DEVELOPING CUSTOMER EXPERIENCE IN ICE ARENA WITH DIGITAL SOLUTIONS

Lappeenranta–Lahti University of Technology LUT

Master's Programme in Software Product Management and Business, Master's thesis

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Examiners: Associate Professor Annika Wolff

Professor Sami Hyrynsalmi

ABSTRACT

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Developing Customer Experience In Ice Arena With Digital Solutions

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Keywords: customer experience, sport consumer behaviour, digital solutions

Digital connectivity is changing the way people do things. Consumers expect that information about services is available on mobile devices and experiences are enhanced with digital elements. This thesis studied what kind of digital solutions customers would use in ice arena and how those would provide added value to customers.

Customer experience and customer behaviour in current ice arena in Lappeenranta was researched by interviewing stakeholders of ice arena and by collecting data with survey directed to customers attending events. Challenges in current arena were analysed by looking at the issues from both service provider and customer side.

Results from the research suggest that most consumers would like to use digital solutions while some would not want to change current situation. Customer experience could be enhanced by solving pain points in services and by involving customer in event co-creation. Digital solutions should be planned in the design phase of the new ice arena to ensure availability of technical solutions.

TIIVISTELMÄ

Lappeenrannan–Lahden teknillinen yliopisto LUT

LUT Teknis-luonnontieteellinen

Software Product Management and Business

Mikko Ruotsalainen

Asiakaskokemuksen kehittäminen digitaalisilla ratkaisuilla jäähallissa

Ohjelmistotekniikan diplomityö

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51 sivua, 19 kuvaa ja 2 liitettä

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Jatkuva digitaalinen yhteys muuttaa ihmisten tapoja tehdä asioita. Kuluttajat odottavat, että tietoa palveluista on saatavilla mobiililaitteilla ja elämyksiä tehostetaan digitaalisilla elementeillä. Tässä opinnäytetyössä tutkittiin, millaisia digitaalisia ratkaisuja asiakkaat käyttäisivät jääareenalla ja miten ne tuottaisivat lisäarvoa asiakkaille.

Asiakaskokemusta ja asiakaskäyttäytymistä Lappeenrannan nykyisellä jääareenalla selvitettiin haastattelemalla jääareenan sidosryhmiä sekä keräämällä tietoa tapahtumiin osallistuville asiakkaille suunnatulla kyselyllä. Nykyisen areenan haasteita analysoitiin tarkastelemalla asioita sekä palveluntarjoajan että asiakkaan kannalta.

Tutkimuksen tulokset viittaavat siihen, että suurin osa kuluttajista haluaisi käyttää digitaalisia ratkaisuja, kun taas osa ei haluaisi muuttaa nykyistä tilannetta. Asiakaskokemusta voitaisiin parantaa ratkaisemalla palvelujen kipupisteitä ja ottamalla asiakas mukaan tapahtuman yhteistyöhön. Uuden jääareenan suunnitteluvaiheessa tulee suunnitella digitaalisia ratkaisuja teknisten ratkaisujen saatavuuden varmistamiseksi.

ACKNOWLEDGEMENTS

Writing this thesis has been a long journey. Original timetable exceeded by a year, but finally this seems to be coming to an end. Studying will never end, since that is how we learn new and interesting things about life.

First, I would like to thank Annika Wolff, who was patient with me when supervising me through the whole process. I always got answers to my questions and was gently pushed forward when getting stuck to small details.

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1 Introduction

Digitalisation has provided new ways to gather detailed information about buildings. This data is used in facility management to for example handle energy efficiency and estimate utilization rate of premises. Previously sport facilities were developed to serve the needs of athletes and teams since they were considered as the main users of the buildings. Lately focus has been also shifted to consider sports as an industry, which has potential to stimulate local economies in different sectors.

This research started from the need to understand what kind of digital solutions were being planned to the new ice arena in city of Lappeenranta. Possibilities of new technical solutions had already been taken into account by different stakeholders of the ice arena, but clear vision of realization was lacking. Energy efficiency aspects and smart building automation were mentioned in public plans, but those are mainly serving the needs of the owner of the building. Gathering digital information that could be used to enhance customer experience requires different sensor technology and applications. These solutions should be planned in at least higher level when designing the ice arena since they might have certain technical requirements.

The aim of this research was to study what kind of digital solutions could be used in new ice arena and how they could develop the customer experience. Sport consumer behaviour has changed over the last two decades with the development of digital platforms which offer appealing content for consumers. Sports events have to be able to provide new kind of value to consumers to attract them to attend on the spot instead of at home. This research is trying to find out what are the possibilities provided by digital solutions and what consumers would like to have.

Research was done by studying what motivates consumers and what kind of existing solutions there are. Methodology in the research was a case study concentrating in interviewing important stakeholders of new ice arena and implementing a survey to consumers of current ice arena. This data creates a vision of possibilities for modern ice arena that takes into consideration new technology and change in sport consumer behaviour.

1.1 Background

Ice arenas in Finland are generally quite old buildings and they have gone through several renovations over the years. Remaining lifetime of the arenas is reducing which means that owners have to make a decision between complete renovation and a new building. Renovation is better option if location matches the needs of the users, functionalities of the building can meet the current requirements and building can be fixed to be energy efficient without unreasonable costs (Rateko, 2022). In some cases renovation of the arena is not as profitable compared to new building in the long run, even if the cost might be less expensive at that moment.

The average age of the ice arenas in Liiga is 43,4 years, and if not counting Tampere Arena that opened 2021, the number is even higher 46,6 years. Renovation of the arena is too expensive compared to bigger revenue of new arena in the long run in most cases. That is why there are plans in several cities to build a new multi-purpose arena to replace the old ice arena.

There are several on-going plans for new multi-purpose arenas in Finland. Nokia Arena in Tampere opened in December 2021 after being planned for over a decade. There are currently several new arenas planned to Lappeenranta, Turku, Helsinki and Oulu. These will be constructed between 2025 and 2031 according to current plans. Some cities have changed their plans, like Hämeenlinna who cancelled the decision to build a new arena and Jyväskylä, who decided to make renovation on current ice arena. (Rakennuslehti, 2020, Yle, 2022)

City of Lappeenranta owns the ice arena called Kisapuisto, which was built in 1972. It has been renovated or expanded in 1982, 1997 and 2004. In the beginning of 2017 mayor of Lappeenranta Kimmo Jarva nominated a ice arena working group to compose a report about ice arena's future. Focus of this work was to compare options for renovating current ice arena and to find possible locations for new ice arena. (Kisapuiston jääareena, 2020)

In the Spring of 2017, a design and consulting firm Pöyry Finland published a report about inspection of roof structure of Kisapuisto ice arena. Report stated that precious renovations had increased the weight of the roof structures and according to current standards, the estimated life cycle of the trusses is 50 years. The trusses do not meet the current standards on supporting snow load, and there were also detected strength lowering damages in the roof

structures. Pöyry Finland suggested three alternatives how to fix the issues. These options varied between strengthening the current structures and replacing the roof structures completely. Estimated cost of these options were between one and 4,4 million euros. Renovations on the roof structures would also cause long break on using the ice arena. (Etelä-Saimaa, 2017)

Old ice arena has several other matters that require renovation. For example ventilation and building automation has to be completely overhauled within next five years. One of the biggest risks related to renovation would be that even after that functionality would still not match the requirements of the future. Customer areas and locker rooms for teams would stay mostly as they are since there isn't that much area to expand to.

In Fall 2017 city council made a decision to start planning for a new ice arena. This new arena would provide a modern infrastructure to organize ice hockey games, concerts and other events.

City council of Lappeenranta voted on 26th of October 2020 to build a new ice arena to Kisapuisto area. Construction was planned to be done during 2024 and 2025, while detailed planning was supposed to be done before that. At the moment final decision on place and timetable is still open.

1.2 Scope

This thesis doesn't take into consideration the location of the new ice arena, because for the implementation of digital solutions that is irrelevant detail. Focus of the research is in the possibilities of digital solutions and the technical details behind them are discussed only briefly.

The scope is also limited to solutions suitable for City of Lappeenranta. Size of the population in the surrounding 100 km area and the availability of public transportation and accommodation have an influence on possible customer base in an ice arena. Discussed solutions might be suitable for other cities approximately same size but for bigger urban areas they require more adjustment.

1.3 Goal

Goal of the thesis is to find suitable solutions to enhance the customer experience in new ice arena of Lappeenranta. Digitalization creates new possibilities for different organizations to offer their services to customers. It also enables data gathering to develop services and customer experience, while engaging the customers in new ways. This thesis will research what possibilities and benefits digital solutions could provide for customers.

Main research question:

What added value digital solutions can offer to customers in ice arena?

Sub question:

What are the obstacles to develop digital solutions for customers in ice arena in Lappeenranta?

1.4 Research methodology

To reach the goal of this thesis, current situation in customer experience and satisfaction in solutions in ice arena have to be researched. This is done with a survey to customer base of ice arena and doing interviews with stakeholders in current ice arena and in new ice arena plans. Interviews will be analyzed with thematic analysis and survey results will be used to create two personas and scenarios for them.

Research on new digital solutions is done by exploring literature on the topic and by searching for existing solutions in other arenas. Benchmarking of other ice arenas in Finland also provides useful information about what kind of solutions exist in them.

1.5 Structure of the thesis

Thesis is constructed from six main chapters. Introduction chapter presents the subject and the background behind the topic. It also introduces the goal of the thesis and research

questions. Following chapter is a literature review on the sport consumer behaviour and digital solutions in sports arenas.

Third chapter explains the research methodology used in data gathering and fourth chapter presents the results of the stakeholder interviews and survey. In the following discussion chapter answers to the research question is presented. The thesis ends with conclusion chapter that includes a reflection on the entire thesis process.

2 Literature review

Literature review of this thesis was concentrated on sport consumer behaviour and digital solutions in sports arenas. These were important topics when trying to find more information about how customer experience and expectations have evolved and how they can be fulfilled with technical solutions. Value co-creation was also researched to figure out some potential options to enhance customer experience in new arena.

2.1 Change in the sport consumer behaviour

Sport consumer behaviour research was developed as a subgroup of traditional consumer behaviour research that was started in early 1980s. It focuses on explaining what motivates a person to participate in a sports event. Daniel C. Funk (2008, 25) describes sport and event consumer behaviour as *"the process involved when individuals select, purchase, use, and dispose of sport and sport event related products and services to satisfy needs and receive benefits."* Consumer's key resources are time and money which are used based on individual's decisions. These resources can be used on live sport events or watching or listening the feed from tv, radio or internet. Another way to use time resource can be following sports in Internet or discuss the topic at work or other social situations. Money can also be used on club memberships, travelling costs and licensed merchandise. (Funk 2008, 26)

To study consumer behaviour in sports, motivation scales for sport consumers have developed since 1990s. Trail and James (2001) examined literature and three previously developed scales (Wann, 1995, Milne et al., 1999, Kahle et al., 1996) to develop and test a new motivation scale. Their findings were that these previous scales had some issues in content, criterion, and validity of the construct. Trail and James (2001) developed The Motivation Scale for Sport Consumption (MSSC) by evaluating these previous scales and related literature. In their scale they measure nine motivators:

- achievement
- acquisition of knowledge
- aesthetics

- drama/eustress
- escape
- family
- physical attractiveness of participants
- quality of the physical skill of the participants
- social interaction

MSSC gives an opportunity to understand different psychological motives consumer has going to sport event. This was still limited research since it only focused on motivators. Kim and Trail (2010) developed their scale further by adding constraints with the motivators. Consumers make their decisions based on both positive and negative sides and in some cases emphasizing the negative attributes (Kim and Trail 2010, 191).

There has been research done in the constraints in sports management, but not many that studied motivators at the same time. Kim and Trail (2010) proposed a framework where there are four dimensions: internal motivators, internal constraints, external motivators and external constraints (Kim and Trail 2010, 194).

Internal motivators can be described as things that affect our behavior positively, for example needs and values. In figure 1 there are nine internal motivators used in Kim and Trail model. In their research, Attachment to the team was the most significant internal motivator (Kim and Trail 2010, 205).

Figure 1. Internal motivators (Kim et al., 2010)

Internal constraints affect our behavior in negative way. In figure 2 there are four internal constraints listed that were used in the model. Kim and Trail study showed that Lack of success was the most significant internal constraint.

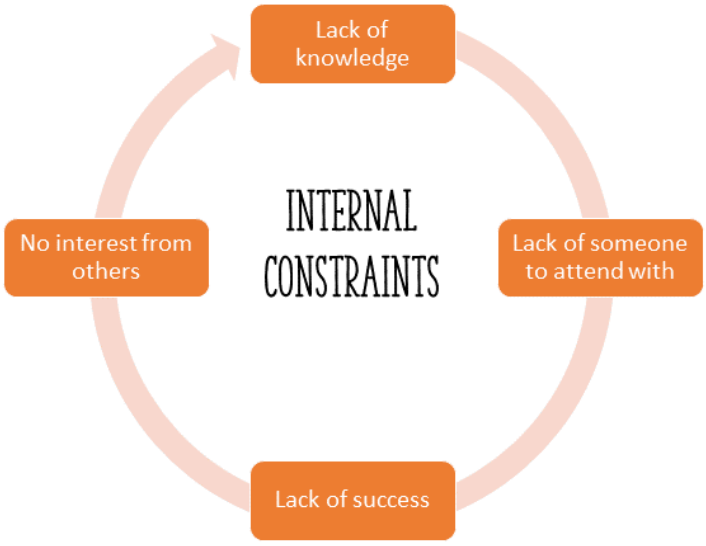

Figure 2. Internal constraints (Kim et al., 2010)

Kim and Trail defined external motivators as *"social or environmental aspects that attract the individual to the behavior"*. In figure 3, there are six external motivators used in their model. Against their hypothesis, Kim and Trail study didn't find any significant results from these.

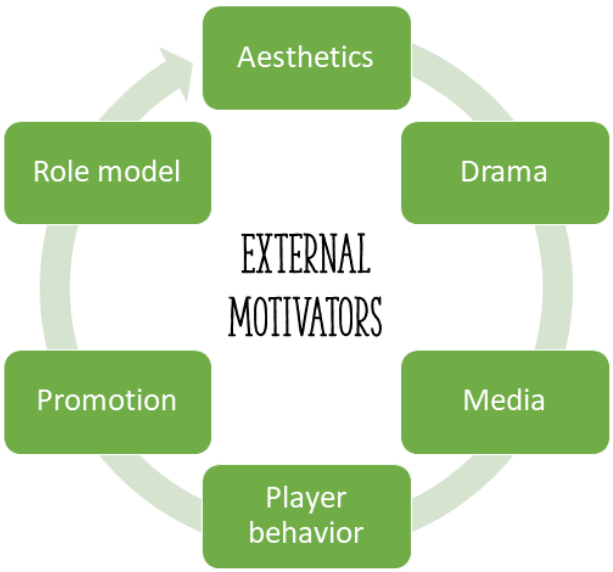

Figure 3. External motivators (Kim et al., 2010)

External constraints work the opposite way than external motivators, they prevent or decrease the probability of attending the event. In figure 4, there are seven external constraints used in the model. In Kim and Trail study, Leisure alternatives was the most significant external constraint.

Figure 4. External constraints (Kim et al., 2010)

Some factors in sport consumer behavior can work as a constraint or motivator. For example team performance has an significant impact on attendance: if team loses all the time, people might not go to the games. On the other hand, if team has winning streak, it may motivate more people to attend an event. In Kim and Trail study, Attachment to the team emerged as a motivator with most impact. It explained 21% of the variance in attendance, while Lack of success explained 10%. If person is committed fan of the team and it is important to him or her, they are more likely to attend the event than a person that doesn't consider fandom as important. Evaluating motivators and constraints correctly will help teams to keep existing fans and attract new ones (Kim and Trail 2010, 206-207).

Live sports events have been competing of consumers with television and live streams. Availability of different ways of watching sports has grown over the last two decades.

Previously free channels and subscription channels were the main sources to watch different live events at home, but now there are several different platforms offering live streams to consumers. These are officially offered by certain service providers in selected countries. For example in Finland, Viaplay shows NHL ice-hockey games in their subscription tv-channels and in IPTV-services, but they also provide live streams through their own platform. Some games during the season are also shown in free channel SUB and their platform MTV Katsomo. Finnish gaming company Veikkaus provides free live stream to their registered customers on their platform, although there are limitations on picture quality, which is meant to be watched on mobile devices, and commentary is only in English (Iltalehti, 2023).

Digital platforms are providing consumers additional sports related content. These can be divided into content that is related to the live event, for example match announcements, highlights, recaps, and unrelated content like documentaries, behind the scenes videos and virtual events. This kind of content is getting popular especially with younger people, as shown in the figure 5 (Nielsen 2022)

The growing appeal of related sports content

Will watch	Global fans		Global fans 16-29	
Non-live content that's related to a live sports event	39.39%	-1.31% vs. live sports event	43.59%	-0.41% vs. live sports event
Non-live content that's not related to a live sports event	34.24%	-6.46% vs. live sports event	39.77%	-4.23% vs. live sports event

Figure 5. Watching additional content (Nielsen, 2022)

Digital connectivity has changed how consumers are focused during the event. People are using their mobile devices while watching the game on tv or mobile devices. This is showing especially with so called Generation Z, which can be classified as people born between 1996

and 2012. In figure 6, there is a list of activities people are doing while they are watching some sports event (Nielsen 2022).

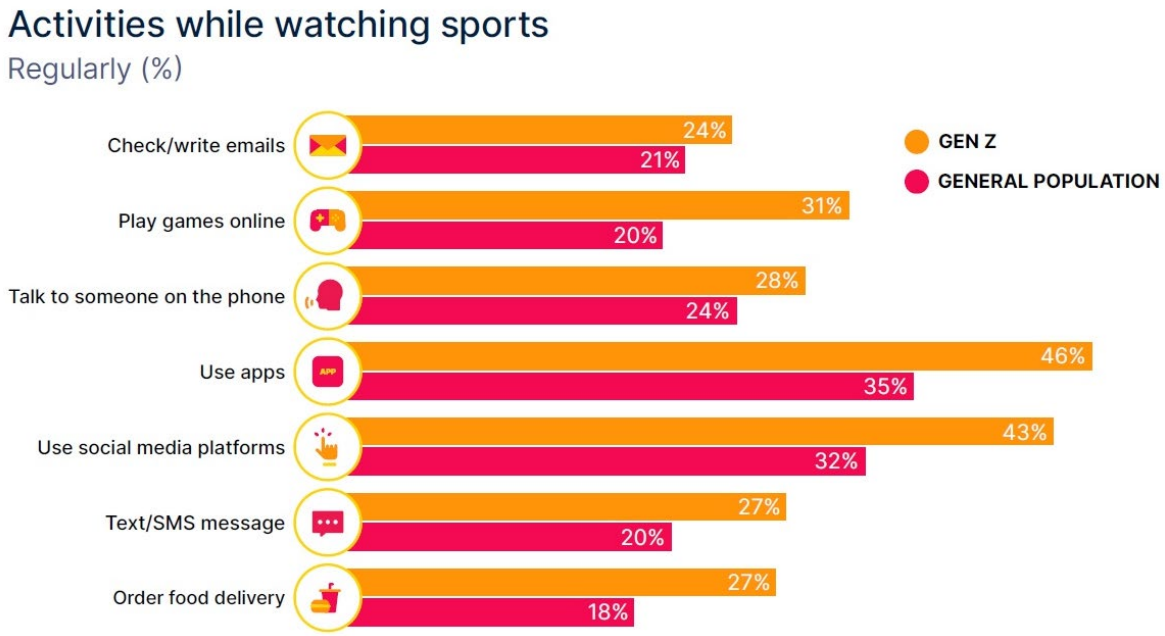

Figure 6. Second screen activity (Nielsen, 2022)

According to Nielsen study (2022), 47% of people watching sports are using their mobile device for something else at the same time. This could be considered as something that should be researched as both motivator and constraint in event attendance.

Sport consumer's decision to attend an event is highly affected by knowledge they have about it. Event can be advertised in local new paper, webpages, newsletters and social media ads. Figure 7 shows comparison between different advertising channels and how much people trust them. Most trusted channel is getting recommendations from people known to the consumer. Influencers are gaining ground as trusted advertising channel, which is likely to be connected to Generation Z's social media habits. (Nielsen 2022, 9)

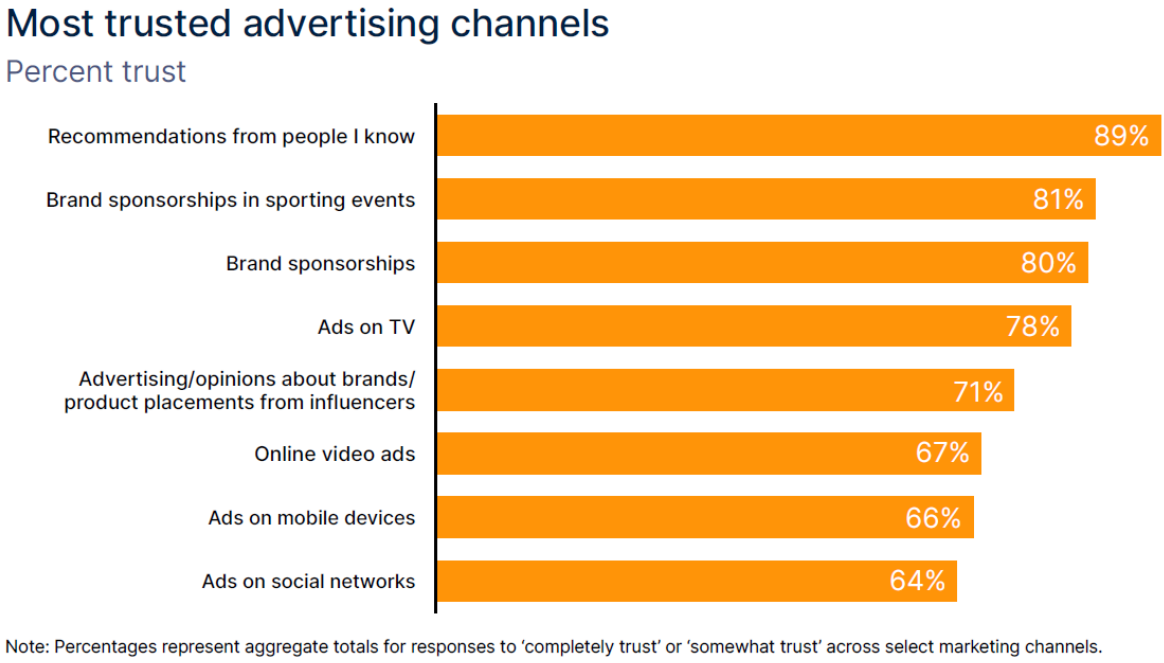

Figure 7. Most trusted advertising channels for sport consumers (Nielsen, 2022)

Sport consumer behaviour is changing from what it was two decades ago, mainly because digitalization and change in the digital connectivity of people. Consumers expect more information flow offered to them while they are attending an event or watching it from tv or streaming service.

2.2 Digital solutions in sports arenas

When organizations are investing on a new arena, they are nowadays considering what kind of digital solutions should be considered. Internet of Things (IoT) is offering new ways to gather and use information on buildings and its users. In figure 8 consulting firm Deloitte is listing what kind of possibilities new arenas are offering for better fan engagement.

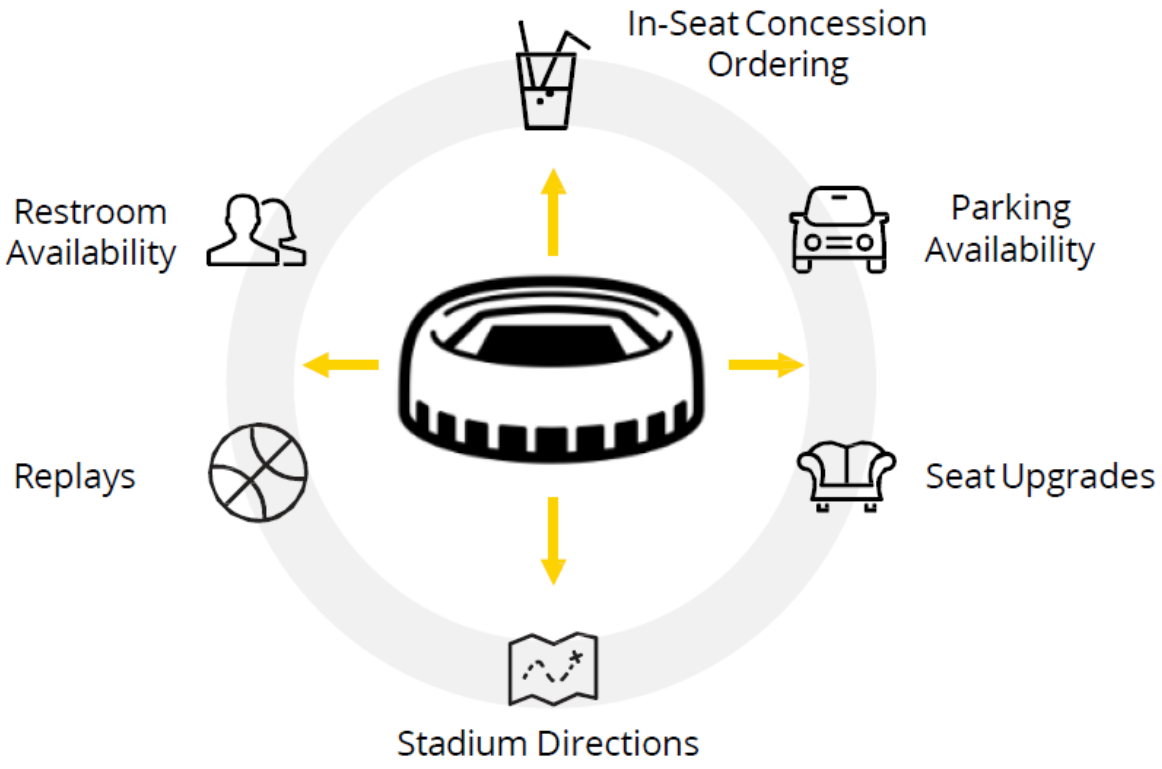

Figure 8. Smart Stadium's possibilities for fan engagement (Deloitte Development, 2018)

IoT devices are used in Smart Stadiums for several purposes. For example restroom availability can be informed to consumer based on how many times door swings in different directions. Same information can be used to predict when there should be cleaning scheduled in the facilities. In this case IoT sensor is installed to door hinge to measure the movement. This kind of data provides possibility to use the information for both enhancing customer experience and optimizing facility management.

One example of in-seat delivery apps is StadiumDrop, which is in use at certain arenas in USA. It offers third-party application that arena's food and beverage services can use to offer consumers possibility to order food in advance. StadiumDrop's use is described in figure 9.

Figure 9. Use of StadiumDrop application (StadiumDrop 2023)

Consumer can make order while sitting on their seat and pay for it in advance. StadiumDrop also gives user information about order tracking. Depending on the arena's services, order can be either picked up from pre-defined dropzone or from express lane. There can also be an in-seat delivery option for the order. StadiumDrop is using so-called Runners, people hired to the event for in-seat delivery service. This can be compared to food delivery services like Wolt and Foodora. (StadiumDrop 2023)

There are several different parking applications available in Finland. These applications provide consumer an easy way of paying for parking. If car is parked in outside parking area

or on the street parking, user can use locating feature to select correct parking area. If user drives to parking garage, car can be automatically identified with cameras based on the license plate and if user has given application approval to do so, it will charge the fee directly from credit card based on the time spent in parking. (Easypark 2023)

Parking applications also provide you with some information about free parking spots. In parking garages information is gathered from parking spot sensors, but in for example street parking applications calculate probabilities on free spaces based on recently ended parkings (City of Lahti 2015). In Lappeenranta information on free street parking is available through StreetAI-platform, but at the moment it is not used by parking service providers (City of Lappeenranta 2022).

2.3 Value co-creation and value co-destruction

Customer engagement provides a way for organization and customer to develop a deeper relationship. According to Järvi (2018), customer engagement refers to *"the intensity of customers' participation in and connection with an organisation's offerings or organisational activities, and it is manifested affectively, cognitively, socially, or behaviourally."* Customer engagement means more than just one experience of buying company's products or services. It is usually used to get positive outcome for both parties which can result in value co-creation, but sometimes it can turn to value co-destruction (Järvi 2018, 4).

Value co-creation can be described as a resource integration process between supplier and customer. Both of them bring their own contribution to the process to get benefits for everyone (Järvi 2018, 22). In figure 10 value co-creation is divided in parts to get better understanding how it works.

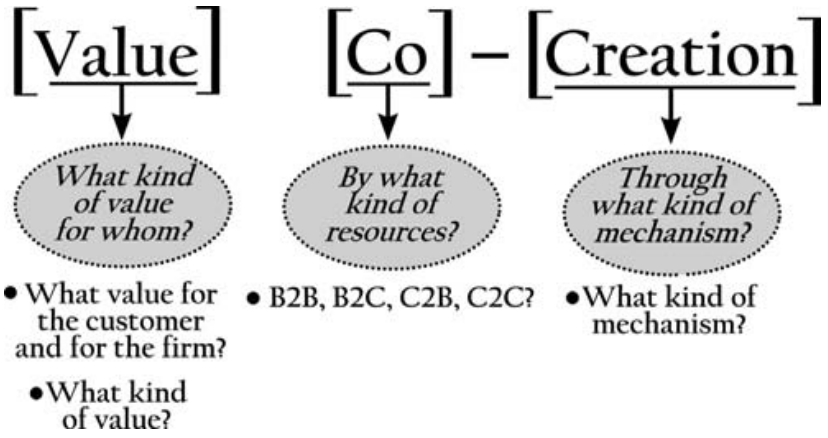

Figure 10. Value co-creation explained in parts (Saarijärvi et al., 2013)

Value has to be defined in a way that explains benefit for both parties. Co -part specifies who are the actors, meaning customers, businesses etc., in the process and what are they bringing to it. Creation explains the mechanism of combining resources from different parties into value creation process. (Saarijärvi et al, 2013, 11)

3 Methodology

This chapter introduces objectives for the research and selected research methodology which is case study. Chapter also includes information about selected data collection methods and reasoning behind selecting them.

3.1 Research objectives

Purpose of this thesis is to develop customer experience in new ice arena of Lappeenranta. Digitalization creates new possibilities for different organizations to offer their services to customers. It also enables data gathering to develop services and customer experience, while engaging the customers in new ways. This thesis will research what possibilities and benefits digital solutions could provide for customers. It has to be notified that some existing solutions cannot be utilized as they are or just simply scaled down to meet the requirements in a town size of Lappeenranta. What works for example in Nokia Arena in Tampere, might not be suitable for smaller arena. This thesis will try to answer those questions also.

3.2 Research methods

Case study is a research method to get detailed and focused knowledge about a single case or several cases that are related to each other. Yin (2009) defines case study as "*an empirical inquiry that investigates a contemporary phenomenon (the "case") in depth and within its real-world context, especially when the boundaries between phenomenon and context may not be clearly evident*". Case study is done to understand some real-world case and getting verification on hypothesis. (Robson et al. 2016, 150)

In this research case study was chosen as a research method based on the way initial information could be gathered. Qualitative methods were used to find information from the case study. The interviews and surveys were qualitative, even the survey since analysis of the results was mostly qualitative. To get an idea about what should be in the new ice arena, stakeholders and consumers of current ice arena should be contacted. Stakeholders know what kind of possibilities and limitations there are currently and can provide ideas about how

they would develop the facilities. Interviewing was chosen as a research method with stakeholders since their number is limited. Interviewing was appropriate with this particular demographic because interviews allow to ask follow-up questions and follow interesting lines of investigation into the topics from the people who are experts in that area. For contacting consumers about their opinions, survey was chosen as research method because number of contacts was unknown. Surveys also provide large amount of data from lots of people which can be useful for finding patterns or commonalities amount people. Surveys are most useful when you already understand what are the correct questions to ask from people.

3.3 Data collection

In this research data was collected through interviews with stakeholders of current ice arena and with survey aimed to consumers who visit current ice arena.

3.3.1 Interviews

Interviewing is a research method that is often used in social research. It involves person asking questions from one or more people. Usually interviews are divided in three different types: fully structured, semi-structured and unstructured interview. Differences between these types are explained in figure 11.

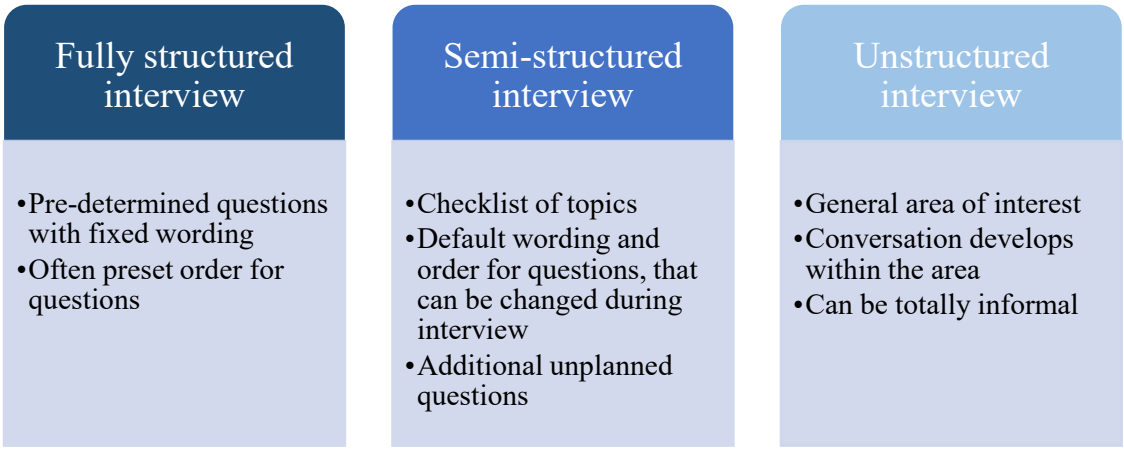

Figure 11. Different types of interviews (Robson et al. 2016)

Semi-structured interview gives a possibility to adjust questions and discussion based on the answers received during the conversation. In face-to-face interview there can be non-verbal cues that provide additional information related to verbal answers. They can change or even reverse the meaning of the answer, which means that it requires skill and experience from the interviewer to notice these cues and interpret them correctly. (Robson et al. 2016, 286)

For this research semi-structured interview was chosen because of its versatility. A list of questions could be sent to interviewee in advance and during the interview follow up questions based on the answers received. This way more information relevant to the case could be gathered. The list of interview questions was iterated several times to make sure questions could be understood correctly and to exclude unnecessary questions. Interview questions can be found from appendix 1.

Interviewees were selected as stakeholders who are most affected by new ice arena. They all had experience with current ice arena environment and knew it's possibilities and limitations. It was also assumed that they might have some kind of vision about new ice arena and its requirements.

3.3.2 Survey

Survey is a common way to gather information from people and it is used in many different contexts, e.g. to evaluate effectiveness of marketing or to improve sales numbers of products or services. Robson et al. (2016, 248) stated that questionnaire-based surveys can be carried out in different forms:

- Interactive surveys
    - Street / shopping mall interview
    - Telephone survey
- Self-administered surveys
    - Postal questionnaire
    - Internet survey

Using questionnaire-based surveys as a research method has advantages and disadvantages. Advantages are that they provide fairly simple way to get information about e.g. person's values and beliefs, and collected data can be generalized. Disadvantages include reliability of the answers since people might be answering based on their knowledge of the issue. (Robson et al. 2016, 248)

When comparing interactive and self-administered surveys, they both have reasons why they should be chosen. With interactive survey, interviewer can motivate people to answer with personal contact and clarify possible unclear questions. On the other hand, characteristics of the interviewer might have an effect on answers and people might feel answers are not anonymous. Self-administered surveys are cost-effective and easy way to collect lots of data from large set of people while offering anonymity in answers. Disadvantages include low response rate and difficulty in noticing if questions are misunderstood or not taken seriously. (Robson et al. 2016, 248)

For this thesis Internet survey created with Webropol was chosen as way to approach consumers. Justification for that was ease of creating and spreading of the questionnaire to as many people as possible. Even if not everyone would be interested to answer, it should be possible to get at least some data to analyse. Survey was done in Finnish to make it easier for people to answer it and make it more appealing. Before final version of the survey was released it was tested with small test group to gather feedback on questions and the structure. Some changes were made in certain questions to make them easier to understand and some choices were added to certain multiple-choice questions. Survey questions can be found from appendix 2.

3.4 Data analysis

Data-analysis on interviews was done using thematic analysis. Clark et al. (2017) define thematic analysis as "*is a method for identifying, analysing, and interpreting patterns of meaning within qualitative data*".

Thematic analysis is the most commonly used analysis method in qualitative research. Analysis is started by creating a codebook that is used while going through material, for example transcripts written from the interviews. After that themes are created based on what

kind of findings there are in the material. (Guest et al. 2012, 52-53) Survey data was analysed with Webropols own tools and with Excel-software. The data was visualised to summarise the responses. Conclusions were based on these visualisations and raw data that was analysed in Excel.

4 Results

In this chapter results of interviews and survey are analysed. Interviews were done with five interviewees and they represented different stakeholders connected to current and new ice arena. Interviews were conducted both as face-to-face meetings and as Teams-meetings, depending on the location and timetable of the person. All interviews were recorded to make sure whole discussion could be revised when making analysis. In the results interviewees are referred with numbers 1-5 so they remain anonymous. They are also referred as “he” for answers to remain gender neutral.

Survey link was shared in personal social media channels and through the website of ice-hockey team SaiPa.

4.1 Interview results

Several themes emerged when the thematic analysis was done on the contents of the interviews. Some of the themes could be seen as connected to each other or at least having an affect on others.

First theme that emerged from the interviews was **the competition of people’s free time and how it has become harder**. Main competitor of events nowadays is home couch: selection of services available at home has grown enormously during last decade. While cable and satellite television have offered subscription channels with live events for longer time already, there are now hundreds of different platforms offering live streaming through Internet. Interviewee 3 pointed out that there are so many possibilities to choose from that consumers are carefully deciding where to use their money and time. According to him, sports events are competing with for example cultural events, movie theaters and restaurants. Interviewee 4 mentioned that marketing has to be done in several different channel to reach people from different age groups.

Second theme was the **factors that have an influence on attending the sports events**. One reoccurring point was success of the team. If team wins, more people will attend games but continuous losing means that people choose to use their time and money on something else

instead. Interviewee 3 said that standard on the circumstances has grown, people are looking for unique experiences. Interviewee 4 also pointed out that weekend games or games with different themes (e.g. Halloween) are more popular than normal games on weekdays. Interviewees 1 and 2 mentioned that ticket prices have risen and it makes a difference. If a family with kids comes to sports event, it will easily cost over 100 €. Interviewee 2 also said that events should be interesting and services should be attractive. Interviewee 3 also highlighted that sometimes there are bigger factors in the background, e.g. popularity of sport and success of the national team have an affect on consumer behaviour.

Next theme that emerged from the results was **differences in types of customers**. Interviewees 1 and 2 divided fans in almost same kind of three categories:

- Hardcore fans / fans
- Second level fan group / supporters
- Casual attenders / customers

They both mentioned that first category of hardcore fans will come to games whether the team is winning or not and these fans are loyal to the team. Supporters were described as someone who might buy season ticket even if they lived in different city and might not attend that many games. Casual attenders are customers that attend the event when there is some interesting or motivating factor for them. Also success of the team has the biggest impact on casual attenders if compared to other types. These customers are the ones that teams want to get in the events more often since they affect the variation in income the most. Interviewee 1 said that nowadays there are more customer types and less supporter types. He also left the business customers out from the categories since they might have different motivation to attend the event.

One theme that is partly connected to attending an event is **traffic in and out of the event**. This was mentioned by all interviewees as a challenge in current and in new arena too. Interviewee 2 pointed out that it is easier to handle the flow of people before the event since customers usually come as steady stream. But when the event ends, most of the people try to leave at the same time which causes overcrowding and traffic jams. This is connected to bigger picture about location of the arena and availability of public transportation. Other issue that was mentioned by interviewees 2 and 5 was the logistics in a for example concert

in arena. There are lots of other staff members and equipment coming to arena which requires well-functioning connections.

Another theme that emerged was **the digital solutions that should be used in the new arena**. Current arena has limitations on its infrastructure and digital solutions are currently used in digital screens, which includes the media cube in the centre of arena. There is also mobile app that customers can use to get statistics, news, video replays from previous games and access their season ticket for games. Interviewee 3 said that digital information should be used more efficiently than it is at the moment to get better fan engagement. He said that there should be automation on the sales during the event and there could be additional sales connected to ticket purchase, e.g. offers on food and beverages depending on customer profile. Interviewee 4 mentioned that customer experience should be made digital by involving customers with mobile devices. There could be different kind of contests that customers could participate in or view replays of goals right after they happened. Interviewee 1 said that digital screens could show information about customer lines in restaurants or toilets. Interviewee 2 mentioned that in some North American arenas there are heated lockers where customer can pick up their food orders using codes to open the right locker.

Last theme that emerged from the interviews was **the differences between generations**. Interviewee 3 pointed out that especially younger customers are looking for experiences and they have higher requirements for them. Interviewee 4 said that younger generation is using mobile devices more and more in their daily life and that should be taken into account in events also. Marketing channels are also very different if organizers want to get visibility for their events. Younger generation is using different social media channels while older generations are using Facebook or even printed media. Interviewee 2 did mention that in his opinion there isn't really difference between generations, but there is a difference in eras. Things are done differently in different decades.

4.2 Survey results

Survey was answered by 591 participants, from which 76% of them were male and 22% female, with the remaining 2% defining themselves some other way. Age distribution can be seen in figure 12.

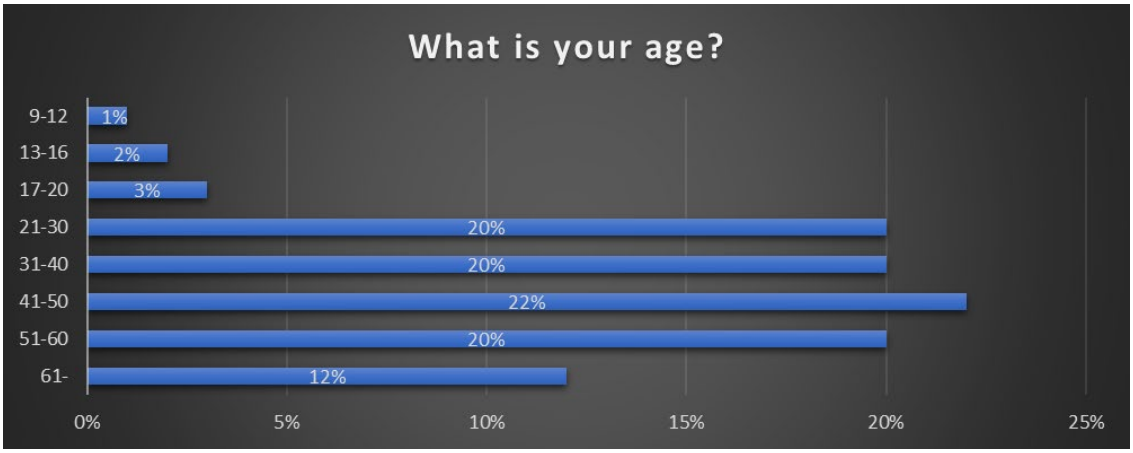

Figure 12. Age distribution in the survey

Almost all (99%) answered that they attend ice-hockey games at Kisapuisto and they usually go there with either friends or family. In figure 13 frequency of visits in the events in Kisapuisto is presented, with third of answers is 1-5 times per year. These are the casual attenders mentioned in interviews.

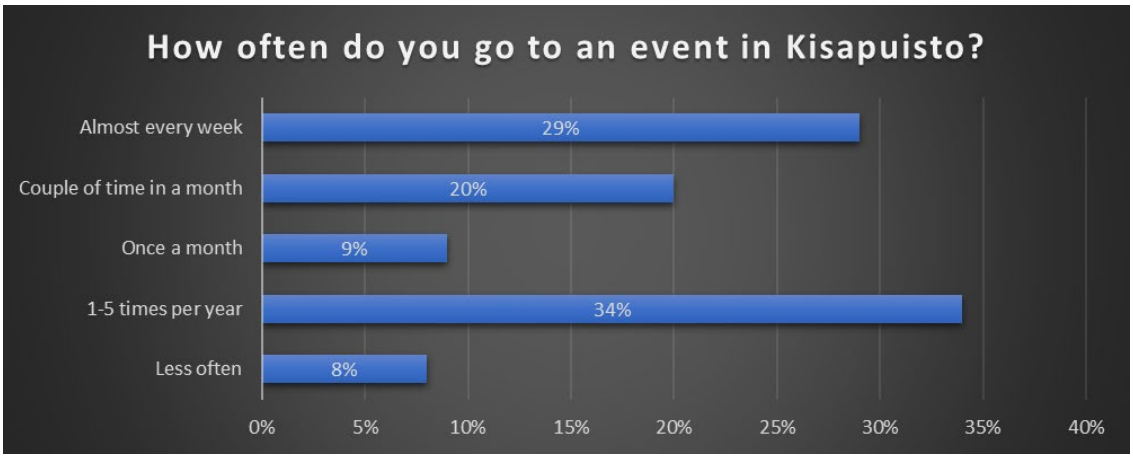

Figure 13. Frequency of visits in the events

From people who answered the survey, 32% live over 20 km from Kisapuisto and 93% of them travel there by car. Overall travelling by car is the most common option since 86% of people use it when coming to Kisapuisto. Distances from home to Kisapuisto can be seen in figure 14 and means of travel to Kisapuisto in figure 15.

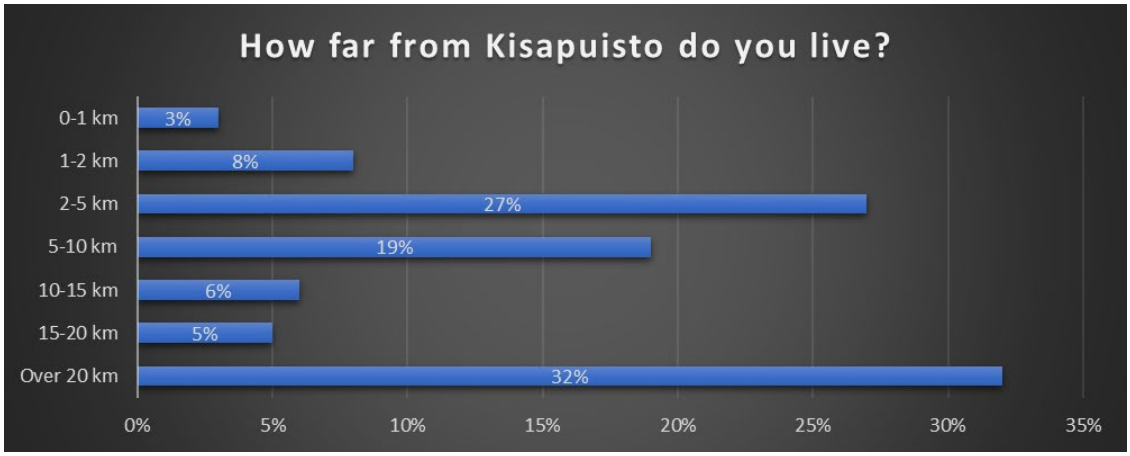

Figure 14. Distance from home to Kisapuisto

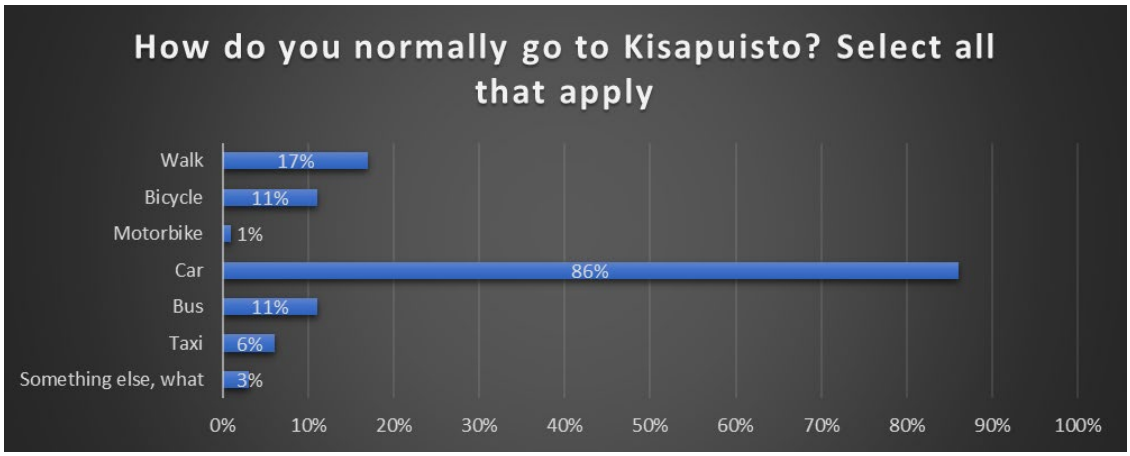

Figure 15. Means of travel from home to Kisapuisto

Travelling with car is explained in open-ended questions. Public transportation to Kisapuisto is only available at certain time before and after the game, which makes it unappealing option for most people. On the other hand repliers are complaining about traffic jam when trying to leave the event, since most of the people came with cars.

On the questions about using mobile device at the event, 38 % of repliers answered that they don't want to participate in any kind of activities. But when looking results about using mobile application for some action, only 14 % answered that they wouldn't want to use it for anything. This means that people like to use it for some personal matter but are more cautious about participating in event co-creation.

In question about leaving the event, most of the people are either leaving when it ends (56 %) or they stay in the arena for a while before leaving (29 %). All answers are shown in figure 16.

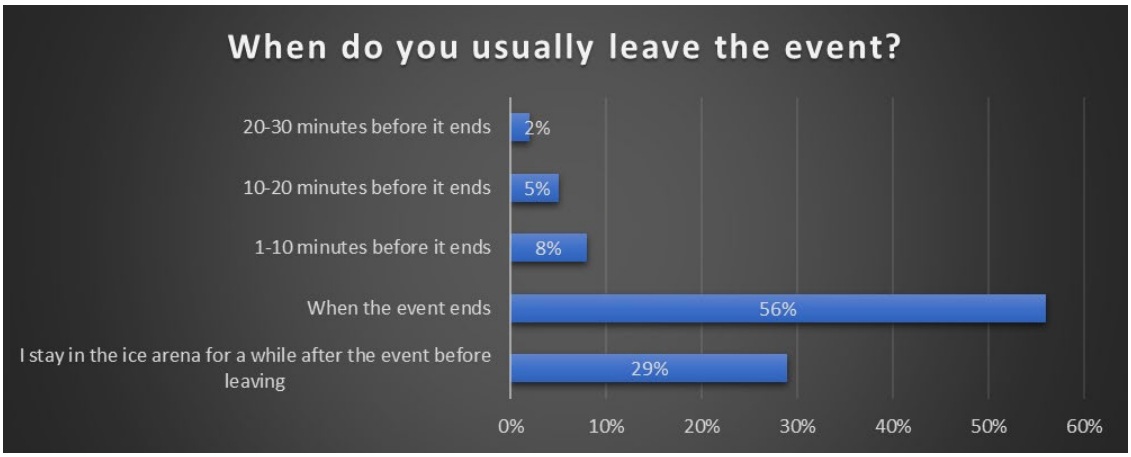

Figure 16. When people leave the event

People who leave before the event ends explain it either by saying that if home team is losing by clear numbers they leave or some people say that they want get going before traffic jam gets bad. Those who answered that they leave when event ends explain that there is nothing to do in the arena or that it's getting late in the evening. People who stay in the arena for a while after the event mostly explain it by trying to wait for the worst traffic jam to be resolved in the parking area.

When asked about what should be preserved from the current arena, answers can be summarised in three subjects:

- Standing grandstand for the fans
- Atmosphere
- Nothing

Answers to question what should be changed when moving to new arena are mainly about limitations of facilities, dissatisfaction about restaurants on both quantity of places and available choices on food and beverages. People are frustrated about time it takes to get food and drinks in the break between periods. In some cases people won't go buy more food or

drinks because of the lines and some answers say that it is quite usual to miss some part of the game for the same reason.

When asked about the location of the new ice arena, 72 % of the answers were central of Lappeenranta and 23 % said that it should be in Kisapuisto. Graph about this is shown in figure 17.

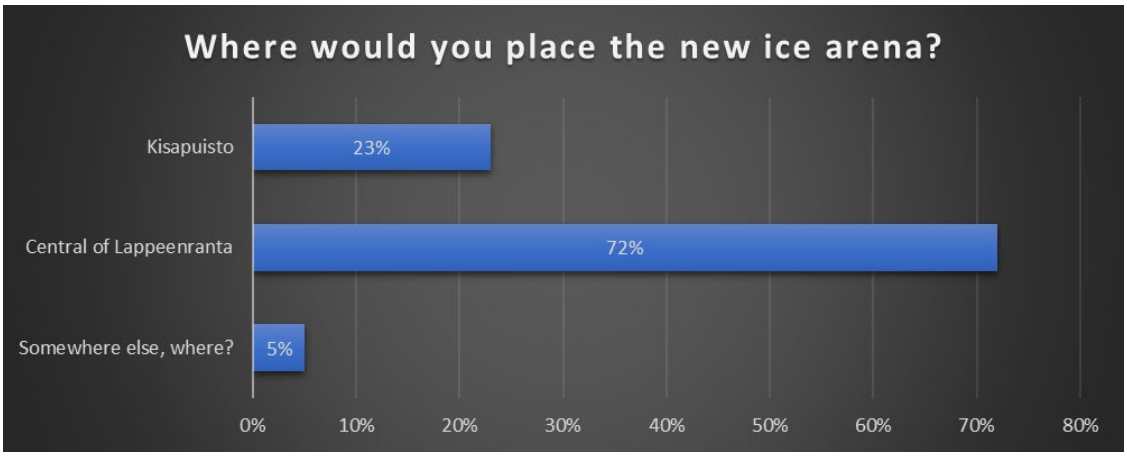

Figure 17. Preferred location of the new ice arena

In open feedback there were many comments for and against placing the new ice arena in central of Lappeenranta. Those who said that it should be in central argued that it would be easier to reach with public transportation and it would be easier to continue evening in other restaurants. Some supporters of Kisapuisto said that there would be traffic jams in central if arena was built there. All results from survey can be found in Appendix 2.

4.3 Personas and scenarios based on survey results

Based on the survey results here are two personas that describe two different customer segments. Personas were built using UXPressia platform. First persona is based on age group 21-30 from survey and it is shown in figure 18.

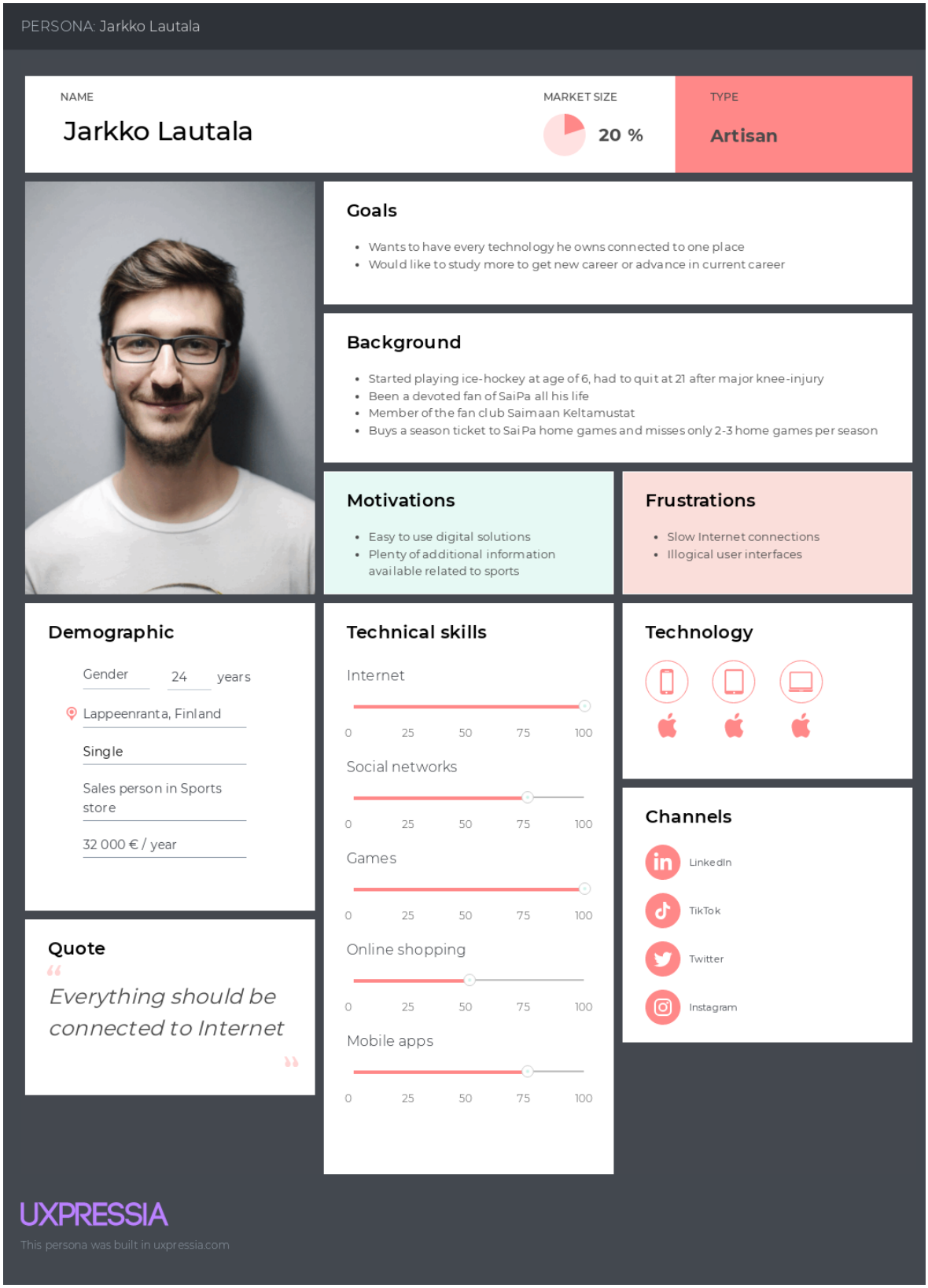

Figure 18. Persona 1

Here is a scenario about persona 1 attending an event in current ice arena:

"Jarkko Lautala, 24, is an enthusiastic ice-hockey fan. His favorite team has always been SaiPa and he has a season ticket to their home games. Jarkko goes to every game he can, he missed only two home games last season.

Jarkko is also interested in different kinds of technologies and has most of his household appliances connected to his wireless network. He uses his phone to control most of them. Jarkko likes to use different mobile applications and is actively connecting with his friends in different social networks.

Today Jarkko is attending a ice-hockey game in Kisapuisto. He would like to use public transportation but timetable for the bus is not suitable. Instead he drives there with his own car and arrives at parking area 25 minutes before start of the game. At the entrance Jarkko shows his season ticket from his phone. When he gets inside the arena, he heads to meet his friends in the restaurant they discussed about in their message group. After one beverage he continues to his seat because game is about to start.

After first period Jarkko heads to same restaurant area but lines to buy food and drinks are too long. He decides to stand and queue for some food, but by the time he gets his order, break is almost over and game is about to continue. He eats it as quickly but second period has been played for over five minutes by the time he gets back to his seat.

During the game Jarkko uses his phone to read statistics on players from SaiPa mobile application. Second break is coming soon but this time he doesn't want to go to restaurant anymore because of the lines. Instead he goes to find a restroom but the closest to his seat has a long line. Jarkko decides to walk over to next restroom where he can get to without waiting. After returning to his place he wonders why there isn't any digital solution to get information about restroom utilization rates since he knows it is technically possible to show. He opens mobile application again and starts thinking how convenient it would be to make an food order that he could either pick-up without having to wait in line or even delivered to his seat.

After the game ends, Jarkko heads to his car. Because of the traffic jam getting back home takes almost twice amount of time. He would have wanted to stay discussing with his friends over few beers but only available bus from the arena to his home leaves soon after the game ends."

Second persona is based on age group 41-50 from survey and it is shown in figure 19.

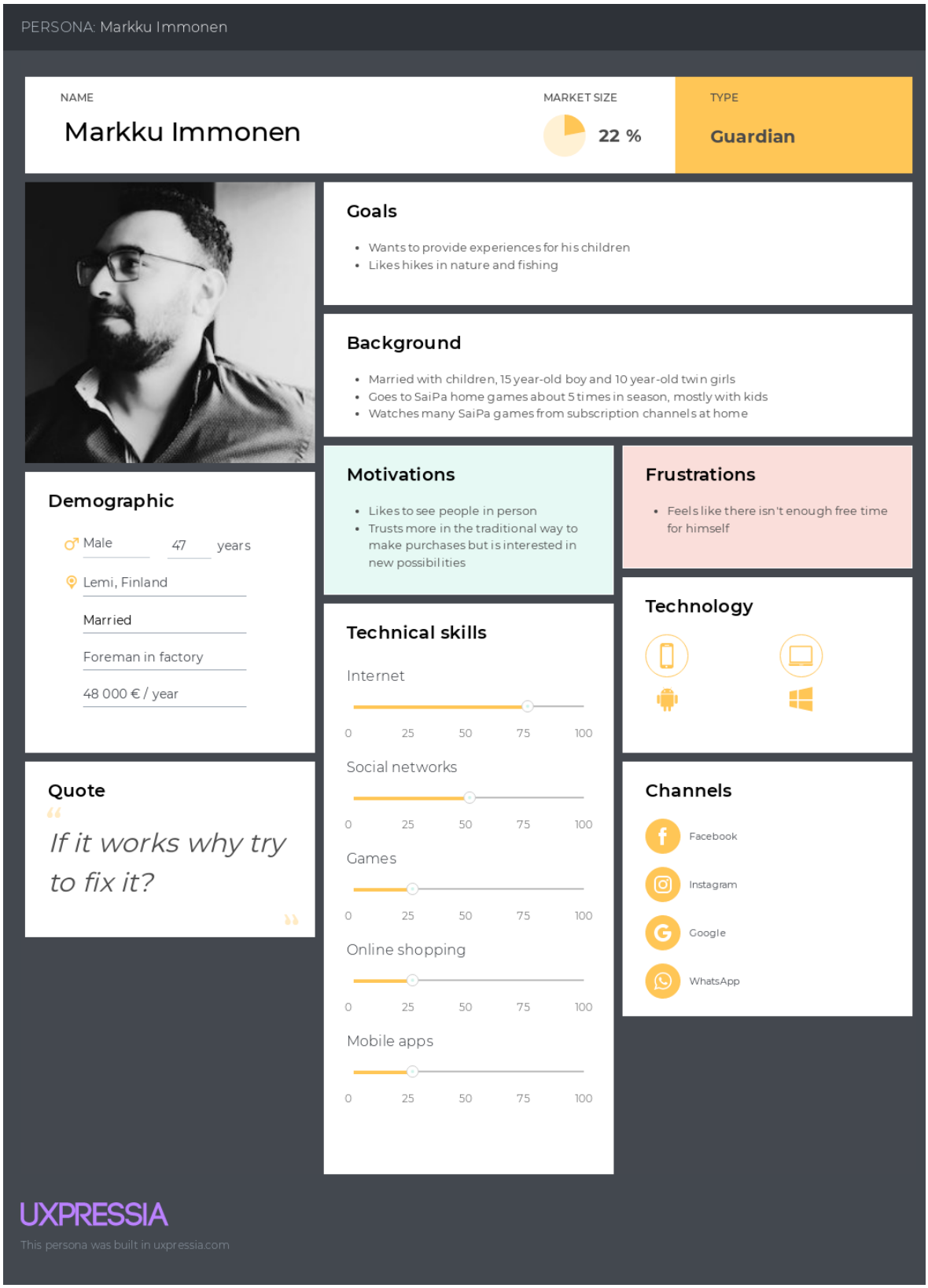

Figure 19. Persona 2

Here is a scenario about persona 2 attending an event in current ice arena:

"Markku Immonen, 47, is a supporter of SaiPa. He goes to see home games every season, usually about five times. To most of these he goes with his kids, but sometimes he goes to see a game with his friends. Traditionally he and his friends go to see some SaiPa away game once a season.

To this game Markku is going with his kids. It takes about half an hour to get to Kisapuisto from home by car, so they have to leave about an hour before game starts to be there in time. Markku has bought tickets from SaiPa Shop earlier that week and they show them at the entrance. Markku gives kids some cash to go buy something to eat and drink during the first period and instructs them to head over to their seats after that. He wants to go walk around the arena to see if there are any friends in the arena so he can discuss with them before the game starts.

When first period is getting closer to end, Markku starts to leave towards restaurants with kids. He knows that during the break there will be long lines, so he wants to get a head start. While they are walking to restaurant area SaiPa scores. Markku is annoyed that he missed the goal but thinks that life is about choices and right now getting food to kids is more important. They buy food and drinks and eat it in the nearby table.

When second break is coming up Markku stays in his seat until the end of period just to make sure he doesn't miss another last second goal. During this break they go find a restroom but they have to wait in line. When kids ask why there are so long lines to restroom and restaurants, Markku says that this is how it has always been and you just have to accept it. Before returning to their seats they wait in line to get coffee and sodas from nearby restaurant. While waiting for third period to start, kids are watching short videos and playing games in their mobile phones. Few minutes have already been played in the last period when Markku tells kids to put the phones away and concentrate in the game.

When the game ends, Markku tells kids to stay in their seats. They are not in a hurry to leave since he knows that there will be a traffic jam in the parking area. After about 10 minutes they go out from the arena and head for their car to start driving back home. There are still quite many cars in line in front of them."

5 Discussion

Goal of the thesis was to find suitable solutions to enhance the customer experience in new ice arena of Lappeenranta. Research on this was done by looking at current digital solutions in Finland and other countries and by doing interviews and collecting information with survey. This chapter will first answer the research questions and then go through ideas for future research.

5.1 Answers to the research questions

The main research question was:

What added value digital solutions can offer to customers in ice arena?

First way to answer that is to go through findings from the survey. Based on that, 86 % of the customers want to use mobile application while attending an event. 62 % would use it to store ticket and 59 % to check the statistics of players. These are available at the current mobile application already. One of the most common complaints in the current arena was the waiting time in restaurants. Since the available area in arena is limited, the number of salespoints is limited and throughput time seems slow when break in the game is going on. This causes frustration in customers and in some cases leads to not using the services. In the survey results 37 % were interested in ordering food and drinks with mobile application. Same kind of solutions are already in fast food restaurants. You can make an order from your mobile phone and specify what time you would like to pick it up. Difference is of course in the number of concurrent customers, which can be multiple times more in arena. Another option could be to deliver the order to customer's seat, which was also mentioned many times in the survey. In smaller scale this kind of solution is already in use in trains, where you can make an order to your place with VR Matkalla application. In the literature review there was an example solution called StadiumDrop that offers both possibilities. This kind of solution would give customers easier way to make an order and pick it up without waiting in line or get it delivered to you.

Parking applications are not in use in Kisapuisto, so it is not relevant to use it there. There was 26 % of people who answered that they would use mobile application for that, which probably means that they were considering using it if new arena is located to central of city. It is possible to get information about free parking spaces in streets and parking garages in Lappeenranta and all this could be gathered to one place to offer customers way to find free space. There could also be discounts connected to event tickets depending on which parking garage they leave their car to. In Tampere you can use public transportation for free with ticket or season ticket to ice-hockey games on game days. Same kind of solution could be used in Lappeenranta to guide more people to use the public transportation to come to events.

In the interviews, digital screens were mentioned as one way to provide additional information to customers, e.g. lines in restaurants or restrooms. This could be better way in some cases to get the information so that customer does not need to open phone to check the situation. In addition to lines in restrooms one other complaint about them was their tidiness, which could be improved by collecting data from their usage. This is already done in for example Nokia Arena, where cleaning services get the information when they should add paper towels or empty trash bins. This kind of solution creates better customer experience.

Younger generation is demanding more experiences from the events. In the survey results replays on certain highlights would be watched by 52 %. This is just one example of additional information that could be provided for customers. According to Nielsen study (2022), 47% of people watching sports are using their mobile device for something else at the same time. This is getting more common especially with younger people who are used to using mobile devices more and more in their daily life. They could be offered more information and offers through digital channels during an event which might be used to get more customers to attend the events.

Participating in event co-creation with mobile device was one thing that divided people. 38 % answered that they would not want to participate at all, but for example 55 % answered that they would like to vote for previous periods best player and 33 % would participate in a quiz. This could be seen as something that would create new kind of value for customers by enhancing the experience. It is unlikely that anyone would stop attending the games if there was some interactive solutions added to the event, but it might attract some new customers who might see ice-hockey games as outdated events.

The sub question was:

What are the obstacles to develop digital solutions for customers in ice arena in Lappeenranta?

This was partly answered in introduction where background for research was explained. Current ice arena in Kisapuisto is quite old and it doesn't have the dedicated open Wi-Fi for customers. This means that customers would have to use their own mobile data connection for replays, which might cause problems with sufficiency of bandwidth. Overall current situation is difficult, since owner of the building (City of Lappeenranta) and the main user (SaiPa) are both waiting for new ice arena to be built. Willingness to invest new technology to old building is low, which means that there probably won't be any new digital solutions in near future. Some digital solutions could be developed like using media cube to involve customers in event co-creation. Creating order and pick-up system for restaurants would require major changes to the way how salespoints operate and it would require more space for pick-up areas and possibly heated lockers. More likely owner and users are looking at the new ice arena to plan what kind of solutions could be used there.

5.2 Future research

At the moment plans for new ice arena are on hold while there is a new investigation on possible locations for ice arena if it would be placed in the central of the city. Decisions will be made earliest in the September 2024, which roughly estimated means that new ice arena will open in 2029 or later. This allows plans to be made what kind of digital solutions should be developed.

Customer behaviour should be analysed more thoroughly to get a better vision on how different solutions should be developed. For example mobile application could be replaced with web-based solution, which might be more appealing to some customers. More scenarios should be created to estimate what could motivate different customer segments to attend more often in events. Event co-creation should be piloted in the current ice arena since there is still long time until new arena is ready.

In the new ice arena ecosystem there should be one operator who is responsible for developing and maintaining digital solutions for all other stakeholders. On many solutions

to be efficient it would require digital twin of the building and open data agreements between different co-operating partners. Digital solutions could be created e.g. for facilities management to create value for owner in energy efficiency and to restaurant operators to make their working more efficient while providing better customer experience. This digital solution developer could be either part of the arena company or another company in the ecosystem. Gathering of arena ecosystem should start already when architectural plans are being drawn.

6 Conclusions

The aim of this research was to find out what kind of digital solutions could be utilized in new ice arena and what kind of added value they could produce for customers. Interviews and survey produced valuable data that was analysed to see what potential digital solutions could be and why they are not implemented to current arena.

Results of the research showed that there are certain pain points in the user experience in Kisapuisto ice arena. Some of them are easier to change by creating digital solutions, like making it possible for customers to participate in event co-creation, while others would require remarkable investments, like creating mobile ordering system for restaurants with pick-up option. Some of the issues are connected to location of the ice arena, e.g. traffic jams and low availability of public transportation. These are harder or impossible to fix without bigger changes to infrastructure of the whole area.

When more detailed plans for the new ice arena are modelled, there should be more exact planning done on the digital solutions. Technology is developing all the time and since it will be still years until new ice arena is ready, this thesis does not suggest any technical solutions. These should not be forgotten in the planning phase though since they provide means for enhancing the customer experience in ice arena. Without digital solutions and technology to support it new ice arena will just provide same level of customer service with new walls and brighter lights.

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Appendix 1. Interview questions

1. How is your work related to Kisapuisto ice arena?
2. What kind of change in customer behaviour have you observed during last decade?
3. How do you think the new ice arena will change your working?
4. Visitor count in sports and culture events has been going down during last decade. In your opinion, what is the reason and what can be done change it, from your perspective?
5. Digitalization is the use of digital technologies to change a business model and provide new revenue and value-producing opportunities; it is the process of moving to a digital business. How does digitalization currently show in your work? How do you think it could be used in the future?
6. What are the most common topics in customer feedback?
7. Do you analyse customer behaviour on regular basis?
8. What are the most challenging aspects in events for you? How could those issues be resolved, or can they be?
9. How do the differences between generations show up in your working and in plans for the future?
10. Do you have anything else you want to add on this topic?
11. Do you have any questions for me?
12. Is there anyone else you know who I could contact to ask more information on this topic?

Appendix 2. Survey results

1. In what kind of events do you attend Kisapuisto?	**n**	**Percent**
Ice-hockey game	586	99,2%
Figureskating competition	14	2,4%
Concert	96	16,2%
Something else, what	26	4,4%
2. Do you usually go to events at Kisapuisto alone, with friends or with family?	**n**	**Percent**
I usually go to event alone	83	14,0%
I usually go to event with friends	216	36,6%
I usually go to event with family	109	18,4%
It varies	183	31,0%
3. How often do you go to an event in Kisapuisto?	**n**	**Percent**
Almost every week	174	29,4%
Couple of time in a month	118	20,0%
Once a month	52	8,8%
1-5 times per year	199	33,7%
Less often	48	8,1%
4. How far from Kisapuisto do you live?	**n**	**Percent**
0-1 km	17	2,9%
1-2 km	44	7,4%
2-5 km	160	27,1%
5-10 km	112	19,0%
10-15 km	38	6,4%
15-20 km	31	5,2%
Over 20 km	189	32,0%
5. How do you normally go to Kisapuisto? Select all that apply	**n**	**Percent**
Walk	98	16,6%
Bicycle	65	11,0%
Motorbike	3	0,5%
Car	506	85,6%
Bus	64	10,8%
Taxi	38	6,4%
Something else, what	18	3,0%
6. What do you normally do in Kisapuisto before the event starts? Check all that apply.	**n**	**Percent**
Meet friends	279	47,2%
Use the restaurant services	342	57,9%
Find the reserved seat and sit there	275	46,5%
7. What else do you do in Kisapuisto before the event? (open-ended question)		
8. How interested would you be in the following pre-event activities? (1 = very unlikely, 5 = very likely)	**Avg**	**Median**
Player or performer interviews before the event	3,5	4,0
Performance of an artist or band before actual event	3,1	3,0
Participating in a game on media cube with mobile device	2,6	2,0
Treasure hunt in ice arena with mobile device	1,9	1,0
9. What else would you be interested in before the event? (open-ended question)		

10. Which of the following services do you use during the event? Select all that apply	n	Percent
Restaurant with food	388	65,7%
Restaurant with drinks	470	79,5%
Restroom	553	93,6%
Fanstore	206	34,9%
11. What other services do you use during the event? (open-ended question)		
12. Which of the following activities would you participate in with mobile device during break?	**n**	**Percent**
Voting for the best player of the previous period	325	55,0%
Playing a quiz with a chance of winning a prize	193	32,7%
Playing a game on media cube	126	21,3%
I don't want to participate with mobile device	226	38,2%
13. What other break activity would you like to participate in with mobile device? (open-ended question)		
14. How would you use mobile application in ice arena? (open-ended question)	**n**	**Percent**
Storing ticket for event	369	62,4%
Parking information	151	25,5%
Finding a restroom with free room	98	16,6%
Selecting an area with lower noise levels	24	4,1%
Ordering food and drinks from restaurant	218	36,9%
Paying for all purchases	195	33,0%
Replays on certain highlights	305	51,6%
Statistics on players	348	58,9%
I don't want to use mobile application	82	13,9%
15. What else would you use mobile application for? (open-ended question)		
16. Which of the services do you use after the event?	**n**	**Percent**
Restaurant with food	111	18,8%
Restaurant with drinks	224	37,9%
Restroom	509	86,1%
Fanstore	84	14,2%
17. What other service do you use after the event? (open-ended question)		
18. Would you buy take-away food when leaving the event?	**n**	**Percent**
Yes	87	14,7%
No	216	36,6%
Maybe	288	48,7%
19. When do you usually leave the event?	**n**	**Percent**
20-30 minutes before it ends	14	2,4%
10-20 minutes before it ends	27	4,6%
1-10 minutes before it ends	47	7,9%
When the event ends	334	56,5%
I stay in the ice arena for a while after the event before leaving	169	28,6%
20. Why do you leave at that time? (open-ended question)		
21. What would you like to keep from current ice arena when moving to new one? (open-ended question)		
22. What should be changed? (open-ended question)		
23. Is there something frustrating about services or something else that should be fixed? (open-ended question)		
24. What is missing from services? (open-ended question)		

25. In the current arena, what could be more efficient? (open-ended question)		
26. Where would you place the new ice arena?	**n**	**Percent**
Kisapuisto	135	22,9%
Central of Lappeenranta	428	72,4%
Somewhere else, where?	28	4,7%
27. Free feedback related to the topic (open-ended question)		
28. What is your gender?	**n**	**Percent**
Female	128	21,6%
Male	449	76,0%
I define myself as	7	1,2%
I don't want to answer	7	1,2%
29. What is your age?		
9-12	5	,9%
13-16	12	2,0%
17-20	17	2,9%
21-30	119	20,1%
31-40	120	20,3%
41-50	132	22,3%
51-60	116	19,6%
61-	70	11,9%