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**Faculty of Management**

**CUSTOMER PERSPECTIVE TO SHARING LOCATION BASED DATA**

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Supervisor: Hannu Saarijärvi  
Author: Zahedul Islam

## Abstract

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Location Based Service (LBS) has the potential to be one of the most influential aspects in the digital business world. LBS opens a large amount of opportunities to the business world and gives access to customers directly in real time. LBS is capable of creating customer value by delivering context-relevant messages directly to customers based on their current location, activities, interests, and preferences. Additionally, in order for the LBS to function properly and bring the expected outcomes, it is vital to have the essential technological solution, as well as to understand customers' perspectives of sharing location based data (LBD). Although, remarkable progress has been made in LBS technology on the research and development side, customers' perspectives of LBD is largely unexplored, especially in academia. Therefore, the purpose of this study is to build a customer perspective to sharing LBD. In order to do that, customer value has been chosen as the key theoretical concept. Customer value is widely used in identifying customers' perceived benefits and sacrifices. The study has been conducted by taking an interpretive approach based on qualitative data, collected through focus group discussion and face-to-face interview. The results indicated that people's willingness to share location data varies on several characteristics. Consumer identified navigation, exploring a new place, getting discounts and being part of the society are some of the fundamental perceived benefits of sharing LBD. On the other hand, sharing LBD comes with certain risks, as the data revealed consumer concern over risks involving privacy, physical risks, monetary risks, and risks of intrusion.

**Key Words:** Location based data (LBD), Location Based Service (LBS), Customer data, Customer value, Perceived benefits, and perceived Sacrifices.

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# 1 Introduction

## 1.1 Background of the study

The growth and popularity of smartphones have opened many opportunities to businesses. It has never been easier to reach customers more efficiently. In a marketing context, mobile advertising having its ups and downs surely has changed the landscape of the advertising industry. Huang (2008) emphasized mobile advertising as the “next big thing” considering it provides a coherent way of promoting products, building brands, and stimulating direct purchase (Cheng et al., 2009). It is estimated that by 2017, worldwide mobile marketing is set to rise more than USD 72 billion, 10 times more than what was spent in 2012 (Limpf & Voorveld, 2015). Since mobile advertising has become an effective way to reach consumers through more personalized advertising, marketers are constantly searching for innovative and improved means to reach customers (Limpf, 2015). Hence, positioning technologies such as GPS and cell ID made their ways into mainstream marketing. Marketers have been utilising real time location based data (LBD) to target consumers anywhere, anytime, based on their vicinity to places of relevance and interests (Unni & Harmon, 2007).

In addition, mobile GPS opened up a whole new level of opportunities to explore user’s geographic location. User location can be accessed more accurately by utilising technologies such as cellular network positioning and Wi-Fi. Moreover, attention has been increasing in the area of research on location based services (LBS) and technologies, in both academic and commercial projects. The immense potentialities of LBS have been recognized in the business world, considering it creates abundance of new business opportunities. LBS combines the geographic location of users with the general perception of service, providing precise information about a particular geographic location or place (Schiller, 2004). In

general, there are several categories of LBS and they are accessible through mobile devices that are connected to mobile network or Wi-Fi access points. Also, LBS is part of context-aware services that adopt their functioning according to at least one parameter that reflects the user context (Küpper, 2005).

On the other hand, location based mobile advertising (LBA) is tailored explicitly to the user's geographic location (Xu et al., 2009). Currently there are two major types of mobile LBA: push advertising, which is sent without any unequivocal request from the customer, and pull advertising, which is delivered based on consumers' permission or request (Okazaki et al., 2012; Unni & Herman, 2007). However, since mobile devices are considered to be very personal, concern over privacy issues generally arise due to the fact that mobile LBA requires "tracking and profiling" consumers' geographic location (Okazaki et al., 2009; Park et al., 2008; Xu et al., 2009). Therefore, privacy concerns may likely to obstruct user acceptance of sharing their location data, resulting slower growth in LBS business (Merisavo et al., 2007; Vatanparast & Asil, 2007).

Furthermore, due to the rising trend of social media use through smartphones, a majority of users willingly or unwittingly share their location data through a diverse set of everyday activities. However, Leo et al. (2013) discovered that half of users were unwilling to share any kind of data online. In addition, location based marketing and service is a two-way channel, while companies are promoting their products and services, customers are also looking for the most relevant marketing information. In order provide the best experience to the customer, companies need a considerable amount of customer information e.g. spatiotemporal context, preferences, social profile, demographics, search histories etc. (Yousefi, 2014).

Location services, location based marketing and location based technologies are all coherently subjected to consumers' willingness to share location data with the service provider. Collecting customer data and analysing it to understand consumers' everyday behaviour is significant if LBS-focused businesses are to succeed. This study, therefore, is set to explore customer perspective of Location Based Data.

## **1.2 Research gap**

LBS is still in the early phases of growth, although it has already made remarkable progress. Logically, LBS-related themes have been gaining popularity among researchers and studies have been conducted in both technological (Al Shoibi & Al Hossaini, 2012; Evans et al., 2013; Xu et al., 2011) and business sides (Banerjee & Dholakia, 2008; Wells et al., 20012) of the phenomenon, and exclusively location based technology has been studied and improved immensely in the last few years (e.g. location beacon, Wi-Fi, 4G, and 5G), thus, the number of studies conducted have tended to be greater in location based technology (Bauer & Strauss, 2016). However, lately the focus on studying the business prospects of LBS has also been increasing, yet the gap for academic research between business and technology is extensive (Ryschka et al., 2015). Predominantly, the business side has been focusing on marketing and privacy issues in general. While there is much academic research on how the location data can be used for commercial gain, the gap is evidential in terms of understanding customer perspectives to sharing LBD and how people perceive LBS in general.

Bauer & Strauss (2016) conducted an analysis of existing literature on the field of Location Based Advertising (LBA) thoroughly covering LBS, LBD and other related interdimensional aspects of the phenomenon. In total, 33 publications were chosen for the analysis, 24 of them

predominantly focused on “exploring the capabilities of LBA”, 3 on privacy issues, and 2 studies covered location techniques and business models related to LBS. However, 9 studies focused on investigating user acceptance and consumer attitudes towards LBA. Only 2 studies explored the capabilities of LBA and related privacy issues. However, only one study was conducted on consumers’ willingness to disclose their current location to advertisers.

Furthermore, Bauer & Strauss (2016) acknowledged that there is a shortage of research in exploring user perspectives of sharing LBD, which implies an opportunity for the researcher to explore the customer side of LBD, as well as their views of sharing personal data. Understanding the customer perspective of any phenomena is significant as scholars emphasized how future success of business profoundly depends on their understanding of consumer observations of the service (Philstrom & Brush, 2008). In addition, research has revealed potential higher growth of LBS and businesses related to LBS in recent years (Ryschka et al., 2016), which denotes that discovering customer views of LBS is likely to increase as well.

Currently, providers offer diverse sets of LBS to consumers, for example map services from different sources like Google or Apple, social apps e.g. Facebook, Twitter, health data apps e.g. Sports Tracker, and food and entertainment apps like Yelp and Groupon. Unfortunately, very little is recognised about the elements that influence the user preferences of using these services and why they share the data. Understanding these customer preferences and behaviour is crucial for LBS providers and could benefit businesses by acquiring insights on how customers truly perceive the given phenomena (Bauer et al., 2005).

Therefore, studying the customer side of the story should be given more priority. LBS businesses have distinctive sets of features that are drastically different from other tech related business, for example access to customer location as well as direct access to the customer. Consequently, these new features should be accepted and adopted by consumers, before business can take advantage of them. Understanding how customers share their location data and how they perceive the overall phenomena could support businesses in establishing more successful strategies. On the other hand, marketers also need to understand customer perspectives of the phenomena in order to develop a comprehensive marketing plan and reach consumers more effectively.

### **1.3 Purpose of the study**

This study focuses on understanding customer perspectives to sharing LBD. In the context of LBS, understanding customer perspectives has significant impact on the overall phenomenon (Bauer et al., 2005), considering that without user's location data LBS itself would not function properly (Ryschka, 2015), or may not even exist in some cases. In order for the LBS system to be efficient, users must share their location data, and since the role of customer data in different businesses has been shifting as businesses have begun to view customers more as "active partners" (Prahalad and Ramaswamy, 2004), it could impact LBS businesses. However, without customer data the service itself would most likely cease to exist.

In addition, gaining consumer perspective has been widely studied in different fields and proven to be one of the most significant phenomena for marketers to consider before approaching consumers. Consumer perspectives in sharing LBD in LBS contexts could be studied from different aspects, for example what types of mobile applications are there or

what sorts of services are people more willing to use and what types of data are users more willing to share? From a customer viewpoint, the usage of LBS has pros and cons, and learning more about those could provide a better picture of customer perspectives of LBS usage. In the present study the focus will be given on customer perspectives to sharing LBD.

Although LBS has become a buzzword in the marketing world, very little is known about user perspectives of it. Honon (2009) stated that location changes everything when merging with the web, and making location coordinates available has the potential to change how people shop, converse, what they read, what people search for, and where they go. In this study, the user perspective is explored further. As mentioned above, most of the studies in the field of LBS are technology-related; therefore, the main purpose of this study is to build a customer perspective to sharing LBD. To explore it further and accomplish this purpose the following research questions are formed:

1. What are the perceived benefits of sharing location data?
2. What are the perceived sacrifices of sharing location data?

In this paper, the research questions will be addressed by, firstly, exploring LBS in general. In the second chapter, LBS will be explored in more depth and detail. Although the focus of the research is on LBD, details of different LBS related topics need to be explored due to the fact that LBS & LBD is interrelated. In addition to that, LBD is still developing; therefore, a shortage of materials on LBD influenced the overall theory. The third chapter will focus on the more generic subjects of customer data and customer value. This will be followed by research method in the fifth part along with a focus on data generation, research philosophy, and data analysis. Additionally, the paper will continue to analyse the collected data and key findings in the following part before drawing the conclusion.

## 2 Location based service as a phenomenon

### 2.1 Overview and history LBS

LBS integrates location data from mobile devices with other related contextual data in order to deliver a particular service or added value to the user (Schiller & Voisard, 2004). In LBS or in LBS technology the term “context awareness” plays a significant role as they are interrelated. Context awareness is defined as a system that takes context into consideration in order to deliver relevant material and services to the user (Dey et al., 2001). Location based technology is not a new concept, and the idea can be traced back to as early as the 1970s with the use of the Global Positioning System (GPS). It was limited to government use until the 1980s when the U.S. government allowed it to be freely available for the industries all over the world. Location based commercial services began to commercialize worldwide in the 1990s through the development of services like SMS, MMS, instant messaging (IM), email, Wireless Application Protocol (WAP) and internet capabilities in general (Schiller & Voisard, 2004).

Additionally, Japan and USA were the first two countries to introduce location based application service in the form of location tracking in 2001 (Ficco et al., 2010). However, currently the number of location based applications is relatively higher, providing navigation services, location based games, location based augmented reality, and location based marketing services. Dru & Saada (2001) recognized technical feasibility as one of the main drivers of LBS. On the other hand, Dhar and Varshney (2011) believe that LBS took longer to emerge than was previously predicted, mainly due to lack of established business models to serve the interests of increasing numbers of user (Malm, 2012). In addition, Rao & Minakakis (2003) pointed out technological limitations, lack of integration of technologies,

and uncertainties about users' attitudes as some of the key reasons for slow development of LBS. Currently, in terms of consumer based location services, social network providers are the most popular form of LBS, followed by mapping & navigation and local search. In terms of revenue, social networking sites take the highest amount, followed by local search, then mapping and navigation (Malm, 2012). Businesses are willing to pay to promote their goods and services to the LBS provider, causing the LBS industry to grow faster.

## **2.2 Defining LBS**

Although LBS is one of the most prevalent tech-marketing phenomena in recent times, it does not have any specific or widely agreed definition. Junglas et al. (2008) stated that LBS is any service that considers the geographic location of an object. However, scholars consider a number of characteristics when defining LBS. According to Roebuck (2011) LBS is information and entertainment services, which can be accessed through mobile devices exploiting the geographical location of the given mobile device. Steiniger et al. (2011) has a parallel definition, while Kupper (2005) defines it as "IT services that provide location information that has been created, compiled, selected and filtered taking into consideration the current location of the user or mobile objects". In a nutshell, LBS can be defined as a set of services that combine proficiencies of mobile devices and mobile networks to deliver geographically personalised, context-relevant data, and information services.

Brimicombe (2008) stated that LBS is the result of a combination of three different technologies: Internet, new information and communication technologies, and GIS/spatial database (Figure 1). Additionally, smartphones with strong computing capabilities and universal wireless internet combined with positioning systems indicate the immense potential

of LBS, as exemplified by companies like Facebook and Google who have been enormously successful in its utilization (Rafferty, 2001). Figure 1 describes LBS and associated technologies:

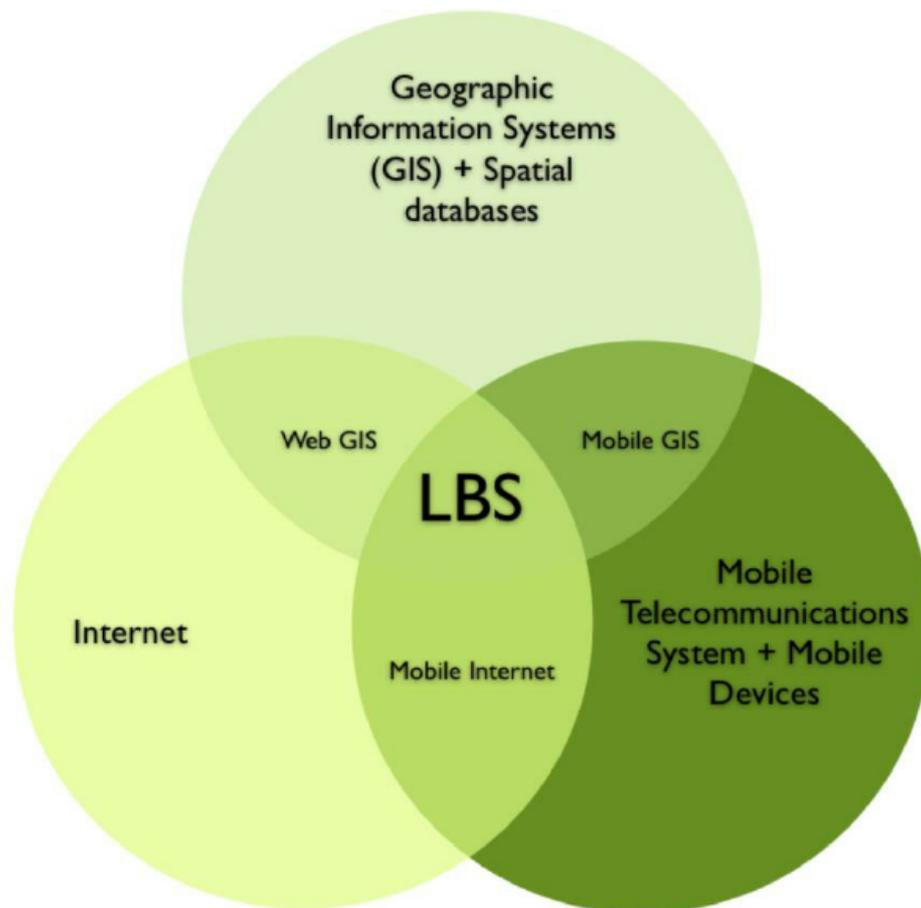


Figure 1: Three different technologies resulting LBS (Ferreira & Ramos, 2014)

## 2.2 Components of LBS

Steiniger et al. (2011) identified five major components of LBS development. A brief description of each of those components is presented below:

Firstly, smartphones which are connected to internet and equipped with technologies that support LBS give users the opportunity to access information anywhere and anytime. This offers LBS providers ample opportunity to reach consumers. Smartphones are one of the basic requirements for using LBS.

The second component, the communication network, is a system of interconnected units that performs information exchange amongst service providers and users (Steiniger et al., 2011). It facilitates broadcast of data among users, data providers, and central system providers. Communication networks are a consistent element in accurately defining user location.

Thirdly, positioning systems determine the exact location of mobile devices and the geographical location of the user by using indoor and outdoor positioning technologies. Positioning technologies such as Bluetooth, Wi-Fi, beacon, and near field communication (NFC) are used when defining the indoor location of a user or device. On the other hand, to define the outdoor positioning of a user, GPS and cell ID are the most commonly used tools.

Fourthly, service and application providers offer the software and services that are used to send context-relevant and tailored information to the user. Fifthly, data and content providers: service and application providers do not necessarily stock all the requested information. However, mobile network operators are capable of collecting a diverse set of user information e.g. demographic, handset information, and real time spatiotemporal information. In order to provide best possible LBS experience, network service providers can establish partnerships with content providers.

Lastly, Buczkowski (2012) emphasized adding the “User” as the sixth component to the list. Generally, users seek added value in their lives by utilizing mobile devices and by receiving related information while on the move.

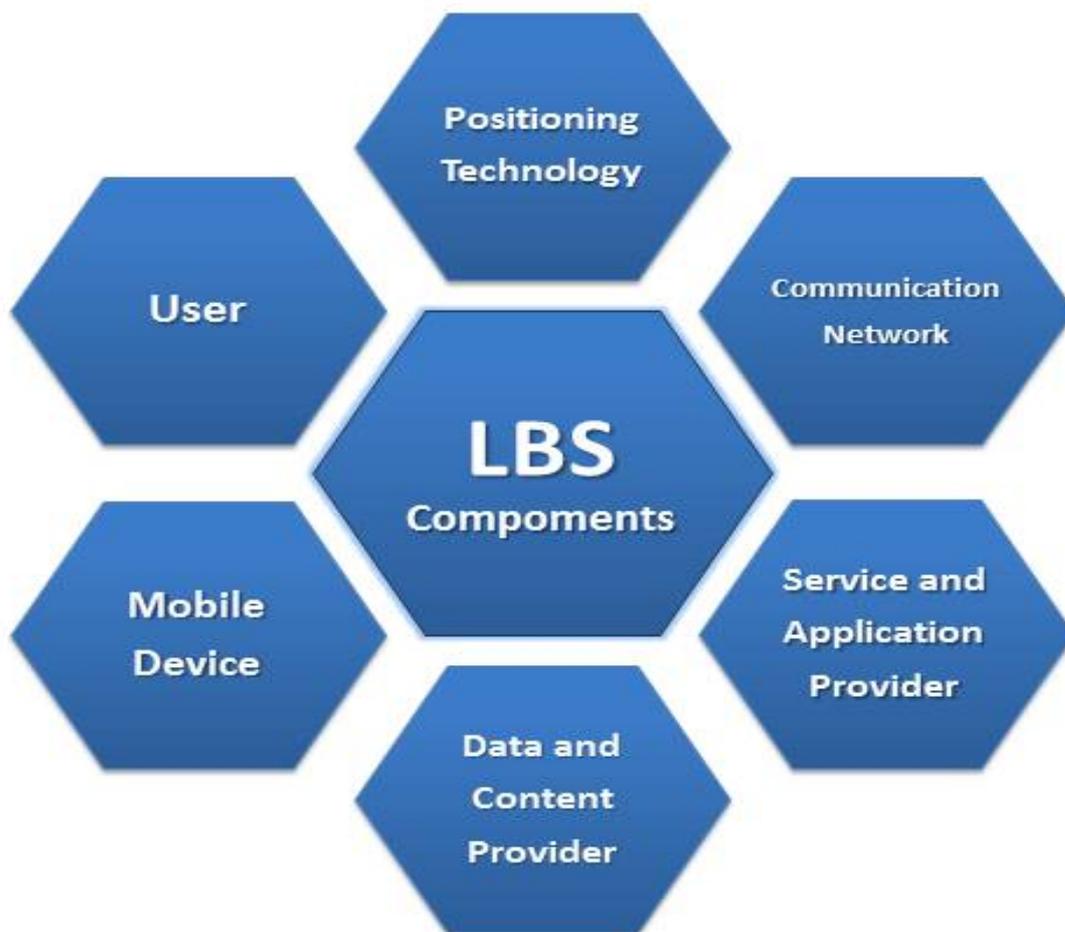


Figure 2: Components of LBS (Buczkowski, 2012)

Components in (Figure 2) are vital in order to deliver a well-functioned location service to the user. Ficco et al. (2010) advised the need for a standardized system among all the players in LBS ecosystem. Open standard systems would reduce the risks associated with using fast-changing new technologies; they also facilitate a coherent interoperable environment for various positioning technologies. In addition, it is a crucial step to guarantee the integration of all actors involved LBS such as hardware, software, and data providers (Ficco et al., 2010).

## 2.4 Types of LBS

Although LBS is growing, scholars have established different types of LBS based on various issues such as service delivery method and user information collection method. The following table describes different types of LBS based on Dhar and Varshney (2011).

Types of LBS	Description/Characteristics
<b>Person-oriented</b>	Pedrana (2014) defined person-oriented LBS as the sort of LBS that deals with applications connected to user-based services aiming to locate a person or use their position in order to recommend a service
<b>Device-oriented</b>	In device-oriented LBS services do not necessarily focus on user location but rather applications that are external to the user.
<b>Push and Pull strategies</b>	A Pull service signifies a service that is conveyed to the user's mobile device at his/her unambiguous request, whereas a Push service is commenced by the service provider without the consumer's clear request to receive the service (Okazaki et al., 2012, Xu et al., 2009). The biggest distinction between push and pull services is the "notion of control", as Malhotra et al (2004) argued that the privacy concern could become a matter of more concern in cases where individuals do not have control over their private information
<b>Direct vs. indirect profile</b>	Users profiles can be collected directly from the user, third parties, and by tracking user behaviour patterns. However, user trust might erode if data is collected from third parties

**Table1:** Types of LBS (Dhar & Varshney, 2011)

## 2.5 LBS technologies

Present day location services function with four major positioning technologies: GPS, Wi-Fi, Cellular Identification and IP address. These are applied to establish a user's location, and can be either text or map-based (Tsai et al., 2010). GPS works through triangulating multiple satellites to locate the user device, making GPS disputably the best methods of positioning among all four technologies. However, a disadvantage of using GPS technologies in mobile devices is that they drain battery life faster. Additionally, GPS also receives information via an alternative communication system called A-GPS or assisted GPS using wireless or cellular networks (Van Diggelen, 2009). On the other hand, Wi-Fi has been a viable alternative to GPS as more and more Wi-Fi hotspots are available. Wi-Fi hotspots increase the ability to pinpoint a user's location via mapping points to WGS-84 (1) encoded location. However, Wi-Fi is not as accurate as GPS, although it increases the chance of detecting a user while they are located indoors.

Cellular identification such as 2G, 3G & 4G networks estimates the position of the device with the position of the base station the device is communication with. Although the idea is similar to Wi-Fi positioning, it is not as accurate as GPS or Wi-Fi, yet it is used since it can be applied when Wi-Fi is not available and users are reluctant to keep the mobile GPS turned on. Lastly, the IP location is used when none of the others are available. Every device connected to Internet network has a specific IP address, while they are limited in number and can be approximated to a geographic location based on a certain range (Tsai et al., 2010).

## 2.6 Classification of LBS

The classification of LBS is a rather challenging task due to its constant changing characteristics and new developments. Ryschka (2015) classified LBS into seven different dimensions providing ample insights, and these are discussed below:

Types	Description
<b>Interaction knowledge</b>	Bradley and Dunlop (2005) classified LBS according to the knowledge interaction of the application and user. Based on the action of the user the LBS can either be explicit or implicit. If the service provider and the user know the actions of the users, the LBS is classified as explicit. On the other hand, if the action is simply recognized by the user and not made obvious to the application or provider, it is known as implicit.
<b>Market type</b>	The sharing market type can also classify LBS. Users can share the personal details and location vertically with the service provider such as a mapping service. However, there are other services for which the user share the details and location horizontally with other users of the service e.g. check-in services (Preibusch, 2013)
<b>Delivery type</b>	Most commonly used LBS services use the push and pull model. In push services, the initiator of the service provision is also the source of the service. In push services, information is sent to the user without his/her explicit knowledge (Gerpott, 2010). On the other hand, in pull services the user is also the initiator of the service, starting with requesting the service at a definite point of time. A good example of such a service is a public transportation planner.
<b>Entity supply</b>	Entity supply distinguishes between providers of the user information. Firstly, location-aware services provide the user with personal location data e.g. car navigation system. Secondly, location-tracking provider allocate entities other than the user, for example other third parties, with the user's location information.
<b>Application area</b>	LBS has many application areas and researchers are identifying more while coming up with different terminologies and categories. However, experts have acknowledged six different categories as prevailing application areas: information service, tracking and navigation, emergency service, advertising and

	entertainment, tracking and management, and billing, (Xu et al., 2009; Spikermann, 2004)
<b>Direction of mapping</b>	Bellavista et al. (2008) characterized LBS by the direction of mapping. If the service is delivered to the users' actual position and the attention is on targets at a certain location, it is called self-referencing. The other category is called cross-referencing where one or more targets are related to each other.
<b>Focus:</b>	According to Ryschka et al. (2014, p. 235) " <i>Within a particular LBS, one can distinguish the focus of the location</i> ". Location can mainly be linked or added to a digital artefact; consequently, it is characterized underneath the term locative media. Henceforth, when the user's location is the key reference of service provision at a certain point of time, it handles a mediated locality (Ryschka et al., 2016).

Table 2: LBS classification (Source: Ryschka, 2015).

## 2.7 Context in LBS

Context awareness is a rather old concept, however, in recent years the relevancy of context has become more significant. People move around with their smart phones and their surroundings change constantly. LBS dependent service providers can take advantage of this by detecting distinctive contexts of the user (Kaasinen & Yoon, 2011). According to Steiniger et al. (2012, p. 11) "An entity is a person, place, or object that is considered relevant to the interaction between a user and the application". Additionally, it can be other users as well as applications and networks (Dey, 2001). However, contexts have to be relevant to users; otherwise it is unlikely to benefit the LBS provider. For example sending shopping offers during working hours may irritate users instead of generating value for the company. A context-aware system can deliver appropriate messages to a certain user according to the relevant contexts. Moreover, using multiple contexts at once to modify a message increases

the degree of relevancy to the user; therefore, LBS providers should emphasize developing such systems (Kaasinen and Yoon, 2011).

Reichenbacher (2004) suggested that LBS generally involves five major actions, starting with locating people or objects in a specific place. Secondly, an action occurs consisting of searching for other people, events, service or objects. Thirdly, navigating from one place to another takes place. The next action requires identifying people or objects in relation to specific characteristics of a given object followed by, finally, searching for specific events or services around a given location. Nevertheless, all the actions have to be contextualized; in fact most of the LBS actions should be context-relevant, considering context is defined as a key element of LBS for the interaction between the service and the user (Grönroos & Ravald, 2011).

Chen and Hsieh (2011, p. 548) identifies context as “if an advertiser knows the consumer’s current environment (mobile device, weather conditions, and location), a mobile advertising messages can be effectively designed to meet the consumer’s personalized needs”. In addition, the fundamental distinction between mobile advertising and other publicizing media is “time and place” and LBS providers should effectively use “time and place” to get the best possible return.

Researchers have categorized different sorts of physical, social and culturally relevant context. For example (Schilit et al., 1994; Abowd et al., 1999; Chen et al., 2000; Dey, 2001; Mitchell, 2003), developed a variety of contexts with certain reference to mobile services that are map-based, and based on their work Steiniger et al. (2012) adopted the following categories of contexts for LBS:

Name of the Authors	Different types of LBS context
Christine Bauer and Christine Strauss (2016)	Location, Time, User profile, User interest, Preferences, Behaviour, Demographics, Weather, Characteristics of surrounding environments, Mobile device, Situation, Nearby objects, Social context, Needs and Activities
Stefan Steiniger, Moritz Neun, Alistair Edwardes, and Barbara Lenz (2012)	Mobile, Map user, Location, Time, Purpose of use, Social and cultural situation, Physical surroundings, Orientation, Navigation history, System properties
Peng-Ting Chen and Hsin-Pei Hsieh (2011)	Weather, User activity, Location, Time and Device type
Other Authors	Calendar, Noise level (Bulander et al., 2005) Personality traits (Pandit et al., 2014) Privacy policy (Benisch et al., 2011) Parking place (Benou et al., 2012) Price range (Durresti et al, 2013) Computer context (Hristove and O’Hare, 2004)

Table 3: LBS contexts (Steiniger et al., 2012)

Furthermore, an empirical study conducted by Bauer & Strauss (2016) identified most prominent contexts used by different scholars. Overall, 23 publications identified *location* as the primary trait to define user context. The next most used context adoption criteria are *time* (24 publications), *profile* (12 publications), *interest* (12 publications) and *preferences* (10 different publications). In contrast, Li and Du (2012) emphasized the 6 most crucial criteria (e.g. location, time, preference, behaviour, demographics and weather). Bulander et al. (2005) defined 7 categories of context (location, time, profile, demographics, weather, calendar and noise level). Similarly, Simoes et al. (2009) preferred six criteria of context (location, time, demographics, characteristics of surrounding, social context and activity), while, Simose & Megedanz (2009) mentioned location, time, preferences, weather, device, and needs.

## **2.8 Risks of LBS**

### **2.8.1 Risk as a concept**

Zhou et al. (2012) stated that risks related to privacy are a central element of the LBS. Users regard information disclosure as a potential risk to their privacy, particularly in regards to sharing location data. In addition, researchers have discussed the need of context-specific concerns for privacy rather than general privacy concerns (Solove, 2006). Risks, according to Bauer (1960) should be examined based on two distinctive concepts: objective and subjective risks. Mitchell (1999) describes objective risks, as the risks that depict the real world while subjective risks are the “perceived” ones. Additionally, perceived risks result from perception that is based on several personal heuristics and biases, therefore, not fully rational (Ryschka, 2015). Also, perceived risk is determined by factors such as probable loss of privacy. Perceive risk can evolve from different sources e.g. technology, product and the service provider causing financial, social, physical, psychological, time, and performance-related risk (Lim, 2003).

### **2.8.2 Risk classification**

There are no established sets of widely agreed perceived risk categories for LBS despite the large number of studies conducted on the subject. Keith et al. (2013) stated that perceived risk dimensions from an LBS perspective should be measured and understood from its unique complications triggered by location disclosure. Additionally, scholars have classified various sets of risk dimensions of LBS from user perspectives, such as privacy concerns, perceived risk (Ho & Chau, 2013, Zhou, 2013); privacy risk, collection risk, secondary use, error risk, perceived surveillance, perceived intrusion, improper access (Xu et al., 2009; Xu et al., 2012); financial risk, security risk, time risk, psychological risk, social risk (Kleijnen et al., 2007); physical risk, time risk, social risk, perceived performance risk, financial risk (Luo et

al., 2010); perceived environmental risk, perceived structural assurance (Srivastava et al., 2010); data protection risk, billing risk (Gerpott & Berg, 2011).

Furthermore, in most of these studies scholars attempted to outline a broad range of privacy concerns, privacy risks and perceived risks. Due to the differences in the nature and focus of the study, different researchers focused on risk dimensions that best fit their respective research. However, privacy concern is generally considered multidimensional and there are more than a few dimensions of privacy concern such as secondary use, improper access, data protection, and secondary use (Xu et al., 2012; Zhou, 2013). Additionally, billing risk can be considered as financial risk. Although Ryschka (2015) argued that financial risk is also multidimensional and often dimensions are dissimilar from one another, such as exceeding financial cost suffered due to the use of a service versus losing the control of one's bank account (that can happen due to mobile payment). Consequently, several of the above mentioned dimensions could either be compressed into a singular dimension or ignored in the process of creating an appropriate framework for the current study. For example perceived environmental risk is a worldwide phenomenon in itself and does not necessarily impact the current study. Outline of potential risk:

Risk Types	Description
Perceived surveillance	Users may perceive risk in LBS usage due to the possibility of surveillance by entities other than service provider (Xu et al., 2004)
Perceived intrusion	The risk of hostile acts that the user considers to be a disturbance of his/her solitude including unwanted incursion into user's presence (Xu et al., 2012)

Perceived social & Psychological risk	The risk of lowering reputation by LBS use (Luo et al., 2010), Ryschka et al (2014) discussed the issue of user perceived risk of possible social risk due to the loss of privacy.
Perceived financial risk	Kleijnen et al. (2007) stated consumers concern of the potential monetary expenditure associated with following cost related to LBS use.
Perceived risk of improper access:	Consumer's perception of possible unapproved access (e.g. hacking) to personal information that has been shared with the LBS provider (Zhou, 2011)
Perceived physical risk:	General concern of losing physical safety due to the use of LBS (Ryschka et al., 2014)
Perceived risk of collection	A user's concern of how much data is being collected by the LBS provider (Zhou, 2011)
Perceived risk of secondary use	A user's perceived risk that service provider may pass the information to third parties without their explicit knowledge or permission (Dinev et al., 2013)

**Table 4:** LBS risk dimensions

The outline of these risk dimensions has been taken into consideration as a guideline to analyse and categorize the empirical data from the interviews and the focus group discussion. In order to avoid any manipulated answers, the interviewer tried to keep the questions open rather than asking about a specific type of risk and risk dimensions. Therefore, participants have answered from their own perception and experience rather than being guided/manipulated by the interviewer. Consequently, the answers are analysed to discover the actual risks customer perceive in LBS sharing. This synopsis of risk dimensions will also be used as a guideline for the content analysis of the interviews and focus group discussion and, consequently, it can be considered as part of the theoretical framework.

### **3. Customer data and customer value**

#### **3.1 Customer data**

Developments in powerful and affordable information technologies led the way in widespread collection of customer data, which became a significant part of modern day organisation (Grover & Ramanial, 1999). Consequently, customer data has become a critical component in defining the success for many businesses (Watson et al., 2004). In addition, Piccoli et al. (2008) emphasized the significance of data collection in order for an organization to stay competitive, and data can aid in understanding customer behaviour which can then be utilized to send appropriate personal messages to individual customers (Piccoli et al., 2008).

In addition, customers have unprecedented access to information about the product/service quality due to the development of massive Internet access, especially through smartphone and mobile application (Saarijärvi et al., 2013). Customers are able to gather information and compare product/service reviews and customer gratification ratings before deciding to buy a product or service. In contrast, technologies also provide companies easy access to customer data, which could be utilized in understanding customer needs and preferences. Also, companies are able to apprehend their own shortcomings in service/product quality. For example, data from customer purchasing histories can be used to predict and recommend future purchasing behaviour enabling companies to individualize products and services (Saarijärvi et al., 2013). Consequently, businesses can differentiate themselves from competitors by developing their products and services according to the qualities that customers' desire (Grover & Ramanial, 1999).

Why should business collect customer data? Cozens (1998, p. 2) stated “*to enable businesses to make more accurate prediction regarding the future behaviour of organization’s key process*”. Moreover, Rigby et al. (2002) suggested companies are encouraged to collect customer data by process-oriented definition in order to classify the most treasured customers and surge customer loyalty by delivering personalized products and services. Additionally, customer relationship management (CRM) and business intelligence also contributed to the increased interest in utilizing customer data (Goodhue et al., 2002). Besides, analytical CRM has enabled companies to gather and analyse large amounts of data, making it simpler than ever o gain insights on customer behaviour (Peacock, 1998).

Furthermore, strategic CRM requires customer data analysis; strategic CRM is about regarding each customer individually and differently (Peppard, 2000). Moreover, identifying the key customers in order to develop a long term relationship and increasing customer loyalty entails, first of all, understanding the customer needs and desires and the first step to do it involves collecting a sufficient amount of data on them (Rigby et al., 2002, Cao & Gruca, 2005).

In addition, businesses have historically been product-centric, since, production efficiency was thought to be the highest priority of any business (Varadarajan, 1987). Firms focused on how to manufacture better quality products rather than having concern about users’ needs (Shah et al., 2006). However, at the end of 20th century business started to take steps towards more customer-oriented factors e.g. customer satisfaction, customer service, customer loyalty, and quality as perceived by customer (Rust et al., 2002; Kumar & Shah, 2004). However, information technology (IT) revolutionized the customer relationship and companies started to invest in IT in order to have better CRM. Companies were interested in

the opportunity to continue conversations in every aspect of customer touch points, with personalized management of the most valuable customers (Shah et al., 2006).

### **3.1.1 The evolving role of customer data in business**

Within last couple of decades companies have been shifting their attention towards serving customers more functionally, in other words business became more customer-centric rather than product-centric. As Prahalad and Ramaswamy (2004, p. 12) put it eloquently “evolution from data dispersion through data organisation and data ownership towards data sharing is well in tune with the shift from viewing customers as passive to reconsidering them as active partners”.

Similarly, the role and significance of customer data and have been discussed widely by various scholars (Kumar et al., 2013). However, Saarijärvi et al. (2013) emphasized reconfiguring the role of customer data from its traditional role of “selling more products” to a more customer-centric role thus creating more customer value. In the process of reconfiguring the role of customer data Saarijärvi et al. (2013) designed what they called “four waves of customer data”.

The four waves of customer data depict the evolving role of customer data in organizations over the last three decades. Firstly, wave 1, also known as data dispersion, emerged in the early 1990s due to the sudden availability of large amounts of customer data. CRM, with new empowering technologies and software, helped manage this flood, consequently helping companies to better manage customer services and increase sales efficiency. Secondly in the mid 1990s came wave 2, or *data organization*, where CRM became a more integral part of the decision-making process, as well incorporated itself in business strategy, technology,

process, and philosophy in organizations. It also developed mass customization, one to one marketing, reduced interaction costs, and improved customer experience.

Thirdly, wave 3 or *data ownership*, took place in the first decade of 21st century and it is attributed to phenomena like cost reduction, revenue growth, predicting customer behaviour, competitive advantage, and empowerment. Finally, wave 4 or data sharing, started around 2010 as customer data began shifting its role to a bigger spectrum. Customer data is being redefined and given back to customer, customer data is being used externally and also as customer resource. Ideas like value co-creation were born in that phase; empowering customers while customer-to-customer interaction became more imperative.

The four waves demonstrate the evolving role of customer data in organizations and how it strategically changed the role within organizations within a few decades from a file to directly influence decision-making. The customer data in modern corporations is integrated strongly and will only become more significant in the future.

### **3.1.2 Customer's willingness to share information**

Consumer's inclination to share personal data largely depends on the degree of trust customers have for an organization (Peppers & Rogers, 2011, p. 243). Customers would prefer having better individual services and be treated with special care and, as Berman (2006) suggested, most customers are willing to share demographic information if personalized communication helps them to receive better information about the product and service. In addition, Ward et al. (2005) stated customer's willingness to share information is affected by a number of factors, such as what type of information is requested, what are the benefits offered in exchange and, finally, previous experience of sharing information. In addition, Poddar et al., (2009) suggested that customers are more comfortable sharing

personal information with companies they are more engaged with. A longer relationship between a company and a consumer indicates greater trust between them, making it is easier for a corporation to collect sensitive personal information.

However, providing personal information comes at a cost to privacy (Peppers & Rogers, 2011), consequently, many consumers might become reluctant to share personal information due to privacy concerns (Wu et al., 2012; Chelappa & Sin, 2005). Recently, many organizations have come into scrutiny and questions have been raised regarding corporations' capability to maintain customer privacy and safeguard customer information (Schoenbachler & Gordon, 2002). In order to increase consumer trust, firms must ensure better customer service in terms of personalization along with maximum security of customer information (Chelappa & Sin, 2005).

Generally people have different reaction towards data sharing; some consumers are more willing to share data than others, as they may perceive sharing data to be beneficial in terms of receiving better and more personalized services (Stone et al., 2004). On the other hand, Phelps et al. (2001) stated that giving more control to the consumer how their data is used may reduce privacy concerns and increase the likelihood to share data. Moreover, gaining customer trust is a key to collecting better and more sensitive information, which helps organizations to serve customers individually. The better the customer is served, the greater the degree of trust becomes (Milne & Boza, 1989).

Moreover, information privacy is also a concern of the European Personal Data Protection Act, stating that information should be collected only for explicit reasons and must be stored in individual identifiable form, consumer should be notified who has the access to the

information and whether it is going to be used in marketing purposes. Finally, consumers must have to right to object to the collection of information (Peppers & Rogers, 2011; Petty, 2000).

### 3.2 Customer value: definition

The concept of customer value is recognized as one of the most significant constituents in business (Lindgreen et al., 2012), as well as one of the most influential factors on a firm's success (Gale, 1994). Since its emergence in the 1990s in both academia and the corporate world, customer value as a phenomenon has been gaining more and more significance. In academia, customer value is also recognized as the central basis of all service-marketing activities (Holbrook, 2005). Porter (1998) stated that a firm gains most of its competitive advantage from the ability to create value for its customer. In the current complex business environment, firms are increasingly using customer value as a means to gain competitive advantage. However, there is no universal agreed upon definition of customer value, although there are plenty of definitions of customer value found in literature, mainly due to the fact that customer value is not defined by a single factor. Some of the definitions are given below:

*“Customer value is a customer’s perceived preference for and evaluation of those product attributes, attribute performances, and consequences arising from use that facilitate or (block) achieving the customer’s goals and purpose in use situation”*  
(Woodruff, 1997, p. 142)

*“Customer value is consumers overall assessment of the utility of a product based on perception of what is received and what is given”* -(Zeithaml, 1988)

*“Consumers perception of value represent a trade-off between the quality of the product and sacrifices they perceive by paying the price” -(Monroe 1990, 46)*

According to Doyle (1989) only the consumer holds the power to define the value of a product or services rather than producers. Consequently, value is defined by what consumers receive versus what they sacrifice. In addition to that, consumer's perceptions of value may differ among individuals; it can also change depending on circumstances and every individual has his/her own way of defining value. According to Zeithaml (1998) value is more likely to be subjective. Additionally, Rintamäki (2013) argued that customer value could also be predefined, depending on how consumers pursue relevant goals and purposes through consumption of a specific service. When value is predefined, consumers look to satisfy their predefined value through consumption outcomes such as increasing benefits and decreasing sacrifices.

On the other hand, Rintamäki (2013) also argued that value is entirely context-dependent, considering that customer value is observed on the basis of particular and immaterial attributes. Customer value can be understood and measured by asking what a given product/service does for the consumer; for example in terms of measuring social value, Sweeney et al. (2001, p. 212) suggested to use item like “would help me to feel acceptable,” “would improve the way I am perceived,” “would make a good impression on other people,” and “would give its owner social approval”.

Furthermore, scholars are more likely to hold varieties, or even contradictory definitions of customer value, as Rintamäki (2016) emphasized that definitions of customer value differ due to the fact that they are generally addressed from different aspects of customer value.

Moreover, Landroques et al. (2013) stated that customer value can be viewed from both firm's and customers point of view. Therefore it is logical to have some differences or even contradiction in definitions. However, in this study only the customer's perspective of value is taken into consideration. Lastly, Rintamäki (2013) argued that customer value could be approached from both performance and importance perspectives, whether by quantitative or qualitative research. The performance-based approach addresses what kind of value dimensions, attributes, benefits and sacrifices consumers perceive when encountering a product or service. On the other hand, the importance-based approach establishes the question of how essential these are in a given framework.

### **3.2.1 Customer value dimensions**

As mentioned above, Zeithaml's (1998, p 14) definition of value has been widely used in marketing literature, which defined value as "consumer's overall assessment of the utility of a product based on perception of what is received and what is given". In addition, Rintamäki (2016, p. 32) suggested, "This view posits perceived value as a unidimensional construct that can be measured simply by asking respondents to rate value that they received in making their purchase". In contrast, some authors have argued that a unidimensional approach (trade-off between benefits and sacrifices) is too simple and only represents a limited approach to the concept. They argued that value is rather a multidimensional construct in combination of variety of notions such as perceived price, quality, along with benefits and sacrifices (Holbrook, 1999; Mathwick et al., 2002; Sweney & Souter, 2001). A multidimensional approach is used when the study focuses on customer value, generally featuring various types of value. There are five categories of multidimensional approach: studies exploring the customer value hierarchy, research into utilitarian and hedonic value, axiology, consumption-value theory, and work (Sanchez-Fernandez & Iniesta-Bonillo 2007, p. 435).

On the other hand, Smith and Colgate (2007) divided customer value into four different dimensions. Firstly, the functional/instrumental value is concerned with the desirability and useful characteristics of a product. Secondly, the experiential/hedonic value, which deals with the degree to which a product generates proper experiences, feelings and emotions for the consumer. Thirdly, there is symbolic/expressive value, which deals with the extent to which customers attach or relate psychological significance to a product. Finally, sacrifice value, which refers to monetary and non-monetary costs and risks such as time, effort, psychological risks that are associated with purchase, ownership, and use of the product or service (Smith & Colgate, 2007).

### **3.2.3 Customer perceived value**

Customer value perception (CVP) or customer perceived value influences the purchase behaviour of a customer. According to Bhat et al. (1998) CVP refers to the value that customers obtain or experience by using a specific product or service according to their (customers own) perception. However, Ravald and Gronroos (1996) stated that customers perceive value of a product or service according to their personal needs, preferences, values, financial resources, and usage situations.

Monroe (1991) implied that the perceived value of a product/service is the weighted sum of purchase and transaction value. Conversely, in marketing literature perceived value is normally measured as a single overall value construct or as a unidimensional construct emphasizing the price perception by using a multiscale measurement system (Anderson & Srinivason, 2003; Monroe, 1991). Consequently, Parasuraman and Grewal (2000) further stated that perceived value could be investigated by dividing it into different categories such as acquisition, transaction, use, and redemption value. Acquisition value is associated with

the net gain of the benefits and the money spent acquiring the product or service. On the other hand, transaction value indicates to the psychological contentment when purchasing a product at a lower price than the customer initially anticipated paying.

Thirdly, in-use value stands for the convenience that derives from using a product or service. Finally, redemption value is associated with the benefit of service termination (Parasuraman & Grewal, 2000). On the other hand, Pura (2005) emphasized that redemption value is more significant in the later stages of product or service use. However, according to Pura (2005) in LBS and mobile service contexts, acquisition and in-use service tend to dominate the narrative more due to the fact that transaction value highlights price, and customers are considered as rational beings, which reflects the benefits and sacrifices needed to obtain the product/service. Also, Pura (2005) emphasized that a broader view should be adopted by taking other aspects of consumption into account, for example in LBS, mobile service and its relevant context should be considered.

According to Zeithaml (1998, p. 14) “perceived value is the consumer’s overall assessment of the utility of a product based on what is received and what is given”. In another words, it’s a trade-off between benefits and sacrifices. Additionally, perceived sacrifices typically include non-financial aspects (e.g. time, searching costs, physical and mental effort) along with the monetary cost (Smith & Colgate, 2007). However, other complementary views of value dimensions are available as well, where people are differentiated based on their consumption motives. According to Holboock (1994) consumers are either problem solvers or seekers of fun and enjoyment, thus, referring to hedonic vs. utilitarian consumption. Hedonic view emphasizes the prominence of a fun experience as opposed to the actual achievement of a utilitarian goal. Holbrook (1994) additionally suggested that consumption can and most likely

include multiple value simultaneously. Smith & Colgate (2007) and Holbrook (1994) have a similar view and they complement each other's theory. In contrast, Pura (2005) reflects that differentiating utilitarian and hedonic traits might be rather challenging in terms of self-service processes, considering users are enthusiastically participating in the procedure, therefore, consumption motive ought to be measured with a wider framework in mobile service or LBS context.

Based on theory of consumption values, Pura (2005) suggested an widespread framework on consumption related values; incorporating literature from several fields the theory comprises both the utilitarian and hedonic view of consumption. Additionally, the model considers the context dependency and the five value dimensions, which have been categorized as *functional*, *social*, *emotional*, *epistemic* and *conditional value* (Pura 2005; Shah et al., 1991).

<b>Value Dimension</b>	<b>Description</b>
<b>Monetary value</b>	Considers value for money and acceptable price level, monetary benefit in comparison to other alternatives.
<b>Convenience value</b>	Ease of speed in achieving a task effectively and conveniently.
<b>Social value</b>	Relates to social approval that enhances the self-image among other individuals.
<b>Emotional value</b>	Product or service that generates feelings or emotional state.
<b>Conditional value</b>	Depends of the context and exist in a specific situation, circumstances that affect choices.
<b>Epistemic value</b>	Experienced curiosity, novelty or gained knowledge.

**Table 5:** Description of the value dimension in LBS (Seth et al., 1991; Pura, 2005).

Monetary and convenience value can be combined together and be represented by “Functional value” based on the assumption made by Meuter et al. (2000) in an electronic service context. It emphasizes that electronic services offer better quality experiences by facilitating self-service, saving both time and money. In addition, Sheth et al. (1991) depicted monetary value deriving from task fulfilment and monetary benefits in comparison to other alternatives, while convenience value has been defined by Anderson & Srinivasan (2003, p 127) as “ease and speed of achieving a task effectively and conveniently. Sheth et al. (1991) illustrated functional value as value that results from efficient task fulfilment e.g. convenience, availability and ease of use.

Social value represents the importance of social reputation, which has been recognized by many scholars (Bhat et al., 1998; Sweeney & Souter, 2001). Social Value characteristically represents the social approval and the enhancements of one’s reputation in the society. Sweeney and Souter (2001, p. 211) defined social value as “the utility derived from the product’s ability to increase social prestige”. Conversely, in a technological perspective, social value is constructed immensely from products or services that are used and shared with others (Sheth et al., 1991).

Emotional value represents the arousal of feelings or affective states through utilization of a product or service; it can be fun activities as such (Sheth et al., 1991). Leung and Wei (2000) stated that customers are known to use electronic or mobile services in order to seek fun and enjoyment. Technology usage has been long known to be a useful tool for increasing positive feelings (Leung and Wei, 2000).

Epistemic value, on the other hand, represents curiosity, novelty, or gained knowledge (Sheth et al., 1991). It has been acknowledged that the primary reason for consumption of many technology related products or services is often triggered by curiosity, need for change, and to experience new sensations (Leung and Wei, 2000). In contrast, epistemic value-driven customers often go back to their usual consumption pattern after satisfying their need for change (Sheth et al., 1991).

Conditional value generally depends on a certain set of contextual elements in which value judgement happens (Schierholz et al., 2007). Kontti (2004) defined context as time, location and social environment, available equipment, the technological environment and other user-specific criteria. Consequently, Pura (2005, p. 516) defined conditional value as “the value that exists in a precise context, where information that characterizes a situation related to the interaction between humans, applications, and the surrounding environment resulting customized information befitting to the users’ current location”. Schierholz et al. (2007, p. 801) argued that conditional value in the context of the traditional environment of purchasing as “the degree to which a person believes that receiving context-relevant information or services would enhance his or her purchase performance”. However, in the context of LBS, Ryschka (2015) stated that the core focus is not predominantly on the fostering of a product purchase triggered by the application, but rather the main interest consists of the contextual elements that trigger the actual usage of the application itself.

### **3.3 Privacy calculus model**

Why do people disclose their private information? The privacy calculus model or PCM (Culnan & Armstrong, 1999) explains the disclosure intention and behaviour of people when sharing their private information in exchange for a service. The PCM is founded on the

speculation that in the context of buying products/services, individual assessment processes prior to the revelation of personal information is necessary to complete a transaction involving a privacy calculus (Dinev and Hart, 2006). The PCM model simultaneously takes into account the benefits and the costs of a given service and it has been proven to be applicable in both online and offline perspectives (Dinev and Hart, 2006). The key assumption of the PCM can be traced back to the traditional consumption principle, which assumes when buying goods a consumer generally evaluates the value of the goods with the money he/she is spending. Culnan and Bies (2003) called it “first exchange”. In the PCM model the same principle has been adopted, where the consumer evaluates the trade-off between the digital goods and the costs.

Moreover, in the case of LBS the customer-perceived costs are not solely monetary; in fact money is often not in the top of the list of perceived costs, as it can also be “the provision of personal information, which could be perceived as the means of payment or medium of exchange” (Ryschka, 2015). Although the service is provided for free of charge but only available in exchange for personal information, in case of LBS the cost is not monetary but rather it is the cost of disclosing the personal information and user’s location information. Instead of calculating in monetary value the user calculates the benefit of service with the loss of privacy caused by information sharing (Ryschka, 2015). Consequently, in the context of LBS use, PCM is considered to be highly relevant (Xu et al., 2009).

In contrast, the PCM model does not have any recognized set of applicable factors for either benefit or cost, but rather it is based on the notion of articulate decision-making and a linearly increasing, utility-based affiliation between benefits and risks (Ryschka, 2015). For example

benefits applied in the case of e-commerce range from personalization value over Internet interest to perceived enjoyment. Despite these limitations, the PCM model is suitable as the part of theoretical foundation of the study considering privacy is considered as one of the fundamental components of LBS commerce implementation (Gupta et al., 2011). The PCM model allows an integrated method of studying the drivers of the behavioural intention as well as the hindering factors. The model allows researchers to observe the calculus of benefits and costs that users perform when using LBS services (Xu et al., 2012), which is essentially sharing one's location data. Additionally, the model allows the tailoring of benefits and costs to the special characteristics of LBS services as there is no predestined set of costs and benefits, leading to better relevance and validity of the result (Ryschka, 2015).

### 3.3.1 Concept of privacy in PCM

Privacy is the central element of the PCM model and it is vital to draw a clear picture of privacy. Despite a number of attempts, any unified definition of privacy has yet to be outlined (Paine et al., 2007). The concept of privacy has multiple meanings, interpretations, and value judgements (Xu et al., 2012). From a legal perspective, privacy has been categorized as a personal right while economists approach it from a value creation point of view that creates efficient markets (Keith et al., 2013). Sociology frames it as collection of personal information that enables power and creates an influence over other individual or groups in a society (Dinev et al., 2013). Nonetheless, Ryschka (2015) suggested a triangulated working definition of privacy, in accordance with Berendt (2012):

- **Privacy as hiding:** Confidentiality: the right to private scope, which is possibly endangered by exposure of personal data.

- **Privacy as control:** Information self-determination: individual's right to make decisions on what information can be connected to others and under what contexts.
- **Privacy as practice:** Identity building: the autonomy from irrational restrictions on the formation of one's own identity.

According to Ryschka (2015) the application of these definitions incorporates the key elements of LBS usage and the right to be left alone even if the users are using a particular service. However, privacy is generally a multidimensional and indefinite concept, since, the desired level of privacy can vary according to various contexts and experience (Xu et al., 2011) and the types of information involved (Dinev et al., 2013).

### 3.3.2 Information disclosure intention

Preibusch (2013) studied consumer information disclosure habit in general and discovered three out of four consumers tend to agree that revealing personal info is overwhelmingly becoming part of modern-day as well as essential to acquire products or services. In LBS, disclosing location information can be done in several dimensions: *negative disclosure value* and *positive disclosure value* (Ryschka, 2015). In negative disclosure value, the user can refuse to disclose the information and not use the service as a consequence or provide falsified information to get the service (Preibusch, 2013). On the contrary, the positive value of information disclosure also has two-dimensions: the amount of information disclosed and the accuracy of the information disclosed (Zwick and Dholakia, 2014).

Amount of personal information externalized	Accuracy of personal information	
	Low	High

<b>Low</b>	<b>Secrecy:</b> sharing of little and potentially inaccurate information, avoiding digital representation	<b>Confidentiality:</b> externalization of restricted but highly accurate information
<b>High</b>	<b>Anonymity:</b> sharing of personal information without concealing a consumer's identity	<b>No control:</b> disclosing a large amount of personal information, revealing an accurate representation of the self

Table 6: Tactics related to information disclosure (Dinev et al., 2013; Zwick and Dholakia, 2004).

The table is drawn to depict four different information disclosure categories. Firstly, secrecy portrays users who avoid disclosing information that can be traced back to them and reveal their real identity. Secondly, anonymity represents the user who shares a considerable amount of data but does not allow the data to be connected to their real identity. Thirdly, confidentiality refers to the users sharing correct information about their identity, but only in a very controlled manner. Lastly, no-control demonstrates the extreme case of information sharing when users regularly share lots of information, which can easily be linked with their real identity.

### 3.4 Synthesizing theoretical framework

The purpose of this study is to develop a customer perspective to sharing location data. Consequently, the discovery will likely contribute to filling the gaps in literature, where customer perspectives to sharing LBD are unexplored. In addition, customer perspectives to sharing LBD will be explored by discovering and analysing what are the customers perceived benefits and perceived sacrifices of sharing LBD. In other words, the customer value

dimension approach is taken as the theoretical base of the study, since the value dimension is commonly used in theories of understanding the nature of customer value (Rintamäki, 2016). In his study of managing customer value in retail, Rintamäki (2016) used economic, functional, emotional, and symbolic dimension to conceptualize customer value perception.

However, in the current study, the author has deliberately taken a slightly different approach due to the nature of the study where LBS related dimensions are taken into consideration. Consequently, with a slight adjustment from different LBS literature, functional, social, emotional, conditional, and epistemic value dimensions (see section 3.2.3) have been chosen for the conceptualization of customers' perceived benefits of sharing LBD, whereas customer perceived sacrifices will be conceptualized by means of perceived risk of sharing LBD (see section 2.8.2).

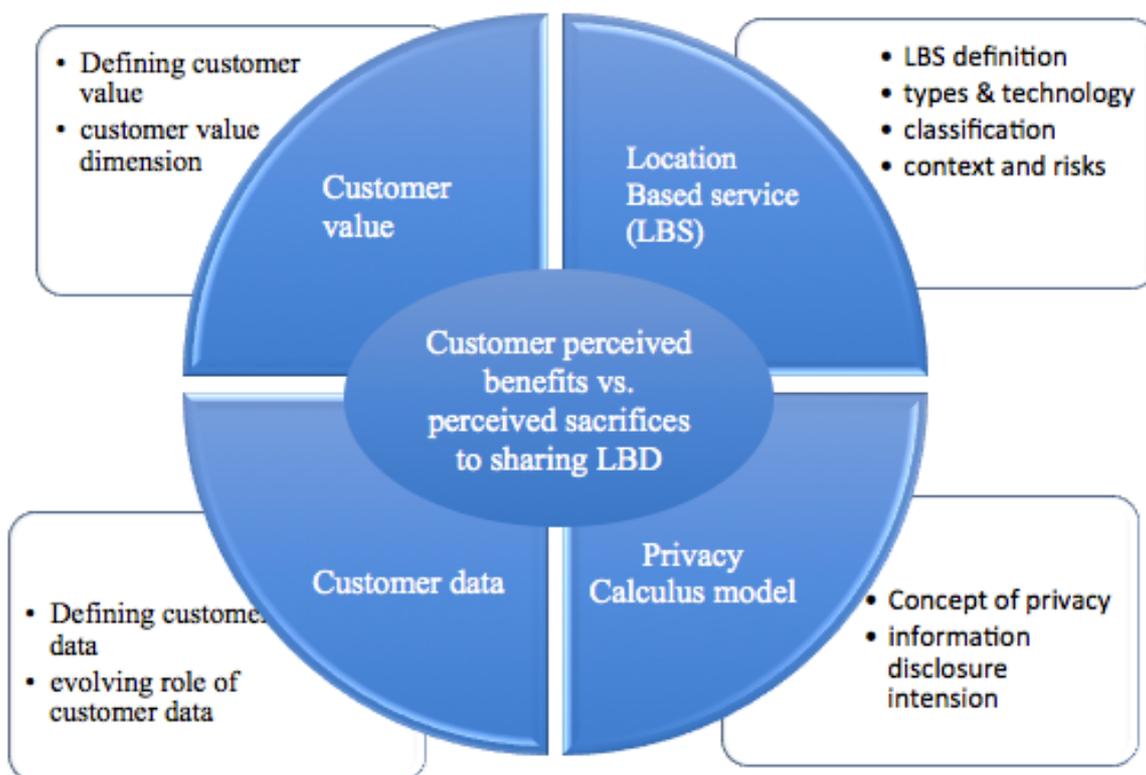


Figure 3: Synthesizing theoretical framework

In academia, theories and research-related LBD are very limited from the customer point of view. Therefore, customer data in general was highlighted in the theory. Also, LBS as a phenomenon is at the core of the study since customers share their location data in order to use various LBS. For instance when using a map service to navigate to a place, users must share their location so that the map service can guide them to the intended destination. Location search is another appropriate example: if someone wishes to find a restaurant or any other place of interest, Google can serve the customer better if access to the user's location is permitted. Also, in the theoretical framework, various aspects of LBS were discussed to emphasize the affiliation between LBD and LBS.

Furthermore, customer value has been chosen as the central aspect of theoretical framework. The customer value dimension is one of the preferred and vastly used methods of understanding the nature of customer value. It refers to the idea of what customers perceive as value when they consume a product in comparison to what sacrifices are made. Therefore, studying customer perspective to sharing LBD gives the opportunity to understand the value they gain and sacrifices they make in the process of consuming LBS.

In addition, privacy is one of the core and most widely discussed matters in LBSs perspective, mainly due to sharing location data. Consequently, when users share their location with the service provider, often along with a considerable amount of demographic information, losing privacy become a highly likely and unintended consequence. Therefore, privacy is at the core when discussing customer perspectives to sharing location data. PCM model was chosen in order to discuss the privacy issues in general. The PCM model allows an integrated method of studying not only the drivers of the behavioural intention but also the

hindering factors. The model allows researchers to observe the calculus of benefit and costs that users perform when using LBS services by adjusting the value dimension according to the topic that is being studied rather than using any established value dimensions (Xu et al., 2012).

## 4 Research methodology

### 4.1 Research philosophy

In scientific research, scholars have the option to select from two research philosophies in order to seek knowledge: *interpretivism* and *positivism*. Interpretivism is the philosophy that takes nature and society as two different objects (Martin and Guerin, 2006). On the other hand, positivism reflects on the belief that logical treatment is the best method of gathering the required information. In addition, positivism is also known as the philosophy that is based on facts. Hudson and Ozanne (1988) stated that these fundamental philosophical assumptions comprise principals of the nature of reality and social beings (ontological assumption) and what constitute knowledge (epistemological assumptions).

Positivism approaches reality as singular and independent from human input or opinion. As philosophy, positivism considers that the only form of reliable knowledge is factual knowledge that is gained through observation. According to positivists, reality is rather a combination of different parts that could be measured and experimented. Additionally, in positivism the key purpose of research is to foster the general rules of a current phenomenon to predict a possible future phenomenon (Hudson and Ozanne, 1988). In this method, researcher's role is restricted to data collection and interpretation through an objective approach while research discoveries are quantifiable and observable (Dudovskiy, 2016). According to Crowther and Lancaster (2008) positivist studies frequently adopt deductive approaches and researchers need to concentrate on facts rather than human interests.

#### 4.1.1 Interpretivism

The central belief of interpretivism is that reality is socially built rather than objectively determined; it is more mental than perceivable, depends on context, and differs according to

perspective or people (Bryant, 2011). Interpretivists believe that placing people in a given social context, understanding the perception people have about their own activities becomes rather easy (Hussey & Hussey, 1997). According to interpretivists, reality is an interdependent system that has to be observed holistically and it is an open-ended process. Hudson and Ozanne (1988, p. 511) stated that “interpretivists seek to determine motives, meanings, reasons, and other subjective experiences that are both time and context bound”.

Interpretivism is also known as interpretivist research philosophy, and primarily involves researchers interpreting several elements of the study, and ultimately leads to assimilate human interest into the study. Myers (2008) stated that interpretive study adopts the idea that access to reality is only possible through social constructions such as language, consciousness, shared meanings, and tools. In addition, interpretivist philosophy has developed based on the appraisal of positivism in social science. Collins (2010, p. 38) described interpretivism as being “associated with the philosophical position of idealism, and is used to group together diverse approaches, including social constructivism, phenomenology and hermeneutics; approaches that reject the objectivist view that meaning resides within the world independently of consciousness”. In addition, having different opinion from people, interpretivist studies predominantly focus on implication and may engage several approaches in order to replicate different aspects of the given phenomenon (Dudovskiy, 2016).

As the primary mode of data collection, interpretivist philosophy applies more naturalistic techniques such as interviews and observations, which have been adopted in this study. Dudovskiy (2016) mentioned that secondary data research is also popular with the philosophy and the meaning usually emerges towards the end of the research process.

Dudovskiy (2016) emphasized that the interpretivist approach is primarily based on two basic beliefs: first, *relativist ontology*, which identifies reality as inter-subjective phenomenon based on social understanding through experiment. Secondly, transactional or subjective epistemology is based on the idea that people cannot be detached from their knowledge and there is a viable connection between researcher and the research topic.

### **Advantages and Disadvantages of Interpretivism**

According to Kaplan and Maxwell (1994) interpretivism by its nature upholds the value of qualitative data in quest of knowledge. Adoption of interpretivism techniques in qualitative research areas brought up opportunities to conduct in-depth research in various areas. In addition, data generated through interpretivism studies are vastly associated with a higher level of validity due to its honesty and trustworthiness (Dudovskiy, 2016). In contrast, one of the major disadvantages of interpretivism is that it has a greater room for partiality for researchers and primary data generated cannot be simplified as the data is deeply impacted by personal perspectives and principles. Thus, consistency and representativeness of data is demoralised to a certain extent (Bryant, 2011).

Interpretivism has been chosen to study the customer perspective to sharing LBD. Holbrook (1996) stated that interpretivism is the way to uncover customer value as a holistic experience. Interpretivism highlights the role of individuals who often interact with external factors and it is similar to customer value that depends on individuals' perceptions and experiences. To find out more about customer value in sharing LBD, it is vital to define and interpret individual perceptions of the matter. In LBS, customers play the key role to create value by sharing location data. Researchers should identify customer/user experience and

expectation when sharing LBD or using LBS, Gummesson (2005) emphasize the significance of the role of the researcher in identifying those customer experiences while collecting data (interview, focus group) and provide an eloquent model afterwards. In order to do that, interpretivism is the right approach in studying customer perceptions of sharing LBD.

## 4.2 Qualitative method

According to Denzel and Lincoln (2005) qualitative research is a set of interpretative and material practices that study things in their usual settings in an attempt to make sense or decipher a given phenomenon in terms of the implications people bring to them. In addition, qualitative research enhances the understanding of a situation “by investigating the perspective and behaviour of the people in these situations and the context within which they act” (Kaplan & Maxwell, 2005, p 30). Conversely, implementation of a naturalistic approach that is grounded on the idea that context, as opposed to quantification is a better way to understand a subject (Denzin & Lincoln 2000, p. 3). In this study the method selected to understand user perspectives of sharing LBD is qualitative interviews and focus group discussion.

Furthermore, number of data collection methods in the field of qualitative study is quite low. In general, all the available methods are used in order understand the object of the study more clearly, Denzin and Lincoln (2005, p. 6) emphasized that each method “makes the world visible in a different way”. The selection of a research method depends on the area of interest and research objects as each method particularly characterizes the research goal. In this study, focus group discussions and face-to-face interviews were chosen as the methods of data collection. On the other hand, Feredey & Muir (2006, p. 80) stated that in a qualitative study

researchers should be able to identify a general pattern in data and document the significant theme that emerges during the process, which can be done through coding, a technique used in qualitative analysis. According to Basit (2003, p. 144) “codes or categories are tags or labels for allocating units of meaning to the descriptive or inferential information compiled during a study, codes are usually attached to chunks of varying sized words, phrases, sentences or whole paragraphs, connected or unconnected to a specific settings”. Additionally, the code can also include observational and interview data as well as literature sources (Saldana 2012, p. 3). The process of coding can be done electronically or manually based on the applied theoretical/conceptual framework.

#### **4.3 Research approach**

The approach applied to research depends on the type of the affiliation between theory and research. According to Ryschka (2015), research can be applied either to support an inductive or a deductive process of theory development. Deduction theory follows a relatively straight process starting with a theory that already exists and deriving a hypothesis, consequently, confirming or rejecting the hypothesis that causes amendment of the theory (Bryman, 2004). In contrast, inductive research starts without any established theory; theory generally emerges as the research progresses, for instance during the data collection process (Flick, 2004). In summary, the induction method aims to generate new theory whereas the deduction method tests a given theory. According to Bryman (2004) induction method is typically associated with qualitative research and deduction is followed in quantitative research.

#### 4.4 Quality criteria- interpretivism

In both qualitative and quantitative scientific research, quality criteria are considered to be highly significant while different perspectives of quality criteria should be assured. A study, whether qualitative or quantitative, ought to be structured, planned, and executed aiming to accomplish the relevant quality criteria of the research in the best possible way. According to Barker and Pistrang (2005) the quality of research can be assessed based on *objectivity*, *reliability*, and *validity*.

**Objectivity:** Bortz and Döring (2002) stated, when different researchers using the applied methods come to the same conclusion, it is called objectivity. Also, objectivity is reflected when results are autonomous from the researcher. According to Himme (2009) there are three areas of objectivity. Firstly, there is objectivity of data collection, when the object under study is not impacted by bias of the researcher's goals and preferences. Secondly, there is objectivity of data analysis, which entails a low degree of freedom in the analysis method. Finally, there is objectivity of interpretation, where it is considered a given if the same results lead to the same conclusion.

**Reliability:** Consistency and stability of a measurement indicates the reliability of a phenomenon. Bryant (2011) suggested that instead of a singular method, multiple and independent methods should be applied if the conclusions are the same in order to have greater reliability. Logically, a reliable measurement would lead to the same conclusion when applied again. In another words it is the reproducibility of a measure. In order to obtain reliable results researchers aim to achieve lower error terms (Bortz and Döring, 2002).

**Validity:** According to Johnston and Pennypacker (1980) validity can be defined as “degree of approximation of reality”. It is an interpretive understanding of truth. Validity regards the research process as a whole. Maxwell (1992) classified it into five typologies: descriptive, interpretative, theoretical, generalizability, and evaluative validity. Ultimately, a qualitative research phenomenon depends on demonstration of valid description data.

However, the combination of different methods is known as triangulation. Especially in the case of qualitative research, findings can be fortified in this way by combining participant observation with interviews, focus group discussions, and documentary sources (Bryant, 2011). However, triangulation is not a tool or a strategy of validation, but rather it is an alternative to validation (Denzin and Lincoln, 2003). Bryant (2011) argued that triangulation is predominantly important in order to reinforce validation in absence of comparative phenomenon. The method used in this study can be classified as a triangulation method since different interviews and focus group discussions were employed in the data generation process.

#### **4.5 Data collection**

There are a number of distinctive data collection techniques in qualitative research. Each method makes the world visible in different ways (Denzin & Lincoln 2005). The most common and popular data collection methods are visualization (observation), verbal (interviews), and non-reactive (document collection) methods (Flick, 2007). The interview method is popular among researchers for several reasons: it gives researchers an opportunity to open discussions that entail detailed dialogue with the participants. Carson et al. (2001) emphasized that interviews contribute to the prospect of viewing the given phenomena from the user perspective. Therefore, it fits the narrative of current research.

Furthermore, the verbal or interview method was chosen for the empirical data collection. However, there were two different interview methods in the process: individual interview and focus group discussion. Altogether four face-to-face interviews were conducted in addition to four separate focus group discussions. The aggregate number of participants that contributed to the data collection process was 19. The focus group participants were interviewed as part of the project CityTrack. CityTrack is a research project of Tampere University where LBS is being studied, having its own mobile app through which users receive information regarding different events in Tampere area. Moreover, focus group attendees were familiar with LBD and LBS, which indicates the reliability and validity of the collected data. The face-to-face interviewees were not CityTrack users; as a result, the collected data is diversified. However, the name of the participants has been either slightly altered or changed to a different name for privacy issues. The list of participants in the interview and focus group discussion is presented below along with some other demographic information.

<b>Types of data collection method</b>	<b>Name</b>	<b>Gender</b>	<b>Age</b>	<b>Length of the interview</b>
<b>Focus group 1</b>	Lina	F	28	29 minutes
	Arko	M		
	Kate	F		
<b>Focus group 2</b>	Mika	M	24	41 minutes
	Anni	F	24	
	Ari	M	24	
	Simon	M	33	
<b>Focus group 3</b>	Elena	F	34	42 minutes
	Juha	M	31	
	Maria	F	19	
	Pivi	F	50	

<b>Focus group 4</b>	Ari	M	55	45 minutes
	Ninna	F	22	
	Joe	M	41	
	Nia	F	45	
<b>Face-to-face interviews</b>	Micael	M	25	24 minutes
	Jukka	M	23	30 minutes
	Miki	F	28	25 minutes
	Tomi	M	23	26 minutes

**Table 7:** List of the focus group & interview participants (name of the participants has been altered or changed for privacy concerns).

#### 4.6 Data analysis

Schutt (2012) stated that qualitative data analysis could be done in several ways; the type of method largely depends on the type of qualitative data and the function of the data. In this study, the type of qualitative data collected is text-based, as the interviews were transcribed. Nevertheless, in qualitative data analysis the researcher should be able to recognize a general pattern in data and document the significant theme that emerges during the process, which can be done through coding, a technique used in qualitative analysis (Feredey & Muir 2006, p. 80). Coding is considered to be a highly essential stage to analyse qualitative data effectively (Ghauri & Gronhaug, 2005).

Coding is a process that systematically reduces large amounts of data into much smaller, relevant, and representative chunks (Hair et al., 2011). Coding rearranges the obtained unstructured data into different categories, making it more manageable and comprehensible. In addition, Basit (2003, p. 144) stated “Codes categories tags or labels for allocating units of

meaning to the descriptive or inferential information compiled during a study, codes are usually attached to chunks of varying sized words, phrases, sentences or whole paragraphs, connected or unconnected to a specific settings”. Additionally, coding can also include observational and interview data as well as literature sources (Saldan 2012, p. 3). Process of coding can be done electronically or manually, using a filter chosen by researcher, based on the applied theoretical/conceptual framework. In this study, manual coding has been used in order to minimize the large amount of data to smaller, more relevant chunks.

Furthermore, all the interviews and focus group discussions were recorded with an audio recording device. The author carefully listened to all the interviews and focus group recordings multiple times in order to establish a comprehensive understanding of the themes or patterns emerging from the empirical data, as well as to get a better understanding of customers perceived value of sharing LBD. However, distinguishing the emerging themes of customers’ perceived benefits and sacrifices was still elusive at this point of the process, although a pattern seemed to arise.

Afterwards, interviews and focus group discussions were transcribed by carefully choosing the relevant and essential parts from the recordings, totalling 38 pages of text. However, not every sentence from the interview was transferred into the transcripts because the author did not find them useful for the goal. The transcribed texts were then carefully read several times and key parts were highlighted. The process continued by eliminating some texts through the process of manual coding by the author, since, software coding is unable to determine the human experience and interpret the qualitative data (Gummesson, 2003). Additionally, during the interview author has taken notes, which later helped to select the findings that are imperative to the discussion. The manual coding process was completed based on the

established theoretical framework, the author's own observation during the interview, and focus group discussion. Irrelevant or biased texts were disregarded considering the human interpretation in qualitative study is highly significant.

## **5 Customer value in sharing LBD**

### **5.1 Themes emerged from empirical data**

In this part, value perceived by participants will be categorized according to themes that have emerged from the data analysis. The themes will be chosen based on what participants highlighted as the usefulness and reasons behind deciding to share LBD.

#### **LBD sharing for maps & navigation**

Maps and navigation have been identified as the most common reasons behind sharing location data, as empirical evidence suggests most participants respond positively to location sharing in order to use navigation and map services. Empirical evidence clearly indicated maps and navigation usage is the leading customer-perceived benefit of sharing data, if not the only benefit for many users.

*“Considering my navigation system it is okay, but in other ways I usually forbid every single item I have to share my location with”. - Jukka*

*“I shared my location in maps. It has practical use, and it helps me to find where I am”-Michael*

*“Maps is the number one for me because I can find where I am”- Kate*

### **LBD sharing when exploring new places/traveling:**

Exploring new places while traveling is also found to be a key perceived benefit and motivation behind LBD sharing. While traveling to another country or city, people are keener to share location data as they categorized sharing LBD as a necessity. Surprisingly, those who never share their location data are more willing to share while traveling:

*“When traveling I might be more willing to share location data”-Arko*

*“Maybe if I am traveling because I would like to see and get to places and find out what is there to see and explore”-Lina*

### **Getting offers and discounts**

Users highlighted that receiving offers and discounts encourages them to use different applications/services that require access to their location. Also, data analysis revealed that if financial benefits were offered, users would be more inclined to share LBD. People also share more enthusiastically if they receive bonuses.

*“I know Foursquare gives discounts in drinks by checking in to some places”- Arko*

*“When you are like in Paris maybe you get some offer from service provider there after sharing or check in, then you might get some good offer in restaurant (e.g. Groupon)”. - Miki*

### **Fun and Show Off lifestyle: Creating a better social image**

Users profoundly described the experiences of the high intensity of fun and pleasure derived from sharing location data by way of check-ins and photo tagging. Also, check-in or location

tagging is a highly effective way to show off one's lifestyle. Therefore, it contributes to create a better self-image, the following quotes demonstrating this revelation:

*"Well... just trying to figure why I did that last time, I think it was to let people know where we were in the city, we were younger and you get some sort of satisfaction by letting your friends know you are in a city"- Mika*

*"It's all about lifestyle these days, sharing your location is more about showing your lifestyle. It's like they can say I was there and I'm going there because I can"- Jukka*

*"As far as the social side goes, I suppose you could categorize as show off, or letting people know what they are up to and what they are doing" - Michael*

### **Sharing knowledge and experience with friends**

Apart from navigation, fun, and social image people also consider sharing their gained experiences as one of the key reasons behind sharing location data. Users consider that it creates value when sharing knowledge, pictures, and experiences with family or friends.

*I also do it to introduce to people in other countries that it is the place and it looks like that. I show my friends and families places I go to visit and tag the picture with location so they know what and where it is. - Miki*

*"I am in some groups and I can share if something related to that group comes to my mind, if something interesting is happening there, then I post it"- Joe*

*"If I'm in a nice event or location I share my location to let my friends know"-Ari*

## 5.2 Customer-perceived benefits of sharing LBD

### 5.2.1 Functional benefits

Monetary and convenience value is combined together and is represented by “Functional value” based on the assumption Meuter et al. (2000) made in an electronic service context. Considering the monetary benefit in the context of the current study, participants share location data more when a discount or any reward is received in exchange. Although monetary benefit has not been the main motivator for most people, empirical data clearly revealed that getting discounts and points motivate user intention to share location in some specific websites like Foursquare.

*“For me it is kind of a habit when I use it in different channels, there used to be some kind of discount and points in foursquare, it’s like motivation for me”-Arko*

*“I have had some free drinks from Foursquare”-Kate*

According to Zeithaml (1998) low price is likely to create more value in the customers’ minds and it is also considered to be the most valuable characteristic while creating customer value. In sharing LBD, if customers anticipate any possibilities of gaining monetary benefits such as discounts or offers, they often chose to share the location data, as one participant mentioned:

*“When you are like in Paris maybe you get some offer from a service provider after sharing data or check in, then you might get some good offer or restaurant recommendation then it is quite good in my opinion”-Miki*

Zeithaml (1998) defined economic value by comparing what customers get and what they give. Consequently, if the benefits of sharing LBD such as discounts or offers are regarded higher than compromising privacy, customers perceive the economic value to be higher. On

the other hand, most participants in the interview and focus group discussions revealed navigation, location search, and finding places in general to be among the foremost benefits of sharing LBD.

*“Maybe if I am traveling because I would like to see and get to places and find out what is there to see and explore”-Lina*

*“I shared my location in maps; it has practical use, and it helps me to find where I am”- Michael*

*“When I use my phone’s navigation it wants to know where I am, so it can show me places I commanded it to go and it asks my permission, so I accept it”- Jukka*

Interestingly, interviewees also experienced finding jobs through location sharing in different channels, which can be considered as a functional benefit, as they shared:

*“One time I applied for a summer job and I saw the ad, I guess it was possible because Google knows my city”- Anni*

*“I have found a job once, it was interesting I was lucky, it was in my work PC, I didn’t have adblock and I received the job ad”-Simon*

Moreover, people also use apps that helps them to lead a particular lifestyle, for example one interviewee delicately mentioned about her vegetarian lifestyle and how she benefits from a special app designed to find vegetarian restaurants in different cities:

*I have used an application called HappyCow; it has helped a lot because I am vegetarian. I can find vegetarian restaurants, user have been rating that and see the customer ratings and that service have has been great for me”- Elena*

Often, location data can be used in creating practical value if and when used in conjunction with other apps. In addition, people wish to have services that make their life easier, possibly

combination of services by sharing the minimum amount of data, which is emphasized by the following statements:

*“I had a meeting and I put that in the calendar. Before the event, I was notified that it takes 15 minutes to go there, there is no traffic. I was very happy about it because I was wondering how long does it take to drive there”- Nia*

*“I would like to get an app that makes my life easier, like CityTrack; it helps me to get to my local places and getting some special offers that would make my life easier, combination of things because I am not sharing much, only my location. It would be easy for my life without sharing too much info”- Simon*

### **5.2.2 Social benefits**

Social value is related to social approval that enhances the self-image among other individuals. Social value of sharing LBD can be generated in several ways as people share location for various purposes. For example, by sharing location one can communicate with friends, be in touch with family or a particular group, and “be part of the flock” as one participant delicately stated it. The following statements indicate these sorts of social value creation perceived by users:

*“I have lots of friends from many places so if I’m there I let them know so that we can have some social interaction”- Ari*

*“I usually post when I’m with my sister, family, and friends. It was just, we wanted to let people know that we were together in a place; it was more of a social thing than of a location”- Mika*

*“It is being part of the society and flock, like some people like to have nice Instagram pictures to show what kind of lifestyle they have and be part of a flock”-Tomi*

On the other hand, people surprisingly expressed their concern over losing the social status if they do not share enough, as one user mentioned it elegantly:

*“I am risking of losing the status if I do not post about my whereabouts; somehow deep inside I feel it's superficial but it's a way to communicate with social media and people”. - Tomi*

Furthermore, creating a better self-image by showing off one's lifestyle is also perceived to create social value for some participants. Besides, showing off lifestyle is quite popular among social media users, which can help create a better personal brand and enhance social influence. The following statements specified these types of social value creation, perceived by users:

*“It's all about lifestyle these days; sharing your location is more about showing your lifestyle. It's like they can say I was there and I'm going there because I can”- Jukka*

*“As far as the social side goes, I suppose you could categorize it as show off, or letting people know what they are up to and what they are doing”- Michael*

### **5.2.3 Emotional benefits**

Emotional benefit is derived from products or services that generate feelings or affective state. In general, fun and enjoyment triggers the location sharing intention among users. Location sharing and emotional value is predominantly connected to the user's location and the message it gives to the viewers. Many participants revealed sharing location, especially in social media is an efficient way of sending a positive message that leads to increase pleasure in their mind, as stated in the following statements:

*“Just trying to figure why I did that last time, I think it was to let people know where we were in the city, we were younger and you get some sort of satisfaction by letting your friends know you are in a city”- Mika*

*“Well for me it’s mostly for fun to share my location with my friends”- Ari*

*“I think it's more about feeling, I have not received any discount or anything else. It’s kind of a happy feeling for me”- Anni*

In addition, participants revealed that being present at a special location can often trigger various positive emotions such as happiness, fun, or even a showing-off type lifestyle. Also, sharing such positive emotion is likely to send a message, which can potentially trigger similar reactions for the receivers or viewers of the message. The following statement from an interviewee describes the feelings:

*“It’s all about lifestyle these days, and sharing your location is more about showing your lifestyle. It’s like they can say I was there and I’m going there because I can. It can be a potential mental stimulation to people or friends”. - Jukka*

*“I do it sometimes. It is being part of the society and flock, like some people like to have nice Instagram pictures to show what kind of lifestyle they have and be part of a flock.”- Tomi*

Moreover, users who are generally hesitant to share location data tend to be more willing to share it when travelling or simply in a different city, especially in holiday. Sharing location with pictures while travelling gives a sense of pleasure and it is also a way to communicate with people in their circle. As one interviewee mentioned:

*“I also do it to introduce to people in other countries that it is the place and it looks like that. I show my friends and families places I go to visit and tag the picture with location so they know what and where it is”. – Miki*

*“Sometimes If I am in some random location or location with funny name, then I share it because it’s funny”- Joe*

The comments suggest locations with funny names can trigger the sharing intent, to share the joy with friends, although the person generally refrains from sharing the location data.

#### **5.2.4 Conditional benefits**

Conditional value depends on the context and exists in a specific situation and circumstances that affect choices. Users seem to share more frequently when their privacy is not strongly threatened, since users deem the pattern of the data cannot be used against the user or to identify the user. For instance, being in a different city as tourist, users seem to think it creates value for them by helping them in finding sights to explore, the best restaurants, and activities.

*“Maybe if I am traveling because I would like to see and get to places and find out what is there to see and explore”- Lina*

*“Also I would say when I’m on holiday I’m much more inclined to share”- Kate*

However, situations are known to influence people’s behaviour; the level of stress or mental situation can influence the user’s willingness to share location data both positively and negatively. The following statements from two different interviewees indicate how a user’s “mental being” may influence the sharing intention positively or negatively.

*“(..) Like when you travel you need to go to places, so your guard is down (and) since you need it, you share your location info”- Michael*

*“Also I would say when I’m on holiday I’m much more prone to share, but when I’m at my job, there’s much more stress and then I don’t have any motivation to share”- Ari*

The same user who is more inclined to share location data while traveling would not share the data while working because of high stress levels. Other users indicated an inclination to share the data due to what he called “mental guard is down” (more relaxed) while on holiday or in another city.

Furthermore, mobile applications often require access to the user’s location. Most users consider giving access to the location if it is unequivocally compulsory to use the application, however, most users deny the access request if the application can be used without giving access to location. Even though users share the location with a mobile application, they often question why the application needs it.

*“I usually think what is it needed for; sometimes an application doesn’t really need it, then I am like, why I am using it, why does it need my location data? At the same time if the application requires it then I don’t really question it”. - Juha*

*“Well, I think about the reason why does the app need it, if it's obvious then I just accept it to use the app, if I can’t understand why app needs my location then I don’t accept it”. - Mika*

*“Mostly with all the apps I use and everyone wants to know the location, so yes I share it”. - Ari*

Conditional value and intention of disclosing location data differs according to the degree of value it creates as opposed to the risk of disclosing the location data. If people regard the value to be higher or risks lower, they are more likely to share location data. As one interviewee disclosed:

*“Not too happy about the sharing of my info, but I know it's a trade-off, I get services from Facebook or Google and I pay with my private info so that they can sell me ads”- Simon*

### 5.2.5 Epistemic benefits

Epistemic value is experienced curiosity, novelty, or gained knowledge. Especially when exploring a new place, sharing with family and friends is considered to create the value of shared knowledge, as not everyone would be able to see that particular city as one participant detailed:

*“I also do it to introduce to people in other countries that it is the place and it looks like that. I show my friends and families places I go to visit and tag the picture with location so they know what and where it is, because they live far away and they cannot come here”. - Miki*

Additionally, people are more eager to share their gained experience or knowledge with those having similar interest or part of the same group, as mentioned:

*“I am in some groups and I can share if something related to that group comes to my mind, if something interesting is happening there then I post it”. - Juha*

Furthermore, people consider sharing knowledge as a way of gaining more knowledge by exchanging with other users. For instance if enough people share about a particular location

or restaurant and state their opinion about it, one can easily decide whether to visit the place or eat in the restaurant by reading comments or observing pictures beforehand.

*“I think it’s about contribution and showing people what there are, in restaurant reviews and other things you also contribute, I have the benefit that I get to see what other people are rating and see what the place looks like based on the pictures people post and in that way I can chose and see what are the places I want to see or eat”-*

*Tomi*

### **5.3 Hedonistic vs. utilitarian nature of customer value: sharing LBD**

As discussed in the theory, consumers are either problem solvers or seekers of fun and enjoyment, thus, referring to utilitarian vs. hedonic consumption. The hedonic view emphasizes the importance of a fun experience as opposed to the effective achievement of a utilitarian goal (Holbrook, 1994). In the context of this study, the customer-perceived value of sharing LBD reflects on both hedonic and utilitarian nature of consumption. Based on the analysis of perceived benefits in section (5.1 and 5.2) hedonic nature of customer value is highlighted by social, emotional, and epistemic benefits, while utilitarian nature is emphasized by functional benefits such as use of maps and navigation, location search (e.g. in new city), and getting offers and discounts.

Furthermore, consumer focused on various elements of experiences, feelings, and emotions. Sharing LBD generates all these fun experiences leading to various positive emotions such as “having fun with sister”, “showing off because I can”, “it’s fun to share a location with funny name”, “it’s kind of a happy feeling for me”, “Being part of the flock”, or “showing lifestyle”. Moreover, Batra and Ahtola (1991) stated these perceived happy, pleasant, and nice feelings are efficient ways to measure hedonism. Also, these findings are coherent with

various studies in social science and humanities where “user mood” is considered highly substantial while revealing location (Evans, 2014).

On the other hand, Holbrook (1994) emphasized that consumption can and most likely involves more than one type of value simultaneously. Consequently in this research, customer-perceived benefits reflect on both the hedonic and utilitarian natures of customer value. However, the utilitarian nature of customer value ranks slightly higher than the hedonic nature, simply due to the fact that most participants revealed usage of maps and navigation services is the primary reason of LBD sharing. Utilitarian value is defined, as consumer-perceived value associated with the necessities of living or as Holbrook (1994) defined it as “problem solving” consumption. Accordingly, location services such as maps and location-based search are becoming a more and more integral part of modern life and can be categorized as “problem solving consumption” or utilitarian value. In order to use these services one ought to share location data as reflected by interviewees:

*“I shared my location in maps, it has practical use, and it helps me to find where I am”-Micael*

*“If I am traveling because I have to share location because I would like to see and get to places and find out places to see and explore”-Lina*

*“When I use my phone’s navigation it wants to know where I am, so it can show me places I commanded it to go and it asks my permission, so I accept it”- Jukka*

Interviewees also revealed other benefits such as finding jobs. Finally, it is safe to say sharing LBD upholds both hedonic and utilitarian nature of customer value.

## 5.4 Perceived sacrifices of sharing LBD

This section of the analysis will be elaborated by several themes that have emerged from the empirical data in combination with the risk dimensions mentioned in the theoretical framework. As mentioned in the PCM model, which allows the tailoring of benefits and costs to the special characteristics of LBS services considering there is no predestined set of costs, this will lead to more relevant results (Ryschka, 2015).

### 5.4.1 Perceived surveillance

Sharing LBD can lead to surveillance risk if a user senses data can be taken by a third party (e.g. government) by any other entities than the user (Xu and Teo, 2004). Several interviewees mentioned their dire concern about “perceived surveillance”. Most of the interview participants directly or indirectly phrased how they feel about the possibility of being under surveillance.

*“I feel like if I share my location too much then they will know more about me, what I do, where I live, where I am. It feels like someone is watching you”-Miki*

Sharing location data increases the chance of potential surveillance by service providers. The statement above clearly indicates the user’s perceived risk of being under surveillance. Also surveillance by the so-called “big brother” was cited as one interviewee specifically mentioned about surveillance by government and how the company might be forced to give data to third parties. Although news regarding NSA surveillance mostly concerns American citizens, the fear of being under surveillance is a worldwide phenomenon.

*“Although companies may not sell data, everybody has heard news about the NSA collecting phone calls and Internet data; I feel scared by that kind of news”- Maria*

*“I have given up hope with all these big corporations; it's not necessarily positive in my opinion when sharing your location. They also ask to get access to the microphone and pictures in your phone”- Simon*

*“I feel that I'm in control but it might not be true; everything is recorded somewhere”- Elena*

These statements imply consumer concern over surveillance which is also supported by Ryschka (2015) who says “the location based information allows receivers not only to know the footprints on the digital space of the user but also information about users’ real life actions, which renders surveillance an even more concrete risk”. Users also expressed their concern of losing control when sharing data. In addition, the possibility of being traced and tracked has been mentioned, which leads to the fear of being under the control of someone else.

*“Sometimes I do wonder about how much they know about me, maybe they know too much since they can personalize ads so well; it's a feeling of being concerned”- Miki*

However, users also took the future into consideration in their discussions and expressed mixed feelings towards sharing location data, as well as shared their excitement of the possibility of a more technologically advanced future.

*“Google knows too much about me and they can predict what I'm going to do. Like one guy didn't even know he is going to need diapers because his wife is pregnant and Google knew about it before he did”. - Kate*

*“In future maybe thinking that hey it might be traffic in that road so you may need to change it. It's kind of scary because the system is going to know where I'm going before I'm going there”- Simon*

Interestingly, user expressed how individually identifiable data discourages them to share data while being part of big data was not of big concern.

*“I think anonymous big data is ok, but I think as an individual I would not like to be identified by the data, how I live or how I move”-Jukka*

#### **5.4.2 Social & psychological risk**

Before sharing location data, a user may consider possible social risks due to the loss of privacy. Luo et al. (2010) discussed that psychological risks are often connected to social risks, considering that a lower self-image can result in both social and psychological downturn (Luo et al. 2010). Interviewees revealed how insecurity of perceived social risk impacts their LBD sharing intentions. In addition, perceived social risk from the use of LBD can occur in several ways, for example giving a wrong image about oneself, embarrassment, probability of people making pre-assumptions, and some viewers might ponder sharing too much to be annoying:

*“Also it's a risk that people construct a presumption of you without actually knowing you”-Tomi*

*“I don't like the idea of people being able to construct a profile of me that may or may not be true, or I may or may not want people to know”-Michael*

Users' online activities affect offline life, as indicated by the two statements above. In addition, Ryschaka (2015) argued that sharing LBD could only be beneficial if the online and

offline behaviour are consistent with the desired behaviour from the social perspective. However, it is rather challenging to communicate constantly online and offline without damaging social image. Interviewees revealed that sharing location could lead to exposure of certain behaviour they ultimately intended to keep private:

*“Of course if you post something but you maybe told some people that you are somewhere else, it can hurt relationship”.- Jukka*

*“I don’t care about Facebook knows about my location but I don’t want everyone else to know. I don’t want some person to know if I’m in a place”- Anni*

Furthermore, interviewees disclosed their concerns regarding the increasing dependency on technology and social media. Although technology, in this case LBS, is an essential part of our lives, users raised their concern that too much dependency on technology is harmful for the society in the long run.

*“I know many people who are completely dependent on navigation, that’s a concern because we should not be dependent on mobile phones completely”- Ninna*

*“When we discuss future, my concern is that are we going to be completely dependent on mobile phones or technologies, telling us where and when to go, are we able to do anything just by ourselves?”-Nia*

On the other hand, some participants expressed concern over big corporations, that having lots of data corporations can influence society in a large scale, for instance they might become political entities and even influence the government to change the law, which some identify as a threat to democratic society:

*“Those companies are big and powerful, they can pursue government or change the legal system and they have lots of data on people, and they can misuse those data”. – Joe*

### **5.4.3 Fear of physical attack**

It is a general concern of losing physical safety due to sharing location information (Ryschka et al., 2014). Physical risk arises due to the nature of real time interaction in sharing LBD; users can be traced or located in real time if data is shared online. Different interviewees drew several scenarios of possible physical risks: There are several ways one can be physically harmed which is associated with sharing location data, depending on situation of the particular user. For example, the following statements show how diverse risk can be when it comes to sharing location data:

*“In refugee camp, there was this guy who was concerned because we took photos and he was like ‘No, no! Nobody can know where I am because they will do bad things to my mother’.”-Anni*

*“I was in the summer cottage and Google wanted me to share some pictures. But I thought it’s a bad idea because I don’t want people to know there is this sort of summer cottage in this place; it’s easily breakable to get into”. - Jukka*

### **5.4.4 Fear of financial & property loss**

Kleijnen et al (2007) stated that one of the major perceived financial risks is consumers’ concern of potential monetary loss that may occur due to the use of LBS. In this study users stated that hackers might break into the information vault and take information, which can be used to steal money from their bank:

*“I fear someone might hack and fake my information to steal or take money out of my bank”- Miki*

In addition, users specified their fear and risks of break-in, robbery and stealing from their residents due to the exposure of their location. It is easy to track and find out where people live and work. The pattern of their lifestyle can easily be recognized by people with IT skills, and people often fear it can be used against them to steal or break into their property.

*“I am a bit concerned, but also if someone finds I’m on holiday they might break into my house and steal”. - Miki*

*“If I would live in the countryside, I would be afraid of burglars. If they know that nobody is at home they could go and steal”. - Pivi*

*“Like my host family in America said, it's kind of dumb to post in Facebook that I’m leaving for two weeks’ in vacation then someone go and turns down your apartment, it’s a risk of robbery for them”- Jukka*

#### **5.4.5 Perceived intrusion**

Perceived intrusions include the risk of facing any acts that users consider to be a disturbance of his/her solitude, including unwanted incursions into their presence (Xu et al., 2012). Some of the participants conveyed their concern of perceived intrusion in several ways:

*“But if I get a notification or ad like ‘you were here in Café Europa, would you like to rate it?’ I feel like someone is invading my privacy or free time”. - Anni*

*“I don't use it always because then I receive ads when I share my data. I use ad block, although it doesn't work in Facebook or Instagram; it is annoying”-Maria*

These remarks indicate that users may perceive sharing location data a probable threat to their privacy. People do not always appreciate receiving ads after sharing location data; it is more likely to lead them believe that their privacy is being invaded. Additionally, when information is private, it can create a higher level of discomfort. The following statement indicates the high level of discomfort from the user standpoint after receiving ads on matters that are personal and sensitive.

*“I am so tired of receiving advertisements and information about babies and ‘hey are you married?, Pregnant?’ and these kinds of private issues, so I try to share less information”- Lina*

Clearly, only by sharing location data, regardless how the data is being used, users can perceive that their privacy has been invaded.

#### **5.4.6 Loosing personal data to third party**

One perceived risk among users is that a service provider may pass their information to third parties without their explicit knowledge or permission (Dinev et al., 2013). The degree to which a user trusts the service provider influences their choice of sharing data.

*“I would not want to share my data to third party. I would like it to be in between me and service provider”- Ninna*

*“I have some issues. I don’t trust the service provider so much that they keep it in some places; I know many apps collect data and sell it”- Simon*

*“I think the problem with big corporations is they are so huge and I don't know where info is going, and networks are so deep”- Mika*

Participants specifically stated their concern over data misuse without their consent and sold to third parties without their knowledge. Ryschka (2015) explained that the perceived risk of secondary use appears when a service provider uses consumer data in anything other than what consumer expected. However, concern over terms and conditions of mobile applications was also highlighted in the interview, emphasizing that users generally do not read them before agreeing to them, which may cause severe damage to their privacy:

*“Many people don’t read the license agreement and that can be harmful for some people because they can share it with third parties”-Jukka*

On the other hand, users often take precautions to avoid exposing location or identify in general, for example by providing false data online or by using other means of hiding identity.

*“I have given somewhat false information about street address, nothing else and city is correct”- Simon*

*“When I search anything in Google, it usually goes through my printer which means it cannot be traced back to me personally”-Jukka*

Users desiring to protect their location data are taking precautions like these, since not knowing what their data is being used for creates much insecurity and discomfort.

#### **5.4.7 Giving away too much data**

This pertains to a user's concern over how much data is being collected by the LBS provider (Zhou, 2011). The fear of collection comes mostly from the fact that they do not wish to be profiled and targeted for marketing.

*“Sometimes I do wonder like how much they know about me. Maybe they know too much since they can personalize ads so well. It’s a feeling of being concerned”-Miki*

*(..) That’s why I don’t share much, I feel like if I share too much then they will know more about me, what I do, where I live, where I am”- Elena*

*“Okay, sometimes I wonder what information they are getting out of me, why there should be value in that information, always having bit a of thinking what I’m sharing in Google and Facebook”- Simon*

#### **5.4.8 Time consumption**

LBS use can be time consuming due to the fact that many services can be complicated to use and may take time to learn how to use. Some user may perceive that using these services is a waste of time, therefore, as risk (Luo et al., 2010). However, only a couple of the participants voiced their concerns about time consumption in LBD sharing, considering, adopting new technology, and using them may seem a waste of time for them:

*“For me it takes long time to learn how to use it sometimes, so I sometimes avoid using it or misuse it and lose my privacy because I am not using it correctly”. - Pivi*

*“Sometimes it is so time consuming to share things. I do it when I’m on holiday because I have time”- Nia*

#### **5.4.9 Summarizing the finding**

Firstly, sharing LBD is the prerequisite of using LBS and user intention of sharing LBD can be impacted by a number of issues. In the current study the main issues identified as perceived sacrifices are perceived surveillance, social and psychological risks, physical risks,

monetary and property loss, perceived intrusion, fear of giving away too much data, losing data to third parties, and time consumption. All these dimensions are linked with users sharing LBD with the service provider. In addition, users' concerns of losing control are marked as one of the major risk factors from the customer perspective. There are two different sides of user control: firstly, loss of control of personal information and, secondly, loss of control in the long term that concerns a bigger part of society. Xu et al. (2012) stated that users feel it is important to avoid powerlessness and vulnerability in the future. The following two statements summarize the concern people hold:

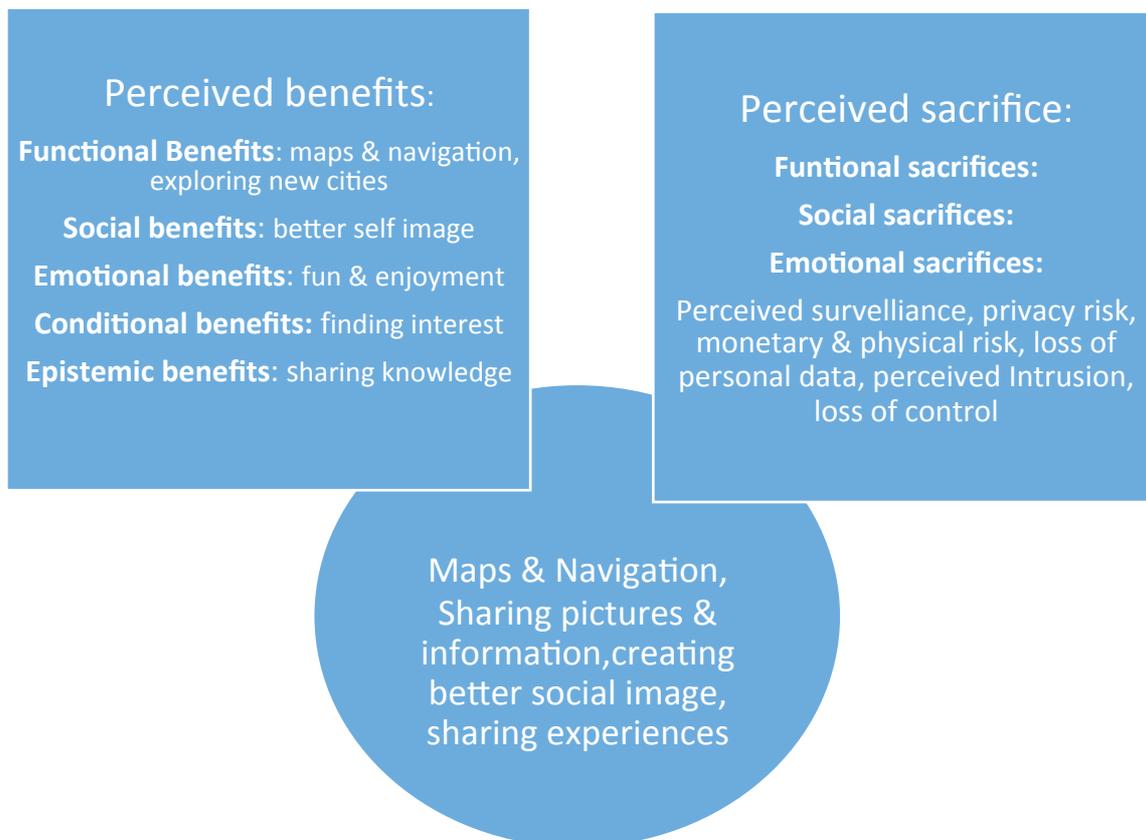
*(...) "I feel that I'm in control but it might not be true; everything is recorded somewhere"- Elena*

*"When we discuss the future, my concern is are we going to be completely dependent on mobile phone or technologies telling us where and when to go, are we able to do anything just by ourselves?"- Maria*

People generally feel the necessity to control their disclosed information. However, participants stated it can be controlled by strict privacy laws, while other expressed that some corporations are so big and powerful, in the future they might be able to influence laws and change laws in their favour. Secondly, several risk dimensions were discussed above such as social risk, risks of intrusion, financial risk, social risk, psychological risk, physical risk, risk of intrusion, and so on. All these risks can be classified as some sort of sacrifice of LBD sharing from the customer perspective. Moreover, some users consider "time consumption" as a form of sacrifice.

## 5.5 Re-evaluating of theoretical framework

This part of the paper will focus on re-evaluating the theoretical framework based on empirical findings discussed in section 5. Particular attention will be drawn to the customer value dimension (perceived benefit vs. perceived sacrifice), along with the PCM model, which allows adjustment of risk dimensions.



**Figure 4:** Perceived benefits vs. perceived sacrifices

As discussed in section 3.2.3 (customer perceived value), monetary and convenience benefit can be combined together and represented by “Functional benefit”, based on the assumption by Meuter et al. (2000) in the context of electric services. Empirical data analysis supported the functional benefit of sharing LBD. Sheth et al. (1991) illustrated functional value as the

value resulting from effective task fulfillment (e.g. convenience, availability and ease of use). Responses from participants confirm the impact of functional benefit in sharing LBD; for example, when using maps to find places in a new city while traveling. In this regard, navigation can be considered the functional benefit of sharing LBD, which has been confirmed by most of the participants as the primary reason for sharing LBD. Users, who are generally reluctant to share LBD, have acknowledged that functional benefits are the key motivators to change their mind-set to share LBD. According to Anderson & Srinivasan (2003), the convenience value allows to effectively achieve a specific goal, such as finding a vegetarian restaurant.

In terms of social benefit, many scholars have recognized the importance of social reputation (Bhat et al., 1998; Sweeney & Souter, 2001). Social benefit typically represents the social approval and the enhancements of one's social image in society. Responses from participants corroborate the social benefit of sharing LBD. Additionally, as stated by participants, sharing LBD is largely connected with social media use, which results in creating a better self-image in social circles. The data revealed that social media provides unique opportunities to communicate with a large number of audiences with minimum effort. Therefore, individuals can build strong social relationships along with a positive social image. This is confirmed by Sweeney and Souter (2011) who define social value as the utility derived from the product's ability to increase a social "self-concept" (2001, p. 211).

Furthermore, an additional important aspect is the arousal of positive feelings, also referred to as emotional benefit. Interviewees emphasized the value of sharing location information in social media, as this triggers feelings of happiness, for example, when meeting friends, visiting a famous place or travelling to another country. Some interviewees expressed the

feelings as “having fun with sister”, “I share when I travel”. These findings are confirmed by Sheth et al. (1991), who noted the importance of positive feelings attributed to the emotional value. In addition, Leung and Wei (2000) confirmed that customers are known to use electronic, mobile services in order to seek fun and enjoyment. Moreover, data showed that people are more willing to share when they are abroad or traveling to another city, which is connected to positive emotions. As supported by Brielf & Aldag (1977), technology use has been known as a useful tool to increase positive feelings.

Epistemic benefits, on the other hand, include curiosity, novelty, or gained knowledge (Sheth et al., 1991). These characteristics can be found in the empirical data. Users revealed their sharing intension is often triggered by the desire to share their experience with others. For example when travelling to a new destination, people often share pictures with friends or family members. However, epistemic value is not a fundamental motivator for sharing location data in the context of current study, as revealed by most users.

Additionally, conditional benefits generally depend on a certain set of contextual elements in which value judgments happen (Schierholz et al., 2007). Users confirmed that different types of contexts stimulate location data sharing intensions, although they would not share the data otherwise. For instance, users revealed that travelling to a different city increased sharing of LBD. Kontti (2004) defined context as time, location, social environment, technological environment, and user-specific criteria. Sharing location data increases among the users when socializing or visiting famous places. On the other hand, Schierholz et al. (2007, p. 801) defined conditional value in the context of the traditional environment of goods purchasing as “the degree to which a person believes that receiving context-relevant information or services would enhance his or her purchase performance”, as stated by a watch enthusiast, who would

be willing to share LBD if there were any prospect of finding an antique watch store in the city.

On the other hand, several dimensions of perceived sacrifices have been observed from the empirical evidence and analysis; for example, perceived social, psychological, physical risk, financial loss, property loss, intrusion, data protection, and time consumption sacrifices. However, these dimensions can be categorized under functional (monetary & convenience), social, and emotional sacrifices. Functional sacrifice is the fear and likelihood of financial or property loss caused by sharing LBD e.g. hacking information, hacking bank account, theft, and burglary. Users fear that burglary and theft can take place if they make their whereabouts public. In addition, sharing information with a mobile app also has the potential of information leaking to a third party. Information leak can occur either through the app itself or by hacking. On the other hand, physical risks result from the nature of real time interaction of location sharing that allows user to be located in a certain physical space. As a result it increases the user's fear of negative effects.

Social sacrifices are widely related to the negative impact on social relationships that are caused by sharing LBD. Often, sharing LBD in social media can lead to damage to relationships with friends or loved ones. Additionally, possible social embarrassments resulting from LBS usage can effect users' location sharing behavior. Interviewees described various source of social embarrassment. Nonetheless, users' online behavior is beneficial if consistent with the offline behavior (Ryschka, 2015), otherwise inconsistency in online and offline behavior can damage social relationships. Additionally, there is also the risk of people constructing a false image of a user by observing online activities, which may or may not be true.

Furthermore, emotional sacrifices can be caused by loss of privacy, possible privacy invasion, intrusion, profiling, not being in control of own data, and possibility of surveillance. Generally, people like to be in control in order to avoid powerlessness and vulnerability in the future (Xu et al., 2012), empirical evidence supported users' desire to be in control and not being influenced by another entity. On the other hand, users indicated their concern over profiling online, which is supported by Preibusch (2013), who stated that people are quite reluctant to be profiled. In addition, concern was expressed over the possibility of data storage and processing which can be used in predicting the future behavior of users. Consequently, these fears are more likely to instigate psychological risks among the users. Interviewees constantly mentioned that it is scary to know that someone might follow them home or stalk them in both online and real life. Interviewee's overall concern over their information privacy was visible in the data, which Xu et al. (2012) described as mobile users' information privacy concern (MUIPC).

## 6. Conclusion

In this section, conclusions will be drawn by illustrating a synopsis of the main findings as well as their implications followed by the limitations of the study. In addition, recommendations will be provided for future research in the final part. The findings of this study are limited to the framework of LBD only and should be carefully considered before applying to other customer value creation studies.

### 6.1 Key Findings

In this section, key findings from the empirical data analysis will be highlighted in attempt to draw the conclusion of the study. However, some of the key findings were not discussed in the analysis part and therefore, will be discussed in the conclusion. These findings will be mentioned in order to draw a co-relation with the research questions; what are the benefits and what are the sacrifices of sharing location data? Which refers to the customer value dimension in general.

Although the customer sacrifices and benefits are the key in this discussion, context is one of the key elements in determining user's intention to share LBD. Context in general has been discussed in section 2 (theoretical framework) In addition; Kaasinen & Yoon (2011) emphasized the importance of context in their study. If LBDS providers can detect the different contexts of the user, this is likely to benefit the LBS providers significantly. According to Steiniger et al. (2012), any information that helps to define the situation of an entity can be considered as context. In light of this study, the importance of contexts has been identified during the empirical data analysis. Participants revealed how different context can influence the way they share LBD or use LBS. Additionally, interviewees disclosed the influence of location in their data sharing habits; for example, while traveling, people are

willing to share more location data, compared to when staying at one place. Furthermore, interest in a specific product or service can influence location-sharing behaviour. Interviewees revealed enthusiasm and interest in a specific product or service could trigger the location sharing intention positively, although the user may be reluctant to share location data otherwise.

In addition to context, trade-offs have also appeared in the discussion; i.e. users who are reluctant to share LBD or using LBS tend to share the data when they consider the benefit to be higher than the sacrifices. For example, when going abroad, users need to navigate through new places; e.g. finding restaurants. It has been identified that users are more flexible to use LBS when considered necessity and they tend to share location data optimistically. In addition, if users want to subscribe to a particular service that requires access to their location, users generally respond positively. In addition, some users consider this a win-win situation, as they get to use free services in exchange of their location data.

Furthermore, the empirical data unearthed a very specific type of value co-creation among users. For example, the survey results clearly indicate that many users compare the sharing of pictures with “a price you pay to see what others are posting”. Moreover, using Facebook and Google is a form of trade-off for some users since the service provided by Facebook and Google is free of cost. The results revealed that consumer consider their data to be the “price you pay to use those services”. These findings are supported by previous studies by Keith et al. (2013), emphasising that disclosing personal location data is deeply tied to the degree of consumers’ intention to use the service, taking into consideration that values are highly related to how and why a consumer uses a service (Gronroos and Ravald, 2011).

Preibusch (2013) stated that three out of four consumers tend to agree that disclosing personal information is overwhelmingly becoming part of modern life and necessary to obtain products or services. In this research, users agreed sharing location data or use of LBS is becoming an increasingly integral part of life and to some given circumstances sharing location data is impossible to avoid. For instance use of maps and navigation services, which most of the interviewees agreed being the prime reason behind sharing LBD or using LBS in general.

However, some users revealed their scepticism and precautions they take in order to protect their privacy. For instance by providing false data if and when possible, as stated in section (3.3.3, Table 5) putting them in the category of “secrecy”. Additionally users with IT skills prefer being anonymous by using VPN or services that guarantee their secrecy, described in Table 5 in the category of “anonymity”. Although location data cannot be falsified, people share pictures with location tagging after leaving the place rather than while staying at the place; e.g., they might tag a picture from Paris after coming back home. These findings are supported by Preibusch (2013), states that location information can be disclosed in two different ways; negative disclosure and positive disclosure. In negative disclosure the user can refuse to disclose the information and not use the service as a consequence or provide falsified information to obtain the service (Preibusch, 2013).

In general, if a particular location triggers positive emotions the user intends to spread the emotions to others by the means of sharing location; e.g., check in social media while travelling, or while visiting famous places, concerts or museums. In other words, qualitative data revealed that fun and enjoyment is a benefit people enjoy by sharing location data. On the other hand, also the frequency of visits to a given place determines the intention of

sharing location data, it is lower if users visit a place regularly, however, less frequent visits trigger higher sharing intention.

Xu et al. (2009) stated that location data provide real-time information about users' physical location, creating privacy invasion a critical and acute concern. Empirical data revealed user's concerns about privacy invasion and other sorts of risks, such as risk of burglary, physical risk, property loss, theft, monetary loss and stalking. Furthermore, people are also concerned about their real-life identity and identity created by social networking sites. For example, social media posts might be provide false images/messages about oneself including the risks of jeopardising relationships as one interviewee mentioned: "it can hurt relationship if you post something with location". These potential social problems are supported by findings in previous studies (Jordan-Conde et al., 2014).

## **6.2 Limitations & Recommendations**

Qualitative method has been chosen to conduct the study, which included face-to-face interviews and focus group discussions. Hennink (2007, p. 7--9) stated that focus group discussion is likely to cause problems regarding group dynamics. Although group members might encourage each other to participate actively during the discussion, the risk of one participant dominating the discussion remains high due to personality traits of the given individual (Hennink, 2007, p. 7--9). In addition, it is likely that participants may agree with one another due to the circumstance within the group.

Furthermore, participants may withhold some information due the lack of privacy in the group, as they may not wish to share personal matters with other participants. Although (in

the case of this study), interviewees expressed their diverse views, and due to the nature of the friendly environment, most of the interviewees participated enthusiastically in the discussion. However, the possibility of different biases such as confirmation bias, recall bias, social desirability bias still remains high due to the nature of the method (Hennink, 2007, p. 10). However, parallel questions were drawn to minimize the biases. In addition, the moderator of the interview made sure everyone has equally participated by asking individual question with more emphasis on participants' person experience or opinions.

The phenomena of LBS or LBD are relatively new in academia. Therefore, there is a general lack of academic work; consequently, the information is somewhat limited in books and articles. The theoretical framework of the study has been focused on LBS, customer data in combination with customer value. The research was done only in Finland within Finnish population, therefore, when reading the analysis, the cultural perspective of Finland should be taken into consideration.

For future research, as the LBS advances, more investigation will ultimately focus on different aspects of customer perception and other dimensions of the LBS and its dynamic relationship with users. Based on the findings from the current research, suggestions for future research can explicitly focus on more in-depth studies on different focus groups varying in age, cultural background and gender in order to define more bona fide picture on customer perception.

Furthermore, one fundamental question of LBS is how people use different location services in different contexts, which could be studied and identified from several angles. The usage of LBS is increasing rapidly, although it is yet to cover many aspects of our everyday life. The

empirical evidence clearly indicates that users-perceived risks and sacrifices are causing less LBD sharing. Further studies can focus on how customer perceived sacrifices can be compensated with better benefits. People's perception will change positively as the benefit increases, more studies can be conducted to analyse consumer perception of the future of LBS and their expectations. Gaining consumer feedback on various LBS services could identify the shortcomings in the existing business model and improve service design that will strengthen the relationship with customers.

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