitation. Tuunanen, Myers and Cassab (2010) introduce the framework for value co-creation of consumer information systems (CIS),

“Systems that enable consumer value co-creation through the development and implementation of information technology-enabled processes that integrate system value propositions with customer value drivers”.

CIS raises from the need to start designing and developing systems for consumers, as contrasted with users. Tuunanen et al. (2010) point out that information systems are increasingly being targeted to consumers instead of organisations. They suggest that since consumers use rational and emotional-based assessments of utility and object of consumption will have utilitarian and/or hedonic value, need for new approach to the development of digitalised services for consumers is in order.

When considered the CIS users, the notion of value is relevant since it highlights a disruption with the traditional view of information systems devel-

opment. Tuunanen et al. (2010) propose a framework for CIS development, presented in figure 1 that illustrates how consumer value is co-created through system value propositions and consumer value drivers.

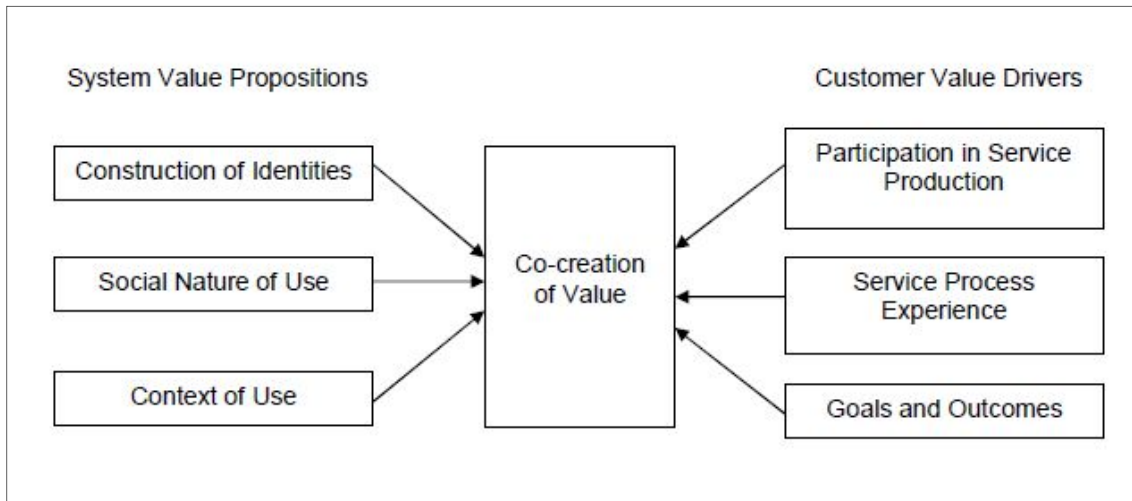


FIGURE 1 Framework for Value Co-Creation in Consumer Information Systems (Tuunanen et al., 2010).

The framework is divided in two sections. The left side depicts CIS value propositions and the right side depicts customer value drivers. The three factors related to CIS value propositions originate from the social actor theory, contextual use of IS, culture's affect user behaviour and user's needs, and they are constructions of identities, social nature of use and context of use. Three factors related to customer value drivers are oriented towards the development process of CIS. They are participation in service production, service process experience and goals and outcomes. The challenge is to properly execute and manage the customer involvement on service production. Furthermore, value co-creation is seen as a central factor for successful service development. Hence, the CIS's are poised to benefit from the integration of consumer input into their development. (Tuunanen et al., 2010.)

2.4.1 System value propositions

The problem of recognising the needs of users of services and products are constantly affecting the IS developers decision making, where as the consumers find it difficult to express why some features of services or ICT systems (information and communications technology) are more important than others. The traditional approach in IS development has been to determine the needs of the organisational end-user and then to analyse user data in order to specify requirements of feasible quality, which in turn has led to the development of various requirements elicitation techniques to help understanding users (Tuunanen et al., 2010.)

The first of the system value propositions is *Construction of identities* emphasising the importance to understand the motivation of ICT users in context of value co-creation. Research and practise of IS design and development is much based on a concept of user, however the research based on an individual user is limited. The use of ICT applications consists of utilising multiple applications in various roles and meanwhile interacting with other people in multiple social contexts as a part of producing services or products. Lamb and Kling (2003) challenge the concept of user by suggesting that the users should be re-conceptualised as social actors that better encompass the networked nature of modern work life. They define social actor concept as “an organisational entity whose interactions are simultaneously enabled and constrained by the socio-technical affiliations and environments of the firm, its members, and its industry” (Lamb & Kling, 2003).

In their research Lamb and Kling argue that actors can have identity and that they use ICT systems to form and construct their identities. Furthermore, Tuunanen et al. (2010) referring to previous research related to social actors point out that the construction of identities is an important part of the customer experience as consumers are likely to relate to the services they use and they may create and/or alter their identities in real and virtual lives. (Tuunanenet al., 2010.) For example, Apple has been successful in creating its products so desirable that the features of the product or service becomes secondary and the value proposition includes the “coolness” factor, thus including the identity on the product or service. As consumers are more and more building their identities in relation to the services they use, the construction of identities is also building its role on customer experience. A successful brand shapes customers experience by embedding the fundamental value proposition in offerings’ every feature. (Meyer & Schwager, 2007.)

Traditionally the user has been seen as cognitively processing isolated individual with the ability to evaluate and select the desired ICT’s, where as social actors evaluate the criteria of selected ICT within complex social contexts. The actors are constantly searching for ways to network and interact with others, which changes the focus from technology specifics to social relationships and environments. Value proposition *Social nature of use* emphasises the importance of this change as the need for networking can be seen from rapid growth of social networking systems. Lamb and Kling (2003) emphasise examination of the network of relationships that call for the exchange of information and the use of ICT’s, as ICT becomes part of the actors’ interaction processes. (Lamb & Kling, 2003.)

In literature *Context of system use*, the third value proposition in CIS framework, has been emphasised as an important influencer on user experience, user requirements, and system use. Tuunanen et al. (2010) argue that the context of use, cultural and situational, has a greater impact on the use of CIS than use of information systems in business environments. In IS development the concept of context is important to understand particularly for application designers designing applications where user’s context is changing rapidly. For

example, in both handheld and ubiquitous computing, where user's computing is very dynamic. Context is defined as any information that can be used to characterise the situation of any entity, it being person, place, or object considered relevant to the interaction between a user and an application. (Dey & Abowd, 2000.) As the nature of use is transforming into more dynamic, cultural aspects of the context of use should be paid more attention. This in turn requires IS research to adopt new models that recognise this change. The speed and willingness of consumers to adopt new IS innovations globally concerns marketers and IS developers in terms of understanding the substance of the perceptions that drive consumers. (Tuunanen et al., 2006; Tuunanen et al., 2010.) Myers and Tan (2002) suggest adopting in IS research models that recognise "the emergent and dynamic nature of culture" in order to overcome the perspective of cultural difference.

2.4.2 Value drivers

Values perceived by customer users of ICT differ from organisational users' values when considering the development and use over traditional systems development. The value drivers of CIS are *Service process experience*, *Participation in service production* and *Customer goals and outcomes*. The first value driver Service process experience indicates the issues related to customers' acceptance of CIS. In the literature a central premise to overcome this issue is by incorporating voice of the customer in the development of IS. Other research emphasises the importance of experiencing hedonic value and emotions as part of the consumption experience. Furthermore, performance and personality derived from value creation particularly in games has been suggested. (Holbrook, Chestnut, Oliva & Greenleaf, 1984.) And the experience of flow in service or system use is seen important in customer acceptance and use of IS (Tuunanen et al., 2010). The concept of flow has been originally determined by Csikszentmihalyi (1991) as the state in which the users are so involved in an activity that all else happening around them is irrelevant. The state of flow can occur in the pursuit of physical activities as well as during service or system use. According to Agarwal and Karahanna (2000) the flow experience has a key role in shaping individual attitudes and behaviours towards the target IT. (Agarwal & Karahanna, 2000; Tuunanen et al., 2010.)

The second value driver *Participation in service production* demonstrates the importance of the user involvement recognised by the IS literature. Particularly the need has been perceived in the requirement elicitation and analyse step in the IS development process. The CIS element participation in service production is in line with S-D Logic with perception that the firms can only make value propositions and value itself is co-created in interaction with the customer giving the customer the upper hand in determining the value in use. (Vargo & Lusch, 2004). Due to this, the customers now expect more personalised service experiences, which require more innovations from firms.

Participation of users in development of IS has been debated long time and among others a lead-user engagement has been proposed in consumer focus. According to Von Hippel (1986) the lead users are defined as users whose present needs serve as the conditions coming months or years in the future, enabling the development of new product concept and design data as well. In literature potential lead user engagement has been suggested to be utilised via toolkits that could be implemented with virtual communities where lead-users could explore and innovate the product in real time (Von Hippel, 1986). Tuunanen and Rossi (2004) have proposed for user participation a rapid prototyping, which allows the user to express desired features of an application by designing it online with simple modelling tools.

Another issue in CIS development is related to the hedonic utility of CIS through user experience, and measuring it. Last value driver *Customer goals and outcomes*, which more specifically concentrates on how ICT-enabled service user's values and goals, contribute towards co-creation of value. The quality function deployment (QFD) techniques have been utilised in ensuring that the product or service features are linked to customer needs. (Tuunanen et al, 2010.) The QFD has been developed to ensure that the product or service is focusing on customer needs over technically possible characters, while at the same time taking industry competition into account as well. The emphasis is on values and goals defined by the customers, which in all times need to be traceable. (Herzwurm, Schockert & Mellis, 1999.) QFD is defined by Herzwurm, et al. (1999) as a method to transfer customer needs into products and process requirements. IS literature has suggested using perceived usefulness of IS for measuring success, where as in marketing the approach has been used to measure consumer trade-offs and utility associated with product or service features (Tuunanen et al., 2010; Tuunanen & Vartiainen, 2013).

3 LESS ABOUT SERVICES, MORE ABOUT EXPERIENCES

“...customers who had the best past experiences spend 140% more compared to those who had the poorest past experience.” (Kriss, 2014.)

Service experience has been recognised in organisations as well as in research for the benefits it can bring to firms in its best. Services, or products, are not enough anymore to bring competitive advantage, but understanding the customer’s journey throughout the buying process and acting on that knowledge to create positive service experiences create satisfaction and loyalty.

3.1 Co-creation of experiences

Customer experience encompasses every aspect of firms offering, such being quality of customer care, advertising, packaging, product and service features, ease of use, and reliability, making customer experience internal and subjective response customers have to any contact with a firm, thus being related to value creation. (Meyer & Schwager, 2007; Payne, Strobacka & Frow, 2007.) Customer experience has been recognised in service organisations for its importance in customer satisfaction, perceptions of quality, and long-term loyalty. Customer satisfaction, overall psychological state resulting from a service acquisition (Oliver, 1997), is essentially the culmination of a series of customer experiences. (Meyer & Schwager, 2007.) Customer experience has become a source of sustainable competitive advantage with links to co-creation of value in that the experience is co-created through interactions with elements of the service. The customer is required to take part in experiencing the service which in turn makes the ownership point of view insignificant in value creation process. (Juttner, Schaffner, Windler & Maklan, 2010; Vargo, Lusch & Akaka, 2010; Teixeira et al., 2012.)

Holistic nature of customer experience has set challenges for interdisciplinary methods and tools of service design. (Juttner, Schaffner, Windler & Maklan, 2010; Teixeira et al., 2012.) Since the early 1980s the focus in research has been on interaction between customer and employees by concentrating on management, how customers evaluate service encounters, customers role in the process, and on environmental effects. (Fisk, Brown & Bitner, 1993.) Within product-dominant businesses S-D logic considers customer experience to be closely related to value co-creation in that the experience cannot be designed; rather it is co-created through customer interactions with several service elements. (Vargo & Lusch, 2004.) These elements, or clues, enable the desired experiences as they are the context in which an experience takes place, and along with service activities comprise the requirements of the service design. Elements are in each touch points of the service, in which the customers co-create unique experiences, responding to different elements, including ones not under organisations management, such as social environment while activities unfold the experience. (Teixeira et al., 2012.)

To understand customer experience comprehensively, it requires gathering specific information from all service providers who engage interaction with the customer and support customers. The concept consists of customers' subjective response to the holistic and indirect encounter with the firm. Hence, the customer may perceive processual value through any part of value co-creation journey, including those parts outside the firm's direct control. Customers' assess this experience holistically, from expectations they have before the experience occurs to assessments they are likely to make when the experience is over. (Lemke, Clark & Wilson, 2010.)

While customer experience consists of interaction with the firm and creating relationships between these parties, it also includes interaction with fellow customers or family and friends visiting with the customer, the social environment. Research has not fully recognised the social environment and how it can impact on customers and how experience is formed as the focus has been mostly in creating relationship between customer and firm. The affect of customers' social environment can be either direct with different roles that each customer may adopt, or indirect causing anxiety or discomfort with crowding or standing too close to others, or with eye contact. Customers also develop certain roles in retail environment, such as help seeker, helper, competitor, and complainer among others. By fostering the customer-to-customer interaction, firm can influence customers' experience with having knowledgeable customers that can assist other customers and using customers as partial employees to spread useful customer knowledge. (Verhoef et al., 2009.)

3.2 Managing customer experience with service design

As customer experience cannot be designed to follow predicted outcomes exactly, designing situations that support customers in co-creating their desired

experiences becomes relevant. The situations are developed through series of stimuli, which are to trigger positive cognitive and emotional responses from the customer (Juttner et al., 2013). In literature there are three repeating themes found concerning service experience. Important theme acknowledges co-creation aspect stating that experiences are co-created in customer-firm service interaction process to the extent to which a firm can control the experience. Second theme focuses on service experience formation processes as it comprises both customer cognition and emotion, in that both cognition and emotion impact on experience quality as well as on service quality. Thirdly, as experiences develop throughout the whole journey of value creation, they transform service contact points and processes into customer relationships. Although numerous measurement methods have been introduced in literature, several authors express their concern whether measurement methods are capable enough to fully capture the complexity of the concept. (Juttner et al., 2013.)

As existing service design models focus in separate elements of the customer experience, Texeira et al. (2012) suggest a customer experience modelling (CEM) to represent the different aspects of customer experience in a holistic diagrammatic representation. CEM aims to support service designers and managers in orchestrating all elements of the experience. CEM derives from three multidisciplinary contributions: human activity model (HAM) by Constantine (2009), customer experience requirements (CER) by Patricio et al. (2009), and multilevel service design (MSD) by Patricio et al. (2011). HAM is adopted in order to represent the rich contextual environment fundamental to customer experience. Framework for HAM is Activity Theory that inserts activity and the tools that support it at the centre of the design process, enabling CEM to consider both activities and different contextual components that frame the customer experience. In order to bring closer the customer experience and service design CEM utilises CER and MSD. (Texeira et al., 2012.)

CER is defined as the perceived attributes of the interaction with service provides that contribute to satisfaction and usage of the service. CER is included in CEM as evaluator of each activity and contextual element by describing customers' desired qualities of an experience. Finally, MSD is adopted to structure the model from overall customer journey, to each interaction. Above mentioned multidisciplinary contributions are used to systematize the collected data from customer studies when applying CEM. (Texeira et al., 2012.) Furthermore, customer experience management differs from customer relationship management by focusing on the current experience of the customer, rather than recorded history of the customer (Verhoef et al., 2009). The difference between CEM and CRM (customer relationship management system) is in that CRM tracks customer actions where as CEM considers the immediate response of the customer to its encounters with the firm. (Meyer & Schwager, 2007.)

The firm's experience stimuli, or clues as Berry, Carbone and Haeckel (2002) state, are a way for the firm to direct and affect the customer experience as the clues are anything that can be perceived or sensed, or recognised by their

absence. The clues are in product or service, in physical settings and also in employees' gestures, comments, dressing and even tones of voice, carrying a message suggesting something to the customer. The clues are divided in two categories, first being the actual functioning of the product or service and second concerning emotions, such as smell, feeling and sounds among others, given out by things or people. The importance of emotional clues has not been understood fully as they are not directly related to the functionality of the product or service. To fully benefit from experience as part of the customer value proposition, the firm must understand that the nonmonetary burdens can outweigh the price. (Berry et al., 2002.) Furthermore, Juttner et al. (2013) point out the novelty value of clues. They argue that first encounter with the clue is highly valued as it is new, but the same clue is less likely to have any impact in subsequent interactions as it is not new anymore.

Measuring the customer experience needs to capture the entire process where the experience is formed. Juttner et al. (2013) suggest a procedural measurement approach that is able to process all contact points and episodes in the service production and delivery process, including pre- and post-purchase episodes. (Juttner et al., 2013.) Meyer and Schwager (2007) suggest three patterns for obtaining the right information about customers and their experiences. These patterns consists of past, present and potential patterns. Past patterns are sought when monitoring transactions occurring in large numbers and completed by individual customers in order to collect uninterrupted flow of information by surveys. Present patterns analyses not only evaluation of meaning and success of a recent encounter but they anticipate a continuing relationship with the customer. Lastly, probing for opportunities that often emerge from interpretation of customer data as well as observation of customer behaviour reveals the potential patterns, driven by specific customers or unique problems. (Meyer & Schwager, 2007.)

4 METHODOLOGY

The object of this study is to create understanding about how value is co-created at vehicle inspection industry in the context of info screens. The purpose of this chapter is to introduce and justify the research philosophy and methods used in research in order to achieve the goals set for the thesis. Finally, the data analysis method is presented and explained.

4.1 Research approach

In order to complete a research and accomplish the objectives researcher is required to obtain certain amount of knowledge about the subject of the research. By selecting philosophical approaches that guides the methodological decision and defines what kind of knowledge is required and how it is to be gathered, the researcher is able to answer on the research questions. The philosophical approach is based on researcher's assumptions about how the knowledge can be generated. (Myers, 1997.) Existing three main elemental research paradigms to guide qualitative research can be distinguished as positivist, interpretive, and critical (Orlikowski & Baroudi, 1991). Positivist research study tests theory in order to increase predictive understanding of phenomena (Orlikowski & Baroudi, 1991). The research seeks evidence from formal propositions, it measures variables, tests hypotheses, and draws inferences from a sample to a stated population. (Myers, 1997; Orlikowski & Baroudi, 1991.) Critical study aims to critique the existing conditions through revealing what is believed to be fixed, structural contradictions within social systems, and thereby to transform these alienating and restrictive social conditions. (Orlikowski & Baroudi, 1991.) It aims at social critique and to identify different forms of social, cultural and political domination that may block human ability. (Myers, 1997.)

The objective of this study is to create understanding how value is co-created in the context of vehicle inspection stations and info screens. Focus is on value co-creation, in one specific environment aiming to explore value proposi-

tions and value drivers related to info screens in this context. As such, an interpretive approach is adopted in order to produce deep insights of value co-creation in vehicle inspection industry, as well as the customers' needs. In interpretive approach the focus is in understanding phenomenon through the participants' interpretation of their context (Myers, 1997). An interpretive approach serves the purpose of this study as it is not trying to define dependent or independent variables but instead focuses in human sense in the emerging situation. (Myers, 1997.)

After deciding on philosophical approach, methodology to support the objectives of the study is to be selected. Most commonly known are the quantitative and qualitative methodologies. Quantitative research is associated usually with conclusion based on large numbers of dataset observations and statistical analysis. The main methods of data collection in quantitative research are surveys and experiments, which in turn enables the gathering of relatively large samples required in making approximations of reality that is essential in qualitative research (Planing, 2014). Since this study investigates the customers of vehicle inspection stations and creates understanding about them, the research method selected for this study is qualitative. In qualitative research method the object is to produce data that is freely defined by the subject and is based on interpretation of the rich and complex dataset. (Planing, 2014.)

4.2 Research strategy

According to Myers (1997) research method is a strategy of inquiry moving from philosophical assumptions towards research design and data collection. As the object here is to understand how value is co-created in the context of a specific environment; a vehicle inspection industry and info screens, a single case study is appropriate strategy. According to Yin (2013) case study is a study that investigates contemporary phenomenon in depth and in its real-life context. Furthermore, situation where case study is preferred method is when the main research questions are "how" or "why" questions, researcher has little or no control over behavioural events, and the focus of study is a contemporary phenomenon. Darke, Shanks and Broadbent (1998) suggest that case study is well suited to understanding the interactions between ICT-related innovations and developing, implementing and using IS. (Darke, Shanks & Broadbent, 1998.)

A case study can be a single or multiple case studies, it can be limited to quantitative evidence, and can be a useful method in doing an evaluation. (Yin, 2013.) The objective of this study is to understand how value is co-created in the context of a specific environment; a vehicle inspection industry and info screens, which is a contemporary phenomenon that requires deeper understanding. Furthermore, this study includes one specific environment, one organisation and therefore the single case study is appropriate method. According to Yin (1994) in Darke et al. (1998) single case study is appropriate when it represents a critical case, it is an extreme of unique case, or it is a revelatory case. Furthermore, sin-

gle case allows investigating phenomena in depth to provide rich understanding, which is why it is suitable for this study. (Darke et al., 1998; Walsham, 1995.) In comparison, multiple-case allows cross-case analysis and comparison, and investigating a phenomenon in diverse settings. (Darke et al., 1998.) By adopting interpretive single case study as a research method for this study the investigation of value co-creation process in unique environment and understanding the value propositions and value drivers in the context of vehicle inspections and info screens are enabled. The methods are expected to improve the understanding of value co-creation in context of vehicle inspections. Furthermore, single case study is appropriate in investigating as the object is not to contrast results.

Generalization of case studies have been criticised, among others, for being less value, impossible to generalise from, and the subjectivity of the data collection and analysis process has been questioned (Runeson & Höst, 2009; Darke et al., 1998). According to Runeson and Höst (2009) by applying appropriate research methodology practices with reconsidering that knowledge is more than statistical significance, the critique can be answered. On the interpretive single case study the generalisation can be done in four ways: development of concepts, generation of theory, drawing of specific implications, and contribution of rich insights (Walsham, 1995). In this study the existing literature analysis is essential in order to understand the existing literature in the research area and how the research questions have been established, in line with Darke et al. (1998). The existing literature and the CIS framework have been presented in this thesis first in order to create theoretical background, which in turn demonstrates the relationship of this study to the previous research.

4.2.1 Introduction to the case organisation

Previous chapters concerning the methodology designed to use in this thesis provide a basis for structure and scope of the study in order to determine an appropriate unit of analysis and a number of cases. As earlier defined, the object of this study is to create understanding of how value is co-created at vehicle inspection industry in the context of info screens. According to Darke et al. (1998) the unit of analysis can be an individual, a group, an organisation, or event of some other phenomenon, which is related to the research questions. In this thesis the unit of analysis, or case organisation, constitutes of an organisation which is a private provider of vehicle inspections and registrations in Finland as well as in Northern Europe. In addition the organisation provides driver examinations, vehicle damage inspections and testing, crash repair and maintenance services. The history of the organisation is long and begins from the time where the vehicle inspections were under government administration. Over the years the organisation, as well as the entire industry, has gone through many changes as legislations and regulations have changed towards more customer oriented service.

As field of vehicle inspections is regulated by laws and regulations, it is fairly rigid and straightforward. In recent years, regulations and laws have been altered to give the industry more freedom to answer to changing markets. The customer's role has changed from the early days when the inspector was government official. Today, due to opening the service for competition in the 1990's, the customer is able to influence on the performance of the industry by selecting which firm to use. The newest revision of the vehicle inspection legislation entered into force on 1st of July 2014 enabling vehicle repair workshops begin inspection activities as well as inspection stations to expand their offerings to other automotive services. With this, the case organisation has launched new lines of service and sales of vehicle related products, and in addition utilised new technology in marketing and informing the customers, the info screens. Objective of the info screens is to support product and service sales, and to give additional information about vehicle inspections and other services provided at the station.

Darke et al. (1998) also suggest that in order to arouse interest of the potential participating organisation, the case organisation need to be considered when designing research questions. Furthermore, the organisation is more likely to provide access to its resources and people when research area and research question are particularly relevant to the organisation (Darke et al., 1998). The case organisation, being one of the oldest organisations in the field of vehicle inspections in Finland, is finding it challenging to manoeuvre the know-how of their committed expert inspectors towards efficient recommendation and helping the customers with new services and products available at the vehicle inspection stations. The richer insights about the customers could benefit the organisation in developing their business strategy.

The case organisation represents an organisation which could benefit significantly from research about how value is co-created in environment of vehicle inspection stations, in the context of the info screens, as the screens are the newest technology utilised in marketing actions of case organisation. When considering competition in vehicle inspection industry in Finland, it is essential to understand the customers, their needs and wishes, in order to provide the best service for them and keep the business profitable. The case organisation was considered interesting as the industry is highly regulated, aiming to improve road safety while it is also a service business developing their activities in order to grow in markets. The case organisation's representative informed about the current situation of the case organisation and an agreement was made on how the case study and the data collection would be conducted. Vehicle inspection industry as an environment for investigating value co-creation provides promising settings to gather understanding of the customers' thoughts and needs. In this research the service is defined following the definition of S-D logic, which allows investigating value co-creation from service-centred perspective as the main focus in this study is the service and the experiences it produces.

4.2.2 Case study participants

Recruiting participants for this research and required characteristics of the participants were defined by the fact that the participant should be a customer of the case organisation. This study focuses mainly on the services provided at the vehicle inspection station, more specifically on vehicle inspections and driving exams, although the case organisation provides several other services as well. These services were selected for the reason that they are usually located at the same location. Furthermore, although the case organisation operates widely in Northern Europe, the research focused in Finland as the info screens are at the moment utilised only in Finland. The case organisation has offices and inspection stations throughout the country, the inspection stations selected for this research were from the metropolitan area of Finland (Helsinki, Vantaa and Espoo) and the city of Jyväskylä, as the gathering of participants could be achieved in reasonable schedule in these areas. Furthermore, the amount of selected inspection stations were narrowed down by selecting the most visited ones that provided both vehicle inspections and permit services/drivers examinations in order to get the best outcome in reasonable schedule.

Recruiting of the participants was done during data collection in the beginning of March 2016, during one week. The participants were selected at the inspection stations among the customers waiting to be served or waiting for their vehicles to be inspected. Interviews were done in quiet space at the station. Before recruitment and data collection were started, the personnel of the inspection station were informed, so they would be aware where their customer had gone, for example, if the inspection was ready before the interview of a certain participant. The participants were first given a short brief about the research in Finnish, either verbally or in writing depending of the situation. The brief included general information about the interview and explained the context in order to set the participant to the right mood. The participants were also able to take the brief in writing with them afterwards.

Expectations for the participation recruitment were not high, as many customers in day time were expected to be busy. The aim was to recruit 20 to 25 participants and eventually 26 participants were achieved on schedule. Only few of the customers asked to join refused, mainly for the reason that they were already done with the service they came for and did not have time to stay. Participant profiles are presented in table 3 and the participants in numbers are presented in table 4. In table 3 the participants are more specifically presented, including the city they were interviewed in and the service they came for to the station. Most of the participants were inspection customers, but there were some permit service customers, and driving school teachers. Reason for interviewing the driving school teachers was that they spend fairly a lot time at the stations and have had the change to exam the services as kind of "outsider evaluators", thus possessing statements almost of every service provided at the service desk. Permit service customers included driving test customers as well as other permit service customers, which also provided good insight about the

newest services and insights from the future customers, who are young and new vehicle owners.

TABLE 3 Profile of participants

ID	City	Service	Sex
Jyvaskyla3	Jyväskylä	Permit service	Male
Jyvaskyla2	Jyväskylä	Vehicle inspection	Female
Jyvaskyla1	Jyväskylä	Vehicle inspection	Male
Martinlaakso6	Vantaa	Vehicle inspection	Male
Martinlaakso5	Vantaa	Vehicle inspection	Female
Martinlaakso4	Vantaa	Vehicle inspection	Male
Martinlaakso3	Vantaa	Vehicle inspection	Female
Martinlaakso2	Vantaa	Vehicle inspection	Male
Martinlaakso1	Vantaa	Vehicle inspection	Male
Aleksiskivenkatu1	Helsinki	Vehicle inspection	Female
Aleksiskivenkatu2	Helsinki	Vehicle inspection	Female
Aleksiskivenkatu3	Helsinki	Vehicle inspection	Male
Aleksiskivenkatu4	Helsinki	Vehicle inspection	Male
Aleksiskivenkatu5	Helsinki	Vehicle inspection	Female
Aleksiskivenkatu6	Helsinki	Vehicle inspection	Male
Aleksiskivenkatu7	Helsinki	Vehicle inspection	Male
Aleksiskivenkatu8	Helsinki	Vehicle inspection	Female
Hannuksenpelto1	Espoo	Permit service	Male
Hannuksenpelto2	Espoo	Vehicle inspection	Female
Hannuksenpelto3	Espoo	Driving school teacher	Male
Hannuksenpelto4	Espoo	Permit service	Male
Kaivoksela1	Vantaa	Vehicle inspection	Male
Kaivoksela2	Vantaa	Driving school teacher	Male
Kaivoksela3	Vantaa	Driving school teacher	Female
Kaivoksela4	Vantaa	Permit service	Male
Kaivoksela5	Vantaa	Driving school teacher	Male

As can be seen from tables 3 and 4, most of the participants were male vehicle inspection customers (10) and all participants from permit service customers were men (4). The case organisation did not express any need for limiting the participant profiles with any characteristics in order to get as rich data as possible, so there was not used any method to pick the potential participants. Hence, there were also participants from driving schools, driving teachers who often spend hours at the vehicle stations waiting for their students to finish their driving exams, 3 men and 1 woman. With this, the rich data collected through the different perspectives enabled to understand value co-creation in vehicle inspection industry in the context of info screens and what elements of CIS model are important for the participants.

TABLE 4 Participants in numbers

Location	Male	Female	Total
Vantaa	4	1	5
Espoo	3	1	4
Helsinki	4	4	8
Vantaa	4	2	6
Jyväskylä	2	1	3
Total	17	9	26

4.3 Data collection

In this thesis the research questions can be best answered with personal interviews as they produce data that is freely defined by the subject and allow for an interpretation of rich and complex reality of the world. The qualitative techniques include interviews, observation of participants or fieldwork and written material, and in case study data collection and analyse can combine both the qualitative and quantitative methods (Myers, 1997). The interviews were conducted by using laddering technique from Reynolds and Gutman (1988). The technique is an in-depth, one-on-one interview technique that was originally used in marketing research and aims to develop understanding of how customer turns the attributes of products or services into meaningful associations with respect to self. (Gutman, 1988.)

4.3.1 The laddering technique

The laddering technique is based on Means-End Theory (Gutman, 1988) in parallel with Expectancy-Value Theory (Rosenberg, 1956). The technique focuses on developing understanding about consumers personal values related to product preferences through the connection between attributes of the product (means), consequences of those attributes and values that the consequences reinforce (ends). The connections form associated networks, or ladder, which represents the process how product related preferences are refined and the reasoning behind personal motivations or why an attribute or consequence is important. (Reynolds & Gutman, 1988.) The laddering technique supports the objective of this study in order to create understanding how value is co-created at vehicle inspection industry in the context of info screens as it provides more direct and useful understanding of the consumer.

Peppers et al. (2003) have outlined the laddering technique to focus on IS research in order to understand why people prefer certain IS features. The motivation originated from organisational needs, where information and knowledge are scattered around the organisation and thus left ignored. Furthermore, potentially valuable ideas are lost in the basic assumption that all valuable and needed are already known. Peppers et al. (2003) have adopted Per-

sonal Construct Theory (PCT) that is consistent with the laddering technique in viewing value structures of certain products and their features. The PCT-based data gathering methods aim to provide valuable insights for designing features that consists of high customer value. This is enabled by creating understanding of peoples' knowledge and value structures and observing how they differentiate among stimuli. (Peffer et al., 2003.)

Furthermore, Peffer et al. (2003) have implemented PCT into their extended framework for identifying and evaluating the reasons why people prefer certain IS features, called the Critical Success Chain (CSC). They describe the CSC as a case of PCT, which produces models of reasons why certain features of IS are preferred by limiting the attributes to IS and a certain organizational context, the consequences of the implementation of these attributes and the values are either or from the individual or organisational perspective. (Peffer et al., 2003.) In this study the CSC was used to create graphic maps from the rich data gathered from interviews, to illustrate the reasoning behind certain attributes that emerged in this context, consequences as an outcome of the attributes and values from an individual perspective. Adopting the CIS model based laddering technique and the CSC enable to examine how value is co-created in vehicle inspection environment in the context of info screens, and what are the value propositions and value drivers in this context. This provides data to answer on the sub questions and in addition supports the answering of the main research question of this study.

The laddering technique consists of tailored semi-structured interviewing format, which uses a series of directed probes, questions "Why is this important to you?" aiming to determine sets of connections between the attributes (A), consequences (C), and values (V), uncovering the underlying reasons why an attribute or a consequence is important. The purpose of the technique is to elicit differences among stimuli, which are used as a meaningful basis for the respondent to start considering distinctions between them. The researcher can select which are differences that are to be used, being based on prior knowledge or on a specific research issue. (Reynolds & Gutman, 1988.) In this thesis the list of stimuli was created based on the CIS framework that includes the elements of value co-creation. The CIS framework was used as a basis for the literature review and themes for the stimuli list were formed based on factors appearing in the CIS. Before conducting fieldwork the case organisation's representative approved the stimuli list. The list was formed into six areas according to the elements in CIS, as can be seen on table 4. The additional seventh theme can be the participants own theme of selection. The complete stimuli list can be found in appendix 1.

TABLE 5 Elements of the CIS framework and stimuli themes

ID	CIS element	Stimuli name
1	Construction of identities	Role of the customer
2	Social nature of use	Sharing and receiving information
3	Context of use	Use and operating environment of info screens
4	Service process experience	Use and service experience related to info screens
5	Participation in service production	The opportunity to influence on the content of info screens or participate in the production of service
6	Goals and outcomes	Goals and objectives enabled by info screens
7	Additional theme	Interview's own selection

Following the objective of this thesis the participants were individual customers of vehicle inspection stations, the stimuli list is created in consideration of the context of the interviews. The participants represent several different characters with several different interest areas, thus challenging the language used on the stimuli list and in interviews. Furthermore, limited time to interview one participant was also taken into consideration while creating the list of stimuli to meet the target audience and add their interest towards the interviews. This leads to the two basic problems of laddering interviews, first one being that the respondent is not usually able to articulate a ready answer to the question why a particular attribute or consequence is important. Second, the issues can also become too sensitive as the dynamics of the interview become more personal. These problems need to be taken into account from the early stages in the research strategy for the data collection to succeed. (Reynolds & Gutman, 1988.)

4.3.2 The interviews

In total 26 participants were interviewed individually at the vehicle inspection stations and permit service offices, as the target was 20 to 25 participants. Almost all recruited participants took part with few exceptions, mostly because of their busy schedules or language barriers, as the interviews were conducted in Finnish. Before the interview started, the participants were informed about the purpose of the research, that the interviews are being reordered, and that collected data will be anonymised and handled confidentially. Although the interviews were being recorded in order to support the interpretations and data collection, and would not be given to other parties or used for other purposes. In order to increase the reliability of the interviews, participants were given a short brief in writing about the research with contact information to the supervisor of the thesis, which they could take with them if they wanted.

Interviews took place at the inspection stations, in a quiet room separate from customer waiting area to ensure that the participants would be willing to speak freely. To set the participants to the right mood, before entering the interview room it was made sure that they had seen the info screen, and given a moment familiarise it, if they were not yet done so. At the same time, the partic-

ipants were able to explore the list of stimuli. At the beginning of each interview, the list of stimuli was explained to the participant. Then the participants were asked to select two themes that they feel to be most important or interesting to them, and then select one from those two, that is more important. The popularity of the themes among participants can be seen on table 6. Due to the limited time for interviews per participant, most interviews only had time to go through one theme. This is why themes that were selected as important or interesting, but not discussed, are excluded from table 6 to give more realistic picture.

TABLE 6 Popularity of stimuli themes among participants

ID	Stimuli name	CIS element	Frequency
1	Role of the customer	Construction of identities	11
2	Sharing and receiving information	Social nature of use	7
3	Use and operating environment of info screens	Context of use	4
4	Use and service experience related to info screens	Service process experience	2
5	The opportunity to influence on the content of info screens or participate in the production of service	Participation in service production	1
6	Goals and objectives enabled by info screens	Goals and outcomes	3
7	An additional theme		

All actual themes, excluding the seventh additional theme, were selected at least once. Themes that were the most important or interesting to the participants were the first theme called Role of the customer and the second theme called *Sharing and receiving information*, whereas the theme 5, Opportunity to influence on the content of info screens or participate in the production of service, was selected only once being the least interesting one.

Required length of one interview in laddering technique from distinction to final ladders varies, but typical standard is 60 to 75 minutes (Reynolds & Gutman, 1988). In this study time for one interview depended on several issues as interviews were done during participant's visit. Issues affecting the interview time were the service that participant had come to conduct, it being a vehicle inspection that takes time 15 to 20 minutes or other service that might not take that long, has the service started or is there longer waiting time. Also, there are participants' personal limitations to time him or she is available for, such as work or other appointments elsewhere. The time scheduled for these interviews was the average inspection time, 15 to 20 minutes, which allowed only one stimuli theme to be discussed. Exceptions were made with few of the participants who happened to have more time available for the interviews.

After the participant had selected the most desired theme, the interview was started with the question targeting selected theme by asking "How would

this work for you?" or "What is essential in this theme from your perspective in relation to info screens?" or "What is essential in this theme from the perspective of vehicle inspection or permit service customer and info screens?". This was done in order to elicit desirable features of interest to the participants. The interview then proceeded by asking the participant to explain why each feature was important to him or her by asking series of "Why would this be important to you" questions about all the features separately. This was done to elicit the consequences that a participant expected from that particular feature. The process continued leading to the eliciting of values in the same way. The resulting data was recorded as ladders, or chains, by linking each feature to consequences and participant's personal value, as described by Peffers et al. (2003).

4.3.3 Data modelling

Case study requires a well-organised and categorised set of data in order to ease the task of analysing collected evidence and eventually enabling the answering on research questions. Darke et al. (1998) referring to Yin (1994) emphasises the importance of documenting and organising a case study data as it is collected. The data must be accessible at any times and organised in a way that other researchers can in principle review it, thus increasing the reliability of the study. (Darke et al., 1998.) As mentioned before, the interviews were digitally recorded in a MP3 format for later analysis. In addition to that, during interviews researcher also took field notes in a structured format on a spreadsheet, which in turn helped in keeping the interview focused and to outline all features for the ranking task at the end of the interview.

In this study the spreadsheet was not made digital as the location of the interviews did not enable that every time. The spreadsheet included basic information about the participant and the interview, theme ID, and chains originating from one theme the participant had selected. Each chain was recorded in an individual column to represent the thinking of the participant starting with attribute or feature (A) in the first column, continuing with consequences (C) in the second column and ending to value (V) in the last column. The letters are in front of each statement in the spreadsheet helping to distinguish statements. Data collection provided 152 chains from the 26 laddering interviews. The chains and their distribution between stimuli themes is represented in table 7.

TABLE 7 Distribution of the collected chains between the stimuli themes

ID	Stimuli theme	Chains
1	Role of the customer	62
2	Sharing and receiving information	29
3	Use and operating environment of info screens	23
4	Use and service experience related to info screens	10
5	The opportunity to influence on the content of info screens or participate in the production of service	6
6	Goals and objectives enabled by info screens	22
7	An additional theme	0

4.4 Data analysis

The analysis of qualitative and interpretive data is not a straightforward process as the analysis methods are not as well defined as in quantitative methods. Furthermore, the amount and variety of data collected brings challenges to the practical work of analysing case study evidence. By developing a data analysis strategy as a part of case study design, researcher is able to define what to analyse and why. (Darke et al., 1998.) Miles and Huberman (1984) in Darke et al. (1998) describe three activities how the data analysis can be done. Data reduction is an activity where the raw data is managed with selecting, simplifying, abstracting, and transforming processes. In data display the data is processed with organised assembly in order to draw conclusions of it. Conclusion drawing or verification draws the meaning from data and builds a logical chain of evidence. (Miles & Huberman, 1984 in Darke et al., 1998.) The goal in analysing interpretive evidence in IS is to create understanding of the contexts of IS and furthermore, of the interactions between the contexts and the systems in order to explain a certain phenomena by interpreting the data (Walsham, 1995).

In this thesis the analysis was conducted using a two-step thematic approach following previous similar research (Tuunanen & Govindji, 2011, Tuunanen et al., 2006). According to Tuunanen, Peffers, Gengler, Hui and Virtanen (2006) the thematic approach supports preserving the integrity of the individual chains, for example, by clustering the individual statements from chains together. The CSC model was adopted as a part of the analysis to provide visualised chains of attributes, consequences and values in order to create meaningful maps for every theme arising from the original themes used as a stimuli. By doing so, the analysis provided an appropriate model for answering the research questions.

The analysis started from copying the chains from the note spreadsheets into one single Microsoft Excel spreadsheet to ease the handling of the 152 chains. As mentioned before, the data was recorded during interviews and the recordings were heard twice to ensure correct interpretations and to fill the data set. Furthermore, statements were simplified for shortening expressions of the participants. Next step was an interpretive clustering analysis to develop con-

sistent constructs from statements used by the participants to express their ideas. This was done in order to find similar expressions and to create clusters with similar concepts, while maintaining the information accurate. To maintain the information referring to the original chain, each chain was numbered and marked with the original theme number in which they appeared in the beginning.

During clustering analysis phase, the attributes, consequences and values are gone through individually aiming to find similarities and to code them. In attributes, chains and attributes were interpreted and statements with similar meanings were searched to create attribute codes describing the similar attributes. As the chains could include more than one attribute, as well as consequences and values, and the attributes did not include similar meanings, the chains could have been coded with more than one attribute code. When this occurred, the whole chain was copied and coded in its own with different attribute codes, which in turn increased the number of chains. After coding all of the attributes, chains were sorted using the attribute code. The same process was conducted for consequences and values, which were easier to code as the chains with similar attribute codes generally included similar consequences and values. As a result from the clustering phase, individual sorting of chains increased the reliability and the interpretations following.

From the thematic analysis were identified six themes from chains with common patterns. The themes represent needs of each participant interviewed. Table 8 outlines the six themes identified from the chains.

TABLE 8 Theme summaries

Theme	Description
Customer entertainment	The feeling and atmosphere customers' sense at the station or office, and how it impacts on the service experience.
Customer-oriented services	Experiences that can appear during, or as a result of the use of info screens, or the use of services related to info screens.
Sharing and receiving information	Information useful to customers as a motorists and sharing it with other motorists.
Goals and objectives enabled by info screens	How customers and motorists can exploit info screens and what kind of different services could be enabled by the screens.
Use and operating environment of info screens	The physical location of the info screen, where and how it is used, and how it impacts on operations and efficiency, the content, and quality of service.
Participating and influencing on the customer experience	Opportunity to participate in creating content for info screens and influence on the content.

The themes presented in table 8 are consistent with stimuli themes from the CIS framework as they can be integrated into the CIS elements. Thematic analysis was conducted during the clustering of chains in a way that assigning chains to themes was done at the same time. Even though chains distributed among the

themes easily during thematic analysis, the chains were reviewed more than one time due to the richness of the data collected. When reviewing the themes and chains assigned to the themes, some chains did move to another theme in order to keep the themes integral. In addition, some chains were coded again to ensure that common codes were assigned to statements expressing similar ideas. The last phase of the analysis was to create individual graphic representations of each theme. This was done by applying the CSC model in organising clustered codes into network maps with Microsoft PowerPoint as a drawing tool. The network maps visualise the features (attributes), the reasons or using those features as estimated by the participants (consequences), and the goals the participants have reported (values). In each map the features were placed on left, consequences on middle and values on right side. Arrowed lines between features and consequences, and consequences and values represent the associations between those statements. To ensure that the maps are visually easy to ready, the boxes were arranged in a way that the lines did not cross each other. This was also done over more than one time, depending on the number of chains assigned to particular theme. In addition, numbers in boxes represent the amount of participants in relation to how they marked the importance of particular statements. All participants were not able to rate the importance of statements so these are given value N/A, meaning not available. Resulting from this phase of analysis are six theme maps representing the associations of participants as networks of attributes, consequences and values of different themes.

5 FINDINGS

This chapter presents findings from the data analysis as theme maps. The maps were developed from chains from data analysis in order to illustrate the chains of attributes, consequences and values in each theme. The maps and their explanations are presented individually in this chapter. First, explanations and translations of the maps are presented and following them is the graphic map in question.

5.1 Theme Customer Entertainment

The first interview theme focused on how the info screens could make customers feel more comfortable and welcome at the inspection station, or permit office. This could be defined as feelings and atmosphere customers' sense at the station or office, and how it impacts on the service experience.

Attributes: In this theme were three key attributes found: news, TV shows, and environmentally friendly materials. According to participants' statements, the news attribute included all kind of news, more specified to topics related to vehicles, driving, road safety, and so on. The weather attribute was mentioned in connection with news, and it was specified to local weather. The TV shows attribute was specified to TV on screen, and short cartoons. Environmentally friendly materials attribute was specified as using screens manufactured from recycled materials. The participants described that this could be enabled, for example, with cells from old TVs. Lastly, participants mentioned that use of environmentally friendly materials needed to bring to customers' knowledge and this could be enabled by logos and advertisement on the screen.

Consequences: Clear consequence for news and all kinds of news was something to do and watch while waiting. Consequence for topics related to vehicles, driving, road safety, and so on was to cause discussion among customers. Consequence for weather and local weather, related to key attribute

news, was that busy customers can have a moment to read the news, which was also, according to participants, in connection to causing discussions among customers. Consequence for TV and short cartoons was mentioned as to make the customers feel more comfortable at the station. In addition, participants mentioned that consequences for TV on screen are that it can be watched while queuing and in case the customer is not interested on the inspection. Consequences for environmentally friendly materials, using screens manufactured from recycled materials, for example, by using cells from old TV's, and bringing the use of environmentally friendly screens in customers knowledge with logos and advertisement are the need to think about the environment and the future of earth connected to preferring recycled materials over new.

Values: The goals for the above features are related to the time spent at the inspection station, personal pleasure and entertainment, as well as to firm image. Values for news are managing time, interacting with other customers, and time to sit down and read what is going on in the world. Values for TV are pleasure, followed with passing time more quickly, and something to do while waiting. In data gathering the participants connected interacting with other customers and pleasure to making people smile. Values for using environmentally friendly materials were personal pleasure and delight from knowing that the firm is taking environment into account, smaller carbon footprint, positive influence on the firm image, and not to burden the globe. Figure 2 depicts the theme map for the theme "Customer experience" and illustrates the above relationships.

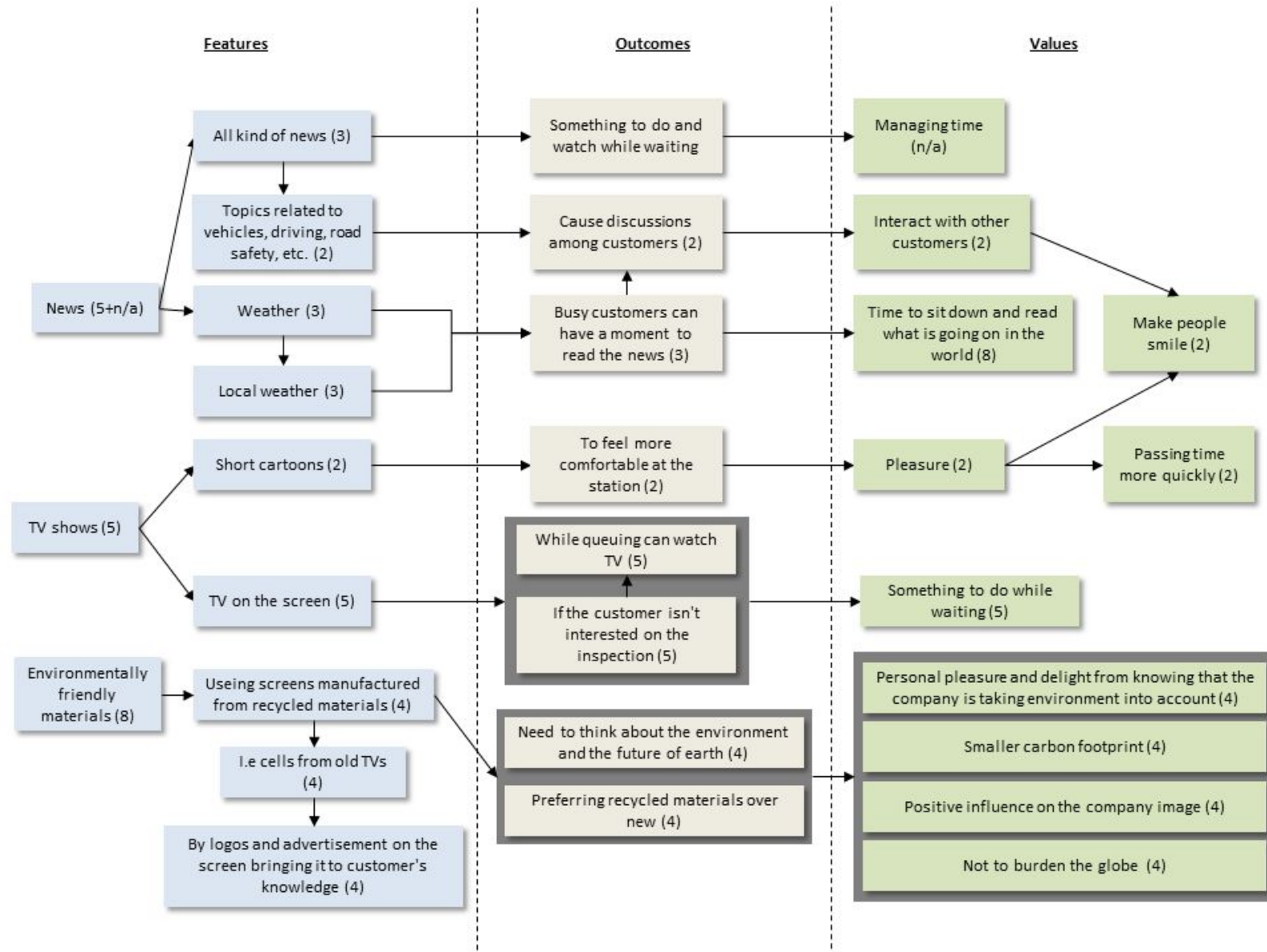


FIGURE 2 Theme 1: Customer entertainment

5.2 Theme Use and Operating Environment of Info Screens

The second theme focused on the use and operating environment of info screens. This could be defined as the physical location of the info screen, where and how it is used. For example, where the info screen would be easiest to follow for the customers and how changes in the environment impact on operation and efficiency, the content, and quality of service.

Attributes: This theme includes attributes that are related to the location of the info screens and features that the content of the screen should possess according to participants. Many participants mentioned that one info screen would not be enough and location of the screens should be carefully considered. Key attributes in this theme are located outside, directing customer's eyes, location in general, and simple and clear content. Located outside is further explained as to consist two screens; one inside and one outside, which when located inside would be split into two. Screen outside would be showing available appointments per day, and it should be noticeable by place and colour. Directing customers' eyes is enabled by attributes customer is able to see the info screen, which consists of from all waiting areas, soon after entering the space, and testing different places. In addition to above, directing customers' eyes is enabled with standing out from the background, for example, with coloured frames, located to the height of customers' eyes, and elements in the environment guide customers' eyes, which is specified to eyes naturally drift to watch the screen, content is easy on eyes and inviting, and surroundings should not take the focus away from the screen, for example, coffee machine. The last attribute was also mentioned in connection with location. Other attributes included with location are placed before products advertised in it, which was specified to products advertised before customer arrives to them, renaming the info screen, and placed closer to the entrance, when interactive. Last attribute was specified as to directions and queue numbers by selecting desired service, and if not interactive, placed further from entrance. Simple and clear content was mentioned to be enabled by videos, short sentences, using commonly known language, easy font, and size large enough, in English as well, pictures, longer show time per content than at the moment, not too colourful and finally, not too much information. In addition, it was specified to main headlines and links to where can be found more information, which included search function, and interactive. Lastly, simple and clear content includes colouring so that important content is recognized as important (by using red colour, etc.).

Consequences: The outcomes for located outside, and available appointments per day is if customer makes appointment to the inspection, he/she is tied to that specific date and time, specified as to inspection period is long and a customer can come to inspection while driving by. Noticeable by place and

colours suggest that customer can see from far that there are available appointments and influencing on the customer decision making. Consequence for screen split in two is more targeted content on other half. The consequences customer need to see the screen directly and easily, background supports visibility of the screen, and objectives of the screens define how the content is being presented and where the screen should be located are results for customer is able to see the info screen, standing out from the background, located to height of customers' eyes, and content is easy on eyes. The outcome customer notices the info screen is also result from the above attribute, and is related to interesting elements in the environment catch customers' eyes and they will not notice anything else. Consequence if the screen is not that visible, it takes time before customers' eyes catch it is a result of first three consequences: customer need to see the screen directly and easily, background supports visibility of the screen, and objectives of the screens define how content is being presented and where the screen should be located. Consequences for location and more specifically for placed before products advertised in it and products advertised before customer arrives to them are attracting customers' attention towards the products and by advertising something customers assumes that they will see the products in near environment, continuing to consequence customers' eyes catch what is for sale. Consequence for renaming the info screen is by talking about info screen, the customer assumes that it is for information related to the place. Consequence for info screen near entrance is guiding the customer at the station or office, where as the consequence for placing the screen further from entrance is customers want to look around, check the place at the first time, continuing on to info screen gets noticed better when it is not right at the entry. The outcomes for simple and clear content reveal the participants' concerns especially about how the content is presented on the screen, not too full of too different content, and towards older customers, which is a growing customer segment. Number of services provided at inspection station, especially when it is combined with permit service office, in addition raises need for thinking the content from visual and usability perspective. Participants also mentioned more inviting content, understanding and remembering the information provided in the screen with pictures and videos, and adding interpretive text for pictures.

Values: Participants felt that locating another of the two info screens outside makes it easier for them to take care of the inspection when driving by, when it suits their schedules. In addition it could bring more drive-in customers and enable different customer segments to visit stations and to drive safely, which in turn lowers the threshold for customers to come and ask for inspection or other service and gives the customer more wanted feeling. By directing customers' eyes and making sure that the screens are noticed, content of the screens reaches the target audience, objectives of the screen are achieved more likely, and customers feel more comfortable and like the waiting area more. Benefit for customer noticing the screen and giving guiding information on it is

seen when personnel's work gets easier. In addition, the screen is an easy channel for customers to get information but it was stressed out among participants that customer does not want to look stupid or feel pain trying to look at the screen or search information. It was also stated how above mentioned attributes can have positive influence on customer service. As the location of the info screens is defined with above mentioned attributes, the customers notice the screen better; it is easy on customers' eyes, and not stressing, irritating or disturbing the customers as they walk in. In addition, well thought location enables more effective advertising, which in turn gives best value for advertiser's money. By considering the name of the screens from its use and content perspective, confusion among customers and personnel is reduced. Value for having interactive screen with ability to open headlines and read more about interesting subjects are easy to watch and read, as well as for considering older customers. Simple and clear content was seen as the most important attribute for participants, and the value from those attributes is summed in three values: capture the eye better, no need to ask from personnel, and already mentioned above easy to watch and read. The colouring of important content was seen crucial as people tend to notice and pay attention on different colour different way, which also continues on to the easiness of watching and reading. Figure 3 depicts the theme map for the theme "Use and operating environment of info screens" and illustrates the above relationships.

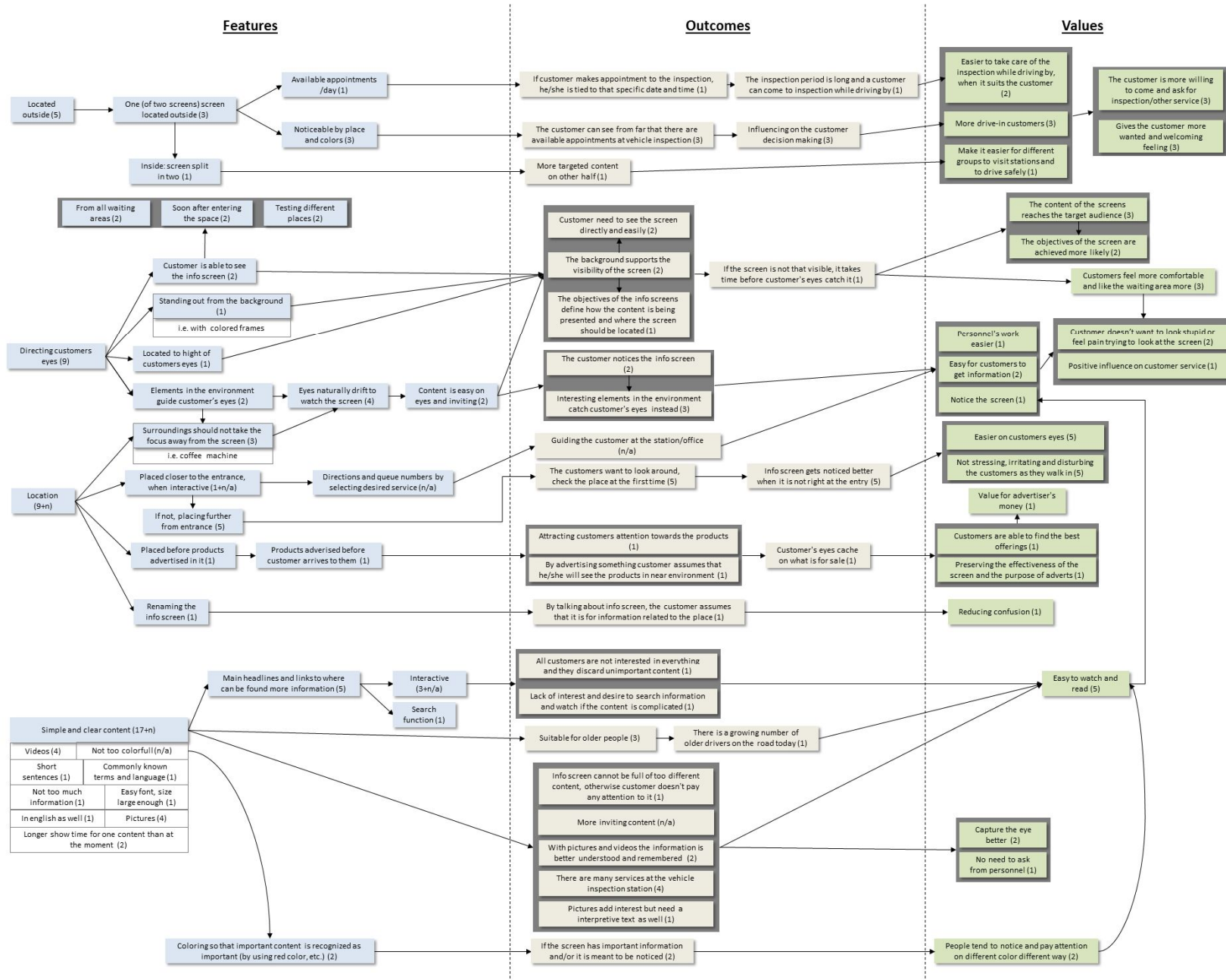


FIGURE 3 Theme 2: Use and operating environment of info screens

5.3 Theme Goals and Objectives Enabled by Info Screens

The third theme concentrated on customers and motorists goals and objectives enabled by info screens. This could be defined as how customers and motorists can exploit info screens and different services enabled by the screens. For example, what problems and needs of motorists could be solved with services enabled by info screens, at the vehicle inspection station as well as outside.

Attributes: This theme includes attributes that are related to customers' goals and objectives that could be enabled with info screens and services related to it. Participants specifically pointed out how inspection station and permit service office could be suitable for distributing information related to traffic, laws and regulation changes, contributing on road safety, and general information about the industry. Participants also mentioned that all the information service should be connected to website as well, and some information requires being available in real-time, such as traffic announcements and fuel price comparison, which was also reported to need average prices as well. Contributing on traffic safety includes demonstration videos of various behavioural and situational things that can occur in traffic. Such are, for example, effects too fast speed can have on driving at bad weather, badly worn windscreens, talking on cell phone while driving, road-rage and bad attitude in traffic, effects bad sitting position can have, importance of good visibility to all directions, especially when reversing, and what can happen if a tire brakes down while driving in motor way. Contributing on traffic safety was also described as advertisement. Traffic information was reported to include traffic announcements from the closest areas, in real-time, and traffic cameras. Screens on road sides maintained or sponsored by the case organisation rose from the idea used abroad to give information for road users. In addition, participants reported law and regulation changes, which also support situations that motorists face on the road. Useful attribute for older motorists to learn different situations would be learning material, for example, paying fuel with credit card, and learning game. In addition driving in road construction areas was reported useful for older motorists.

Consequences: The type of above mentioned information highlights how motorists are concerned about the traffic behaviour and safety, their own and others. Inspection stations and permit service offices are seen as suitable entity providing this kind of information. Expectations for contributing on traffic safety were reported to be motorists paying more attention on driving, raising awareness among drivers, and, in addition, there is time to watch the screen. Traffic information and screens on road sides would enable commercial content branded to and produced by the case organisation, and planning better which route to take to the next location, which was reported to give real value for

motorists. In addition, customers would be able to make sure everything is in order in their vehicle for that specific weather by being more aware of their environment. Participants felt that law and regulation changes are difficult for private persons to get information and they hope it would stimulate discussions. Otherwise they would not follow this kind of information at all. In addition, it was reported especially in connection with law and regulation changes and fuel price comparison, as well as that inspection station is good place to provide this kind of information. Learning material and games for motorists allow them to prepare for difficult situations in traffic and gives them a definite source for information and help.

Values: The same central motivation towards safer traffic seen in consequences rises among values as well. The key value for this theme is safety. By paying more attention on driving and raising awareness among motorists anticipates fewer crashes in traffic and is closely related to safety. Values for being able to plan alternative routes and commercial content branded to and produced by the case organisation are reducing need to stand in traffic, more information to support decision making, improving visibility of the case organisation, and saving time and nerves for motorists. More sales for inspection station and saving money was reported being closely related to message heard and understood better, familiarising different situations for older motorists, and easy access, which are results from outcomes of learning material and learning games for older motorists. These values are also closely related to motivating motorists to acquire more information, reducing uncertainty, and to learn new, and result from outcomes law and regulation changes and fuel price comparison. Furthermore, safety and making it easier for customers and personnel are enabled by message heard and understood better, familiarising different situations for older motorists, and easy access. Figure 4 depicts the theme map for theme "Goals and objectives enabled by info screens" and illustrates the above relationships.

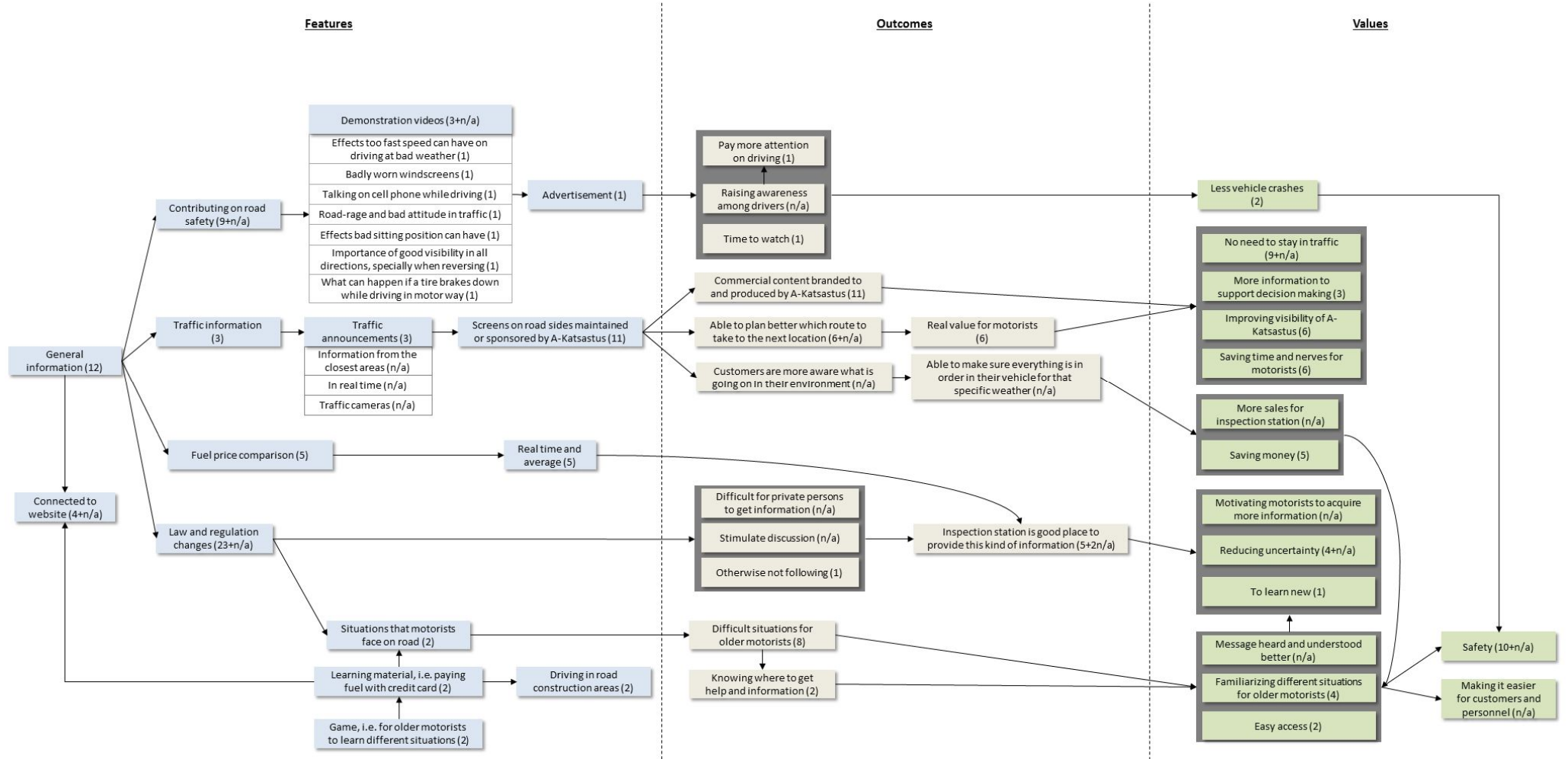


FIGURE 4 Theme 3: Goals and objectives enabled by info screens

5.4 Theme Sharing and Receiving Information

The fourth theme concentrated on sharing and receiving information. This could be defined as what kind and what information would be useful to customers as a motorist and would customers share it with other motorists. For example, how customers can help each other in matters related to vehicle maintenance. This could mean other service providers as well.

Attributes: This theme is dominated by attributes surrounding one distinct subject: information about vehicle maintenance. Participants mentioned several different attributes related to vehicle maintenance; two which rose above others were contact information for motorists and advertisement. Attributes related to vehicle maintenance costs included what kind of costs come from defects such as rust et cetera (average), at what stage of vehicle's lifecycle it would be good to sell compared on repairing, and what costs will there be good to expect in couple of years for a specific age vehicle. Again, web service connected to info screens was mentioned, including attributes check common remarks and defects, maintenance objects in advance before the inspection, and customers sharing thoughts related to vehicle maintenance. Identification with customer profile on info screens at the station to show same make, model, and age vehicles was reported as acceptable among participants. Average rejection percent, most common remarks, most common defects, in addition with checklist for vehicle service, screen at the inspection hall, maintenance history, and extranet for customer (give feedback, see information about own vehicle(s)) were reported as important or interesting features for information shown at the screen. In addition, information about seasonal maintenance was mentioned with reminders, specified to SMS or email, what does the inspection station offer for seasonal maintenance, and tips concerning seasonal maintenance of a vehicle. Features related to contact information for motorists includes information for young drivers, for example, what to do in car crash situations, commenting and sharing, repair shops for certain make and model vehicles, contact and booking info, and prices, connected on web pages and/or mobile application, possibility for replacement vehicle, checklists for different things related to motoring, and how fast can one get to maintenance. In addition, it was reported that customers could give grades for repair shops for customer service, maintenance and repairs by SMS. Since the info screens are at the moment mostly used for advertisement, it was included in several chains. The attributes included in advertisement were simple but still important for effective advertisement, considering the space where the ad's are presented: sound, simple description of what can a vehicle owner benefit from advertised products or services, clearly tell the product and price and how to get it, and the products advertised at the screen should be located close to but after the screen. Many participants pointed out that advertising only inspection station's additional services, products and ser-

vices related to them would be enough. In addition, it was specified to something that can be bought at same visit, driving school advertisement, offerings at the station, and offerings from partners, for example, if you have inspection here, you get discount from vehicle service there.

Consequences: Consequences for costs from maintaining a vehicle enable the vehicle owner to evaluate vehicle's condition before it is too late to sell it for someone who is able to repair it because they do expect that at certain stage of vehicle's lifecycle the maintenance costs are expected to rise. The outcomes for being able to check online and from info screens common remarks, defects, and maintenance objects of same make, model and age vehicles, and sharing thoughts about vehicle maintenance are information that is motivating vehicle owners to pay more attention on their vehicle's functions, as new vehicles demand different attention because of new technologies, all vehicle's functions need to work properly, motivating people on maintaining own vehicle by motivating others to discuss about maintenance and customer experiences. Furthermore, it was reported to be interesting to know what defects can be found from own vehicle, what can be expected in near future. In addition, participants reported outcomes such as when buying used vehicle there is no place to get the history information, some customers like to go along to the inspection or watch it in the hall, and there can be defects that vehicle owner does not even know that can be essential for security of the vehicle. These two sets of consequences were reported to provide information for making a decision to purchase vehicle and resulted in statement that motoring is expensive in Finland. Although identification with customer profile was mentioned, it was also stated that participants did not want to give out too specific information publicly. The participants emphasised that these days people have so much to remember and some things are forgotten, and customer does not necessarily know or remember all that needs to be done in certain time of the year, which would be enabled by providing information on seasonal maintenance and reminders. It was also mentioned to help in anticipating vehicle seasonal services. The participants felt that it is hard to find good vehicle repair shops, service quality in repair shops varies much, and finding good and reliable repair shop takes too much time. Furthermore, it was mentioned that by providing contact information also on web pages, or in an app, motorists are able to search information on the road. The interest towards and need for seeing advertisement, product and services offered at the station disappears quickly if there is any inconvenience, since the customer does not want to feel stupid. Other consequences reported were all other advertisement is irrelevant, competition is hard, these days the information float is huge, so the content of info screen needs to be carefully considered, and to know right away where to take vehicle into service if it does not pass the inspection.

Values: Also in this theme values emphasise cost efficiency, effortlessness and safety. Participants reported that it is important to be able to predict and prepare for future, to have fully functioning vehicle, to extend vehicle's life time,

adding safety, and lower maintenance costs. Closely related to before mentioned values are saving money, reducing uncertainty, and providing a reliable information source for motorists. Furthermore, it was reported to be good to know the history of a vehicle. Reasoning for not giving out too much information on them-selves was that the customer does not want to be recognisable. Seasonal maintenance would be easier to remember with reminders, resulting on the vehicle maintaining its resale value, which are closely related to values interesting information about own vehicle, a vehicle is in good condition and safe, learn to take care of own vehicle, and vehicle will not brake down due to negligence, that were mentioned with attributes information about same make, model, and age vehicles and web service. Avoiding rush peaks at repair shops was also mentioned with seasonal maintenance information. Contact information was reported useful because it enables functioning correctly in different situations on road, it provides interesting information, its value would rise when users add comments, and it would enable fast and easy vehicle service. Advertisement attributes allow more sales for the station and the partners, nice to know if there are other services for vehicle owners, easy vehicle maintenance, easy and fast visit, which in turn affects positively road safety. Figure 5 depicts the theme map for the theme "Sharing and receiving information" and illustrates the above relationships.

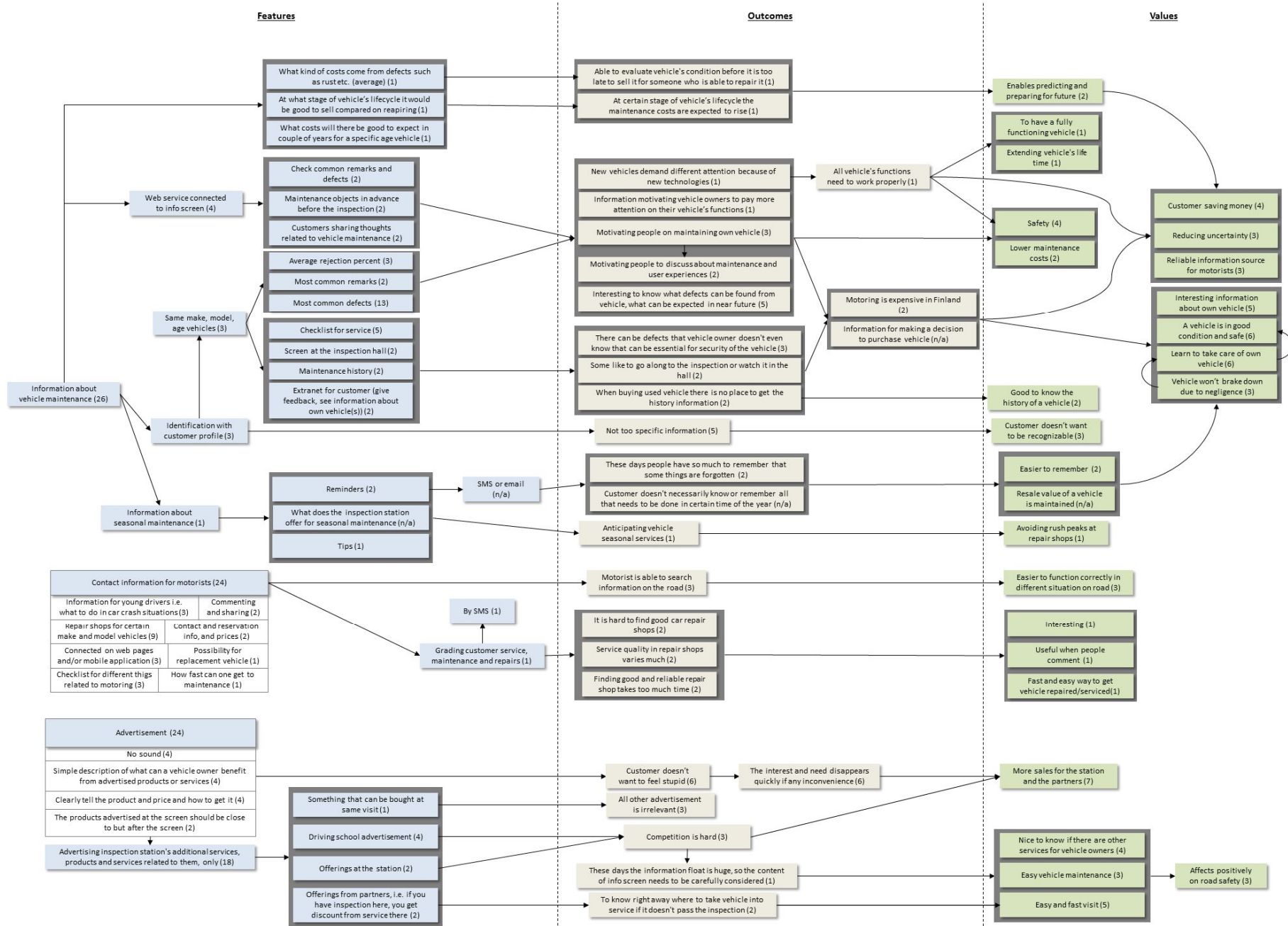


FIGURE 5 Theme 4: Sharing and receiving information

5.5 Theme Participating and Influencing on the Customer Experience

The fifth theme focused on an opportunity to influence on the content of info screens and to participate on production of service. This could be defined as an opportunity to participate and influence on the content of info screens, and on any other potential consumer information system's content or service creation. For example, how the customer and/or other customers could participate in creation of content or service related to info screens.

Attributes: This theme includes attributes that are distinctly related to attributes in other themes, such as interactivity of the screens and sharing information. Three main attributes include ability to select the content or subjects shown on the info screen, sharing and searching information, and visibility in social media. Participants emphasise the ability to select the content or subjects shown on the info screen and that there should be one screen per service at the location of the service. In addition, participants mentioned that the screen should show Ilta-lehti news instead of Yle news, and that the structure of content should be built in a way that there is one article per page and links to more specific information. Furthermore, it was mentioned in many occasions in this theme and in other themes as well, that the screen should be interactive, and to enable sharing and searching information attributes, the screen should be like web browser. Other attributes for sharing and searching information are inspection station sharing information, such as other services at the station and important changes in laws. Visibility in social media could be achieved by enabling tagging of inspection stations, for example tagging before the inspection and get a discount. Furthermore, reminder of the upcoming appointment few days earlier could also be connected to social media by rewarding the customer, for example, the earlier the inspection is done, the better the price for it. Sharing in social media could mean, for example, pictures from inspection station/permit service office enabled with camera integrated on the screen, inspector stories, and customer experiences. In addition essential for the visibility of the firm was reported to be setting locations for stations and offices in advance by the firm.

Consequences: The outcomes for being able to select the content using interactive screens are expected to help during rush hours at the stations or offices by enabling the customers to search information they need by themselves, those who does not have access to internet are able to get the information from info screens, which are related to the fact that customer does not have to queue to service advisor's to get more information. Furthermore, the customer does not want to follow same content again and again. As there are many services at ve-

hicle inspection stations, one info screen per service at the location where the service is was reported to help with this matter. Furthermore, this enables more directed content, where most essential for customers is to find information about what is needed in specific processes. In addition, it was mentioned that it is important to take into account different groups of people (age, culture) and that this kind of service would be contemporary. Updating motorists' knowledge was mentioned as a consequence for sharing and searching information. The motivation behind sharing content, on the screen as well as in social media by customers and the inspection firm, was reported to be making the processes more transparent, asking for support from friends for exciting event in life, sharing the experience with friends, content creation to social media on firm's pages, and to encourage people to go to inspection in time. Furthermore, participants mentioned that the focus should be in operations and safe vehicle instead of quotas and pointed out how customers value recommendations from friends over everything. If the locations are not ready in social media, tagging a location can be neglected. It was also mentioned that visibility and sharing in social media can assist in changing the character of inspections so that the customer feels they come for help, not to be judged.

Values: Also values in this theme are same as seen in other themes. Values emphasise learning and getting new information, easiness and pleasure and entertainment. Being able to select the content on the screen allows customers avoid queuing to the service advisor and help reduce uncertainty, add knowledge among customers effortlessly, which refers to making it easier for personnel, and it is reported to be nice to watch and read interesting content. If the screen does not have any interesting content, the customer does not pay any attention on it. Benefits for allowing more directed content, customers finding information on specific processes, taking into account different groups and having a contemporary service are customer getting correct information quickly, it clarifies the use of info screen, saving both customer's and inspector's time, and making it easier for different groups of people to visit inspection stations and to learn about safe driving. Learning the latest information was mentioned as a result of knowledge update, and in addition justice for attribute focus in operations and safe vehicle instead of quotas. Values for tagging and sharing on social media included recommendations from trusted sources, entertainment and experience, sharing the joy of passing a test and having a driver's license, generate reactions and content on social media, easier to remember the inspection in time, which reflects on customers saving money. Before mentioned set of values are part of contemporary brand creation and control. Furthermore, participants mentioned creating knowledge about the firm, which results in changing the image of vehicle inspections and humanising the inspections, from corporate level to human level. Figure 6 depicts the theme map for the theme "Participating and influencing on the customer experience" and illustrates the above relationships.

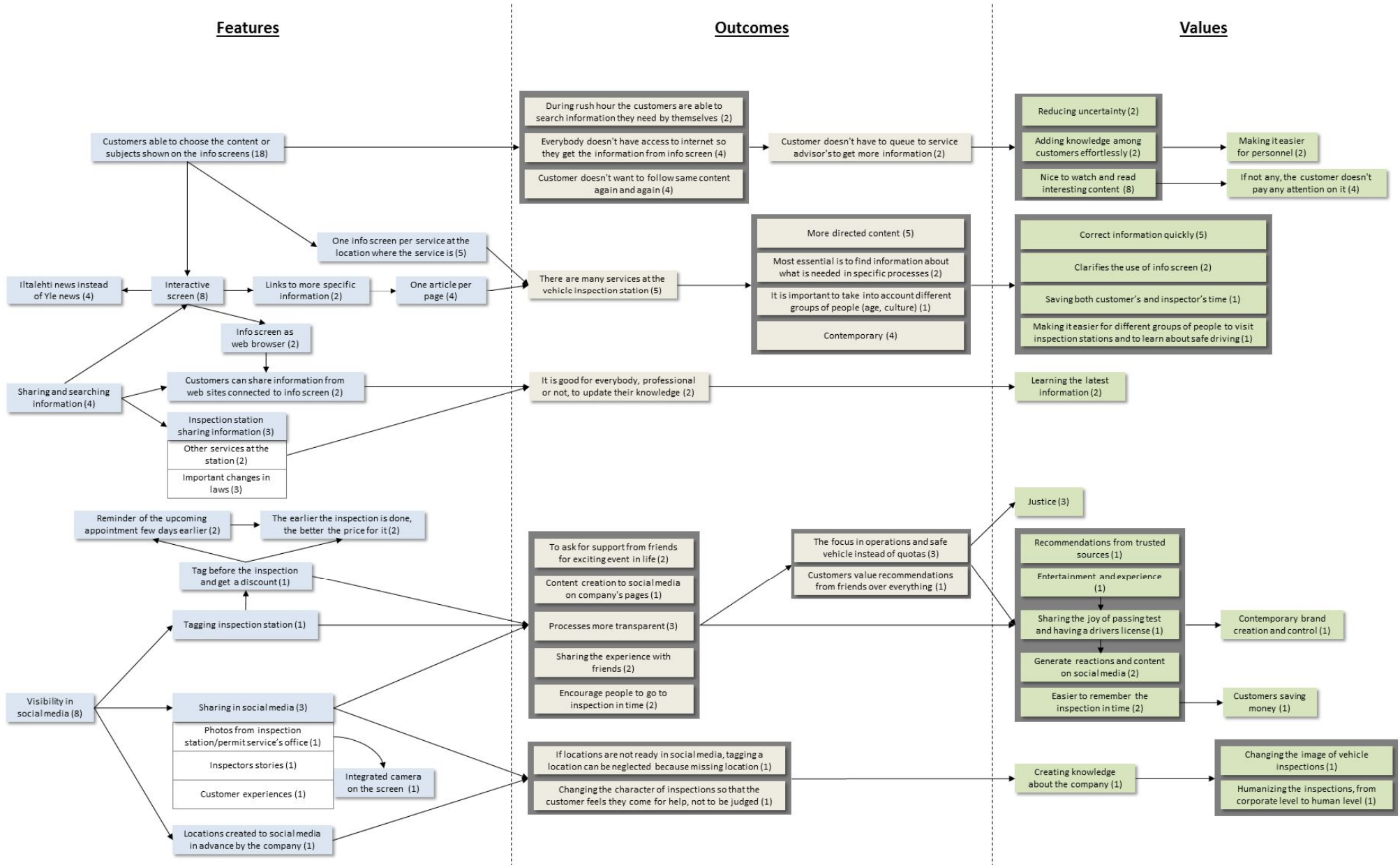


FIGURE 6 Theme 5: Participating and influencing on customer experience

5.6 Theme Customer-Oriented Services

The sixth theme concentrated on use and service experience related to info screens. This could be defined as all the experiences that can appear during or as a result from the use of info screens or the use of services related to info screens. For example, what functions, content (compare on guide boards, display boards) would the customer like from the info screen.

Attributes: This theme reflects how the service could be managed to more customer-oriented direction by using the info screens. This means that the content of the screens would be put into efficient use by providing information that has real time value for the customers. This theme includes three main feature sets with various attributes. Queue information for all services at the inspection station, information and guidance at the vehicle inspection station, and online service for driving tests and exams appointment booking, which all are included crucially on the whole service offering of the inspection stations and permit offices. Queue information for all services at the inspection station, and at permit service office is enabled by identifying the customer with registration and/or queue number, and the service should be at the screen and as web service, as it has been mentioned in other themes as well. Timetables were described to show vehicle processing time, inspection completion time, waiting times, available appointments, and upcoming booked appointments. In addition it should show timetables for other services as well. The inspection queue situation was reported to require to show how many vehicles are on the queue, which vehicles are under inspection and at what stage, and it should be presented as one vehicle per page and in real time, for example, "See how long the queue is at the moment" type of service. Rush hours were also mentioned as interesting and useful information, which should be presented as peak maps and also average quantity of inspections per time of day in web, which is also related to the example mentioned above. The second feature set information and guidance at the vehicle inspection is divided in two sets of attributes: preparing for inspections and other services, and guidance. Preparing is enabled with web service "Steps 1-2-3", what papers are needed to take with to the inspection, what forms and applications are needed in which cases, checklist to prepare the vehicle for inspection, and service prices explicitly. The guidance attributes include what is expected from the customer at the station, explicit instructions on what to do and where to go at the station for different service, which would be enabled by using customer profiles, visually introducing the inspection process, that includes inspections, terms, concepts, clarifying the web sites, clear definition what is the role of the authority; what is the role of police and what is the role of permit service office, frequently asked questions, for all services, enabled by search function and customers add questions by SMS/website/email, what services are in which locations, and information about the vehicle during the

inspection, including mandatory things that need to be working to pass the inspection and what steps are included in the inspection. Online service for driving tests and exams appointment booking service including instructor/driver's license students, processing times, prices and expenses explicitly, service for handing out applications and forms, identification with ID number, permit learners, SMS reminder of the upcoming appointment few days earlier, appointment confirmation (email and / or SMS), and visual explanation of driving instruction permit process.

Consequences: The outcomes resulting from the above attributes are more or less related on being able to prepare more carefully on the upcoming service and being able to participate on making the experience. Consequences for queue information for all services at the inspection station identification only for queuing, information for drive-in customers, duration of the visit, time is money, noticing the customer when they arrive to enrolment, when all inspectors are at work with vehicles, one reason being that customer with appointment wants the job done right away, and when in queue, customers have no idea what is the situation and how long will they have to wait. Rush hour peaks were mentioned to enable customer to see what time could be good to go to inspection, which as real-time information would be useful for persons who are able to come in at tight schedule, and as average information for persons who want to plan their day more specifically. These were also mentioned to be related to timetable attributes. Consequences for attributes included in preparing for the service were mentioned as being able to prepare better for the service or appointment and that customer forgets easily what to take with. Specifically for the checklist attribute it was reported that customers are able to avoid unnecessary rejections from small defects and able to check the vehicle before the inspection. The customer is interested on what is expected from them at the inspection so that they are aware how they can take part in creating smooth and nice experience and to know what is going to happen at the inspection station in advance. As it has been mentioned in other themes before, there are many different services at the stations/offices and many different customers in need of information and service, which is related to the need for explicit information about how to be at different services and guiding customer to right place. Furthermore, participants reported that with explicit information enabled by customer profiles could efficiently replace the notes on the walls guiding customers. Because all customers are not familiar with terms and concepts used at the field of vehicle inspections and maintaining, visual introduction for the inspection process and its terms would be in order. The present web sites were not ignored by the participants. On the contrary, it was mentioned how they are unclear, for example, one website says check the police web site and other says check the authority's web site, which makes it difficult to find definite information. In addition, by explaining the roles of different entities associated in services provided, many customers are confused when they come to the station, what to do, which form to fill, and so on. Frequently asked questions would enable customers to get answers on common questions about different services;

although participants also expressed concerns for customers adding questions and mentioned that some monitoring should be done on which questions to publish. Appointment booking service does not always work online and there is need to come to the station to make the booking, which points out the need for clearly informing which services are in which locations. Furthermore, participants reported that it looks like many things should be obvious to customers but they are not. By giving information about the vehicle during inspection with other attributes customer is able to see what is done to the vehicle, since all customers are not familiar with the inspection process. Getting parts for some vehicles can be challenging, which expresses the need for information about mandatory things that need to be working to pass the inspection and for the checklist for preparing for inspection as well. Consequences for online service for driving tests and exams appointment booking are handing out applications/forms from anywhere, at anytime and if customer does not have access to internet at home, the booking can be made on the screen. In addition, with reminders customer remembers the booked appointment better. Participants also reported that the big picture of the service and processes are not clear, concepts and terms are not easy to understand, and it is hard to get information about the expenses.

Values: Values of the participants reflect on the outcomes of the attributes mentioned above. Values emerging from this theme are highly related to the feeling of being well prepared and having an efficient and good experience, which in turn reflects on the need for customer oriented services. Customer does not want to be recognisable to other customers, so identification is mentioned to be used only in queuing. Information about the queue situation is being reported especially valuable for drive-in customers. In addition, it was reported that queue situation and timetables would enable better communicating cheaper prices in certain time of a day and balancing employees' workload throughout the day, which indicates how customers value fluent processes and fast services. Value managing time is reported to being related to all outcomes of queue information and timetables and resulting in value time to relax, which is also related to fastness of services. Fluent processes are reported to reduce irritation, because customers do not want to feel stupid and silly but they want an easy visit. Furthermore, related to feeling stupid and silly was reported by participants that customers want to be more prepared as they have no idea what is the situation and waiting time at the station, and they feel that by being able to prepare better for the service and having reminders would reduce unnecessary queuing and visits when customers see the information on screen and on web service. By being able to check the vehicle before inspection, customer is able to save money and time, and at the same time contribute in own safety, learning to take care of own vehicle, and affecting the outcome of the inspection, which also means avoiding unnecessary additional costs as well. These values are also reported to being related to reducing unnecessary queuing and visits when seeing information on the screen and on web service. By showing information about the vehicle during inspections and introducing the process, the customers

are more informed and there is no need to go along with the inspector, thus reducing insecurity among customers. To have customers willing to visit again at the same station and/or firm, and to improve and make the service and experience as effortless as possible participants mentioned that they want to know what is expected from them as customers. Furthermore, by giving more explicit, clear information by visually demonstrating and opening the concepts, customers know better what to do and where to go, therefore they are able to avoid and reduce inconvenience, frustration, confusion as they do not want to feel stupid and silly. In addition, these before mentioned four values are related again on having an easy visit, which in turn was mentioned with reducing uncertainty and functioning entity that is clear for all participants, resulting from clear definitions of roles of partners related to driving licenses and permit services. This in turn results in facilitating personnel's work, as does frequently asked questions and monitoring them to avoid irrelevant content. When the services are clearly, with real-time situation, mentioned to be located in certain offices or stations, customers do not need to search the service location and do unnecessary driving. The online service for driver's license and permit service customers was reported to be contemporary service, which makes the service easy for customers. With reminders the risk of the customer forgetting the appointment would be reduced, which in turn would help in avoiding congestion at customer service. Furthermore, when adding visual explanations of the processes participants reported that it would increase understanding, knowledge, and reduce confusion. Figure 7 depicts the theme map for the theme "Customer-oriented services" and illustrates the above relationships.

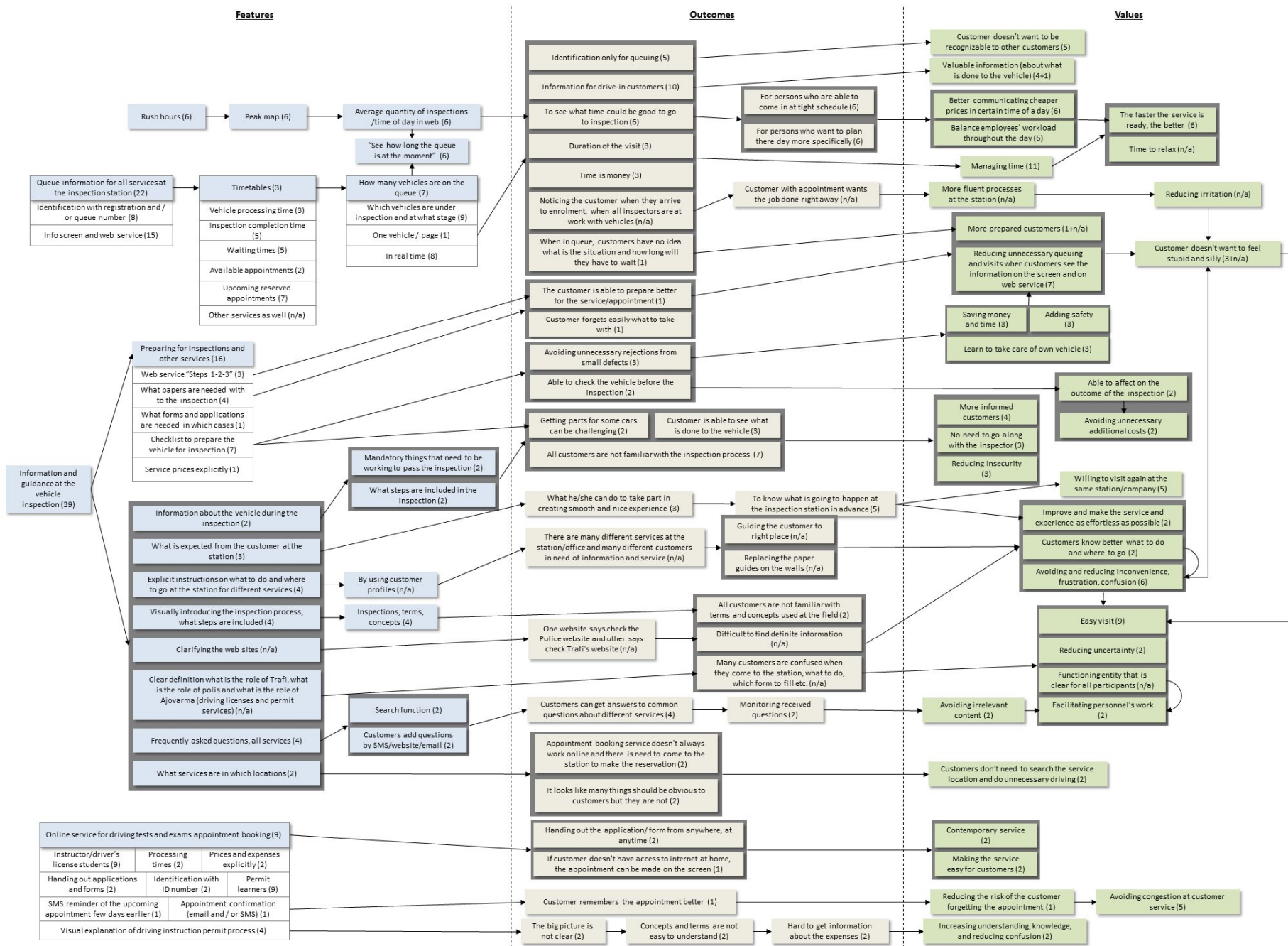


FIGURE 7 Theme 6: Customer-oriented services

6 DISCUSSION

The purpose of this study was to gain understanding of how value is co-created in vehicle inspection industry from the point of view of info screens. In this chapter, the findings from case study will be discussed and evaluated, and implications to research and practice will be given. The discussion compares past literature and the theoretical model used in this study, and answers on the research questions.

6.1 Research questions

The purpose of this study was to gain understanding of how value is co-created and experienced in the context of info screens at vehicle inspection stations. The vehicle inspection industry is regulated by laws which in turn set challenges on strategic business planning. Over the years the industry has been changing as regulations and laws have been altered in order to enable competition and price alterations aiming to offer better and geographically more suitable services for all customers. Most recent change enables the service providers to expand their service range to maintenance-related services and products and on the other hand, the change has opened new business opportunities for other firms in the vehicle industry by enabling them to start providing vehicle inspections. As a result, competition has increased and forced the service providers to develop their services and products. Info screens were utilised as a new marketing channel of leading service provider enabling new ways to serve the customers, provide information, and to answer to their changing needs. The main research question of this study was:

1. How is value co-created in the context of info screens at vehicle inspection stations?

To provide answers to this research question, a case study was carried out in vehicle inspection industry focusing on certain service provider's inspection stations and the info screens utilised at these stations. Info screens represent new technology adopted in marketing operations. The use of info screens in marketing is spreading among businesses, but effective utilisation of the screens is still in its early stages. To keep up with competition, vehicle inspection firms are in need of constant development on every aspect of business strategy. The selected research method revealed effectively how value is co-created at vehicle inspection stations in the context of info screens. The results indicate that value co-creation does exist in vehicle inspection industry as the participants expressed desire to participate in service production, for example, by preparing for the service, as customers need to perform certain activities before coming to the inspection station or permit office as part of almost every service.

Furthermore, the participants' statements indicate that they feel that they are unable to prepare for services because they lack information, or they do not understand the information that is available. In vehicle inspection services, the value is in having and driving a safe vehicle and being experienced when using the vehicle. During inspection, the value lies within the dialog between the customer and the expert (inspector) when the expert advises the customer and discusses the vehicle and the ways in which it has been prepared for the inspection. In permit services, the value is in successful service encounters and in activities enabled by the services, as the customer has been able to prepare for the service properly by getting the information needed and understanding it correctly. Consequently, the value co-creation is present in all of the services at vehicle inspection stations, thus making it a vital basic function of the services.

In order to get a comprehensive perspective on the effect of info screens and on the customers' thoughts, sub questions were included:

2. What are the needs and wishes of the customers that can be fulfilled at the vehicle inspection station with the assistance of info screens?
3. In what other ways can info screens be used to create a positive customer experience?

This study adopted the CIS framework by Tuunanen et al. (2010) in order to gain understanding of how value is co-created at the employer's vehicle inspection stations in the context of info screens, and to gather knowledge of the value propositions and value drivers related to info screens. The aim was to gain a better understanding of the customers, how they think, what they value, and what are their needs and goals. As customer experience cannot be designed and is holistic in nature, the service provider needs to understand all aspects related to service experience formation and the quality of the experience, and how it is assessed by the customer (Fisk, Brown & Bitner, 1993). The CIS framework supports the research objective and enables answering on the research questions as it focuses on consumer IS. Furthermore, the findings

indicate that the CIS framework can be adapted to study IS even in a strictly regulated industry such as the vehicle inspection industry.

The participants' statements provide good insights about their thoughts concerning the info screens as well as the business in general. The findings indicate that the needs are strongly related to information about the industry and its services, customers' vehicles and, how to maintain them, and road safety. Furthermore, participants expressed that by having better access to information, by considering the quality of the information, getting high quality information, and using digital services, the quality of service experience would improve. The participants' statements reveal that easiness for customers as well as for personnel are valued in addition to safety related issues. With regards to easiness, digital services connected to info screens were mentioned often, as they are perceived as services that facilitate the life of consumers. Furthermore, the participants provided a rich set of features for digital services, which indicates that there is an actual need for more comprehensive digital services than appointment booking, and that lead user engagement could be executed in IS development.

As the service experience is formed during the value creation, the results provide ways for designing service elements to enable positive service experiences. The attributes, consequences and values, described by the participants, represent service elements and reasoning why participants selected them. This enables the industry to develop their services to answer on customers' needs and, customer satisfaction, thus increasing long-term loyalty. According to the participants' statements, use of info screens can assist in creating positive service experiences mainly as information distribution channel. Furthermore, by connecting info screens and the content to digital services and social media, service experiences and the nature of the business as a whole could be improved, as it was mentioned several times by the participants that the vehicle inspections and related services are "a mandatory, once a year event". The main findings are discussed in more detail in next chapter.

6.2 Main findings

The findings of this study indicate that the CIS framework is an effective way of creating understanding of value co-creation in the context of info screens at vehicle inspection stations and to eliciting customers' emotions, needs and wishes as vehicle owners and motorists. From the research and theoretical approach, the framework deepens the understanding of concepts related to service marketing and furthermore, value co-creation and customer experience which are essential to enable the development of service business (Vargo & Lusch, 2004). The data analysis gave a good starting point in understanding the co-creation of value in vehicle inspection industry, in the context of info screens. The participants' ideas exposed the goals and reasoning behind value co-creation from the perspective of info screens and thus increased the understanding of the concept

of value co-creation. Furthermore, the results revealed many requirements for the info screens from customer point of view. The main findings are summarised in table 9.

TABLE 9 Main findings

ID	CIS elements	Theme	Main findings
1SVP	Construction of identities	Customer entertainment	Hedonic and emotional value. TV, news, using environmentally friendly materials
2SVP	Social nature of use	Sharing and receiving information related to vehicle industry (in general and information about vehicle inspections)	Information needed before the inspection, preparing for the inspection, vehicle maintenance, online service, information during inspections, extranet, seasonal maintenance, reminders, sharing experiences.
3SVP	Context of use	Use and operating environment of info screens	More than one info screens, located outside and/or where the services are, directing customer's eyes, the screen and its content easy on eyes, making it desirable to watch, considering older motorists.
4CVD	Service process experience	Customer-oriented services	Queue information for all services, information about the inspections, guidance at the inspection station, online service for driving tests and exams appointment booking, Definitions, language, FAQ.
5CVD	Participation in service production	Participating and influencing on the customer experience	Selecting the content and/or subject, interactive screen, share and search information, social media; sharing and advertising.
6CVD	Customer goals and outcome	Goals and objectives enabled by info screens	Information related to traffic, laws and regulation changes, contributing on road safety, general information about the industry, real-time information about traffic, fuel prices, demonstration videos, considering older motorists, safety, learning, online service.

The CIS framework consists of six elements divided as system value propositions and customer value drivers. System value propositions include construction of identities, social nature of use, and context of use which are designed to indicate features enabling value co-creation. Value drivers include service process experience, participation in service production, and customer goals and outcomes which reveal the reasoning driving the customer to co-create. The ongoing change in the field of vehicle inspections and particularly at the employers stations can be identified from the participants' answers and opinions. Furthermore, participants did not need much guiding to the subjects

of the interviews to reveal their needs and wishes towards positive customer experience related to info screens. The data gatherings revealed the fact that most customers still see vehicle inspection stations not as a business but as an authority without monetary goals.

The findings did not indicate any significant distribution between system value propositions and customer value drivers in the context of info screens at the vehicle inspection station, as can be seen from table 8 summarising the findings from data analysis. The theme maps overall include several similar features, outcomes and values in different CIS elements, for example, features interactive, connected to website (or online service connected to info screens), online service, outcomes related to getting explicit information about the services at the inspection stations as well as the regulations and laws related to driving and owning a vehicle, preparing for inspections and in general for vehicle defects. Repeating values are identified as easiness for customer as well as for personnel, safety, customer managing time, emotions such as feeling welcome, not feeling stupid and silly, reducing frustration and confusion, and being more informed. These values indicate that values mentioned by participants' are more emotional and utilitarian than hedonic.

The summary from data analysis (table 10) reveals that the most important CIS element and also the most important value driver was service process experience, which reflects the use and service experience related to info screens. This illustrates how the service could be managed towards customer oriented services by using info screens. The main findings from this CIS element and the theme *Customer-oriented services* indicate that there is a need for easy access services and willingness to participate in the service process: the participants want to be more prepared for the service at the vehicle inspection station. All the findings from this theme result in values like feeling welcome, more prepared, and having easy experience for all parties. This indicates the most a need for co-creation of value, as the participants strongly emphasise their need to be able to be more prepared for the service which in turn results in before mentioned feelings of service experience.

TABLE 10 Summary from data analysis

ID	CIS element	Theme	Chains
CVD4	Service process experience	Customer-oriented services	49
SVP2	Social nature of use	Sharing and receiving information related to vehicle industry	36
SVP3	Context of use	Use and operating environment of info screens	25
CVD6	Customer goals and outcome	Goals and objectives enabled by info screens	23
CVD5	Participation in service production	Participating and influencing on the customer experience	15
SVP1	Construction of identities	Customer entertainment	4

In addition, the social nature of use was the most relevant system value proposition as *Sharing and receiving information* related to vehicle industry was often selected theme. The theme represents the types of information that would be useful for the participants as motorists. It also represents the type of information participants share with other motorists, including other service providers. The participants revealed much information about their social nature of use, thus indicating that their needs rise from basic information exchange to more specified areas of the interests of motorists.

As the CIS element Customer goals and outcomes is characterised by the question of how IS can be developed with features that enable consumers to experience hedonic benefit from using the CIS and how this can be measured, the study conducted here gave a good starting point for researching this in the vehicle inspection industry. Though it is not the most important theme in this context, it supports other themes as its central motivation focuses on safety, and it indicates how participants see the inspection stations and the service providers as construction of safety. In this theme, the findings emphasise the participants' values and goals suggesting that in the environment of vehicle inspection industry, they are more utilitarian than hedonic.

Findings from these aforementioned three themes emphasise how customers derive hedonic value even though the service is as formal and regulated as vehicle inspection. Thus, the service encounters become more and more important in creating the experience and customers are interested in their role in the service process. This supports previous research where one of the frequent themes in literature is underlining the emotion and cognition in the formation of service experiences, which in turn are distinguishing features between experience quality and service quality (Juttner et al., 2013). Furthermore, the values driving the customers to co-create are both utilitarian and hedonic in the context of info screens in vehicle inspection environment.

Context of use was also identified as important system value proposition defined as use and operating environment of info screens. This emphasises the physical location of the info screen, where and how it is used, and how changes affect the quality of the service. Furthermore, the findings support previous research where it is stated that context of use has greater impact on the use of CIS than on organisational use of IS. (Tuunanen et al., 2012.) Though the other system value proposition elements of the CIS and the findings related to them indicate that the vehicle inspection customers are willing to participate in the value creation, the results also support the previous research of context of use and the importance of cultural aspects in IS use. The context of use in the results of this study is more focused on the physical location of the info screens. Participants' answers indicate that the context of use is as relevant as the age, culture and the situation, which impact on the use of info screens and customer profile in vehicle inspection stations.

The CIS element Participation in service production, which is also a value driver, was surprisingly often selected considering the environment it was investigated in. Participating in and influencing on the customer experience at the

vehicle inspection station is defined as an opportunity to participate and influence on the content of the info screens and on any other potential consumer information system's content or service creation. The participation in service production is seen in some level in all the themes, but in this theme it became the supporting construct, as the point of view was willingness to participate. The theme includes attributes and values that are distinctly related to other themes, such as interactivity of the screens, sharing information, and emphasising learning and getting information, easiness, and hedonic values related to social media.

The value proposition Construction of identities was found to cause some contradiction among participants; therefore it was not specifically created into a map but the theme *Customer entertainment* is related to it as the construction of identities is strongly related to hedonic value. At the data gathering participants were instructed to think about the role of the customer and services related to info screens that utilise the customer profile. The findings revealed situation dependent results, thus indicating that the participants might not be ready to adopt the use of customer profiles in public where there is a risk of being identified by other customers. Contrarily, some participants felt that other customers identifying them and their vehicle would not be such a restrictive factor in case of using customer profiles at the vehicle inspection stations. This indicates that the value co-creation through construction of identities could be possible through digital services produced by vehicle inspection entity as an expert of vehicles and safety.

6.3 Implications to research

This study shows that the co-creation of value in the context of info screens in vehicle inspection stations is potential in developing the industry towards modern, service-minded strategies and competence. In order to understand the concept of value co-creation in vehicle inspection environment, the CIS framework is an appropriate approach when focusing on info screens at the stations. The vehicle inspection industry utilises information technology throughout its services making the information major value proposition. Development of systems that integrate customer value drivers with value propositions is vital in these modern times of multi-channel and multi-device consumers, who do their own research online before stepping into a store or contacting the service provider, in vehicle inspection industry as well as any other service industry. The CIS framework supports this modern consumer behaviour and is applicable in various industries. In vehicle inspection industry the question remains how to engage the potential CIS users as the main service is determined by law and usually must be carried out only once a year.

The laddering interview provided rich data which helps to understanding the value co-creation as well as gathering insight about the value propositions and customer's value drivers. The study gives better understanding of the vehi-

cle inspection customers' mind-set and value constructs, as the industry has been under constant change, and the nature of the service has changed dramatically over the years. Furthermore, the study is in line with the CIS framework, though additional research is required about some constructs, such as the construction of identities, to further gain understanding about this value proposition and the constructs enabling it. This study proved that the laddering interview technique is adaptable on shorter interview times as well, and should be studied more to create a process for shorter interview times in order to collect same quality and amount of information as in longer interviews.

Though Vargo and Lusch (2004) state the markets have become a venue for proactive customer involvement, the vehicle inspection industry has always possessed features involving customers in services and the results of service encounters have always in some ways been dependent on the customer's actions as well, suggesting that the value co-creation has always been present. What has changed is the role the customers have adopted due to the shift in focus and better access to information. The results of this study indicate that value co-creation can occur in interaction between two parties, but they both do not necessarily need to be humans. The value co-creation can happen in interaction with the vehicle inspector, with service advisors, with driving test examiner. From the perspective of info screens, the customer is creating the value by his/her self in indirect interaction with the service provider. Furthermore, it can be drawn from the results of this case study that the co-creation of value can also emerge in a form of customers being more aware of their role and the expectations placed on them. This is in line with the literature of value co-creation as Prahalad and Ramaswamy (2004b) have argued that co-creation is not transferring activities from the firm to the customer as a type of self-service, customer as product manager or co-designing products and services, staging experiences where as it is customer participating on the service production in interaction with the firm. Furthermore, Prahalad and Ramaswamy point out that the co-creation process starts by recognising the role of the customer and the changes in it and customer determining the value as the service is consumed (Payne, Storbacka & Frow, 2007).

As the literature concerning the value co-creation suggested, the value co-creation does not always consist of the customer directly participating in the production of the service (Grönroos, 2011; Grönroos & Voima, 2013). The role of the customer needs to be reconsidered as it has changed from passive to active, from isolated to connected and from unaware to informed (Pralhad & Ramaswamy, 2004a), which means that there are several ways to utilise this in favour of the industry. Furthermore, as customers are more informed today and they have better access to information (Payne, Storbacka & Frow, 2007); they also crave for more information, which can also be seen from the data analysis of this study. However, when considering the industry in question, the responsibilities of the participants of value co-creation need to be taken into consideration as well. The findings from the theme Goals and objectives suggest that the service features are indeed linked to customer needs, as is stated in previous

research (Tuunanen et al., 2010). There is some overlap between the themes constructed during data analysis, particularly from the perspective of the customer goals and objectives focusing on the utilitarian and hedonic values and outcomes. The utilitarian values are present strongly, though the hedonic values are important based on the participants statements, and they should be more studied within the vehicle inspection industry.

The context, in which this study was conducted, was formerly a part of government administration and is still quite rigid and dependent on the changes of laws. For its customers', the service that the industry provides is often perceived as a "once a year must, as the law says so" service. This thesis is one of the few studies focusing on the ICT and marketing perspective of the vehicle inspection industry as the research has mainly been focusing on the technical engineering point of view. The ICT and marketing are, with the rest of the functions in the firms within the industry, very dependent on the actions of the government and changes in laws, which create challenges in making long-term investment and strategic plans when considering new innovation adoption. Important implication for the research society is the challenging profile of the case organisation and how it was handled in order to succeed in data collection. The study indicates that with proper planning and preparation, the challenges and problems can be avoided. The interviews were conducted in one fourth of the time the laddering technique usually takes, which requires from the interviewer a more careful preparation in order to set the mood for the participant quickly and continue to the questions. Testing the list of stimuli and the conducting the interviews in real time but with different subjects is in order for the interviewer to be effective in the actual interview situation. The list of stimuli needs to be short in describing the stimuli as well as written in common language so that it can be understood by all the customers regardless of their background, age or education level.

6.4 Implications to practice

The findings of this thesis indicate, that value co-creation is already present at vehicle inspection stations, outside the context of info screens, yet it has not been recognised and utilised as a part of strategy. The findings also imply that much of the info screens' potential is still unused, and the participants' statements are pointing towards the needs they are feeling at the moment, that can be answered to with info screens. The maps provide tools and guides on understanding what features of the info screens are valued by the participants, how the value is co-created through the info screens and service design suggestions how to develop the business. The maps represent new way of thinking, full service-dominant logic, where service experiences are created through value co-creation, in interaction with the customer. The results from data analysis provided many ideas for the info screens, which in turn require careful strategic planning for the use of info screens. It is clear that the show

time and the time one customer sees the content are not long, which sets limits to the content shown on the screens. Finding the balance between the content, the customers' needs, and the show time in order to create positive service experiences is challenging, thus requiring strategic definitions for the info screens, starting from the goals of the main business. The main implications to practise are summarised in table 11.

TABLE 11 Summary from the main practical implications

ID	Main implication
1	Value co-creation exists from the customer's perspective
2	To change the nature of the industry, value co-creation should be taken into effective use
3	The info screens could be utilised more effectively in order to create more positive service experiences
3	Customers expect more transparency
4	The content of the info screens should be situational

As mentioned earlier, from the perspective of the customer, value is already co-created as there are several actions that customer's need to take in order to have a successful service encounter. The main value proposition of the vehicle inspection stations is the inspections, where the value comes from the safety of the vehicle when it is used in the traffic. The participants' statements indicate that they feel they are already participating in the service as there are many things that need to be done and taken with when coming to the station regardless of the service in question. The data analysis suggests that the participants are not clearly aware of the actions they need to take before coming to station, or their role in the service. The participants' value easiness over most other values revealed during the data analysis, and they emphasise easiness for them as customer as well as to the personnel of the stations. Part of the easiness of the experience is being aware of the actions required from the customers, including knowing their role in the service.

As the participants' value easiness and the feeling emerging from the assurance of knowing what to do, where to go and what is required from the customer, the participants assess the service experience holistically from the perceptions they have about the value judgement after service. As service experience, including customer satisfaction, is the outcome of value creation, inserting the value co-creation as a part of service design, possibly via info screens, the nature and the image of the vehicle inspections and other services at the station could be changed via positive service experiences. The info screens have high potential in creating positive service experiences as the industry is highly regulated and ruled by laws, which inevitably and ultimately affect the service experience as well and usually not in the most positive way.

Furthermore, visibility in social media is a strong influencer of the service experience in that it is a modern way to be seen and heard as a firm, and it impacts on the firm image. Even though it was not mentioned by the participants

that often, it can still be considered an effective way of creating positive experiences and changing the image of the industry. Although the nature of social media consists of the fact that it is not always in direct control of the firm, it is worth the risk as it adds to the transparency and is in general seen as a positive thing, and should not be overlooked merely for the possibility of negative feedback. (Kaplan & Haenlein, 2010.) The communication and engaging with the customer is taken into a totally different level in social media compared to traditional communication between a firm and its customers, and it provides higher efficiency at lower costs. But it also requires totally different way of thinking, humbleness, and more certain “unprofessionalism” in order to win the crowds’ attention, and as a reward they might even provide some “inside information” on how to be better in the future. (Kaplan & Haenlein, 2010.)

With this, the findings indicate the need for more transparent actions from the industry of vehicle inspections and driving test services. This also includes providing the customer with information of all of the services provided by the station, which again leads to the values mentioned by the participants, such as easiness and being more aware. Furthermore, the participants shared ideas for information access, and the info screen was seen as very potential device. How the info screens should then be utilised more effectively in order to affect the service experience more positively, is being answered on the theme maps presented before. The participants’ statements provided rich information about what their needs and goals are, and the view they had on how the info screens should be used, was fairly unanimous. Although it is good to consider the affect that the recent law and regulation changes had on the statements, it can still be stated that the content and the meaning of info screens should be situation-related. The advertisement was also mentioned and caused some contradiction among participants, some mentioning it in more negative sense where as some found it positive.

Value propositions

Findings from theme *Customer entertainment* provide insight of the needs for hedonic value, as the customers do not want to feel the waiting; instead they want the time spent at the station to run faster, and some customers appreciate it when they can spend their time doing something useful. This theme includes the least amount of chains indicating that this is not the most important theme in the minds of the participants. News and weather are seen as basic content, and the results of data analysis reveal that the participants see the potential of the info screens in other content than basic news and weather. The values presented in this theme map also indicate that participants would like to interact with other customers, though the social interaction with strangers is not a habit in the Finnish culture. Furthermore, the value co-creation presents itself here among the customers as they interact with each other. The use of environmentally friendly materials can be integrated in the hedonic values, such as feeling better about oneself when visiting a vehicle stations which considers environ-

mental things, and shows it as well. From this perspective, the CIS element construction of identities is seen as caring for environmental factors that are often seen as part of individual's identity.

Theme *Sharing and receiving information* provides rich information about the value propositions mentioned by the participants, again stating the importance of information provided in real time and as a web service. This theme has many overlaps, for example with value driver *Goals and objectives enabled by info screens*. Furthermore, it provides useful ideas for CIS development for motorists, and it indicates that for the development of CIS lead user engagement could be beneficial. As participants mentioned, information needed before the inspection, information for vehicle owner to own and maintain the vehicle and help in decision-making in issues regarding owning a vehicle provides ideas for service and CIS design on a whole new level. These ideas represent the future directions for developing the business, and should not be ignored though they require investments and fast pace development.

The feature advertisement is more specifically presented in this theme as its meaning here is different than, for example, from the theme *Goals and objectives enabled by info screens*. Here, according to the participants, the advertisement represents the information access perspective. This theme also represents the value propositions leading to real value co-creation, as the customer is able to get more information, can prepare for the inspection and with successful co-creation is directly able to affect and participate in the service production.

Findings from *Use and operating environment of info screens* theme indicate that the location of the info screen is crucial for participants as this theme has been selected quite often. The participants stated that there should be more than one screen in order to have more targeted content, thus serving the customers better, as well as making the personnel's work easier by providing more information, with easy access for the customers. The participants also provided a clear definition for the locations of the screens, while keeping in mind the assumed objective of the screens at the same time. This theme map provides a good guide for placing the screens in a way that it can be seen from the right places and it looks inviting, with no distractions and no need for any effort from customers. The main message from this theme is that the use and operating environment of the screens need to be designed from the customer perspective. The location and the appearance of the screens are directly linked to the customer's interest towards the screens, and indirectly to customer's interest towards service provider's services.

Value drivers

Goals and objectives enabled by info screens theme presents the participants' value drivers when considering the vehicle inspections and other services provided at the stations, in the context of info screens. The most popular feature for the screens in this theme was interactivity, which served as a basis for other features, which in turn expressed the need for more information. The map from this theme provides a good set of features for the content of the screens, pre-

senting the participants' goals and objectives as motorists. Values such as learning, safety on road, desire to know more about traffic and ease the life of motorist are mentioned, and the vehicle inspection station is seen as a good party to provide such information. The theme map also indicates that even though the info screen shows advertisement of the products, the participants' statements suggest that the advertisement does not provide wanted outcomes. According to this theme map, the value co-creation process starts by providing the information and features via info screens to enable the interaction with the personnel at the station. Value itself is created when the values mentioned by the participants are fulfilled in action.

The *Participating in and influencing on the customer experience* theme as a value driver again contributes to the feature interactivity of the screens and indicates how the participants see the potential of the info screens in creating a positive service experience with value co-creation. Again, the information access is seen as an important value, as receiving it and sharing it. Despite the fact that the participants mentioning the sharing feature were uncertain how it would really work, they pointed out that it would be useful. Furthermore, reminders mentioned in other theme maps as well are seen as valuable tools for vehicle owners to remember certain maintenance issues in order to keep the vehicle in good condition. This theme map provides valuable tool for the service provider as well, if the features interactivity and connected to a web service would be utilised, enabling measuring of the customer satisfaction on a whole new level. By following how the customers use info screens, the services can be developed to a direction that customers want and perceive, thus resulting in more satisfied and committed customers. This theme map also indicates how participants want to participate in and influence on the service, and participate in the development of services. Visibility in social media, being a strong influencer on the service experience, would together with interactive info screens enable changing the image of the organisation and create positive service experiences.

Theme map *Customer-oriented services*, being the most popular theme and value driver, reveals the information needed during the inspections or other services. The information mentioned by the participants includes preliminary information for the day of the inspection and information during the inspection which would result in better service experiences. Again, some overlap can be seen with themes *Goals and objectives enabled by info screens*, *Sharing and receiving information* and *Participating in and influencing on the customer experience* mostly with values, such as easiness and reducing negative feelings such as uncertainty.

Where to go from here depends on the question of what does the industry consider to be important when considering the development of the image of the industry, and its status in the eyes of the customers. Surely, the industry should be more studied in this area to gain sustainable understanding of the customers' values in order to develop the industry in the right direction. The customers' role is changing and it is essential to put the service-dominant logic in front of

the business strategy in order to develop the industry into the right direction, as the laws and regulations of the main business change constantly and might not be able to provide sustainable advantage in long term.

7 CONCLUSION

In this final chapter the conclusion of the thesis is presented. The outcomes of the research are summarised and the linkage between the results, objectives and questions are presented. Furthermore, the contributions for research and practise, and limitations for the study are discussed. Lastly, topics for future research are presented.

7.1 Summary

The focus in vehicle inspection industry has been centred on vehicle inspections, rather than the customer service, which the business actually consists of. The industry has been studied mainly from the technical perspective, leaving the customer service and marketing aspects undiscovered, which inevitably results in a lack of understanding the customer's needs. Furthermore, the image of the industry has maintained its historical position born from the idea that the inspector is "the authority feared by everyone", regardless of efforts done to change it. The origins of this study begin from the law and regulation changes enabling the industry to develop its business to other vehicle maintenance and safety related areas, thus raising questions about the customers how they feel, what they need, and what are their objectives that could be fulfilled with new services and products.

As service experience is created during and after value creation in interaction with the firm and the customer, the perspective of this study was in creating understanding of how value is co-created in the context of vehicle inspection stations. The focus was on info screens, which represent a new technology utilised in marketing actions at the employer's stations. Furthermore, the aim was to explore the value propositions and value drivers related to info screens in order to gain insights about the customers' needs and objectives. To provide answers on these issues, a single case study was conducted at vehicle inspection stations. For investigating value co-creation, the CIS framework was adopted as

a framework for value co-creation, also including value proposals and value drivers. A method for data collection was selected to be interviews conducted with laddering technique as it enabled to gather rich data about how the participants perceived the value co-creation in the context of info screens at the vehicle inspection station.

In total, 26 participants were interviewed at the inspections stations of the employer. The data analysis was conducted using Critical Success Chain (CSC) model in order to create six meaningful maps illustrating visualised chains related to CIS framework elements. The findings drawn from the chains and maps indicate that from the customer's perspective the value co-creation in the context of vehicle inspections already exists, but it has not been intentionally adopted. The vehicle inspection environment in context of the info screens provides a variety of different features contributing to value co-creation between the service provider and the customer. The data analysis provided rich understanding of the customer's needs and objectives challenging the industry in utilising this knowledge in their strategies and ultimately creating positive service experiences.

The CIS framework proved to be an appropriate model in understanding and investigating value co-creation in the context of info screens in vehicle inspection environment, as it includes the system value proposals enabling the value co-creation and the value drivers revealing the reasoning driving to co-create value. The findings from data analysis did not indicate any significant distribution between system value propositions and customer value drivers, though some overlapping exists. The most important theme was the *Customer-oriented services* reflecting the use and service experience related to info screens, indicating the need for easy access services as well as the willingness to participate on the service process and thus the need to be more prepared for the service at the vehicle inspection station. Overall, the values mentioned by the participants were often related to the easiness of the service, for customers as well as to the personnel. Also safety issues and feelings related to visiting the vehicle inspection stations were popular. The participants saw great potential in info screens as assisting to create service experience, mostly related to the access of information.

Thematic maps created from the data provide an overall view to the emerging value co-creation opportunities in the context of info screens at vehicle inspection stations, which can be seen as challenging because of the rigid and much regulated features of the industry. Furthermore, gathering demographic information from the participants would have to be taken away from the already short interview time. Although this research provided some understanding about the value co-creation and the customers, more research is needed in order to develop the service experiences. In the context of the info screens, more research is needed to reveal their full potential among all entities related to the industry, as this research only investigated the BtoC customer perspective. Furthermore, in changing the image of the industry, a comprehensive understanding of the customers' perceptions towards the services provided at the

inspection stations requires more research as the vehicle industry is constantly developing, as well, in line with the digital and technological development.

7.2 Contributions to research and practice

This study has some contributions to research as well as to practice as it aims to gather understanding of value co-creation in the context of info screens at vehicle inspection stations. The results bring out interesting aspects about Finnish consumers contributing on consumer behaviour research and value creation, and also on CIS development studies. The study supports previous literature by stating that value co-creation does not necessarily mean direct participation in the production of the service and that the service provider only provides value propositions and the value is created in use by the customer, resulting in service experience. Better access to information has changed customers' role throughout the service industry making the customers more aware of their role and what is expected from them. As the customers' role changes to active and informed, the service industry needs to reconsider its value propositions and take new perspective in service design. Information is central in vehicle inspection services and results from this study indicate that the customers are in need for more information related to laws and regulations concerning motorists. Also, the customers want to be more involved in service production and learn about their vehicles. The results indicate that the customers seek positive service experiences and are willing to co-create these experiences, which is in line with previous literature stating that the experiences are co-created through interactions (i.e. Juttner, Schaffner, Windler & Maklan, 2010; Vargo, Lusch & Akaka, 2010). The participants' statements also indicate what has already been presented in previous research: customer experience is a source of sustainable competitive advantage as customer satisfaction results in long-term loyalty (Meyer & Schwager, 2007; Oliver, 1997).

From a practical point of view, the study provided understanding about value co-creation as a concept, how it manifests at vehicle inspection stations, and how to enable it in the context of info screens. The results are in line with literature concerning eliciting customers' emotions, needs and wishes in revealing a full potential of the info screens. The CIS framework and the laddering interview technique proved to be beneficial in this context. The maps from data analysis provide tools for vehicle inspection industry to utilize the info screens fully in providing best settings for positive customer experience. The maps also support the literature on value co-creation as value propositions and value drivers illustrated in the maps represent operant resources. According to S-D logic, operant resources are the fundamental sources of value and drivers of value creation (Vargo, Lusch & Akaka, 2010). The study results indicate that value co-creation exists from the customers' perspective, as the customer needs to be prepared at some level for all the services provided in order to have positive service experience. In order to change the nature of the industry, value co-

creation should be taken into effective use by gaining understanding of it as a whole and finally adopt it to the business strategy. In creating positive customer experiences the info screens could be utilised more effectively by utilising the value propositions and value drivers provided in the theme maps. Furthermore, customers expect more transparency, which can be answered by providing better access to information, with certain features mentioned on the theme maps making the customer more willing to use the information. The content of the info screens should be situational, meaning that as part of effective utilisation of the info screens is that it should be used as an info screen, emphasising the word info. The name "info screen" confuses the participants in this study, which indicates that the basic functions of the info screens are not in line with the name.

From value propositions themes Use and operating environment of info screen and *Sharing and receiving information* highlights the location of the screens at the stations and digital services as access to information. The participants' statements provide guides on how the screens should be placed at the stations from the point of view of the customers, and why it is important to consider the place of the screens. The participants also discussed about target marketing and mentioned how having more than one screens at the station could enable more targeted marketing. Use and operating environment of the screens is important to consider from customer perspective as location and appearance of the screens are directly linked to the customers' interest towards the screens, finally affecting on customer's interest towards services. Theme *Sharing and receiving information* provides understanding of the customers' needs as a motorist indicating need for digital services provided by vehicle inspection industry. Theme *Customer entertainment* represents the hedonic value propositions mentioned by the participants. Although this theme was not frequently selected, it should be noticed as the hedonic values with their social aspects are important in adopting information systems (Lamb & Kling, 2003).

The most popular value driver theme is *Customer-oriented services* focuses on the information available for the customers at vehicle inspection stations and the participants' need for access to this information. Value for the participants from having this information is in feeling easiness and reducing uncertainty. Theme *Goals and objectives enabled by info screens* focus on features of the info screen and its content. According to the participants vehicle inspection provider is appropriate firm to provide information related to road safety, laws and regulations of motorists, with interactive features such as info screens connected to web service. By providing this kind of information on the info screens enables interaction with the firm, finally resulting in co-creation of value. Theme *Participating and influencing on the customer experience* is closely related to previously mentioned theme as it also contributes on information access and sharing. In this map social media is also mentioned as a strong influencer on customer experience, which is also related to the hedonic values such as being able to share things with friends. This theme map also provides tools for following cus-

tomer behaviour, when the interactivity of the screens and digital services connected to them are implemented.

The feature advertisement had surprisingly much attention among participants, indicating that advertisement is important when done correctly. Advertisement was mentioned in several contexts and it can be found in value proposition theme *Sharing and receiving information* and value driver *Goals and objectives enabled by info screens*. In theme *Sharing and receiving information* advertisement feature focuses on sharing information for the customers, resulting in value co-creation, as more informed customer can better affect and participate on the service production.

Previously mentioned value drivers and value propositions are in line with the framework value co-creation of consumer information systems. They consist of utilitarian and hedonic values with rational and emotional assessments of utility of info screens and digital services related to the screen. The maps illustrate values behind participants' statements about features and consequences. This study proved that the CIS framework is more than suitable for investigating this industry and its customers in order to gain understanding at the same time about certain context, the info screens, as well as modern customers' needs and objectives, enabling service development.

The laddering technique used in interviews was found to be adaptable to the challenging environment, in which the interviews were conducted, and provided new information about what to take into account when planning the interviews in similar conditions. As the interviews were conducted in one fourth of the time the laddering technique usually takes, more careful preparing is required from the interviewer. It is also necessary to be able to adapt to quickly changing situations. The interviewer also needs to attain persistence in order to collect a sufficient amount of participants, as when the time to conduct the interview is shorter and the amount of participants needed is higher. Although the environment or conditions can change during the interviews, it is still good practice to create thorough plan for the interviews in every location if there are several locations in which the data collection is to be done. By doing so, the interviewer is more prepared to alter the plan more efficiently.

When considering the modern world in which development of digital services is in focus and essential for firms to keep up with the competition, the demand for fast pace development and research processes exists. As the CIS model has proved to be appropriate in eliciting features for information system and also service processes, the development of the model should be directed towards fast pace IS development. Proper tools for conducting research among consumers, analysing the collected data, and getting results faster are in order when studying for example retail markets. Furthermore, when conducting a research for firm, the potential of study results might not always be clear for the firm. In case of the CIS framework, a model for the firm to utilise the study results more efficiently in fast pace IS development could also be included on the framework.

7.3 Limitations

Although the research has followed a rigorous research process, there are some limitations. The CIS framework used does not take into account every aspect of value co-creation in CIS, such being management of CIS and technical issues as cloud computing and integrating it to CIS. In addition, the vehicle inspection industry is seen as a challenging environment and therefore the study and its results might emphasise some features or elements that are not relevant in the context of the info screens. The participants were limited to consumer customers, which can impact on the perspective of the results. Furthermore, there may be missing features that the participants may not be aware of, and those may contribute to the user experience of info screens in that the participants relied on their experiences with similar technologies and based on the stimuli used in the study. Therefore participants may have selected a feature believing it may lead to certain application. Although phrasing of the stimuli was carefully considered, with more testing the stimuli might have provided more or different ideas. When considering the amount of participants taken for this study, the 26 participants were seen as sufficient, and the rich data set of requirements collected do not indicate any flaws in the research process, although in literature the number of interviews has been recommended to be 30 (Peffer et al., 2003; Tuunanen, 2005).

As for the knowledge of the researcher, since this was the first study of value co-creation in the vehicle inspection industry, some theory could have been missed, thus affecting the list of stimuli. Furthermore, the participants did not suggest any additional themes besides the six themes provided, which does not mean that the CIS framework included all the possible value drivers or proposals. Also, the list of stimuli might have had other deficiencies which in turn might have impacted on the theme maps as stimuli were used in illustrating the maps. The interviews were conducted in Finnish and translated into English during the analysis phase, which could have affected the interpretation of participant's associations or statements incorrectly, or could have led the interviewer to miss beginnings of association chains, consequences or values. Also, the translation could have altered the original meaning of the participant. Though the findings of this study are in line with previous research, which indicates that there are no major deficiencies, the theme maps might have missed some links as they represent the associations of the participants.

During the interviews, the major limitation was the time available for conducting one interview. Even though the data gathered in the short time per participants was rich, having more time could have provided more profound data set, as noticed during data analysis. Had the interviewer been more experienced, the short time at hand might not have been an issue, nor would the interviewer have needed as much time to prepare the interviews. Despite the fact that some participants had more time available and were able to stay longer in an interview, the interviewer could have taken this into account as well when

preparing for the interviews, thus being able to adjust to the situation faster. Some participants were also busy, which may have decreased their association chains.

As the time was relatively limited, setting the customer on the right mood could have been done more thoroughly, which might have had an effect on the point where frustration started to form in some of the participants during interviews. Also, when setting the participant on the right mood, the customer waiting area was available for a few interviews and could have impacted differently on the participant's statements, as he or she was able to see the info screens throughout the interview. One significant limitation for this study is the selection of localities for data collection and its limiting factors. The customer's needs and wants, as well as the use of IS, vary across the country, which can have an effect on the data. Due to schedules, it was not possible to spread out the interviews more widely throughout the country. Still, for authenticating the results the sample group exceeded the expectations in size, and the distribution was fairly good. Lastly, the participants were not asked for any demographic information on the request of the employer. Gathering of the demographic information could have caused a negative impact when utilising the results of this thesis in service development.

The environment in which the interviews were conducted was planned to be a quiet room separate from the customer waiting area. This was not always possible to arrange and in some locations the interview space was not ideal for conducting the interviews, but otherwise they were proper in setting the participant in the right mood for the interviews. The environment requires certain features from the interviewer as well, as the customers come and go, and they might seem as they do not want anybody to disturb them. Still, when contacted, the customers did show interest towards the interviews, thus indicating certain courage and social skills from the interviewer to be able to collect the right amount of participants in this kind of environment. Furthermore, the interviewer must be able to change plans in minutes, as the environment can change fast, and make use of what is available at the moment of the interview. Sometimes it might not be possible to conduct the interviews alone with the participants, which also sets some challenges and might result in losing the participant.

7.4 Future research

This study has set a stage for understanding the concept of value co-creation in CIS, which represents the future development of service industries. The industry of vehicle inspections has not been studied much from the customer's perspective, which is in need of urgent attention for the development of the industry. For future research, the understanding of value co-creation in the context of info screens as well as the industry as a whole needs to be studied more thoroughly in order to develop customer experiences through service design. An

interesting pathway for future research is to study the service experience and the ways in which it is formed to be able to develop it through value proposals. Future research is also required from the perspective of business to business customers and other partners, internal and external, to gain a comprehensive understanding. For example, a longitudinal study including partners in addition to customers and personnel could provide a wide understanding of the present situation and allow also investigating developments made over time.

One interesting way for the vehicle inspection industry is the development of CIS, which has proved to be a significant development path in consumer markets. Especially understanding the value drivers of motorist customer's needs to be more studied, and that requires more participants across the country. Furthermore, the findings from this study indicate that the construction of identities in the industry of vehicle inspections as well as CIS in the context of the industry requires more research as construction of identities is important construct of system value propositions. Even though the construction of identities element was found with contradictions in this study, with more research it might prove to be the key construct in CIS acceptance and adoption among motorists.

As consumers in general seem to be willing to take part in this kind of studies, one interesting path to study could be consumers' desire to give personal information about themselves in order to have more personalised services. The engagement of users who are not as familiar with, for example, digital services, has found to be challenging and demands more attention for the participation and sharing constructs to actually act as value proposition. The CIS model proved to be suitable for this kind of research concerning consumers, therefore it should be developed towards, for example, retail trade and travelling industries. The CIS model could be beneficial in these industries in eliciting features for digital services as well as for consumer information systems. One interesting research question could be does the development of Iot (internet of things) impact on the constructs of the CIS framework and if so, how and in what level.

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APPENDIX 1 STIMULI THEME LIST

Please read following seven themes. Which two of these themes are most interesting to you? You can also present new themes (item 7). Next, think which of these two themes is more interesting to you?

1. **The role of the customer:** Think how the customer experience at the vehicle inspection station could be improved with services related to info screens and exploit your own customer profile (customer information).
2. **Sharing and receiving information:** Think what kind and what information would be useful to you as a motorist and would you share it with other motorists. For example, how customers can help each other in matters related to vehicle maintenance.
3. **Use and operating environment of info screens:** Think where the info screen would be easiest to follow. Think how changes in the environment affect operation and efficiency, content, quality of service, etc
4. **Use and service experience related to info screens:** Think what functions, content (compare on guide boards, display boards) would you like from the info screen.
5. **The opportunity to influence on the content of info screens or participate in the production of service:** Consider the opportunity to participate and influence on the content of info screens. Think how you and/or other customers could participate in the creation of content or service.
6. **Goals and objectives enabled by info screens:** Think what problems and needs of motorists could be solved with services enabled by info screens, at the vehicle inspection station as well as outside it.
7. **What other theme is important for you when you think about vehicle inspection station's info screens and services enabled by the screens?**