UIS BUSINESS SCHOOL

MASTER'S THESIS

STUDY PROGRAM: **Master of Science in Business Administration**	THESIS IS WRITTEN IN THE FOLLOWING SPECIALIZATION/SUBJECT: **Strategy and Management** IS THE ASSIGNMENT CONFIDENTIAL? (**NB**! Use the red form for confidential theses)

TITLE:

Smart Planner – from idea to the market

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ACKNOWLEDGMENTS

This research paper has been drafted as a final thesis in master thesis. The process has been interesting, educational, and not least demanding. It has given us an insight into how it can be for SP when the time comes for its launch. This thesis would not be

First and foremost, we would like to thank our academic supervisor, Tatiana Iakovleva, who has motivated, had faith in our idea, and encouraged us to write about SP and taken us a step closer to realizing our idea. We would also like to thank her for her continuous support and guidance throughout this semester.

 Moreover, we want to show our gratitude to owners and CEOs of the companies that contributed to interviews and filling out our questionnaire. We are grateful that they were open to sharing their knowledge, practical experience with us. Which helped us to expand our idea to this thesis, with hopes that it will turn soon from the thesis into the real market.

Last but not least, our thankfulness is going to our family members and friends without support and encouragement will be very challenging to go over all hard and indisposed moments, showing us the love and motivating us along the entire journey we went through.

ABSTRACT

This thesis is about a software for automation scheduling employees - called Smart Planner (SP). It is based on an idea developed by one of the researchers, and the purpose is to offer an effective scheduling tool using artificial intelligence (AI). Additionally, AI is used to recreate human intelligence and is what sets SP apart from other planning tools along with integration of other back-office tasks such as payroll, time management, accounting, etc.

This research thesis aims to elaborate on previous findings and investigate from Knowledge-based entrepreneurship course MØA 415 with permission of our course professor Tatiana Iakovleva (Appendix A), and expand it further. From previous findings, good foundations have been laid with an emphasis on researching the appropriate business model for the new software product called Smart Planner. The focus of this research is to attempt how to consolidate technical and market development into an orchestrated commercialization process targeting how Smart Planner creates value for the companies, employees, and its sustainability.

We have used primary and secondary data sources within research methods such as qualitative (observation and interviews) and quantitative (surveys) methods for answering main research question and three sub-questions. This thesis represents the research through four interconnected sections that together expand on the conclusion. Each of this independent sections processes one of the sub-questions, respectively. Considering the nature of the study structure, this thesis combines traditional frameworks in parallel with the modern approach, in order to examine the research question in an appropriate way.

The results of this analyses show that Smart Planner can fill the gap that our potential customer has with their current software provider, which we found during our data research. Gap refers that Smart Planner has innovation potential to automatized all scheduling employees' tasks. Additionally, findings show that comprehension of customers behavior, along with customers joint effort, are conducted during the development of the business idea, it creates customer's attachment to the company. We conclude that there is a market for SP and launching it with their innovation potential along with appropriate business plan, which is presented in this paper, SP will capture the market value.

Keywords: *Digitalization, innovation, quantitative and qualitative research, start-ups, scheduling software*

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1. INTRODUCTION

A shift in the 20th century from analog and mechanical electronic technology to digital electronics creates a digital revolution. In the 21st century, this digitalization expands into more opportunities that innovative discoveries brought out to the market. Digitalization allows us to shrink borders between the physical and digital world. It is a combination of advances within robotics, the Internet of Things, artificial intelligence & deep learning, big data, 3D printing, etc.

Nowadays, in the world everything becomes connected, everything becomes equally excellent. Business changes rapidly, and good enough doesn't exist anymore. It is an everyday learning process since the skills that we need are dramatically different since change is happening faster than ever before. Disruption with new trends becomes a normal occurrence, where single improvements are not enough anymore, rather entire transformation. The current market with all variables that exist in it, requires a new way to work, embracing new technology.

ARE YOU LEADING INNOVATION OR ARE YOU INDEED LED BY IT?

Along with these circumstances, and personal experience that we were facing up at our work environment, we decided to try to put technology in favor of business, creating new software that can allow managers, owners, etc., focusing on other things, which cannot be automated, that can be crucial for their businesses.

The difficulties of commercialization of the early research-based thoughts are associated with the troubles in anticipating the result of the examination, which is required for making early test advertise suppositions (Hindle & Yencken, 2004). Here comes a quandary. The exploration isn't done at this point and it is hard to foresee what software utility it is practical to accomplish. Simultaneously, knowing the rough conceivable research result establishes the framework for the market presumptions, as each different market has its qualities and claim prerequisites for the item utility. Testing those market presumptions, thus, helps understanding which features of the software have the most worth and merit forming further into a total product. Along these lines, it is critical to both make the correct suppositions about the possible future item utility and the primary market decision.

This paper is formed as extension from paper that were done as a part of University of Stavanger course - Knowledge based entrepreneurship MØA-415. We started to do research on this topic last semester, mainly focusing on creating business plan for our idea. Now we are expanding that business plan, with the result that this paper will consist four confident parts that each has focal point on various aspects. First part is focus on introduction, second one is showing analyses on innovation regarding our idea, third part will do market study analysis, while in the last part we focus on compatible business model for our idea. The introduction section is intended to define the structure of this Master's thesis, contained all these four self-contained parts. Introduction chapter begin emphasizing importance of the selected topic (part 1.1). It is going along with the background exposure of the idea (part 1.2.), along with main research question simultaneously with three sub-questions (part 1.3.). Introduction section continues with section 1.4. where selection of theoretical frameworks is presented, while in part 1.5. methodology is presented, within which research design (1.5.1), data collection (1.5.2.), triangulation (1.5.3.) and limitations (1.5.4.) are introduced. Introduction chapter is concluded with the part 1.6 where conclusion is presented final, together with suggested further research.

1.1. Importance of topic

The world is witnessing dramatic changes in its economic and social behavior, principally led by digital technologies (Richter, Ciriello, & Schwabe, 2018). In their research, (OECD, 2019) found out connection between the expanded utilization of digital technologies and profitability, along with competitiveness and economic development. If companies want to stay competitive on the market, a primary factor is to be up to date with digital technologies. Supporting this statement, (Accenture, 2015) in their work state that boost in digital technologies can increase global economic output by US\$ 1.36 trillion.

Fundamental change on the market can be led by commercializing new and innovative product in comprehensive method. Online networking is target as one of the crucial parts for involving customers in company development, mostly involuntarily but progressively as a planned strategy (Oinas-Kukkonen & Oinas-Kukkonen, 2013). Involving customer in company development can have vital importance in order to narrow down risk of company failure. (Blank, 2005) state in his book, that companies are convicted to failure if their main focus is only on technical product development, neglecting customer development. Before commercializing our idea, we need to understand companies' advantage and disadvantage and

its strategic worth which can empower our future customers, which will increase our chances for success.

Above mentioned is even more important if we know that our software might influence people from both sides in company, management and regular workers. Main topic of this thesis is how to conduct digital product development in accordance with its potential customers, since the business idea is still in the early stage of development.

1.2. Case background

The research in this paper is based on the digital innovation where we are trying to establish new software on the market as our final product. Software is called Smart Planner (SP) and it represent our effort to digitalize and automatize scheduling employees for companies that have need for such a job to be done. Along with software main job - automatize scheduling employees- we will try to expand digitalization and automatization for all back-office task that is possible, including time management, accounting, payroll, etc.

In 2019 after more than 2 years observing and facing challenging relating this topic, idea about smart software that will have integrated artificial intelligence with goal to digitalize and automatize start to develop. First step developing from idea to the real product was through one of the courses for master students at University of Stavanger, Knowledge based entrepreneurship. We had chance to present our idea and create business plan, in collaboration with academic and business people support.

We segment as our initial market Rogaland region in Norway, with main focus on Stavanger city with its municipalities. We found this as our ideal start point since we have solid network among our target customers and we also attract some attention among companies that we corporate with on private bases, to become our key partners and gain interests to become our investors. We also attract one of the companies that work as travel agency to become our alpha customer. In cooperation with them and their needs, our software developer will develop alpha version of our software. We hope after three months of testing and improving that our software developer will be ready for developing beta version of it and it will be ready for public use. After this initial phase and launching beta version of our software, our further plan is to expand to another cities in Norway, along with reaching global market.

We believe that utilization of Smart Planner software will increase efficiency and time saving for both sides in company, management and regular employees, along with cost saving.

1.3. Research question

The focus of this research is to see how Smart Planner can create value for the companies, employees, and if it can be sustainable. Taking into consideration all parts of this thesis, and combining them: innovation study analyses, market study analyses and business model analyses, we have addressed and framed the research question. Having three different independent section, required mixed nature of research question, which will lead to three sub-questions. Consequently, the main research question is stated:

"How can digital innovation Smart Planner capture market value?"

Along with the research question, there will be some sub questions that will need to be answered to the main research question that can be answered. First sub-question is: *"What is the innovation potential and innovation level of Smart Planner?".* To answer this sub-question, it was first and foremost necessary to identify what kind of innovation SP is as well as whether SP is able to fill the gap between customer needs or existing planning software solutions.

Second sub-question is formatted as: *"What is the market potential for Smart Planner?".* Among other things, we have described factors that are and can be used to describe whether SP is able to succeed in the market. The reason for this section is due to the desire to gain a comprehensive understanding of the market in which SP will operate in.

Third sub-question is developed as: *"What is an appropriate business model for Smart Planner?".* In this section, we have used tools such as Business Canvas and SWOT analysis to explain the best possible business plan for SP. The purpose is to explain the external and internal factors as well as whether SP is able to create value for its customers.

1.4. Theoretical Framework

In theoretical framework chapter we will present theory that we will use in further research of innovation study, market study and business model analyses. The structure of used theory for each of the analyses part is shown in Figure 1.1. below.
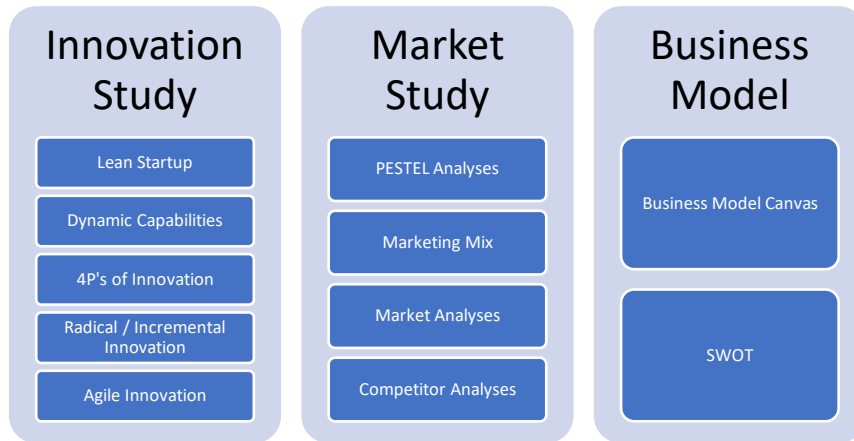
Figure 1.1. Structure of theoretical framework

1.4.1. Innovation Study

To address our first research sub-question "What is the innovation potential and innovation level of Smart Planner?" we will utilize innovation theory like lean start up, dynamic capabilities, 4 Ps, radical/incremental innovations and agile innovations which we will describe in this theoretical part of the theory.

Before going into an explanation about innovation theories, first, we will explain what is meant by the term Innovation. According to the Oslo manual (2005) : "An innovation is the implementation of a new or significantly improved product (good or service), or process, a new marketing method, or a new organizational method in business practices, workplace organization or external relations. The minimum requirement for an innovation is that the product, process, marketing method or organizational method must be new (or significantly improved) to the firm."

Many researchers stated in their work that it is difficult to connect innovation only to a service or process, it is rather connected with a process that companies can profit from it (Fruhling & Keng, 2007; Jong & Kemp, 2003). Additionally, Edison et al. (2013) declare in his work that innovation can be divided into couple elements of innovation, such as brand-new for a company, modern for a market, unique for a world. Moreover, in their work they diversify some of the next innovation categories: process, product or service innovation Edison et al. (2013).

1.4.1.1.   Digital innovation

Parallel to innovation, digitalization – the improvement of digital innovation- is one of the most significant business patterns for the eventual fate of the company's economy. Presently, businesses operate in a world that is constantly permeated by digital technology, whether it is embedded in the core of business operations or so. Our everyday lives consist of products that have built-in intelligent equipment, and with that said, it is important for us in this task to define and describe what this digital capability has to say to us. Over the past decades, researchers have studied the concept of digital technologies and the role it now plays. According to Nambisan (2017), researchers have neglected the role digital technologies play and little research has been done. The literature has since grown rapidly and has paid considerable attention to digital technologies. Digital innovation is described as the use of a digital technology, which describes the outcome of innovation, and has become increasingly important for a firm that pursues business goals Nambisan et al. (2017).

In contrast, Davidson (2015) describes digital technologies as an external enabler which consists of external circumstances as the operation behind start-ups. Henfridsson et al. (2014), on the other hand, define digital technology as a unique feature that enables innovation processes. Whereas Nambisan et al. (2017) point out that digital innovation involves problem-solution design pairing. One of the challenges with digitalization is that it generates complex innovation and challenges the existing market and the extent to which it can keep up with the changes. However, firms' competency can stand in the way of such development (Nylen & Holmström, 2015).

As entrepreneurs, we will have to deal with extreme uncertainty: who are our customers, what product do they want, and how to build a sustainable business. To try to better understand how we can gain a competitive advantage we will start with Lean innovation theory.

1.4.1.2.   Lean Startup

As there is no such great business idea that will take for granted a successful business, we can rather say execution is the one who can lead that great business idea to success. In ambiguity and unpredictable market conditions along with fast transformation, notably for new organizations, numerous researchers accept that achievement happens from the ability of the company to boost their business model managing experiments and adopting from experimental (Lynn et al 2005; Osterwalder & Pigneur, 2010). That's where we see the Lean startup approach can help us to establish our company quickly to the market while absorbing knowledge from

the market. Additionally, the lean startup approach can be very efficient, since "everything that does not lead to validated learning is waste" (Ries, 2011). Furthermore, Ries (2011) in his book represents a lean startup as a model that can assist companies with carrying out analyses and emphasize when searching for a sustainable business model. We will use the build – measure – learn feedback loop (Figure 1.2.) in our execution process. This model can help our company to reach a common goal for start ups "to figure out the right thing to build – that customers want and will pay for – as quickly as possible" (Ries 2011).
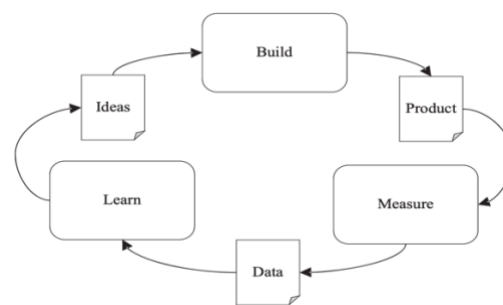
Figure 1.2. The build-measure-learn feedback loop (Eric Ries 2011, p.75)

By contrast, Poppendieck declares that the lean approach is assumptions that are closely connected with software development regulation. As the main concern, they state in their works that assumptions are hidden realities that don't change after some time or space, while practices are the use of assumption to a specific circumstance and may vary from one condition onto the next and change as circumstances emerge (Poppendieck & Poppendieck, 2007; Poppendieck & Poppendieck, 2003). Additionally, Lean Startup's approved methodology may just be advantageous until a specified stage, especially it will not be efficient in the long run (Yau & Murphy, 2013).

Moreover, Felin et al. (2019) in their work criticized Lean Startup's "heavy reliance on readily observable feedback and immediately validated learning". Lean Startup, in this manner, depends on the market/customer feedback, which can raise a question of knowledge of the customer, since often customers don't necessarily have better proficiency then startup establishers.

Although we know the limitation of this Lean startup approach, for our purpose we will operate with the software development and dynamic circumstances, so we still think it will be a useful approach.

1.4.1.3. *Dynamic capabilities*

As we are aware that there are no companies that are winning endlessly on the market, we will combine lean startup approach along with dynamic capabilities, considering that dynamic capabilities support companies to "renew leverage their difficult-to-imitate resource to retain the potential of a lean startup" (Pfeffermann, 2017). Dynamic capabilities can serve our company as a new source of creating an advantage on the market, with the use of the existing resource (Teece et al., 1997; Cockburn & Henderson, 1994). (Wang & Ahmed, Dynamic capabilities: A review and research agenda, 2007) contend that it is conceivable to distinguish three primary parts of dynamic capabilities: adaptive capability, absorptive capability, and innovative capability.

Adaptive capabilities

The adaptive capacity approach will allow our company's capacity to use external information through three procedures of exploratory learning, exploitative learning, and transformative discovery that expand on one another Lane et al. (2006). Considering this, learning appears as the adoption of external knowledge, implementation of that knowledge and sustain it over time (Garud & Nayyar, 1994; Zahra & George, 2002). Additionally, according to Lane et al. (2001) company using adaptive capabilities creates business yields that influence overall organization execution.

Absorptive capabilities

As we mentioned above how important it is for the company to adopt as quickly as possible on the market, absorptive capabilities supplement to adaptive capabilities in achieving its goal. Some researchers have a common description of absorptive capability as:" ability to identify and capitalize on emerging market opportunities" (Chakravarthy, 1982; Hooley, Lynch, & Jobber; Miles & Snow, 1978; Wang & Ahmed, 2007). With absorptive capability, we can focus our company's capacity to adjust in an adequate manner through the adaptability of assets and adjusting assets and abilities to natural changes (McAdam et al., 2010). Subsequently, the focal point of absorptive capability is to adjust interior hierarchical variables to outside ecological components. Absorptive capability firms can use three main aspects to create competitive advantage: technological aspect, external market aspect and internal organizational aspect (Tuominen et al., 2004).

Innovative capabilities

Innovation can be the main driver as a source for creating a competitive advantage. (Biedenbach & Müller, 2012) in their work differentiate incremental and radical innovation,

depending on the scope of innovation. Additionally, (Subramaniam & Youndt, 2005) characterized incremental innovation capabilities like the capacity "to generate innovations that refine and reinforce existing products and services", while radical innovation capabilities are capacity "to generate innovations that significantly transform existing products and services". Furthermore, (Subramaniam and Youndt, 2005) declare that the incremental innovative capabilities demand fortification of predominant knowledge, although radical innovative capabilities demand conversion of predominant knowledge.

In contrast to this, (Zollo & Winter, 2002) stated in his work that if the environment is passive, there is no need for dynamic capabilities although previous knowledge can help to act innovatively to reach incremental improvements. Furthermore, Teece expressed in his work about 'dynamic paradox': regarding which the 'core capabilities' of the company may transform toward 'core rigidities' if the company itself can't recharge them (Teece et al., 1997).

We found dynamic capabilities approach very useful for our case, since it can help us to reach the market fast, especially in a rapidly changing environment that our company will have to work in.

1.4.1.4. *4Ps and radical/incremental innovations*

For a firm to be able to gain an advantage by implementing a new and better product than its competitors, they must most importantly be able to understand the market in which they operate, what they create and deliver. We have therefore used several different theories as shown below which we believe are an important part of Smart Planners' success, each of which shows how innovation can be organized and managed in different ways. This enables them to make the best strategic decision possible.

One of the first framework developed when managing innovation is the 4P´s also called for marketing mix (product, price, place & promotion). This framework has been criticized to be a product-oriented, not customer-oriented marketing. However, (Francis & Bessant, 2005) identified four ways of targeting innovation – the so-called 4P´s model consists of how to target the innovation and is divided into four dimensions: Product, process, position, and paradigm innovation (Table 1.1.). There is a linkage between the 4P which structures the approach to observe the possibilities for innovation. It addresses the hypothesis that successful innovation is crucial to positive change.

Product innovation	Changes in things	Introduces or improves products or services. Dimensions such as number, timing, and rate of change should be considered.
Process innovation	Changes in ways	Introduces or improves the process. The Lean thinking principle is used and is based on the removal of waste. Approaches used to make such changes include process mapping, activity analysis, constraints analysis, and problem analysis, etc.
Position innovation	Changes in context	It is about how a firm´s targeted groups perceive and respond to a product, and the success of some products depends on the innovative ways to appeal it to potential buyers. Defines or re-defines the positioning of the firm or products.
Paradigm innovation	Changes in mental models	Relates to the way of transforming how companies run their businesses while trying to add value internally and externally. This innovation either changes the characteristics or establishes a new one that does not exist.

Table 1.1. The 4P´s in innovation
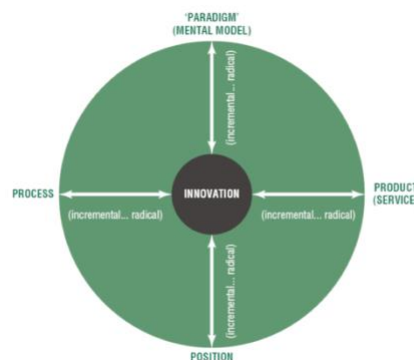
Figure 1.3. Exploring innovation space. Source: Francis & Bessant (2005)

(Mabogunje, Hansen, & Berg, 2013) describe how the Four dimensions can support the management: 1) enlarging the choice of alternatives, 2) creating focus at critical areas, and, 3) identifying critical interdependencies between the various innovation efforts. However, this requires that innovative ideas have been created in advance. Besides the types of innovation that are mentioned, different paces of changes such as incremental and radical innovation are mentioned. An above-shown model is a tool that is used by companies to figure out where their strategies should be focused on (Figure 1.3.).

Discontinuous also called radical innovation can redefine space and boundaries, which may open a new set of opportunities. This helps to redefine what they have done by making use of

the new conditions that have been implemented. Such a change can come through in the form of growth in technology or the market with new characteristics and expectations (Tidd, 2015). It is usually the most established players who do poorly on this type of innovation because they have to deal with the changes to remain relevant both in the market but also in the eyes of those they are trying to attract. It plays an important role in structuring a firm's competitive advantage (Robert & Veryzer, 1998). Furthermore, Robert & Veryzer (1998) argue that radicalness is a perception of how many and to what extent organizational members have experience in the innovation they are developing.

In contrast, while discontinuous innovation shifts the entire paradigm or business model, incremental innovation is defined as a minor improvement or simple adjustment that has been made in the current technology that we experience daily. It consists of small incremental changes in product, process or services that help improve the value, and is a decisive factor for the survival of the firm. This type of change comes not only in the form of product design but also in the form of the manufacturing process. (Banbury & Mitchell, 1995) argue that incremental innovation is hugely important, and keeps a company relevant in the market they operate in, as well as increase their market share. Moreover, based on the empirical evidence, they conclude that effective incremental product development and rapid product introduction have crucial importance to business performance. With such an innovation there is little need to initiate potential resistance because it is easier to predict outcomes (Dewar & Dutton, 1986).

1.4.1.5.   *Agile innovation*
Most often, companies can face certain challenges in developing new products or technologies. As a solution, a "flexible" approach such as "agile methods" has been established in the development stages of new products. According to the literature, this is a term that has been applied in the software industry and reinforces the need to implement (Conforto et al., 2014). It is because of the external changes that are beyond the control of a company, as well as the environmental problems that have led to the search for new knowledge in innovation due to the continuous shift (Wilson & Doz, 2011).

Agile methods are a good starting point for software development design. It is considered to be flexible and productive in development, and provides the opportunity to adapt to changes and learn from the development experience. Characteristics of agile include: test driven development, adaptable process, continuous customer involvement as well as improved quality

targeting and continuous review of processes (Rahimian & Ramsin, 2008). The benefits of utilizing such methods involves reduced development time, improved productivity and system quality. Furthermore, using this development also presents certain challenges especially in larger and more established companies. And lastly, many of the problem-solving tools it provides in start-ups, may not even exist. Although the literature distinguishes between agile and lean startup, it suggests that a hybrid of an agile and lean startup can sometimes be the solution for new start-ups, and states that the methodologies complement each other (Yau & Murphy, 2013).

1.4.2. Market Study

As the second part of our theoretical framework, we will utilize theories like PESTEL and market mix strategy to help us to understand market along with customers' and competitors' analyses. The purpose of this study is to find what the potential market is directed by, to distinguish the primary market section and build up the customer value in a manner that would fulfill the need that remains behind those market drivers.

To be able to address the inquiry concerning the elements that characterize marketing strategy which can drive us to the outstanding commercialization, a market study was directed by gathering primary and secondary data. Additionally, a knowledge that is gained through this study can help us to answer on our second research sub-question:

"What is the market potential for a Smart Planner?"

In favor of exceeding an overview of the market in which the company needs to perform, the market study begins with PESTEL theory analysis.

1.4.2.1.   PESTEL

The environment is fundamental, important and essential in the creation of a business, particularly in the idea creation process. Nowadays, for a company to survive in the long run, it must consider the underlying environmental factors. Moreover, for companies to consider the environment in which they operate they should adopt a strategic approach, namely the macro-environment which analyzes the environment around the industry, competitors and organization (Yüksel, 2012). PESTEL analysis is a framework that examines the external environment and addresses the problems that may be encountered in business creation ((Cadle,

Paul, & Turner, 2010, p.22). It consists of six environmental factors such as political, economic, socio-cultural, technological, environmental and legal factors. The frameworks identify opportunities and threats that may be vital for businesses.

Although it provides important knowledge, it also brings some limitations. The obstacles are based on the fact that the analysis does not, for instance, consider approaches based on inter-dependence on the factors, which may mean that it will not reflect the real situation.

1.4.2.2. Market Strategy & Marketing Mix

Kotler (2010) described market strategy as a method throughout companies can accomplish their ambitious goals regarding their statement of purpose. To implement a successful marketing strategy, (Culliton, 1948) presented in his work a mixture of various marketing components, respectively a mix of product, price, promotion, and place. (Olson & Slater, 2002) stated in their work that for a firm, it is crucial to study the market, gain knowledge about customers and comprehend their needs, which will help companies to select segmentation to concentrate on. This segmentation, (Hampf & Lindberg-Repo, 2011) divided by several aspects: geographic, demographic, psychographic or behavioral. Additionally, he stated that for selecting a major group of people, it is essential that that group can be supplied in an alike way, be lightly achieved and successful enough to have a purchasing capacity to make a benefit for an organization.

On the contrary for the above-mentioned reasons, (Ravald & Grönroos, 1996) disapproved of the marketing mix approach, stating in his work that it should concentrate on relationship marketing, rather focusing on transaction marketing, which leads to inadequate practical use.

We think that dealing with each of the 4 Ps will assist the Smart Planner with finding such an arrangement of its contributions to the market that will suit the demand of target groups. Also, comprehension of the 4 Ps is still a useful approach to utilize for us.

1.4.2.3. Customer and Competitor Analyses

While customer analyses will help us to understand our potential customer behavior in order to target market, reach them and make key business decisions, competitor analyses will help us to identify our potential competitors, their strengths and weaknesses, and what is the best way to enter into new market.

Customer Analyses

In order to develop successful innovation, customer analysis is taking one of the crucial analyses part, regardless of whether company meet a significant level of ambiguity (Govindarajan & Kopalle, 2006). Customer analyses is a procedure that can assist in making main business decisions. It can also help utilize direct marketing, choice of site, and for managing relation with the customers. (McDermott & O'Connor, 2002) state in their work that focusing only on the technical development of the product and excluding analyses of the potential market will lead to the reduce refinement of the business plan. (Reinhardt & Gurtner, 2011) conclude in their work that "customer analysis methods are necessary and, if conducted appropriately, can assist in successful management of innovation process".

Competitor Analyses

There are many different definitions of customer analyses. Prescott & Gibbons define competitor analyses as a "process whereby the management team assesses the evolution of its sector and the capabilities and behavior of its current and potential competitors to assist in maintaining or developing a competitive advantage" (Prescott & Gibbons, 1993, p. 19). Bernhardt describe in his work competitor analyses as "analytic process that transforms data into actionable strategic knowledge about competitors' capabilities, intentions, performance, and positions" (1994, p. 13). Additionally, Fletcher & Donaghy represent customer analyses as "process of gathering competitor data from various sources both inside and outside the organization, transforming them into timely, pertinent and meaningful information and holding it within a well-structured system" (1994). We can conclude that all definition have in common that they present competitor analyses as a process through company gain knowledge about players on target market, converting that knowledge into company strength along creating sustainable strategy that will lead to dominance over the competitors on the market.

By contrast, (Herbig & Milewicz, 1995) criticize in their work that customer analyses might lead company to capture wrong market signals, and as result they can follow mixed strategy. Furthermore, (Bennett, 2003) notice in his work that if company rely strong on customer analyses, it "may become excessively reactive rather than pursuing a consistent, pre-planned strategy".

1.4.3. Business model theory

To address our third research sub-question "What is an appropriate business model for Smart Planner?" we will utilize tools from entrepreneurship studies that help us to clarify the business

model that can suit for our company. We will describe tools like Business plan Canvas and SWOT analysis in upcoming section of theoretical part of the theory.

1.4.3.1.   Business plan Canvas

Regardless of whether you're beginning a small business or investigating approaches to extend a current one, a business plan is a significant device to help direct your choices. Additionally, it can be considered as a guide to progress, giving more accuracy on all parts of your business.

Furthermore, Osterwalder describes in his paper business plan as a *"value a company offers to one or several segments of customers and the architecture of the firm and its network of partners for creating, marketing and delivering this value and relationship capital, to generate profitable and sustainable revenue streams"* (2004).

Having a clear business plan can give a better overview of both, internal and external participants. Firstly, it can lead as a roadmap for owners/business developers on how to successfully run a business with cohesive perception. Secondly, investors won't put resources into our organization except if we can show that we have a guide to progress. They want to reduce their risk having a reasonable estimate for when they will procure a return on their capital. We will adopt a Business Model Canvas that was presented by (Osterwalder & Pigneur 2010). Business Model Canvas took its inspiration from the Business Model Ontology which Osterwalder (2004) presented in his paper, including narrowing down from originally twenty to nine concepts.

By contrast, (Verrue, 2014) in his work relays on Business Model Canvas because of its fixed architecture, which creates overlaps, along with *"lack of consistency and power"*. In addition to this, he stated that utilization of this model is not demanding which misleads companies to achieve thorough comprehensiveness of it.

Even though there are many obstacles to the business model, we still find it useful, since it will collect all the parts of the puzzle along, beginning with industrial qualification, to market strategy, to ultimate action that the firm should follow. This would likewise unite innovation and market study to clarify research questions simultaneously with effective commercialization.

1.4.3.2.   SWOT -Analysis

The literature provides various techniques and approaches to choose between when analyzing a company's position in the market. Among the most well-known is the SWOT analysis. SWOT

analysis is an important decision tool most commonly used by companies to evaluate the strategic situations and identify the organizational level from their internal and external environments. It allows strategists to chart a detailed understanding of the factors of decision making. These factors are categorized into the internal (strengths and weaknesses), and external (opportunities and threats). This enables companies to identify positive and negative factors as well as develop a strategy based on this (Gao & Peng, 2011).

However, in contrast to this, (Yüksel & Dagdeviren, 2007) stated in their work that although SWOT can provide a successful strategic formulation, the result of the analysis is merely a list or an incomplete qualitative examination of the internal and external factors. For this reason, the analysis cannot be considered a comprehensive decision-making process. Furthermore, to overcome these limitations, (Kurttila et al., 2000) utilized the analytic hierarchy process (AHP) framework within the SWOT framework. The reason for this is AHP's ability to make both qualitative and quantitative decisions, something SWOT fails with. The idea behind this is to systematically evaluate the factors' intensities.

1.5. METHODOLOGY

Our choice of method is based on what we believe is best suited to answer our research questions, and has considered various methods to answer it. Following sub-chapter is presenting research design, method and choice of study design, data collection, triangulation and limitations in order to contribute to theory development, and furthermore to clarify research problem.

1.5.1. Method and choice of study design

Research design is an action layout or basis that binds the philosophical and methodological assumptions of an approach. It is about providing a legitimate answer to the research questions. In this paper, we have used the scientific method and are based on building scientific knowledge by acquiring the information, analyzing, and interpreting the data obtained (Bhattacherjee, 2012). Our choice behind the method is a result of what we think is best suited to answer our problem and in order to obtain comprehensive information we have thus used both primary and secondary data. Before we go into the collection method we have used, it is therefore important to familiarize yourself with the different research designs.

The choice of research design depends on the purpose of the research, and as shown in the figure below (1.4.), we distinguish between three types of design: exploratory and descriptive design (Bhattacherjee, 2012). We have chosen a to use combination of both exploratory/descriptive design, as we believe that it is the most appropriate design for us to answer our research question. The reason for this is that we describe the situation and position the firm as well as exploring factors that might affect our business model. Additionally, we do not use any causal relationship and that why we are not using explanatory research design. We believe that the choice of this type of design provides insight and creates an understanding of the investigator as well as provide a comprehensive description.

Moreover, we have done this by using both qualitative and quantitative approaches. Finally, as qualitative data we will use interviews and field observations, and as quantitative data we will use available secondary data.

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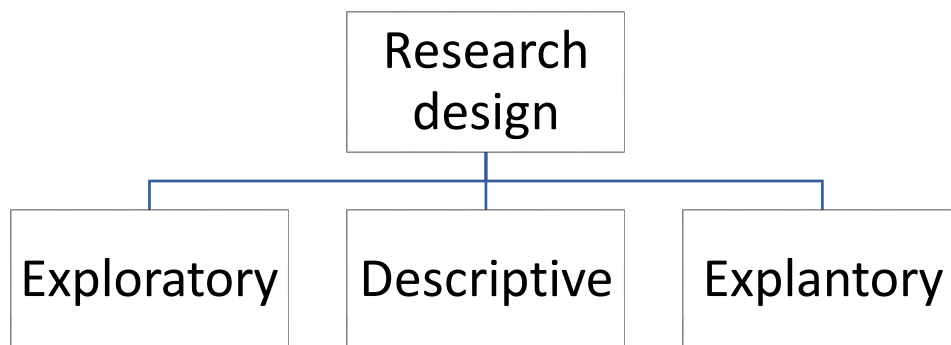
Figure 1.4. Nature of Research design (Bhattacherjee, 2012)

1.5.2. Data collection

Primary data is about information collected for a particular topic to obtain as much data as possible (Christoffersen et al., 2011). In our case, this was necessary to best answer our research question as some of this type of information was not available to us. In order to collect as much primary data as possible, we have used quantitative and qualitative research methods. The approaches differ in how data is collected and analyzed. They are distinguished by the fact that in qualitative research, data are collected to allow a deeper understanding of the participant's perspective, while in quantitative research relevant data are gathered to test the formulated hypothesis (Gelo, et al., 2008).

Qualitative data has been gathered through interviews with respondents who are familiar with the use of existing software that they use. It involves acquiring as much data as possible, collecting it by:

- Observation: *Based on sensory impressions of actions/behaviors in specific situations*

- Interview: *The data is based on the conversation between informant and researcher, and makes it possible to investigate a predefined topic*

Quantitative data, on the other hand, is data that can be expressed in the form of multiple scales or indices (Gelo et al., 2008), and an example of such data is a survey. It involves asking respondents about their opinions through a questionnaire with predefined answer options, which makes it easier for respondents to fill out the form.

Interviews

We have collected qualitative data through interviewing and interacting with different firm representatives as shown in the table below (Table 1.2.). The subject of the interaction was to learn about programs that they are using. In total there were 5 interviews conducted with firms mainly from the hospitality/ tourism industry who are using different scheduling tools. The interview period lasted from October 2019 to March 2020, conducting one interview with each CEO of the company. However, whenever we were in doubt while we were developing our research, we contacted some of them with the request to clarify some of the things they were told, or if it was unclear how to further automate any specific tasks. The purpose of this was to identify which tools the different respondents from the different companies use, as well as whether the use of SP could have been an alternative for them. The interviews were conducted in different ways, with some being done via video calls (CEO of Nordic Gateway) while with others interview were in person (CEO of Friend, CEO of Doorman, CEO of NOVA AS, CEO of Alf & Werner). Furthermore, no audio recordings were made but rather notes while conducting the interviews. We did not feel any kind of retention of information, on the contrary, all respondents were open and cooperative, as well as interesting and passionate about the idea.

Companies	Description:	Competence area
Respondent A: **Friend´s CEO**	FRIEND OS was founded in Stavanger, Norway in 2014 but	Deals with technical things about software development,

	moved its primary office to Oslo. FRIEND OS intends to provide and develop software to companies in Norway and abroad.	costs, time, and more. FRIEND OS will collaborate with SP as a partner, providing software development technology as a service provider.
Respondent B: CEO of Doorman	Doorman AS is a security company that offers services in the Rogaland hospitality market. They have been doing so for over 10 years, with over 30 restaurants and clubs under their portfolio.	We consider Doorman AS as SP's s key partner and main investor. The interview was based on networking and product development. They see a Smart Planner as improvement for their scheduling system. This partnership is a good starting point for SP as Doorman have solid portfolio of potential customers for us.
Respondent C: CEO of Nova nightclub	Nova is a nightclub located in Stavanger. Management of NOVA under their portfolio has 2 more bars/clubs in Rogaland area, 3 restaurants and a gas station.	**Prospective customers:** Software they use now, what are the pros and cons of it, what they want to improve, and what features they want to have. Do they want more automation systems and what they think about what tasks in their work can be automated? What they think about Smart Planner as software solution and their feedback about it?

Respondent D: CEO of Alf & Werner nightclub	Alf & Werner is situated in the middle of Stavanger's city center. It consists of three floors offering a bar, live stage, and combined lounge and nightclub. Management of Alf & Werner has under their portfolio 2 restaurants and 2 more bars.	**Prospective customers:** Software they use now, what are the pros and cons of it, what they want to improve, and what features they want to have. Do they want more automation systems and what they think about what tasks in their work can be automated? What they think about Smart Planner as software solution and their feedback about it?
Respondent E: CEO of Nordic gateway - Travel agency	Nordic Gateway AS is a full-scale service provider to the cruise industry for all Norwegian ports. Nordic Gateway AS is subsidiary of Baltic Gateway AB that operates in Sweden, Denmark, Finland, and Poland.	**Prospective customers:** Software they use now, what are the pros and cons of it, what they want to improve, and what features they want to have. Do they want more automation systems and what they think about what tasks in their work can be automated? What they think about Smart Planner as software solution and their feedback about it?

Table 1.2. Interview guideline

In addition, we also used the quantitative method, in which we sent out a questionnaire to CEOs (15 of the respondents) and business owners (5 of the respondents) from companies that we have interviewed and a few other companies that potentially can be our customers. All respondents were given and asked the same type of questions. The underlying idea behind this was to gain a better understanding of whether they are experiencing problems with their current planning tools, how much time they are also spending, and so on.

We created the survey ourselves, based on what we thought would give us the most comprehensive answer possible. The sample questionnaire in the introductory part characterizes private characteristics of the respondents, such as working position, in which industry they are. 15 of the respondents were CEOs of the companies while 5 of them were owners of the business. 19 respondents were in hospitality industry (4-night clubs, 5- bars and 10- restaurants) while only one was from the tourism (travel agency).

Questionnaire also conducted the question about firm characteristics, how many employees it has, how much the company pays for current scheduling system. 25% of the respondents have a labor bigger then 60 employees, 25% has a team of 41-60 employees, 38% has workforce around 21-40 employees while 12% of respondents has less then 20 employees (Figure 4.). When it comes to the cost of current scheduling system that respondents use, 20% of them use free tool (spreadsheet) so they do not have any cost per month for their scheduling system, 60% of respondents are paying between 31-60 NOK per month per employee, while 20% of respondents paying 61-90 NOK per month per employee.

Moreover, we conducted questions about scheduling tools that companies presently use, how many hours managers/owners spend on doing staff scheduling, and how many days a week they have to log in into it. Most of respondents are using Planday scheduling system- 12 of them, 4 of them are using spreadsheet, while the rest of respondents- 4 of them, has own scheduling system. 55% of the respondents spend between 3 and 6 hours per week doing staff scheduling, 30% of the respondents spend between 7-9 hours a week on it, 5% of respondents spend over 9 hours a week, while 10% of respondents spending less than 3 hours per week. Additionally, 65% of respondents log in to the scheduling system every day, 25% of respondents log in 2-3 days a week and 10% of respondents log in once a week.

We also asked about their satisfaction with current scheduling system, what improvements/ features they would like to have, and would they be willing to upgrade to an automated and intelligent scheduling system? 80% of the respondents answered that they are willing to upgrade to an automated and intelligent scheduling system, while 20% of respondents answered that they will not. Main reason for their disinterest for automated scheduling system was cost. Questionnaire is presented in appendices part as Appendix A.

We sent out 20 questionnaires where the response rate was 100%. We distribute questionnaire by emails (14 of them) and in person (6 of them). For those questionnaires that were sent by emails it took more time to receive the answer than we expected because all the questionnaires were sent to the owners or CEOs of the business, which are quite busy during the day. Therefore, we had to be very patient and be a bit responsive when answering the questionnaire. Those questionnaires that were delivered in a person, we also had a small talk regarding Smart Planner and ide behind it. Respondent time for these questionnaires was way faster unlike those sent by email.

In addition to the primary data, we have also used secondary data. Secondary data is a previously aggregated analysis of other sources and may include data in the form of articles, reviews, or publications published on behalf of an institution (Heaton, 2003). It is the easiest and fastest way to obtain data and can be an effective means of research where primary data collection is too costly. A restriction can be unsystematic or scientific collection. In this thesis, we have based our secondary data on information about the markets, the development and applicational, this type of software in the companies in Norway, Europe, and the US. We have a survey from the website work jam (2016), which describes the market situation across the U.S. The reason for this is to show by using the survey from the website that there is a great need for a planning tool like SP, not only here at Norway but also abroad. We have collected information from the website of companies that we believe are SP competitors, such as Deputy and Planday. Furthermore, we have also used various sources of information and methods, as well as researches of the library's databases and other search engines on the internet to get a basic and good understanding of the markets that SP will operate and whether they are able to succeed. The purpose of this is to finally compare the interview material according to secondary data in order to get best answer to our problem.

Observation

One of the authors of this thesis have been employed in two companies as a coordinator. First, he started in one security company as a coordinator for last 3 years. He was responsible for 40 employees. His main job is to make a schedule for employees, take care of the time management (registration of hours worked, correct hours if shift was shorter/longer, sending final hours for a previous month to the accounting department, etc.)

His second job was in travel agency where he is working last 2 years, as a tour guide coordinator. He was responsible for 50 employees. Main task for this position was scheduling assignments for each guide, in accordance with the needs of the task and the skills of the guide. Additionally, coordinator job requires that all hours need to be registered in the system at the end of the month, which send them to the accounting, along with the number of guests per tour, and other back office tasks.

According to (Kawulich, 2012) there are two types of observation, participant or direct observation. Participant observation implies that he/she while doing observation is as well actively participating in the process. Contrarily to participant observation, direct observation indicate that he/she is focus only on observation without participating in the process. Additionally, (Gibson & Turnock, 2001) state in their work that observation can be overt or covert. By overt they describe observation that is open, and participants are informed that they are being observed and they know the purpose of it. In another hand, by covert they describe observation when participants are not informed that they are being observed, or do not know why they are being observed.

In observation that were done for this research, we can describe it as participant observation, since author of this thesis was directly involved in the working process of firms where he worked. Furthermore, this observation falls under overt observation, since all participant that being observed were aware of the purpose of this observation. Being involved and collecting data by observation, helped to understand how thing are functioning in this type of firms now, how the work is organized now, with existing software and how management and end users dealing with it. Moreover, it gives possibility to interact with end users, which are in this case tour guides and security guards. Interlinkage our software solution idea with possible end users helpes to get feedback from them for current software and what are pros and cons of using it, what features they would like to have, etc.

1.5.3. Triangulation (validity / reliability)

Reliability and validity of information is of major importance for any research. Triangulation involves the use of more than one method to detect weaknesses as well as ensure validity and reliability. The purpose is to reduce potential bias in the analysis of the data. According to Thurmond (2001), triangulation is defined as cross-checking and verification of the data through the use of multiple sources in the research data. As mentioned above, in this study we

have used both qualitative and quantitative data, as well as primary and secondary data sources, which helps to increase the validity and reliability.

1.5.4. Limitations

There are some limitations when it comes to this research design. Although we had some respondents to interview, we still believe that we could have gained even more insight with larger sample size. By this, we mean the inclusion of more participants, i.e. potential customers, end users, as well as participants from businesses other than those we have chosen to focus on to start with. Several rounds of interviewing might also have been helpful. Other things that may also be considered as possible limitations are the fact that SP has not yet been established or tested in the market, which may create uncertainty about the unknown.

Furthermore, the fact that we have chosen to stay in Stavanger, to begin with, and not expand beyond can be considered a limitation, since our goal is not to limited SP only to Stavanger region, rather to expand globally. Other limitations we faced are also limited time to conduct our master thesis, as well as resource constraints limitations. This refers to Stavanger because we are situated here, and chose to interview firms that are situated in same area as us, because we didn't have travel expenses to go to other regions in order to conduct more interviews and explore potential customers. Lastly, because of the pandemic of COVID-19 virus that we faced, we were not able to conduct more data collection as we wanted because of the situation and lock down of the community.

1.6. CONCLUSION

This paper is based as affiliation of technical and market development, within commercialization process. This research is construct of four independent sections, where first part is introduction while three other parts are studies: innovation, market and business plan. All these independent sections are linked in order to answer research question:

"How can digital innovation Smart Planner capture market value?"

There are three sub-questions that are following main research question. Each of the sub-questions are created with regard to technical, market and business plan sections.

The innovation study was conducted in order to see what is the innovation potential and innovation level of Smart Planner software. The analysis using 4Ps of innovation targeting (Francis & Bessant, 2005) indicate that Smart Planner is innovation in both product and process

innovation. Additionally, Smart Planner can be treated as incremental innovation, since it will not change the fundamental changes rather improve and advanced scheduling software solutions. In corporation with potential customers and end users, can reduce the company's risk of fail, or creating a product that no one doesn't want. It also helps product to become more innovative as well ensuring better starting point on the future market. It was discovered during innovation analyses, that including potential customers in early phase of the product development, is strategical important in order to build deep and strong relationship with customers and to make sure that product fulfill customer needs.

The analyses using Lean Startup approach proposed by Ries (2011), shown that Smart Planner with its innovation can fill up the gap between service that existing software's are providing and need that our potential costumers has. The solution that it is proposed in innovation analyses is the build-measure-learn feedback loop. This feedback loop suggests to launch the product with minimum viable product as soon as possible. It can be treated as an experiment, where company will be able to catch up features that does contribute and eliminate ones that does not contribute.

Even though that the Smart Planner is still at the early stage of the project development, innovation analyses shown that for the customer utility, our software will be more efficient in time saving, with integrated back-office solution and artificial intelligence. Currently available data and research results shown lack of innovation of software that are presently on the market, which result as onset of dissatisfaction among respondents.

The market study approach was conducted in order to discover what is market potential for Smart Planner? Market study analyses was influenced by a PESTEL analyses, marketing strategy and competitor analyses. The focus was on our primarily market, which is Rogaland in Norway, with focus on hospitality and tourism field. Analyzing external parts that influence the scheduling software industry, it was found which customer the company should target and which end users. Additionally, analyzing primary and secondary data that were conduct for this research helped to identify main competitors as well as features that their product has to offer. That helped us to focus on product development using lacks of features that our competitors are missing. Furthermore, within market study analyses were done PESTEL analyses. In uncertain and unpredictable world that we live in, push us to do thes analysis in

order to understand external factors that may affect our business, and the way how we can prevent it by making a good strategic decision.

As the last part of this paper, we presented business planning process. This section was conducted in order to discover what is appropriate business model for Smart Planner project. The chapter was structured following an outline given by Osterwalder (2005) as a lean startup template, known as Business Model Canvas. It is important for Smart Planner to utilizes all key resources in order to exploit best of business model canvas since it was very useful tool to map key partners, cost structure and revenue streams. Business Model Canvas was also helpful regarding which channels and key activities utility has value for the customer segments and which value proposition company has to offer.

The introduction section, which come in as foreword of three independent section of this paper, contains methodology and framework, that are presented as a tool for archiving the goals of each chapter. Additionally, in introduction part was presented both, primary and secondary data, which was collected as both approaches, qualitative and quantitative. As last part of introduction section, we mention limitation regarding these theses. As first limitation we mentioned time that we had for writing this thesis and the developing stage of the project, which definitely brought us specific limitations. Additionally, we also faced pandemic of COVID-19 virus which lockdown nearly all community on the planet, which has made it impossible for us to collect bigger amount of data.

As a final word in this conclusion, we would like to mention that the value of Smart Planner software lies in its potential to change the way managers/owners running their businesses. It can improve efficiency of the both sides of the company employees, management and first line employees.

2. INNOVATION STUDY ANALYSIS

To conduct an innovation study, utilizing theories that are presented in theoretical part in previous part we will use a real-life business idea as example. Using such a theory we will analyze what is innovation potential of Smart Planner and how it can help managers/owners of the businesses to improve their efficiency, allowing them to focus on their businesses instead of the scheduling employees, working with payroll, time management, etc. To conduct as thorough and credible analysis as possible we will be using data that we collect during our research, which are collected among our potential customers and some of the partners.

At the first chapter of analysis it will be description of the problem/solution, which will lead us further to the digital innovation, and finding which innovation Smart Planner belongs incremental or radical?

Further examination of this analyses part will use Lean Startup approach mixed with dynamic capabilities, to find potential opportunities for launching our software as soon as possible concerning our potential customer needs along with the protection of intellectual property rights.

2.1. Description of the problem/solution

As a first part of this analyses we will start with description of the problem in the section 3.1. 1. We will describe target problem and solution (section 3.1.2.), how we think that the problem can be solved using Smart Planner with utilization of Lean Startup theory. In section 3.2. we will explain need for digital solution. Further we start analyses answering the first research sub-question which is "What is the innovation potential and innovation level of Smart Planner?". In section 3.3. we discuss Smart Planner solution in light of 4Ps of Innovation, 3.4. Agile and 3.5. Dynamic capabilities.

2.1.1. Description of the real-life problem that Smart Planner is targeting to solve

In a time where we all experiencing faster change with more and more tasks requiring them to be completed as soon as possible we are facing a lot of preoccupying tasks that are requiring from everyone to stay and work longer hours, without possibility to fully focus on each task.

From personal experience which later was confirmed throughout our questionnaires and interviews with potential customers, we face that working 8 hours per day wasn't enough to complete all the task that we had to deal with during the day.

Working as a coordinator for Nordic Gateway and Doorman AS, I face that almost all tasks had to be done manually and that there is no correlation between them nor automation of them. Working in Nordic Gateway, as soon as I was done with schedule of guides, it appears some miscommunication or issue during the tour that require immediate action. Before I was done with it, another problem appears from another customer -cruise ship that arriving tomorrow to the pier, requesting confirmed schedules of guides for their tours, which including to send assignment (tour) for each of the guide and waiting for their confirmation. If some of the guides reject assignment I had to spend additional time finding replacement for him/her. As soon I was done with it, I had to deal with time management, registering tours and hours of each of the tour guide that was completed that day along with the daily report. Next task that was around the corner waiting to be completed was payroll. Our account supplier required to use special software that they are using for registering salaries for each of the guide. Furthermore, after all tours were done I had to register through same software each tour that we provided that day with total amount of the tourists that attend it, to our account suppliers can send invoice to our customers.

Day after day, month after month, the idea was born of how to come up with a solution that would be able to reduce this all daily process to as little manual work as possible by integrating data into a comprehensive automated process.

According to our questionnaires and interviews we conclude that a lot of hospitality businesses and travel agencies are facing same issues (for now we investigate only these two fields, as our starting point). Managers/owners are overcrowded with tasks, for example scheduling employees, which requires a lot of their time and applies that they are not able to focus on another essential assignments for their business. As result we could see that all of them seek and are willing to upgrade their existing scheduling software with automated ones.

Additionally, during our research we could see that at the market are presently a lot of scheduling software that some of our potential customers are using, but with limited

capabilities. That's where we see potential of our software and solution, which will be deeply described in the following sections.

2.1.2. The need for digitalized solution

Digitization challenges the way we live and create ways of problem-solving solutions that were not possible before. The non-human system has taken over previous work that only human was able to do due to the availability of digital online databases. This relates to our software because Smart Planner is a tool that contributes to more efficient planning that helps management minimize resource and use it in areas where it is needed. The smart planner includes new features that many of their opponents do not offer. **They often use different applications to get the same functionality, whereas for SP everything is integrated into the software.** These functions include salary, reporting, and a projected monthly income as well as internal emails, calls, video calls, messenger, iCloud service.

According to the interviews conducted, organizations are working to reduce staff who assume this type of responsibility to save and cut downtime. However, we found that although most people use the digital scheduling tool, they still spend some time arranging the planning. This is due to the complex design of communication between both parties.

2.1.3. Description of the problem solution utilizing Lean Startup theory

Even though (Poppendieck 2007,2003) criticized in their work Lean Startup as an approach that is strongly connected with a software solution, we found it suitable for our Smart Planner solution, since we are belonging into the software development world. Dealing with the unpredictable and rapidly changing environment we will try using the Lean Startup approach to find the best product solution "the customers want and will pay for as quickly as possible" (Ries 2011).

2.1.3.1. *The build-measure-learn feedback loop*

The solution proposed by Ries (2011) is a build-measure-learn feedback loop. An excessive amount of planning makes the procedure fixed and dangerous. Simply doing it will in general transform everything into disorder. We should have the option to rapidly exterminate that doesn't contribute well and narrow down on that which does. Despite that, the direction of the process of the structure is build-measure-learn proficiency with the arranging happens in reverse.

Ries proposes to initially make a hypothesis. We created a hypothesis: "Owners/managers want an automated and intelligent scheduling system, which has a key value - time savings". We added to our questionnaire that was sent to the potential customers to see if their needs are matching with our possible solution. After receiving questionnaires from the managers/owners of the businesses, 75% of them checked that they are willing to upgrade to the automated and intelligent scheduling system if it can save their time by 50% per week (Figure 2.1.). This data analysis gave us a good sign to continue to validate further this hypothesis to accept or reject them.
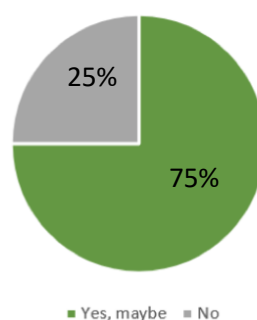
Figure 2.1. Would you be willing to upgrade to an automated and intelligent scheduling system that can save your time by 50% per week?

2.1.3.2. *Everything is a grand experiment and minimum viable product (MVP)*

To be able to gain knowledge about our customer needs and their eagerness to pay for our software, in an as short as possible time, Ries (2011) suggest doing empirically experiment. Additionally, as a key factor for efficient experiments to be done, he states in his work that instead of asking questions potential customers – we should observe their working process. Furthermore, he proposes three different minimum viable products as a video MVP, concierge MVP and the wizard of oz MVP. We will stick to the concierge MVP which implies concentrating on a sole customer.

Considering that we do not have real cli yet, our focus will be on potential ones. As (Ries, 2011) mentioned in his book, one of the core terminologies in Lean vocabulary genchi gembutsu[1] clarifies our perspective of gaining Smart Planner idea. One of the team members of SP working directly with two of our potential customers, gaining the idea of digitalization their back-office processes, and that is why we will use concierge MVP, concentrating on one of them as our alpha customer (Nordic Gateway – travel agency). We investigate further on

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[1] Gench gembutsu – "go and see for yourself" (Ries, 2011)

this idea by having interviews with a general manager from the company that we are seeing as our potential and key customer. From our working background with Nordic Gateway AS, interview with their General manager, and questionnaires that are sent to their Guide Coordinators, we identified that they are using a lot of different applications to keep their back-office administration work. They also show interest on using one software, which can compose all the tasks that they are now doing through many different applications. Advantage, that we presented to them, using our software solution will not be just simplification of their tasks for employees, while having more control and time saving, but as well in financial terms.

As we discover, they are using for vacation registrations and tracking on absence days (sick leave and self-certification absence) software Absence.no. Additionally, they are using Visma for delivering pay slips and time tracking for employees who are not working on a fixed salary. Furthermore, for sending assignments and hiring process they are using Webtemp software. For communication between employees and customers, they are using Microsoft outlook, while for the conference calls and video calls between employees they are using Skype. To schedule employees, they are using their system which is not automated or advanced by using artificial intelligence. On top of that, it requires a lot of time as well, 7-9 hours per week with need to log in every day in their scheduling system, which is one of the highest usages of hours per week for doing schedule among respondents to whom we sent a questionnaire considering them as our potential customers (Figure 2.2. & 2.3.).
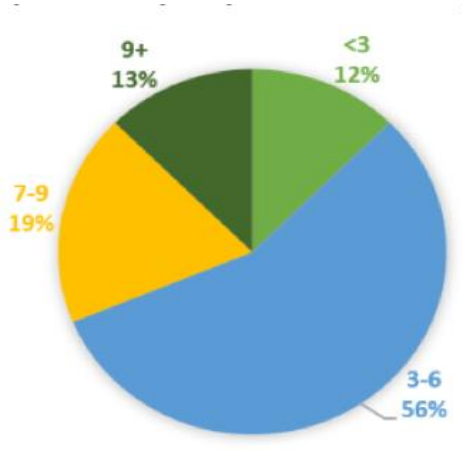
Figure 2.2. How many hours do you spent on scheduling per week?
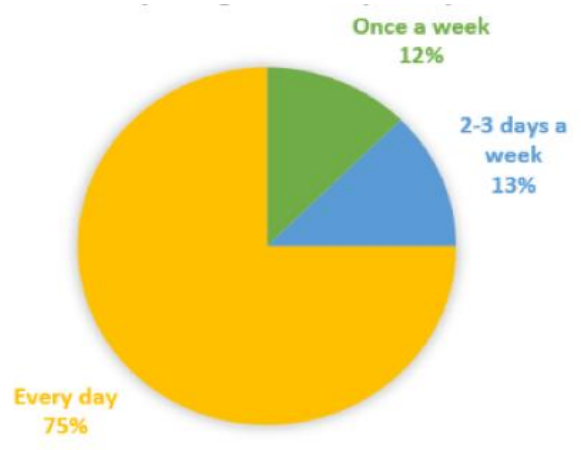
Figure 2.3. How often do you login to system per week?

Furthermore, throughout our questionnaire and answers that we see, it is clear that more than 75% among all of our potential customers are seeking for automated and intelligent scheduling system (Figure 2.4. & 2.5.).
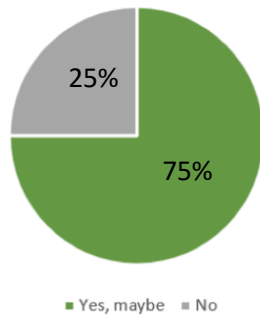
Figure 2.4. Would you upgrade to an automated and intelligent scheduling system that can save your time by 50% per week?
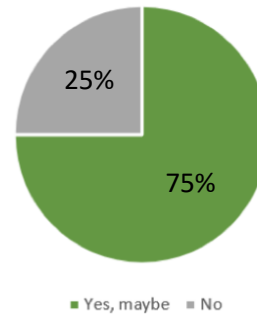
Figure 2.5. Would you recommend the new system to your management?

2.2.   Smart Planner as a solution

Therefore, we decided to create a product that will allow our potential customers to spend more time on another task and our software will take care of scheduling employees with automation of other tasks. It will be notifying employees about their shifts, finding replacement for employees who cannot work their shift, accounting, calculating total amount of hours worked during the month, etc.

Additionally, Smart Planner will have many beneficial features such as an automated connection between them and their accountant. SP of hours one has worked, sick leave, overtime and so on. At the end of each month, all of this information is collected in one excel sheet that is automatically sent to a company's accountant. This thus reduces the risk of misinformation, error payment, and overtime.

Furthermore, Smart Planner allow companies to compliance with the GDPR rule. It is a personal protection regulation adopted by the EU and applies to EU and EEA countries. It is a rule that protects individuals and relies on the consent of individuals for both processing and storing their information to reduce the power of organizations to make profits out of it. Smart Planner ensures privacy by sending a verification code to access personal data. Finally, a chatterbox opens automatically, which complies with GDPR. This is done to avoid a future

lawsuit by an individual at a company because they believe that a breach of personal data security was made.

Moreover, Smart Planner will connect and improve communication between internal departments of our potential customers along with communication with their customers. If we take example of Nordic Gateway (NG) as our potential customer, Smart Planner will connect their customers (cruise ships) with logistic and human resource department (tour manager and coordinator of guides) simultaneously with Nordic Gateway's temporary workers (Tour guides) and Nordic Gateway's suppliers (museums, buss company, fjord cruises, etc.) (Figure 2.6.).
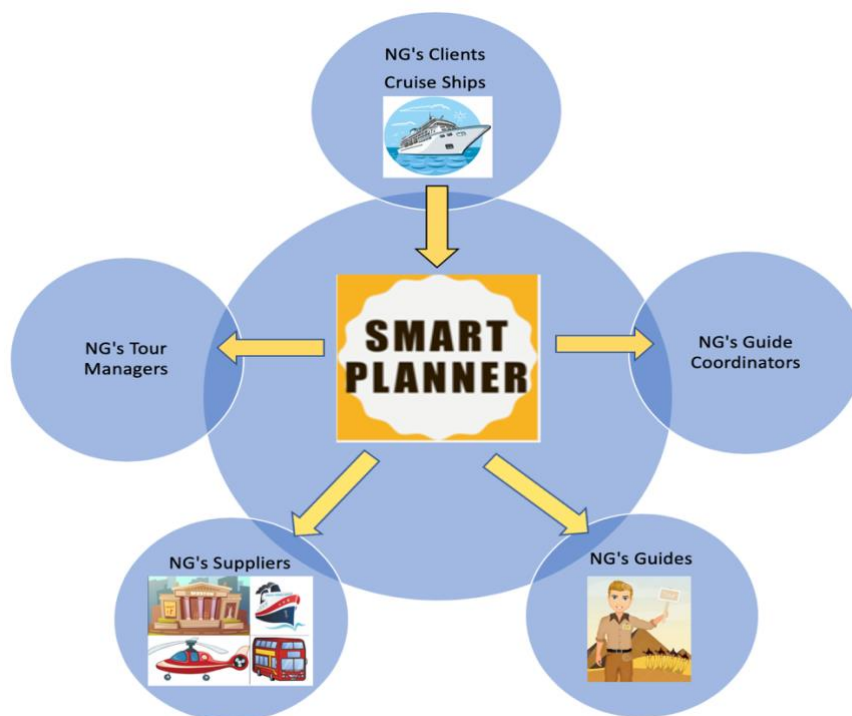
Figure 2.6. Smart Planner as solution with automation of information flow

2.2.1. How Smart Planner works in a context of one particular customer?

All Nordic Gateway's customers will have access to the shore excursion template (Appendix A) where they will be able to put final number of sold tickets per excursion. All cruise ships are aware of max capacity per excursion and transportation that are required for such an excursion. For excursion by helicopter maximum number of tourists that can attend it is 6 at the same time, with allotment of 4 tours per day. For the buss excursions, maximum number of tourists that can attend is 45 per bus, with the allotment of the 6 busses per day. It goes same like that for each of the proposed excursion and allotment. With help of AI system that is

implemented into SP, it will find the mean for each excursion according to how many tickets are sold and create template that will be shared with NG's tour manager and guide coordinator. Cruise lines will be able to add in their template as well special requirements. It can be for example baby seat for some excursion, or if there is need to reserve first raw in the bus for handicap people.

After Smart Planner processed all the info required from the cruise ship and create template (Appendix B) that is shared with Tour manager and Guide coordinator, Smart Planner will forward for each supplier that works with NG number of tourists that are booked per tour and how many busses are need, or how many helicopter tours are booked (Appendix C). Smart Planner will further according to the template and preferences from both sides, company's and guide's, send out assignments to Tour guides as notification for each of the guide and the name of the tour that he will lead (Appendix D). Each of the guide need to confirm or reject assigned assignment. If guide reject assignment, SP will send same assignment to the next available guide.

Each of the guide will have opportunity to fill up their preferences, about date and time when they can work (Figure 2.7. & 2.8.) as well with their preferences about kind of tours that they are capable to do. For example, some tour guides cannot accomplish challenging hike tours, or others have acrophobia and cannot do helicopter tour.

Additionally, for better control of time management (hours that guides worked) and service that guides are providing to their customers, after each tour when they log in to their profile, it will pop up a new window - guide report form (Appendix E). Each guide will have to fill out this form after tour they have done and write hours and info about how tour went. After they complete form, guide coordinator will receive the form and they will have to approve guide hours and see if there were some irregularities.

Figure 2.7. Choosing preference dates of work
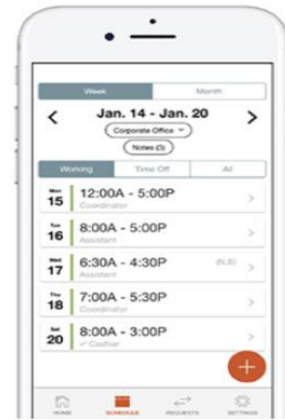
Figure 2.8. Choosing preferences time of work

2.3. Value proposition

Value proposition can be described as a value that our company will delivered to our customers, and it will distinguish Smart Planner with other competitors, and motivation why to choose our software among others. Smart Planner as a software that will bring automation to the businesses will, among other things, contribute to:

o *Improving efficiency and productivity:* Automation contributes up to 50% of increased productivity due to less workload for managers, as well as more efficient use of time when managing employee schedules.

o *Improving staff management:* The automation scheduling system can improve staff management by satisfying the preferences of both management and employees. This means that SP could automatically replace and regulate the schedule in the event of any illnesses or if employees reject shifts instead of waiting for an employee who is not on the platform to handle these requests.

o *Reduce the cost of staff managers:* The automation scheduling system takes over the work of the staff managers, which means that overtime work on the schedule is cut. This will allow a company to focus on other tasks that reduce costs and reduce time.

o *Reduce employee costs:* The automation scheduling system will be able to prevent overtime work that will result in reduced labor costs.

o *Customizable software:* A custom software as a scheduling solution can be design, organized, build, according to customer needs. It will give better control to our customers in a long-term.

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o *Integrated solution:* This is the core element that distinguishes Smart Planner from other scheduling planning tool. The existing programs uses different application to get the same function, whereas in Smart Planner software we have an integrated

2.4. Innovation space

Examining SP in the light of the frameworks, we consider Smart Planner to be a combination of product and process innovation. The reason for this is that with product innovation, existing product or service is put into use and produced into a new quality (Francis & Bessant, 2005). Smart Planner falls into this category with the offer of improved and more efficient software that has features that help cut downtime and cost of users. As mentioned, these properties are based among other things on smart solutions. We thus believe that there have been changes in the product itself so that they differ and are more different and unique than what is already offered in the market. Furthermore, we also believe that SP is a process innovation. The way of doing things different and how we create the product. Concerning SP, as mention there are already several other scheduling and planning companies in the market, however, none of them use artificial intelligence. Hence SP is coming up with a unique, innovative, and efficient in which will make the work easier by using technology. Artificial intelligence (AI) is used to describe when a computer does something that requires human intelligence. This means that it does a job that would have required a human resource, which means that it helps to simplify and minimize human labor in certain areas. Some of the activities in AI include speech recognition, learning, planning, and problem-solving (Techopedia, 2020). SP's ambition is to be a supplier that will provide automation of personnel planning using AI.

Based on the definition of incremental and radical innovation in the theory section, it is clear that Smart Planner is incremental innovation. According to (Tidd & Bessant, 2015), incremental innovation to a greater extent consists of continuous improvements of an existing product or technology. However, it will not change the fundamental dynamics, nor end-user needs, but rather offer something consumers did not know they needed. Furthermore, it is therefore important to emphasize that for incremental innovation to take place, a radical innovation must be the basis for improvements to be made.

By the definition, we believe that SP is an incremental innovation because this idea stems from the desire to offer an improved and advanced automated schedule planning tool. The development is based on the property of the software, i.e. changes to what is already used by

their competitors as well as new features. Furthermore, we believe that SP is an incremental innovation because we believe that there is little uncertainty associated with SP's ability to succeed in the market, although the idea has not yet been used. The reason behind this is due to the enormous opportunity, as well as the interviews that were conducted with our key partners. According to the interview conducted with the CEO of Doorman, he shows interest and commitment to using Smart Planner. Meanwhile, he also points out that he does not disregard being able to run SP as an add-on and run on their existing database and platform, as long as the compatibility of SP is ensured. This is thus further elaborated in the market analysis section. The fact that SP is an improvement of something that already exists can lead to increased user satisfaction concerning its competitors.

Smart Planner will work in two ways, it will either operate as a patch on the system to customers who already have an existing staff scheduling platform. If not, it is also possible for customers who do not have such a platform to either use SP or possibly create their template with the help of our software engineers. The survey from 2016 (Figure 2.9.) from the US suggests challenges that retail managers are facing. The figure points out that managers say that 62% of their employees quit their jobs due to conflict during scheduling, while 70% of managers also spend extra hours handling administrative tasks (work jam, 2016). Although this does not necessarily reflect the reality in Norway, it does point out that there is a great market potential for products or services related to staff management including planning. Similar to the study, Norway also consists of hourly work in industries such as retail, health, and hospitality as well as problems regarding the management of employees.

62% of managers say employees have quit their stores due to scheduling conflicts

89% of retail stores are understaffed each week

63% of managers say that reducing turnover by as little as one associate per month could lift monthly revenues by at least six percent

70% of managers regularly log additional hours to handle administrative tasks

Figure 2.9. US retail store survey 2016. Source: Work Jam (2016)

The figure 2.9. above can serve as an example to support our assertion that SP is incremental innovation where changes have been made to products that already exist, as well as a possibility that the improvements may exceed the value of what already exists. This means that even though SP is not yet in the market, we see based on the survey that there are great demand and necessity of such a tool in the market.

2.5. Agile

The mission for the development involves three phases (Figure 2.10.). The first phase from is to create an alpha version of Smart Planner software, with a mindset to increase the functionality of the staff planning system with our potential alpha customer, in this case it will be Nordic Gateway – travel agency. Something that will then result in the opportunity for cost and time cut when implementing strategy. Those who will participate in the development process include the founder of SP as product developer, CEO of Doorman AS will also be included in the development process as they represent the product's main investor.

For instance, some companies, when they are developing or adapting new product solution for their customers, they include some professionals from the customer's sectors. In our case CEO of Nordic Gateway will be included in product development, representing their need and requirements. To ensure that we will develop the product properly, we will have regularly meetings with NG's CEO during the brainstorming. This is very important for our product development, that we can hear the user voice right there and it will have an impact because they will be able to comment on what they do not understand or what is not convenient for them, what they would like to have in the product. User involvement plays a huge part in the development of the product, unnecessary mistakes, and failures, which applies to Smart Planner at the product development stage.

Additionally, during the development of alpha version of Smart Planner we need to have collaboration with software developer, and that is where the FRIEND AS comes in. Their role will consist of as a software developer and service provider.
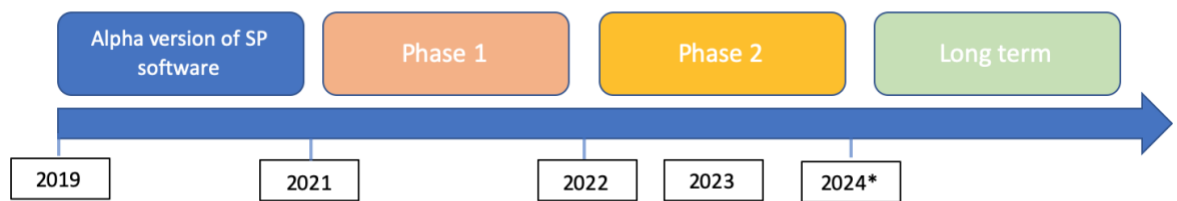
Figure 2.10. Phases of product development[2]

The phase 1 is launching beta version of Smart Planner software, and start expanding in our initial market, which we targeted Rogaland area in Norway. It includes marketing activity, as well as improving our software regarding feedback that we are receiving form our customers. While the phase 2 implies expanding through all cities in Norway and internationally, along with marketing activities. In this phase we will also try to improve beta version of Smart Planner according feedback that we are receiving from our customers.

So far, we have a draft that is being presented to potential customers, and since we do not yet have a software, diversity at the development stage is necessary and advantageous. We have developed the following steps to integrate agile method into our development process:

1. Include people from different sectors (restaurants, nightclubs and travel agency) that we try to attract in the trial phase to avoid future failures. It may mean that more resources than planned can be used, but rather than finding out afterward that it will not work, even though we have a strong belief that it will. Thus, the short-term plan will be to test the alpha version and see its functionality and possibly make changes along the way if needed.

2. Include our partner CEO from Doorman AS, in order to develop our software solution as well to run the company, since we do not have necessary experience in driving company by ourselves.

3. The long-term plan is to get SP out to expand to the sectors such as dental / health care, retail sector, as well as the oil and gas industry and expand outside Stavanger. Resellers are put into use when the time to expand outside Stavanger is in, and the fact that team members are made up of people from different parts of the world provides an opportunity for networking.

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[2] Figure 2.10.- 2024*- a year when we expecting to break the ice and become sustainable.

2.6. Dynamic Capabilities

To create software and launched it as experiment with potential customers, as soon as possible, we will try to apply dynamic capabilities, to transform our existing resource in such a manner to gain competitive advantage (Ambrosini & Bowman, 2009).

Adaptive capabilities:

We want to adopt our product technologically to the existing market. Our strategy is that product needs to be a closed system, which will allow us to adapt easily to other branches and existing technology. This strategy is a result of our observations and interviews/surveys that we performed with potential customers. For example, one of the reasons why we decided to go for such a strategy is that Doorman AS, our key partner and possible customer, has their scheduling system which satisfies their need, but it is not automated with intelligent capabilities, thus requires that everything needs to be done manually. They are more than interested to intergrade Smart Planner into their scheduling system, rather than giving up from their system, since they invest a lot of money in it.

Additionally, our company will tend to adopt to the external changing environment. To fully support this, we agreed with Doorman CEO and Nordic Gateway's General manager along with our software development partner, FRIEND AS, to contribute as our potential customers in the develop stage of the Smart Planner project. As result of this, it led Doorman CEO to gain interest to become partner and investor into Smart Planner. Including our potential customers in this early stage of the product will empower an adaptive capability acquiring knowledge about the demand of our potential customers.

Absorptive capabilities:

Instead of concentrating on only scheduling employee's software solution, which is our core base, we will try to adopt technology from accounting, time management, payroll, HR management, creating software that will automate all these actions without needed of managers/owners to deal with it. Since we will have to deal with a lot of suppliers (accounting agency, manpower agency, etc.) on behalf of our customers in the Smart Planner development process, it is crucial to have possible suggestion of problem solving by some of them, which we can match with our solution and adopt if we found it more propriate. Using this procedure, it will develop our absorptive capabilities. Additionally, Smart Planner will try to expand

search for technology into other industries, having open interaction with another participant in the environment.

2.7. Intellectual Property (IP) rights

In order to company receive full reward of their innovations, with full focus on their research and development, company should to protect their IP rights. IP rights "refers creation of the mind: inventions; literary and artistic works; and symbols, names and images used in commerce." (World Intellectual Property Organization, 2005). By registering their IP rights company is protecting themselves by law which empowering them to get identified, economic or other sort of advantage.

Even though since the software turned out to be patentable in the United States in 1995, it arises generally discussion about its value (Hall & MacGarvie, 2010). Additionally, many researchers' critics that such patents have frequently been of low quality, leading to demoralization instead of empowering innovation (Dreyfuss, 2001) (Meurer, 2002). Taking all of this into consideration researchers' opinion along with the time that it is required to this process be completed (1-2 years, with no grants that at the end it will be patented) and all the money that need to be spend on patent attorney we will proceed without trying to patent our software. Throughout our research we found out that all our competitors have not patent on their software's as well.

Technology in nowadays improve with each day. While we get our software patented, our business could have pivoted, you could have left business, or maybe sell it, worst case scenario yet, our whole patent could be obsolete. Instead of doing patent we will do trademark and put all of our efforts and source in building competitive team, that can create innovation and fast problem solutions, which will protect our software better than a patent. Additionally, even though software and apps are easy to copy, we believe that our experience is our valuable not software. Software is just a tool into which we construct with our experience, belief and knowledge from the specific industry and no one can't copy that. Moreover, if someone is trying to copy our software, while they discover and doing it, we will be couple steps ahead, with deeper connection with our customers and fact that we are making a solution to a problem we know in reverse in forward is superior shield nor any patent.

We search through Norwegian patent and trademark office webpage to see if Smart Planner name is available for name company, domain name and trademark name. It confirmed that

name is accessible and ready for use, what determinant whether a specific activity is infringing already legal intellectual property rights (Appendix E). Thus, search through Norwegian patent and trademark office shown that there is nothing protected by such a name in Norway, therefore the search continued through the Trademark Electronic Search System (TESS) which is connected with United State Patent and Trademark Office. Again, it appears that there is no evidence found that are matching with our name (Appendix F). Both of this searched were done at the 30th of April, 2020.

Besides, the logo in its straightforwardness has no equality as a sign in advance found through a google search, therefore, should be reasonable for trademark executive rights. The casual draft of the logo that is plan by the creator is introduced in the Figure 2.11. Applying for trademark executive rights for the logo in black and white colors will cover all the possible colors.

Figure 2.11. Smart Planner Logo

2.8. PRESENCE AND FUTURE STEPS

There are many competitors that are providing similar service thought their software, but as we could see during our interviews and questionnaires, many of them do not satisfied all needs of their customers, especially in automation process. That is where Smart Planner will try to gain our competitive advantage but as well to make sure that our software is sustainable. In this section we will briefly describe presence and future steps of the Smart Planner, which will be accompanied by the Figure 2.12.

During the 2019 idea about Smart Planner was born and started to be reviewed by one of the researchers of this master thesis as a part of Knowledge based entrepreneurship course, within which a business plan was made. Along with clarification of the scope of the project, meetings

were held with potential investor Doorman AS and our software developer Friend AS, in order to define the possibilities and conditions of further cooperation.

Currently Smart Planner is on the second step in its development stage out of 6 steps. We started in January 2020 with expanding business plan that were made during the Knowledge based entrepreneurship course with focus on commercialization of Smart Planner ide, along with market and customer research. In this stage, our main goal is to apply for different startup funding in order to secure stable liquidity of the company. During this stage of Smart Planner project, we had a support of many academic and business actors who have an immeasurable influence on its development. However, feedback that we received throughout our research from contributors that was involved, was in very positive and encouraging manner. While we are working on research part, our software developer partner Friend AS are in charge of creating an alpha version of our software. Before we move to the next step of this project, as our final goal for this phase of the project is to register Smart Planner as a company in Register of Business Enterprises in Norway by September 2020.

From September 2020, Smart Planner should reach third step of this project, where we will launch alpha version of Smart Planner software in partnership with Friend AS for our Alpha customer. From September 2020 to January 2021 we will test alpha version of the software for bags, speed and general performance of the software. Along with testing of alpha version of the software we will make sure that Smart Planner become visible in online world for beginning through the Social media channels, writing articles for IT journals, having blogs regarding scheduling software topics and digitalization. Furthermore, our focus on this stage of the project will be to also prepare for marketing/promotion activities, which will start aggressively from the next step of this project.

From January 2021, as it is mentioned above, we will start aggressively with promotion activities, since beta version will be launched by this stage. This marketing activities include organizing webinars (online), seminars (during the phase 1, seminars will be maintained only in Rogaland region) where we will present Smart Planner and it's features. Along with marketing activities, we will keep testing software for further improvements. Since beta version will be launched for public use, we expect to start gaining new customers in this stage of the project. One of the crucial tasks during this but also all next phases of this project, will be to create loyal customers through stable and good communication channels. In order to hold our loyal customers happy, we will create extra perks for them, along with great customer service experience.

From January 2021, as it is mentioned above, we will start aggressively with promotion activities, since beta version will be launched by this stage. This marketing activities include organizing webinars (online), seminars (during the phase 1, seminars will be maintained only in Rogaland region) where we will present Smart Planner and it's features. Along with marketing activities, we will keep testing software for further improvements. Since beta version will be launched for public use, we expect to start gaining new customers in this stage of the project. One of the crucial tasks during this but also all next phases of this project, will be to create loyal customers through stable and good communication channels. In order to hold our loyal customers happy, we will create extra perks for them, along with great customer service experience.

After established ourselves in Rogaland market we will start from January 2022 with Smart Planner phase 2. During this phase of the project, we will expand towards another regions in Norway, including presence in the global market. In order to provide best customer experience for our customer we will keep testing our software in the desire for continuous improvement of it. At the same time, we will not neglect our marketing activities in order to keep promoting our software, which we hope will bring us more customers.

During the year 2024, if we meet the set goals in terms of attracting new customers that we set at the beginning of this project, Smart Planner will break the ice and become sustainable. Achieving our main goal, to Smart Planner become sustainable, we must not bypass the basic principles on which it is based Smart Planner project, and that is keep testing our software for further improvements, keeping focus on marketing activities, keeping focus on best customer experience for our customer.

1. Review Startup Idea
- Clarify the scope of the project
- Consider organisational goals for the product and service that we will provide
- Meetings with software developer (Friend AS) and key partner (Doorman AS)
- Create Business Plan

3. Smart Planner launched
- Alpha version of software is launched for a particular customer
- Testing software for bags, speed and performance
- Create an online presence of a Smart Planner (Social media, articles, IT journals, blogs, etc)
- Preparation for marketing /promotion activities

5. Smart Planner - Phase 2
- Expanding towards another cities in Norway
- Expanding globally
- Organising webinars, seminars, with potential customers from new regions, presenting software and it's features
- Keep testing software for further improvements
- Keeping focus on marketing strategy activities
- Keeping focus on creating loyal customers through stable and good communication channels, creating extra perks for them along with great customer service with a tendency to improve to a higher level
- Gaining new customers

2019

JANUARY TO SEPTEMBER 2020

SEPTEMBER TO JANUARY 2021

FROM JANUARY 2021

FROM JANUARY 2022

2024

2. Research & Development
- Expand Business Plan
- Marketing & Customer Research
- Applying for fundings (Valide Inkubator, EU startups, etc.)
- Applying for office through University of Stavanger
- Friends AS developing Alpha version of software
- Registering the company in Norway along with licensing

4. Beta version of Smart Planner and promotion
- Beta version of software is launched for public use
- Organising webinars, seminars, with potential customers, presenting software and it's features
- Focusing on marketing strategy activities
- Keep testing software for further improvements
- Gaining new customers
- Focusing on creating loyal customers through stable and good communication channels, creating extra perks for them along with great customer service

6. Reaching the target
- In 2024 Smart Planner should break the ice point and start to become sustainable
- Keep focus on marketing strategy activities
- Keep testing software for further improvements
- Keep focus on creating loyal customers through stable and good communication channels, creating extra perks for them along with great customer service with a tendency to improve to a higher level
- Gaining new customers

Figure 2.12. Smart Planner project timeline

2.9. CONCLUSION

Through innovation study we conducted research about Smart Planner as a software innovation, which has automation and combining all back-office tasks into one software. Main goal through innovation study were to answer our first research sub-question "What is the innovation potential and innovation level of Smart Planner?".

In order to answer it in proper manner, we fist described the problem that were diagnose by real life example and why digitalized solution is needed. Then we focus to briefly explain how Smart Planner can solve described problem with reference to the value proposition. Utilizing Lean Startup theory proposed by Ries (2011) we will try to hit market as soon as possible with as much as possible reduction of risk by launching our product as experiment focusing on particular customer, which will be allowed us to gain competitor advantage. Further, Smart Planner could be seen as an incremental innovation, utilizing tools that known from before.

Even though that scheduling software field is highly competitive, when it comes to the automation and innovation the offering starts to disappear. Utilizing adaptive capabilities will allow Smart Planner to gain their innovation potential by adopting product to the existing market with contribution of partner and potential customers in development of the software. Utilizing absorptive capabilities Smart Planner will try to adopt technology from different fields along with open interaction with various members in the environment.

During the research question was not to explore only for competitive advantage rather for innovation that can be sustainable. Integrating artificial intelligence will allow Smart Planner to create intelligent and automation software that will lead to simplify and minimize human labor in certain areas, which will lead to the new level of innovation in scheduling software market, fulfilling needs of the customers who seek automation and intelligent scheduling system.

Based on the information that were proceed through the innovation analysis, Smart Planner have huge innovation potential, that will lead to the new level of the innovation in the scheduling software market filling up the gap between customer needs and existing scheduling software solution. Additionally, we can conclude that it is worthy to examine Smart Planner for commercialization.

3. *MARKET STUDY ANALYSIS*

To conduct a comprehensive market study analysis, in which Smart Planner will operate in, we will utilize theories that are presented in the theoretical framework chapter. Using such a theory we will analyze and look for the answer for our second research sub-question "What is the market potential for Smart Planner"?

At the first part of analysis in section 3.1. we will focus on market segmentation and target market. As a sub-chapter 3.1.1. we will analyze customer profile and end user. Additionally, in sub-chapter 3.1.2. we will do competitor analyses.

At the second part of market study analysis in section 3.2. it will utilize PESTEL theory, analyzing macroenvironmental factors based on the Norway environment. Furthermore, we will utilize 4P's of the marketing mix theory in part 3.3. This is due to the desire to have a comprehensive overview of SP's stand for success in the software industry.

3.1. Segmentation and Target Market

Target market refers to potential customers a company wants to sell its products and services and consists of specific customers that a company targets its marketing. An important step for companies in developing the marketing plan is to clearly identify their target market and is often categorized by age, location income, and lifestyle (Kenton, 2019).

To begin with, the plan is to target the sector within restaurants, nightclubs and travel agency around Stavanger, as we believe it is a good starting point for business potential. In total, there are 425 restaurants in Rogaland, including 186 in Stavanger and Sandnes, and 24 nightclubs, with an average of 40-50 employees. When it comes to the travel agencies, there is only three travel agencies that are working exclusively with the cruise ships, but one of them that we are in contact has businesses in all majority ports of Norway (9 ports) and they are present in Sweden, Denmark, Finland, and Poland. At each port where they operate, they have an average of 40-50 employees. In addition to this, the long-term goal is to expand to other sectors such as hospitals, dental clinics, oil, and gas, as well as retail businesses. The reason behind this is because many of the aforementioned sectors have varied working hours and several employees to deal with, where the management of the schedule can be extensive. This can be partly due

to the fact that they either use the manual system, for example, spreadsheets when scheduling or program tools where the functionality is not where it should be.

Market segmentation refers to potential buyers within a group with common needs and desires regarding a product and responding equally. This allows a company to target different categories of consumers. Three criteria are applied when identifying different market segments namely: homogeneity (common needs), skill (unique from other groups), and reaction (equal reaction). The goal is rather the best way to deliver the product than to determine the products that have the best chance. Furthermore, companies can segment markets in several ways. Either geographic (region or region), demographic (age, gender, income), psychographic (social classes), or behavior (use or response) (Tarver, 2019).

Based on the purpose of SP, it is desire to offer simpler solutions for companies in hospitality or tourism sector, which implies that we do not need to use all the different ways to segment. We do not target single individuals but rather companies, and thus, naturally, we have used both the geographical and the demand-based segmentation to differentiate the market segments at different stages. The use of geographical segmentation is aimed at the fact that we want to attract and expand to other geographical areas. For starters, Rogaland, especially our Stavanger primary market, is where this idea originated. Furthermore, after the launch, the plan is to expand to other large cities outside Stavanger, such as Oslo, Bergen, Trondheim, by employing dealers who can negotiate further. As growth takes off, our long-term goal is to be geographically unlimited and spread internationally, as we have the capacity to do so. And finally, we believe that demand-based segmentation is because we believe that SP's potential customers will benefit equally from the service and prefer the same quality. That is, their desire and needs are the same in that the purpose is based on the desire for a simpler solution.

3.1.1. Customer profile and end-user

Customer analysis, also called customer profile, is a critical part of the company's marketing plan. It points out a company's target customers, their needs, and how it satisfies them. The analysis is divided into two parts, namely the behavioral profile and the demographic profile. It is a tool that is used to understand current and potential customers, gather information on customers' buying preferences, and meet needs.

	Phase 1 (from 2020-2022)	Phase 2 (from 2022 to 2024)	Long term (from 2024)
Product	Employee scheduling software with AI for business (Alpha/Beta version)	Employee scheduling software with AI for business (Beta/Gama version)	Employee scheduling software with AI for business (Beta/Gama version)
Target Customer	Business owners of restaurants, nightclubs and travel agencies in Rogaland area, Norway	Business owners of restaurants, nightclubs and travel agencies in major cities in Norway and globally	Business owners of dentists, oil and gas companies, retail stores, etc. in Norway and globally
End User	-Managers/owners of restaurants, nightclubs and travel agencies -Employees working with other tasks (front-line employees - guides, waiters, security guards, bartenders, etc.)	-Managers/owners of restaurants, nightclubs and travel agencies -Employees working with other tasks (front-line employees - guides, waiters, security guards, bartenders, etc.)	-Managers of retail stores, oil and gas companies, dental clinics -Employees working with other tasks (front-line employees - cashier, sales workers, offshore personnel). In dental clinics case instead of employees it will be patients

Table 3.1.: Target customers and end-users: source: Knowledge-based entrepreneurship

The table above (3.1.) illustrates products that SP will offer to the different target customer and end-users' group in different phases within the development of the software.

3.1.2. Stakeholder/participant analysis

Below we have elaborated people who are influenced by or may influence the development of the firm. As mentioned, our main investor consists of a security service provider offering services to over 20 restaurants and nightclubs in Stavanger. This partnership will allow us to access SP potential customers. The goal is to familiarize ourselves with potential customers through our partners using the activity series. It involves offering to start seminars, free workshops by later introducing SP as a possible and useful solution for them.

Below we have considered important factors that we believe are essential for the product development of SP. These factors have different roles but the same message and critical for SP

markets planning. They identify and account for SP audiences using factors such as recommenders, end-users, and influencers.

- o Influencers

The second factor is influencers, and we consider them to be the most important. they help spread the word to potential customers. An example of such players is our partners, FRIEND OS and Doorman As. their collaboration may open up new opportunities and possibly propose SP to their customers.

- o End-users

End-users in our case as shown in Table 3 we refer to employees of restaurants and nightclubs in Norway in the first place. We consider them to be one of the most important in product development because they are the direct users and who will eventually use SP.

- o Recommenders

The last factor is recommenders and even though they do not have the same power as influencers we still consider it an important factor to relate to. One never knows who one is attracting and one can open to a new and possibly better audience. An example of recommendation includes the use of word-of-mouth (WOM) which we consider to be a key recommendation way. there is an opportunity for this especially in starting with the fact that our potential customers are geographically close to each other. in this way SP is promoted between them.

3.2. Competitor Analyses

According to the data collected, we have identified one direct competitor in this region to focus on. Planday is the most prevalent scheduling software used in this region, where 60% of respondents confirmed that they are using it as their scheduling software (Figure 3.1.).
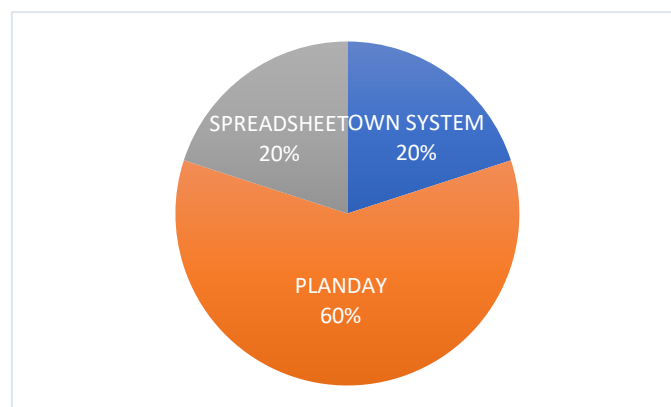
Figure 3.1. What kind of scheduling system are you using now?

Originated from Denmark and having offices in six countries, Planday has a good reputation in this region. However, we have also identified the missing features and some problems from using their software, like the lack of automation, complicated steps and some error-prone design (Figure 3.2.). We are specifically developing our Smart Planner to solve existing problems and add more beneficial features with advanced AI technology.
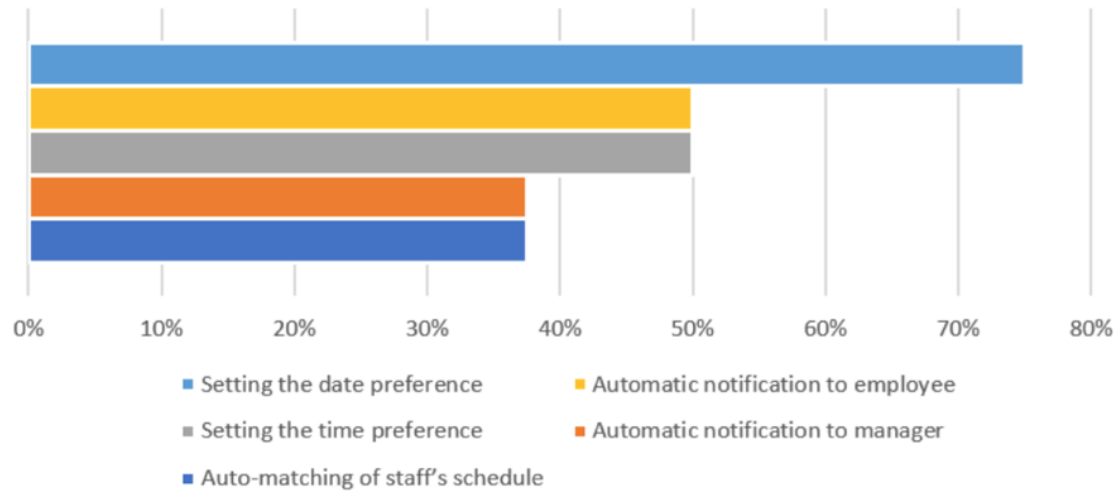
Figure 3.2. What features does your current scheduling system have?

We have also included the other potential competitors - Deputy, who is a strong competitor of Planday in many other countries, but not yet in Stavanger or Norway. Moving forward, as our business expands to a wider market of team/project management & individual use, we will meet other players like Monday.com, Asana and perhaps more who are specialized developers in those areas. We focus on our direct competitor Planday in this business plan, with others included as the benchmark. Table 3.2. shows the general info of competitors of Phase 1 & 2.

Competitor	Headquarter	Founded	Product/ Service	Target customer	Language	Reference
Phase 1 & 2						
Planday	Copenhagen, Denmark	2004	Scheduling, time tracking software	Enterprises	Interface in English, with 8 languages support	Worldwide (Number TBA)
DEPUTY	Atlanta, USA & Sydney, Australia	2008 (official launch)	Scheduling, time tracking software	Enterprises	Interface in English, with 8 languages support	165,000+ workplaces worldwide

Table 3.2. Smart Planner competitors – Phase 1 & 2

In comparison of product offerings among Smart Planner, Planday and Deputy, on a scale of 1 to 10. Smart Planner has advantages in ease of use, product features, price and language

support. We are around the same as competitors in areas of security, compatibility and availability. Customer service is important to a start-up company. We will collaborate with our developer FRIEND OS to provide 24/7 customer services, like chatbot, hotlines and online technical support, to overcome our manpower constraints and provide comprehensive customer support as competitors do. We don't have the portfolio of customers yet, but it's common for a start-up company and the situation shall be different as we grow.
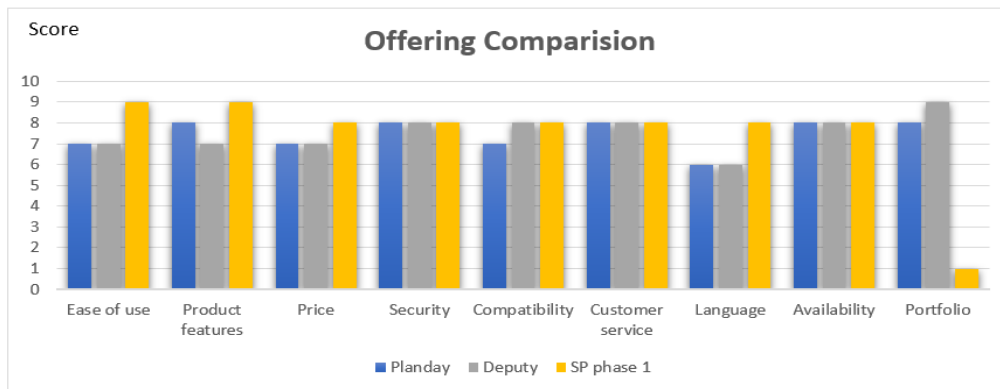
Figure 3.3. Offering comparison

Figure 3.3. is the detailed product comparison among Smart Planner, Planday and Deputy. All players offer both a standard version and a premium version of their scheduling software. The premium version, with a higher price, has more features e.g. payroll, reporting, and document storage. Smart Planner has its advantages from the AI embedded technology, which provides enhanced features like preference setting and auto-scheduling.

We offer a 14-day free trial with actual product features, to help users gain real experiences. This is different from competitors' practices. They claim to have 30-day free trials, but what they actually offer is simply a game-type demo with limited features. Users can't gain the same experiences or understanding from the trials. Prices of Smart Planner (standard and premium) seem higher but it comes without any additional charges, which both Planday and Deputy have.

Features	SP Phase 1	Planday	Deputy
Open Application Programming Interface (API)	√	√	√
Auto-scheduling	√	-	√
AI technology	√	-	-
Schedule template	√	√	√
Time off request	√	-	-
Preference setting	√	-	-
Integrated employee communication	√	√	√
Shift swaps	√	√	√
Bid and approval	√	√	√
Time clock/attendance	√	√	√
Payroll export*	√	√	√
Cost tracking*	√	√	√
Document storage*	√	√	-
Reporting*	√	√	√
Multi-language support	√	√	√
24/7 customer support	√	√	√
Free trial	√ (14-day real experiences)	√ (30-day demo)	√ (30-day demo)
Price (per user license/month)	Premium: 70 NOK Standard: 50 NOK	40 NOK	Premium: U$4 Standard: U$2.5
Min. number of users	-	√	-
Additional set-up or monthly service fee	-	√	-

* only available with the premium version

Table 3.3. Product comparison with competitors

3.3. Market Strategy

As Kotler (2010) state in his work, determine market strategy is one of the crucial moves for the company in order to achieve utilization of its resources, ensuring that their potential customer receive sales message. In this subchapter we will explain our market entry strategy that will be covered through marketing mix strategy. In addition, we will present our marketing strategy.

3.3.1. Marketing mix – 4P strategy

 The market mix strategy will be executed through 4Ps analysis, which stand for product, price, promotion and place. First, we will start with introduction of product.

3.3.1.1.   Product

As we could see through analyses data that were collected for this research, customer has a need for automated and intelligent scheduling software. *The product* can be defined as a scheduling software that will help out managers/owners to have automated and smart

scheduling system for employees. Along with it, our software will have integrated solution for back office tasks, such as time management, pay roll, accounting, etc., which will differentiate our product from competition. It will also help our customers to cut down time that they are spending now for scheduling staff and other back office tasks, since all of it they are doing now manually. Our smart software will be utilized artificial intelligent in order to all work that managers/owners had to do manually, transform into digitalized work that will be done by our software. The name of our product is Smart Planner.

3.3.1.2. *Place*

Considering the fact that both, founder and co-founder of the Smart Planner, as well as key partners Doorman AS and Friend, all are located in Stavanger- Norway, company should be located in Stavanger as well. This will also give us great starting point because of the network that founder and key partners have in local community. Our market strategy will focus on building additional value in the local community, along with expanding into other parts of Norway as well going globally respectively.

Then again, taking into consideration how much and fast software industry spread out to entire globe, we cannot restrict here Smart Planner to one city or one country, rather to the globally online community. Online community is additionally the most available spot, and hence best "place" to make attention and prominence of the Smart Planner.

3.3.1.3. *Price*

Even though it is still early stage of development, we have clear structure of the price. Smart Planner is subscription-based service, which comes with a monthly fee. Each employee is considered as a user, i.e. license holder. We will try to be into industry average price based on competitor data that were collected during this research. As it is shown in data that we collect though questionnaires, majority of respondents (60% of them) are paying between 31 and 60 NOK per employee. Smart Planner will come with two different monthly subscription, standard and premium. Standard will cost 50 NOK per employee while premium will cost 70 NOK per employee (both prices are before tax). Comparing with the competitors, Smart Planner will not have additional cost like our main competitor Planday does. They charge for set-up fee between 7500 and 15000 NOK, depending on number of users, while our set-up is free. Additionally, Planday has monthly service fee which is 500 NOK fixed, while we have free service fee.

3.3.1.4. *Promotion*

During the promotion of the Smart Planner software, we will use different channels of promotion. First and mainly focus will be on word-of-mouth. As we conclude throughout our interviews with potential customer, most of them became users of Planday by word-of-mouth marketing. It gave us a signal that we have to keep strong focus for local community for this type of promotions. We will also have events (both physical conferences and online seminars/webinars) where we will promote our Smart Planner solution to interesting and potential customers. Additionally, at these events we will also offer 14 days free trial version for all new and potential customer, so they will have opportunity to get familiar with our software, along with building trust in our software.

We will also conduct pay per click and google ads. This promotion is known for instant results, where we will advertise keywords. When someone type these keywords, our adds will appear as result of their search. We will have to pay for each click, when someone check our promotion ads to the search engines. We consider to do this way of promotion, since many managers/owners are using social media for their business, so it will be easy for us to target and reach them. Even though this promotion is more proper for business to customer promotion, we think that it will works in our case as well, even though we are focus on business to business promotion.

Another way of promotion that we will conduct for Smart Planner is participating in online forums where we will try to get involved in discussions about scheduling software and software features. So online software community can become aware of our software. Furthermore, we will strive to open a blog about scheduling software system, where we can present our software solution, features that it has, benefits of Smart Planner use. Along with the blog we will participate in software journals, writing articles with appropriate information about our software.

3.3.2. Marketing Strategy

Marketing Strategy is extensive plan whose define which marketing targets company wants to achieve. There are different types of marketing strategy. We will in this subchapter present marketing strategy that we think will help us to target and attract prearranged aims. (HubSpot, 2018) discovered in their survey that 77% of the people before deciding to join particular brand do a proper research of that brand, that's why we have to have clear and structural marketing

strategy. Meaning that our strategy should focus on trying to go personal in order to connect with our potential customers, explaining our story in which our customers can identify themselves with our company. Additionally, we should to briefly explain where our uniqueness coming from and what is that that differentiate us from our competitors.

Relationship marketing strategy is also crucial for our marketing strategy. Applying such a strategy we want to keep focus on our customer building strong relationship with them. This way we will deepen our connection with our customer and future develop customer loyalty. This marketing strategy towards existing customers allowing us to use those customers that we have strong relationship as referral and references.

This marketing strategy became even more important because we want to have strong word-of-mouth marketing strategy as well. HubSpot Research discovered in their research analyses that buyers rely on word of mouth referral by 55% and customer references by 46% when making purchase decisions for business software (An, 2018). That's why existing satisfied customer can serve as our best sales persons and our ambassadors, having huge impact on another potential customer.

3.4. PESTLE Analysis

Everyday our market changes continuously where new developments are made, and among them there are things that we can control and things that are far beyond our control. To understand the external factors that may have an impact on the industry in which you operate, it is important to understand what it means. This framework helps companies to make a good strategic decision by understanding the changes that occurs around you.

Political factor:

An example of the political factor is political stability (or lack thereof) in Norway. It refers to changes in government, political unrest, or violence in society. While this is not the case, we believe it is an important factor to consider. As shown in the table above, we also see that the threat rate for this is very low. It can thus be the case and challenge if we develop into a country with a lot of political instability. Another factor that we think is important to note is the level of bureaucracy and corruption, especially in developing countries. These are challenges we can face in particular phase two. we believe that in order to reduce and possibly avoid the above political risks for SP we should, for example:

1. Ensure the business to avoid political risks. this applies to the development of SP outside Norway.

2. Find local (trustworthy) partners to work with. this is about getting to know the environment one operates in.

Legal factor:

The legal factors that we think are important to be aware of and which can expose risks to SP are the labor protection law. For us who in the first phase relates to Norway, this presents a negative risk. Among other things, we have LO in Norway. Their work is to create a safe and fair working life and to contribute to a society where everyone has equal opportunity, education, and other welfare services (LO, 2020). This indicates good regulation in Norway. As the table shows, there is no threat rate regarding the Employment Protection Act. While expanding into the second phase, this may present some challenges as other countries are unlikely to have a strong regulation on labor protection. The threat rate of the second phase will be approximately in the middle depending on how tightly regulated the labor protection law is. The GDPR factor is an important factor to be aware of as it is an important and new regulation that came into force in 2018. The purpose is to secure personal information, rights for individuals (Government 2018). The threat rate here is at its highest (applies to both phases 1 and 2) as the law is new again as companies continue to adopt this law.

To avoid risk and avoid a breach of personal information, the option is for us to:

1. Ensure that all personal data is permanently deleted from the program after 2-4 weeks

Economic factor:

Under the economic factor, we mean to consider the global economic crisis. An example of this is the corona pandemic that particularly hit the hospitality and travel agency sector. This resulted in the termination and leave of employees at home and globally. It also led to uncertainty as to whether there will be the same demand for services (for now at least) in these industries. The threat rate for this is thus, as shown, high in both phases 1 and 2, depending on how the situation will develop. For example, if the industries never recover, the question is what kind of impact it will have on our business.

To our advantage, SP will cut a company's workforce, which will be necessary for companies due to the pandemic and gain competitive advantage. In other words, we will use their risk to our advantage. another way to deal with this factor, to avoid danger, is first and foremost:

1. Be aware of changes (especially in the government) and other changes that may affect us

2. Constant tracking of expenses

Socio-cultural factor:

In order to form a comprehensive picture within this factor, we have focused on two factors that we believe are important to consider when expanding at home and abroad. the first factor is purchasing habits for a country's market, and is a factor one should become familiar with and applies especially when attracting to a market that is unfamiliar with it (i.e. phase 2). One way to prevent the occurrence of risk is to hire local marketing agencies and also apply to SP. This is because we now have knowledge and experience in the sector we want to operate in Norway, but this is not the case, for example, in the second phase. The threat rate for purchasing habits is thus low in Norway. However, we have concluded that the severity and probability of this factor are high and may result in a high threat rate. This is because even though the threat is not high, it is still important to keep acquainted with the buying habits, as changes may occur along the way. When it comes to other countries, however, it is to our advantage to understand the market in which we operate and whether they are familiar with digitalization. The second factor is education, by which we refer to the level of education of a country. It has a lot to say about digitalization. The threat rate for this is high as shown in the table and is because again if we do not familiarize ourselves with a country's situation, it can adversely affect us. Alternatives to how SP can avoid such risks include:

1. Local agents: they act as a critical link especially between two cultures. This is something we understand and attach great importance to. They can occur in many forms, either as a single person or a company, depending on what you are looking for.

2. Leadership: Have a great role in the organization, and fully understand their own and partners' goals.

Technological factor:

One specific threat to the technological factor is digitalization and can hit us very hard. The reason for this is the technological innovation or the fact that our current competitors are updating the program by adding AI (which is the biggest difference between us) thus absorbing the idea and improving it. The threat rate for this factor is highest because if we do not consider the conditions mentioned below, this could negatively affect the SP. It is thus important for us to overcome this risk, and to avoid this we must first and foremost:

1. Get into the market as soon as possible

2. Create loyal customers (by providing benefits, the most efficient customer service possible).

Environmental factor:

Under this factor, we have put pandemic and similar factors. This is primarily due to the situation that we are in regarding the corona pandemic. This led to closed restaurants and travel restrictions. The biggest risk is that something similar may emerge in the future and if at all it will be worse than now. The threat rate for this factor is thus very high as shown in the table, and applies to both the first and second phases of the development of SP. It goes without saying that if the situation does not improve and that something similar occurs, it will go hard for us. It is very difficult to predict such incidents, but one way of avoiding such risks, especially for us, includes:

1. Switch to other sectors if similar pandemics occur again. The plan is to enter the market as soon as possible, and such a resurrection can prevent it. Then we must consider whether it is "smart" to target selected sectors.

Factors	Specific threats	Severity (1=Low, 10=High)	Probability of Occurrence (0 to 1)	Threat Rating (Severity x Probability, Max=10)
Political factors	Political stability (phase 1)	1	0	0
Legal factors	Labour protection law (phase 1)	5	0	0
	Labour protection law (phase 2)	5	1	5
	GDPR (phase 1 & 2)	10	1	10
Economic factors	Global economic crisis (phase 1 & 2)	10	1	10
Socio-cultural factors	Buying habits (phase 1)	6	0	0
	Buying habits (phase 2)	8	1	8
	Education level (phase 2)	9	1	9
Technological factors	Digitalization (phase 1 & 2)	10	1	10
Environmental factors	Pandemic (phase 1 & 2)	10	1	10

Table 3.5. Overview of factors that carry risks

Table above (3.5.) shows a comprehensive overview of the various factors and their significance for SP's success in the market. In the table, we have addressed specific threats that come with the various factors. In concluding how large the threat rate is, we have used a severity ratio between (1-10) where 10 is the highest and one is the lowest. Furthermore, we have used a probability between (0-1) where 0 describes that there is no probability, while 1 describes that there is probability. And finally, to find that threat rate, we multiply the severity with the probability. From the table, we have thus concluded that the only factor with the least possible threat rate is the political factor (phase 1). This is due to the stable conditions in Norway and that there is a great deal that is needed for this factor to have a serious effect on us. While the factors with the highest threat rate both in (phases 1 and 2) are environment, technology, and a specific threat (GDPR) in the legal factor. Finally, some specific threats in the legal factor, as well as the socio-cultural factor, have a medium threat rate.

3.5. Conclusion

Through market study analyses we conducted research to understand the market that Smart Planner will entry and operate in. Main goal through innovation study were to answer our second research sub-question "What is the market potential for Smart Planner?".

To gain best possible answer to second research sub-question, we presented segmentation and target market for Smart Planner. We chose for our primary target market Rogaland area in Norway, targeting hospitality and tourism industry as our focal point in Phase 1. Additionally, we choose this market as our starting point because it has most favorable conditions for us regarding networking and developing stage of the project.

Through our research we collected primary and secondary data that helped us to do identify our main competitors in this phase of the project and to do their analyses. We concluded that there is one big player whose software is used by more than 60 percent of our respondents. Moreover, analyzing collected data from our potential customers we identified that there is a lack of automation in software's that our potential customers are using now, a deficiency that creates dissatisfaction among our questionnaire respondents. Furthermore, we did product comparison with our main competitors to find out which features can be presented as our strength relative to our major competitors.

Even though there are some big players in scheduling software field, based on our market study analyses, we can conclude that there is a need for a new innovative player on the market, which

will follow the trends of the 21st century and develop as automation as possible scheduling system that will have integrated artificial intelligence in it. Additionally, as support of this statement we rely on our data analyses, where 75 percent of respondents answered in the affirmative to the transition to automated scheduling software.

Company's marketing strategy can be implemented by diversity ways. For Smart Planner, it is important to create a more efficiency way of own resource usage, attracting companies, owners of the businesses, which will lead to the positive company economic change, time savings for all participants and at the end, satisfied employees.

Market study analyses is utilized for advance comprehension of potential customer needs, values and more applicable product development.

4. BUSINESS PLANN SUMMARY

4.1. Business Idea

Smart Planner is a newly developed company, that aims to provide effective and efficient scheduling software for companies, employees through the help of Artificial Intelligence (AI). The software is also time and cost saving.

4.2. Vision

"*Smart Planner – better use of own resource*"

4.3. Mission

Smart Planner has the ambition to save time for managers working on a schedule for employees and save money for firms.

4.4. Organization and company information

4.4.1. *S*mart Planner team

Dusan Zlatkovic: Founder

Bachelor's degree from Belgrade Business school in Finance, Economy, and Management.
Studying MSc Business Administration at the University of Stavanger - major Strategy and management. Along with studies, presently working as a coordinator at Nordic Gateway AS and Dorman AS.

Samira Muhidin Ali: Co-founder

Bachelor´s degree from BI Business school in Business Administration. Currently studying MSc Business Administration at the University of Stavanger, with a specialization in Strategy and Management.
Previous work experience: Telemarketer

4.4.2. Potential investors and partners

Doorman AS: Key partner and main investor

Doorman AS, a security company that has been presented more than 10 years at the Rogaland hospitality market, will be the main network connection for Smart Planner along as the main investor. They see a need for Smart Planner for their scheduling system as well. Having more than 30 restaurants and clubs under their portfolio will be a great start for SP company and the first steps of making contacts with potential customers.

FRIEND OS: Partner and software developer

FRIEND OS is a service provider and software developer for Doorman AS. Key partner Doorman AS connected SP with FRIEND OS. We had a couple of meetings where agreement is made. FRIEND OS will be our partner, providing software developing technology along as a service provider.

4.4.3. Board of Directors and ownership

Additionally, the structure of equity will be shared respectively among the partners, 20% per each partner. CEO of Doorman AS will also help in running the company at the beginning since we still

Product developer and CEO: 30% Dusan Zlatkovic
Co-founder-Administration and marketing manager: 30% Samira Ali
Partner and main investor: 20% Doorman As
Partner and software developer: 20% FRIEND OS

see a need for additional help in this role as there is a lack of experience.

4.5. Market Segment

We are not segmenting ourselves towards single individuals but rather companies that have the needs and demand for what SP will offer. We will thus make use of geographical and demand-based segmentation methods. the purpose of this is to differentiate the market segments at different stages. To begin with, we will thus be targeting the Rogaland area in Norway, with a focus on Stavanger and Sandnes cities, since the idea originated from here. The plan is thus to develop us into other large cities in Norway and globally in phase 2. Furthermore, our target market choices are restaurants and nightclubs along with travel agencies around Rogaland. We will, therefore, focus on the following primary market in Norway in the first place:

1. Restaurants and nightclubs
2. Travel agency

4.6. Market Evaluation

4.6.1. *Market Trend*

In the past, many companies, especially small ones who couldn't afford expensive software, used manual scheduling tools like Google Docs, Microsoft Excel, or paper and pencil. Big companies were pioneers who started to adopt some scheduling software, to change the massive and inefficient work from using old methods. The implementation of digital scheduling software has increased over the years and this has slowly replaced the conventional

approach. Not only big companies but also many small and medium-sized businesses are using some digital scheduling tools nowadays.

Due to a lack of validity and difficulty finding and provided information about the Norwegian scheduling software market trend we will provide some info from the US market. We believe that this trend is relative to the Norwegian market as well since the US is one of the pioneer markets for many technology products and the home of most software developers. According to the 2019 review published by PC Magazine, workforce scheduling software adoption jumped 40% from 2014 to 2015 in the U.S. It's expected that this trend will continue with the growth of digital technologies, in the U.S. and other developed countries (Martinez & Rafter, 2019).

Additionally, (Gaul, 2019) in his report anticipates due to the huge adoption of digitalization in the world, that appointment scheduling software market trend will continue to increase by 2026 more than 2.5 times for web-based usage, and 2.6 times of mobile app consumption (Figure 4.1).

GLOBAL APPOINTMENT SCHEDULING SOFTWARE MARKET BY TYPE
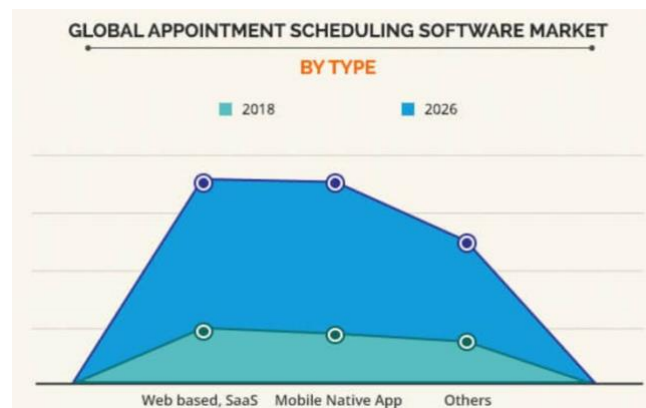
Figure 4.1. Global appointment scheduling software market trend from 2018-2026 (Gaul, 2019)

4.6.2. Market Size

We will focus here only on the Rogaland area since it is our starting market point during phase 1. In total, there are 435 restaurants in Rogaland, of which 186 are located in the Stavanger and Sandnes area, with 24 nightclubs. According to the data that we collected during this research we concluded that the average number of employees per restaurant/bar is around 40. Furthermore, when it comes to travel agencies, our main focus is on travel agencies that work exclusively with the cruise line. The selection of the latter is not many and consists of only 3 in Rogaland, but they have businesses through all Norwegian ports. This is a very positive side, meaning if we attract them here in the Rogaland area to become our customers, it will naturally come that we will expand our business with them through all Norway. Regarding the number of employees that travel agencies have, analyzing data that we collected during this research,

they as well have around 40 guides on average hired per agency and by each city/port that they operate in. For now, they operate in 9 cities/ports. We can conclude that for phase 1 our market size in the Rogaland area is 3 travel agencies, with 40 people of average, is 120 users/licenses sold for our software. Additionally, for phase 2 these agencies on average operate in 9 different ports/cities in Norway, which means that the number of 120 potential users from phase 1 will multiple by 9 just in Norway. Furthermore, these agencies operate in Denmark, Sweden, Finland, Island, and Poland, which will, even more, increased the number of potential users/licenses sold for Smart Planner software. We cannot provide an exact number for these other countries since we did not collect data out of the Norway region.

4.6.3. Market Growth

Due to the lack of qualitative data for Norway regarding scheduling software market, we will provide some general data about software market growth in Norway, and some global data regarding this category.

(Striapunina, 2019) provides in her work data for software market revenue in Norway from 2016 to 2021, where she is stating that the turnover rate in Norway 2018 was USD 2.214,5 Million. By 2021 she is predicting that turnover rate will reach approximately USD 2.483,0 Million (Figure 4.2.). It is important to
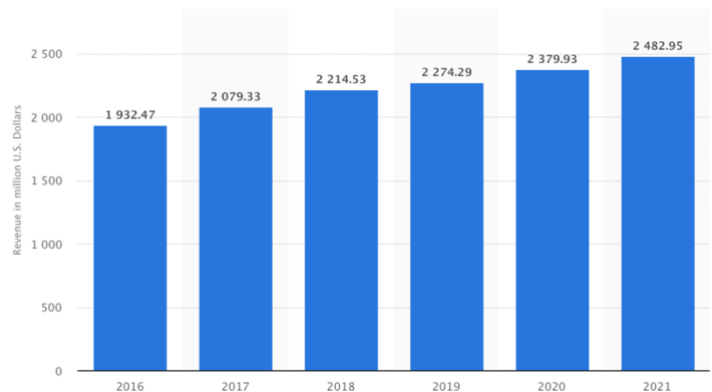
Figure 4.2. Software market revenue in Norway from2016 to 2021 (Striapunina, 2019)

mention that in this report of software market revenue is included all kinds of software, not just scheduling software market. Additionally, according to (Global Scheduling Software Market, 2019) they are presenting in their report that in 2018 the value of global scheduling software market was USD 199.67 Million. By 2026 they predict that it will reach USD 518.91 Million, with compound annual growth rate from 2019 to 2026 of 12.70 %.

4.6.4. Market research: Purchase intention and interest

Smart Planner is actively in contact with potential customers and stakeholders to gain a solid understanding of market demand. According to our data analyses that we collect during our

research, we can see that 75 percent of our 20 respondents have the intention to move to advance automated scheduling system. They also have shown interest and intention to upgrade the scheduling systems that they are using now, with automated software that can save more than 50 percent of the time that they are spending on scheduling employees. We found the same trend by interviewing different CEO's of the companies that we value as our potential customers, and below we would like to present some of these quotes:

Nordic Gateway CEO:" If you make it work, Smart Planner can make revolution among travel agency and the way we were doing scheduling job so far".

Doorman CEO: "This is an extremely interesting idea, which has huge potential in the hospitality industry".

Alf & Werners CEO: "Finally some software with which we can replace Planday potentially since I am tired of doing things manually".

4.7. Competitors

The competitors are based on other software that is used both globally and in Norway and which are designed to solve the same problems as Smart Planner. We have defined a direct competitor namely Planday in phase 1 as our main focus is in Rogaland. Additionally, we have also identified Deputy as our global competitor in phase 2 (Figure 4.1.).

Competitor	Headquarter	Founded	Product/ Service	Target customer	Language	Reference
Phase 1 & 2						
Planday	Copenhagen, Denmark	2004	Scheduling, time tracking software	Enterprises	Interface in English, with 8 languages support	Worldwide (Number TBA)
DEPUTY	Atlanta, USA & Sydney, Australia	2008 (official launch)	Scheduling, time tracking software	Enterprises	Interface in English, with 8 languages support	165,000+ workplaces worldwide

Table 4.1. Competitor's analysis ((Planday.com, 2020) & (Deputy.com, 2020)

According to Owler[3], an American specialized website for tracking data about worldwide companies, Deputy has 160 employees, while Planday has 177. Deputy has 160 million $ in total funding, with revenue of 25.2 million $, while Planday has 58.5 million $ in total funding, with revenue of 9.6 million $. Furthermore, there are 7 small players, who are generally small-scaled in terms of company size and product range, focusing on certain specific needs or

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[3] https://www.owler.com/company/planday

customer groups. They are not included at the competitor analysis table since they are not relevant as our direct competitors at this phase. They have no intension to come into the Norway market, and it is the reason why we did not include them in our table of competitor analyses.

4.8. Business canvas

We have used the business canvas below to provide a detailed and descriptive overview of how Smart Planner creates and delivers value. It addresses Phase 1's business model.

Key Partners	Key Activities	Value Propositions	Customer Relationships	Customer Segments
Doorman AS: key partner in running a business, building a network, and a main inverstor **Friends AS**: partner and software developer **University of Stavanger**(UiS): possible associate to provide free office, Smart Planner uses several resource persons from UiS. UiS can promote the image of the company throughout their official public channels. **Valide**: potential partner and investor	-Developing alpha version of Smart Planner software that offers automatic employee scheduling management with integrated AI. -Obtain customer requirements for alpha version of our software -Marketing activities to promote and to sell our product to target customers. -Applying for funding through different channels (Valide Incubator, Innovation Norway, EU Startaps, etc.) **Key Resources** -Software and application developer experts -Skilled personel to run bussines -Theoretically experts -Wide and deep network with potential clients -Stable and strong main investor	-Improving efficiency & productivity for our clients by 30 to 50% -Improving staff management with an integrated scheduling solution -Reducing the cost of managers and front line employees by 20%	24/7 customer support Dedicated personal assistance for each client Customer relationship management 14 days free treal - real experience Online support forum **Channels** Below the line marketing, partnership, publich relations, workshops, seminars, webinars, word of mouth, search engines, social media	Target customer: business owners of the restaurants, nightclubs, bars, travel agencies in Rogaland with focus on Stavanger and Sandnes End users: management of the restaurants, nighclubs, bars, travel agencies, and front line employee of this businesses

Cost Structure	Revenue Streams
Software and application development cost Manpower cost Marketing and sales cost	Revenue is generated from selling licences of this software. A monthly fee is charged by the number of licences per employee (restaurant, night club, bars, travel agencies), after the 14-day free trial period.

Figure 4.2. Business Canvas model for Smart Planner - phase 1

Key Partners:

Doorman AS is our key partner in running a business, for building a network and the main investor, while Friend AS is our key supplier as a software developer. The University of Stavanger is our possible associate to provide a free office. Additionally, the University of Stavanger can promote an image of our company by emphasizing that their former student achieved their goals in entrepreneurship. Furthermore, through the University of Stavanger, we can also get mentor that can help us in, for example, some of the professors of entrepreneurship courses. Valide is one more potential partner and investor through its startup incubator.

Key Resources:

Friend AS has a year of experience in developing software and application, which can be considered as one of the Smart Planner key resources in this respect. Additionally, the CEO of Doorman AS has more than 10 years' experience in running a business. In this matter, he can be considered as a key resource in running a company, since he agreed to help at the beginning of this process. Furthermore, his business is very stable and liquid, which puts him as a good investor and one of the key resources. Doorman AS with its portfolio of customers makes for Smart Planner key resource for a potential network of customers. Last but not least, both authors of this paper, completed the MSc of Business administration at the University of Stavanger, where they gained good theoretical knowledge which they can convert as their key resource in developing and running a business.

Value proposition:

We estimate that Smart Planner software can improve efficiency to our customers saving time for their managers and front-line employees, 30% to 50%, depending on how much time they are spending to do schedule for employees and how often they log in to their scheduling systems. Smart Planner will also reduce the cost of managers and front-line employees by allowing managers to use the time for some other activities instead of most of the time doing the schedule, and for front-line employees preventing overtime. We estimate it will generate 20 % revenue for our customers.

Customer relationship:

We will provide 24/7 customer support for our customers. Additionally, we will provide dedicated personal assistance for each customer, to go easily through the installation and adoption of our software, answering their question about how our software works and if they have some issues. Our goal is to create loyal customer, with a stable and deep relationship.

Revenue stream:

Revenue is generated by selling license of our software to restaurants, bars, nightclubs, travel agencies, and charge them per employee. Each employee, no matter is he/she is from management or front-line employee, will be charged as one license. This will be activated after a 14-day free trial period.

4.9. Plan for development and production of Smart Planner

In the following sub-chapter, we refer to as shown in Figure 4.3. below, plan from the period the idea came into being and the long-term plan, which deals with the next four years summarized in the timeline.

1. Review Startup Idea

-Clarify the scope of the project
-Consider organisational goals for the product and service that we will provide
-Meetings with software developer (Friend AS) and key partner (Doorman AS)
-Create Business Plan

2019

JANUARY TO SEPTEMBER 2020

2. Research & Development

-Expand Business Plan
-Marketing & Customer Research
-Applying for fundings (Valide Inkubator, EU startups, etc.)
-Applying for office through University of Stavanger
-Friends AS developing Alpha version of software
-Registering the company in Norway along with licensing

3. Smart Planner launched

-Alpha version of software is launched for a particular customer
-Testing software for bags, speed and performance
-Create an online presence of a Smart Planner (Social media, articles, IT journals, blogs, etc)
-Preparation for marketing /promotion activities

SEPTEMBER TO JANUARY 2021

FROM JANUARY 2021

4. Beta version of Smart Planner and promotion

-Beta version of software is launched for public use
-Organising webinars, seminars, with potential customers, presenting software and it's features
-Focusing on marketing strategy activities
-Keep testing software for further improvements
-Gaining new customers
-Focusing on creating loyal customers through stable and good communication channels , creating extra perks for them along with great customer service

5. Smart Planner - Phase 2

-Expanding towards another cities in Norway
-Expanding globally
-Organising webinars, seminars, with potential customers from new regions, presenting software and it's features
-Keep testing software for further improvements
-Keeping focus on marketing strategy activities
-Keeping focus on creating loyal customers through stable and good communication channels , creating extra perks for them along with great customer service with a tendency to improve to a higher level
-Gaining new customers

FROM JANUARY 2022

2024

6. Reaching the target

-In 2024 Smart Planner should break the ice point and start to become sustainable
-Keep focus on marketing strategy activities
-Keep testing software for further improvements
-Keep focus on creating loyal customers through stable and good communication channels , creating extra perks for them along with great customer service with a tendency to improve to a higher level
-Gaining new customers

*Figure 4.3. Smart Planner project timeline*

4.10. SWOT and Risk Analysis

STRENGTHS

- Easy to use
- Compatible with an existing electronic platform
- Free trial period for potential customers
- Strong network with key investor & developer
- Solves real problems with scheduling
- Innovative & interesting with the use of AI
- Easy for potential buyers & end-users to access the product
- Collaborates with experienced software developer

OPPORTUNITIES

- Interested companies in buying the product in the Rogaland area (phase 1) and another region in Norway and internationally (phase 2)
- Potential partnership with one of the main competitors that are widely used in Stavanger
- Possibility to expand to other countries because of diverse team members
- Mobile applications and smart system are on the high side
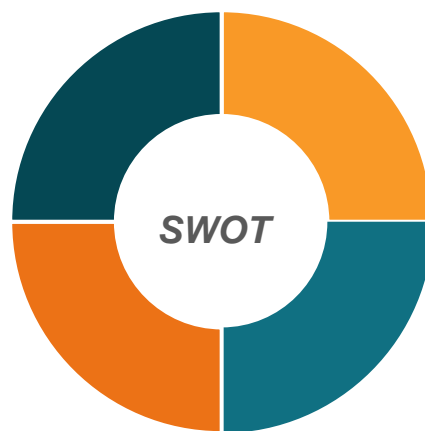
WEAKNESSES

- Dearth or absence of experience in running a company
- Need for huge resources (time & money)
- Lack of computer competences
- Lack of competence to develop SP
- Unreliability of the software
- Not being able to market and promote the product sufficiently
- Dilemma with finding funding

THREATS

- Competitors with similar products
- No interest from companies for buying SP
- Unsatisfied companies regarding SP
- Rapid changes in technology demands, innovation & competitiveness
- Technological risks such as a virus or things that can hamper customer experience

Figure 4.4. SWOT-Analysis for Smart Planner

Below we have listed some points that explain our strategy on how to mitigate the weakness (Table 4.2.) and threats (Table 4.3.) that Smart Planner might encounter.

Weaknesses	Solution for weaknesses
• Absence of experience in running a company	We have never established a company before, neither the experience. We have therefore already negotiated with Doorman AS CEO to help at the beginning of this process, who has experience running his own business for more than 10 years.
• Lack of competence to develop SP & computer competences.	We have to acquire the competencies elsewhere and have already agreed with one of our partners, FRIENDS, who has the competences on software development.
• Unreliability of the software	SP will perform software reliability testing to be sure that the product is fault free and is reliable for its proposed goal.
• Not being able to market and promote the product sufficiently	SP will put into consideration a good marketing strategy to skillfully promote Smart Planner.
• Dilemma with finding funding (need for resources)	The team believes the SP Organization will not have problems with financing as we already have an interested investor. Additionally, SP will try to secure starting capital by applying through some funds for start-ups.

Table 4.2. Mitigating weaknesses

Threats	Solution for threats
• Technological risks such as a virus or things that can hamper customer experience:	To mitigate this risk, Smart Planner is collaborating with FRIEND to monitor software and to ensure that everything in the system is compatible with the software and will always fine-tune before it will be approved and certified for use.
• Possibility of occurrence of a better solution for planning and scheduling in the long run:	Smart Planner will therefore, seek to always hire the best of brains for her continual research and development to be on top of its game.
• There is always a competitor that will emerge after seeing a venture succeed because of the uniqueness.	To keep up with the anticipated unavoidable market competition, Smart Planner will continue to invest in its technique of research and development, customer feedback, and advancement in technology.

Table 4.3. Mitigating threats

4.11. Financial projection

In the sub-chapter financial projection, we will explain how we will raise capital for the Smart Planner project and explain our sales forecast along with financial projection that is presented in Table 4.4.

4.11.1.   Capital raising

After dialogues with our partner responsible for software development, we are aware that the starting capital will be around 1.6 million NOK. We will seek financial support from two investors, including the stakes of the founder and co-founder. To ensure a better start position and capital, Smart Planner will participate in start-up foundation projects such as Valide Incubator, Venture Cap, Centre Entrepreneurship, EU startups. Regarding office and to cut fixed costs, the plan is to apply through the University of Stavanger program for former students to receive a free office at Innovation Park.

4.11.2.   Sales forecast

In the following sub-chapter, we show a plan for the sales forecast which is based on the research and questionnaire done before the company launches. Our starting point is 3 customers (companies) with 40 employees, that will be interested in our software and its usage. Each employee is counted as one license, so 3 customers x 40 employees each customer =120 license. Smart Planner is expecting to get at least one customer (average of 40 employees) each month for the year 2021. For the second year 2022, Smart Planner is expecting a growth of 2 customers per month (average of 40 employees per customer). In years 3 and 4, the forecast is to grow by 3 customers per month, with an average of 40 employees per customer. In year 3 and 4, there is bigger growth based on the expectation that Smart Planner will move into phase 2, where it will be available not only in the Rogaland area but rather to other cities in Norway and internationally.

According to Table 4.4., the break-even point is expected to be at year 4, that is 2024 since Smart Planner is launched. After sharing the profit with partners, 20% of the net operating income per partner, Smart Planner is expecting to end the year with 228,782 NOK. Figure 4.5. present yearly cash flow of Smart Planner, with a projected increase of 3 new customers per month within average 40 employees/licenses sold. These assumptions are based on a financial projection from 2021 to 2024 (Appendix J). If makes it solid and on a stable marketplace, Smart

Planner will use the cash cow strategy. Additionally, this strategy can help us to develop some other innovative ideas created among founders with the remaining cash.

If Smart Planner does not succeed, we will use the Merger and Acquisition (M&A) exit strategy and try to merge or sell the company to a competitor, such as Planday or some of the other competitors that are trying to break into Norway market.

Financial projection from 2021 to 2024				
	2021	2022	2023	2024
Number of license sold	4.080	12.960	27.600	44.880
Price per license (in NOK)	60	60	60	60
Revenue (in NOK)	244.800	777.600	1.656.000	2.692.800
Cost per license (in NOK)	20	20	20	20
Total license cost	81.600	259.200	552.000	897.600
Gross profit (in NOK)	163.200	518.400	1.104.000	1.795.200
Expenses				
Management monthly salary x2 (in NOK)	1.200.000	1.200.000	1.200.000	1.200.000
Product development (lump sum in NOK)	250.000	N/A	N/A	N/A
Marketing and sales (in NOK)	100.000	100.000	100.000	100.000
Net profit before tax (in NOK)	-1.386.800	-781.600	-196.000	495.200
Income tax (in NOK)	0	0	0	113.896
Net operating Income (in NOK)	-1.386.800	-781.600	-196.000	381.304
Partner profit sharing (20% per partner of the net operating income in NOK)	0	0	0	152.522
Net income (in NOK)	-1.386.800	-781.600	-196.000	228.782

Table 4.4. Financial projection from 2021 to 2024 for Smart Planner
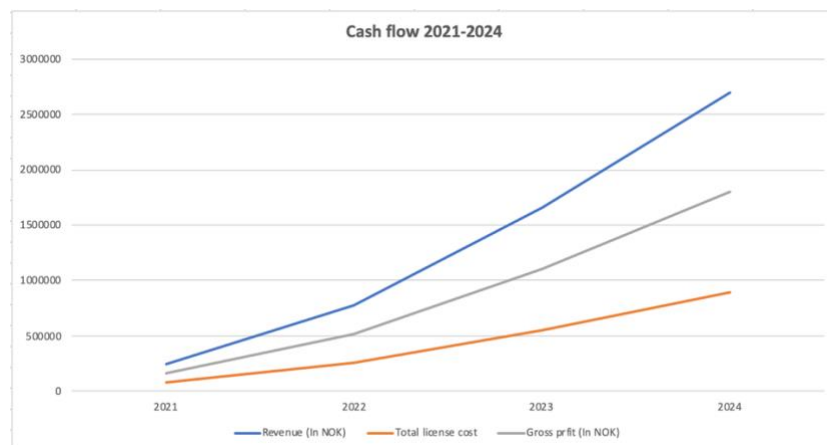
Figure 4.5. Yearly Cash flow of Smart Planner

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6. APPENDICES

APPENDIX A: PERMISSION TO USE PAPER IN COURSE MØA-415

Tatiana Aleksandrovna Iakovleva
📁 Inbox – Yahoo!   Yesterday at 11:28

permission to use paper in course møa415 to the master thesis work   Hide   TI

To: Dusan Zlatkovic,   Samira Ali

To whom it may apply

I grant a permission to Dusan Zlatkovic and Samira Ali to use materials from their paper in course møa 415 "Business Plan Smart Planner" to their Master Thesis work.

Bets regards

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APPENDIX B: SMART PLANNER QUESTIONNAIRE

Smart Planner

The following questionnaire was developed as part of the assignment for the Master of Business Administration study at University of Stavanger Business School. The study is to develop a software named Smart Planner, which aims to provide an integrated solution for staff scheduling with artificial intelligence.

It will take you approx. 5-10 minutes to complete the questionnaire. Your identity will be kept confidential.

1. Which industry are you in?

_____

D. Every day

7. Does the current scheduling system have the following features?
A. Setting the date preference
B. Setting the time preference
C. Auto-matching of staff's schedule
D. Automatic notification to employee
E. Automatic notification to manager (e.g. rejecting the shift)

8. How satisfied are you with the current scheduling system?
A. Excellent
B. Very good
C. Good
D. Fair
E. Poor

9. What improvements would you like for the current scheduling system?

_____

10. How much do you pay for current scheduling system every month per user (in NOK)?
A. Free
B. < 30
C. 31-60
D. 61-90
E. 91+

11. Would you be willing to upgrade to an automated and intelligent scheduling system that can save your time by 50% per week?
A. Yes
B. No

12. Would you recommend the new system to your management?
A. Yes
B. No

Thank you for your time!

APPENDIX C: SHORE EXCURION TEMPLATE FOR NG'S CUSTOMERS

SHORE EXCURSION TEMPLATE							DATE/MONTY/YEAR
Code	NAME OF THE SHORE EXCURION	DEPARTURE TIME	ARRIVAL TIME	TRANSPORTATION	TICKET SOLD	ALLOTMENT	SPECIAL REQUIREMENTS
STA01	HIKING TOUR	08:30	16:30	BUS	140	200	ONE BABY SEAT
LENGTH OF THE TOUR	8 H			45 PEOPLE PER BUS			
STA02	LYSEFJORD - HELICOPTER TOUR	08:30	10:30	HELI	10	12	
LENGTH OF THE TOUR	2 H			6 PEOPLE PER HELICOPTER			
STA03	LYSEFJORD - BOAT TOUR	08:30	12:00	BOAT	160	187	2 PEOPLE IN WHEELCHAIR
LENGTH OF THE TOUR	3.5 H			187 PER BOAT			
STA04	UTSTEIN KLOSTER MONASTERY	09:00	13:00	BUS	58	90	RESEERVE FIRST SEAT FOR VIP CUSTOMER
LENGTH OF THE TOUR	4 H			45 PEOPLE PER BUS			
STA05	LYSEFJORD - RIB BOAT TOUR	10:00	13:00	RIB BOAT	20	24	
LENGTH OF THE TOUR	3 H			12 PEOPLE PER BOAT			
STA06	WALK TOUR	12:00	15:30	WALK	36	40	
LENGTH OF THE TOUR	3.5 H			20 PEOPLE PER GROUP			

APPENDIX D: SHORE EXCURSION TEMPLATE FOR NG's TOUR MANAGER/GUIDE COORDINATOR

SHORE EXCURSION TEMPLATE FOR TOUR MANAGER / GUIDE COORDNATOR								DATE/MONTY/YEAR
Code	NAME OF THE SHORE EXCURION	DEPARTURE TIME	ARRIVAL TIME	TRANSPORTATION	TICKET SOLD	REAL NUMBER OF TOURIST	NAME OF THE GUIDE	SPECIAL REQUIREMENTS
STA01	HIKING TOUR	08:30	16:30		140			
	BUS #1			BUS	35		GUIDE A	ONE BABY SEAT
	BUS #2			BUS	35		GUIDE B	
	BUS #3			BUS	35		GUIDE C	
	BUS #4			BUS	35		GUIDE D	
STA02	LYSEFJORD - HELICOPTER TOUR	08:30	10:30		10			
	HELICOPTER #1			HELICOPTER	5		GUIDE E	
	HELICOPTER #2			HELICOPTER	5		GUIDE F	
STA03	LYSEFJORD - BOAT TOUR	08:30	12:00		160			
	BOAT			BOAT	160		GUIDE G	2 PEOPLE IN WHEELCHAIR
STA04	UTSTEIN KLOSTER MONASTERY	09:00	13:00		58			
	BUS #5			BUS	29		GUIDE I	RESEERVE FIRST SEAT FOR VIP CUSTOMER
	BUS #6			BUS	29		GUIDE J	
STA05	LYSEFJORD - RIB BOAT TOUR	10:00	13:00		20			
	RIB BOAT			RIB BOAT	10		GUIDE K	
	RIB BOAT			RIB BOAT	10		GUIDE L	
STA06	WALK TOUR	12:00	15:30		36			
	WALK TOUR #1			WALK	18		GUIDE M	
	WALK TOUR #2			WALK	18		GUIDE L	

APPENDIX E: SHORE EXCURION TEMPLATE FOR BUS SUPPLIER

SHORE EXCURSION TEMPLATE FOR BUS SUPPLIER							DATE/MONTY/YEAR
Code	NAME OF THE SHORE EXCURION	DEPARTURE TIME	ARRIVAL TIME	TRANSPORTATION	TICKET SOLD	NAME OF THE GUIDE	SPECIAL REQUIREMENTS
STA01	HIKING TOUR	08:30	16:30		140		
	BUS #1			BUS	35	GUIDE A	ONE BABY SEAT
	BUS #2			BUS	35	GUIDE B	
	BUS #3			BUS	35	GUIDE C	
	BUS #4			BUS	35	GUIDE D	
STA04	UTSTEIN KLOSTER MONASTERY	09:00	13:00		58		
	BUS #5			BUS	29	GUIDE I	RESEERVE FIRST SEAT FOR VIP CUSTOMER
	BUS #6			BUS	29	GUIDE J	

APPENDIX F: SMART PLANNER FILLING IN SCHEDULE TEMPLATES

Step 1.
SP identify preferences of empty shifts

Step 2.
SP auto match empty Shift with available Tour Guide

Tour Guide C

Tour Guide D

Tour Guide E

After auto matching SP sends a notification to the Tour Guide

Step 3.

SHORE EXCURSION TEMPLATE FOR TOUR MANAGER / GUIDE COORDINATOR   DATE/MONTH/YEAR

Code	NAME OF THE SHORE EXCURION	DEPARTURE TIME	ARRIVAL TIME	TRANSPORTATION	TICKET SOLD	NAME OF THE GUIDE
STA01	HIKING TOUR	08:30	16:30		140	
	BUS #1			BUS	35	GUIDE A
	BUS #2			BUS	35	GUIDE B
	BUS #3			BUS	35	EMPTY SHIFT
	BUS #4			BUS	35	EMPTY SHIFT
STA02	LYSEFJORD - HELICOPTER TOUR	08:30	10:30		10	
	HELICOPTER #1			HELICOPTER	5	EMPTY SHIFT
	HELICOPTER #2			HELICOPTER	5	EMPTY SHIFT
STA03	LYSEFJORD - BOAT TOUR	08:30	12:00		160	
	BOAT			BOAT	160	EMPTY SHIFT
STA04	UTSTEIN KLOSTER MONASTERY	09:00	13:00		58	
	BUS #5			BUS	29	EMPTY SHIFT
	BUS #6			BUS	29	EMPTY SHIFT
STA05	LYSEFJORD - RIB BOAT TOUR	10:00	13:00		20	
	RIB BOAT #1			RIB BOAT	10	EMPTY SHIFT
	RIB BOAT #2			RIB BOAT	10	EMPTY SHIFT
STA06	WALK TOUR	12:00	15:30		36	
	WALK TOUR #1			WALK	18	EMPTY SHIFT
	WALK TOUR #2			WALK	18	EMPTY SHIFT

APPENDIX G: GUIDE REPORT

GUIDE REPORT

Guide Name	GUIDE A		
Name of the Tour	HIKING TOUR		
Date of the Tour	xx/xx/xxxx		
Numbr of the guest on the tour:	?		
General report for an assigmet:	How went tour? Was there any irregularities?		
Report about suppliers:	Was bus on time, clean? How was collaboration with buss driver?		
Working hours			
Name of the guide:	Approved hours:	Is hours correct?	If NO, what is correct hours?
GUIDE A	09:00 - 17:00	YES / NO	

APPENDIX H: NORWEGIAN PATENT AND TRADMARK WEBPAGE

APPENDIX I: TRANDMARK ELECTRONIC SEARCH SYSTEM

APPENDIX J: FINANCIAL PROJECTION, PERIOD 2021-2024

2021

	January	February	March	April	May	June	July	August	September	October	November	December	Total
Number of license sold	120	160	200	240	280	320	360	400	440	480	520	560	4.080
Price per license (in NOK)	60	60	60	60	60	60	60	60	60	60	60	60	60
Revenue (in NOK)	7.200	9.600	12.000	14.400	16.800	19.200	21.600	24.000	26.400	28.800	31.200	33.600	244.800
Cost per license (in NOK)	20	20	20	20	20	20	20	20	20	20	20	20	20
Total license cost	2.400	3.200	4.000	4.800	5.600	6.400	7.200	8.000	8.800	9.600	10.400	11.200	81.600
Gross profit (in NOK)	4.800	6.400	8.000	9.600	11.200	12.800	14.400	16.000	17.600	19.200	20.800	22.400	**163.200**

Expenses	January	February	March	April	May	June	July	August	September	October	November	December	Total in NOK
Management monthly salary x2	100.000	100.000	100.000	100.000	100.000	100.000	100.000	100.000	100.000	100.000	100.000	100.000	1.200.000
Product development (lump sum)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	250.000
Marketing and sales	8.333	8.333	8.333	8.333	8.333	8.333	8.333	8.333	8.333	8.333	8.333	8.333	100.000
Net profit before tax	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	-1.386.800
Income tax	0	0	0	0	0	0	0	0	0	0	0	0	0
Net operating Income	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	-1.386.800
Partner profit sharing (20% per partner of the net operating income)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0
Net income	0	0	0	0	0	0	0	0	0	0	0	0	-1.386.800

2022

	January	February	March	April	May	June	July	August	September	October	November	December	Total
Number of license sold	640	720	800	880	960	1040	1120	1200	1280	1360	1440	1520	12.960
Price per license (in NOK)	60	60	60	60	60	60	60	60	60	60	60	60	60
Cost per license (in NOK)	20	20	20	20	20	20	20	20	20	20	20	20	20
Total license cost	12.800	14.400	16.000	17.600	19.200	20.800	22.400	24.000	25.600	27.200	28.800	30.400	259.200
Gross profit (in NOK)	25.600	28.800	32.000	35.200	38.400	41.600	44.800	48.000	51.200	54.400	57.600	60.800	**518.400**

Expenses	January	February	March	April	May	June	July	August	September	October	November	December	Total in NOK
Management monthly salary x2	100.000	100.000	100.000	100.000	100.000	100.000	100.000	100.000	100.000	100.000	100.000	100.000	1.200.000
Marketing and sales	8.333	8.333	8.333	8.333	8.333	8.333	8.333	8.333	8.333	8.333	8.333	8.333	100.000
Net profit before tax	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	-781.600
Income tax	0	0	0	0	0	0	0	0	0	0	0	0	0
Net operating Income	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	-781.600
Partner profit sharing (20% per partner of the net operating income)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0
Net income	0	0	0	0	0	0	0	0	0	0	0	0	-781.600

2023

	January	February	March	April	May	June	July	August	September	October	November	December	Total
Number of license sold	1640	1760	1880	2000	2120	2240	2360	2480	2600	2720	2840	2960	27.600
Price per license (in NOK)	60	60	60	60	60	60	60	60	60	60	60	60	60
Revenue (in NOK)	98.400	105.600	112.800	120.000	127.200	134.400	141.600	148.800	156.000	163.200	170.400	177.600	1.656.000
Cost per license (in NOK)	20	20	20	20	20	20	20	20	20	20	20	20	20
Total license cost	32.800	35.200	37.600	40.000	42.400	44.800	47.200	49.600	52.000	54.400	56.800	59.200	552.000
Gross profit (in NOK)	65.600	70.400	75.200	80.000	84.800	89.600	94.400	99.200	104.000	108.800	113.600	118.400	**1.104.000**

Expenses	January	February	March	April	May	June	July	August	September	October	November	December	Total in NOK
Management monthly salary x2	100.000	100.000	100.000	100.000	100.000	100.000	100.000	100.000	100.000	100.000	100.000	100.000	1.200.000
Marketing and sales	8.333	8.333	8.333	8.333	8.333	8.333	8.333	8.333	8.333	8.333	8.333	8.333	100.000
Net profit before tax	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	-196.000
Income tax	0	0	0	0	0	0	0	0	0	0	0	0	0
Net operating Income	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	-196.000
Partner profit sharing (20% per partner of the net operating income)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0
Net income	0	0	0	0	0	0	0	0	0	0	0	0	-196.000

2024

	January	February	March	April	May	June	July	August	September	October	November	December	Total
Number of license sold	3080	3200	3320	3440	3560	3680	3800	3920	4040	4160	4280	4400	44.880
Price per license (in NOK)	60	60	60	60	60	60	60	60	60	60	60	60	60
Revenue (in NOK)	184.800	192.000	199.200	206.400	213.600	220.800	228.000	235.200	242.400	249.600	256.800	264.000	2.692.800
Cost per license (in NOK)	20	20	20	20	20	20	20	20	20	20	20	20	20
Total license cost	61.600	64.000	66.400	68.800	71.200	73.600	76.000	78.400	80.800	83.200	85.600	88.000	897.600
Gross profit (in NOK)	123.200	128.000	132.800	137.600	142.400	147.200	152.000	156.800	161.600	166.400	171.200	176.000	**1.795.200**

Expenses	January	February	March	April	May	June	July	August	September	October	November	December	Total in NOK
Management monthly salary x2	100.000	100.000	100.000	100.000	100.000	100.000	100.000	100.000	100.000	100.000	100.000	100.000	1.200.000
Marketing and sales	8.333	8.333	8.333	8.333	8.333	8.333	8.333	8.333	8.333	8.333	8.333	8.333	100.000
Net profit before tax	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	495.200
Income tax	0	0	0	0	0	0	0	0	0	0	0	0	113.896
Net operating Income	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	381.304
Partner profit sharing (20% per partner of the net operating income)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	152.522
Net income	0	0	0	0	0	0	0	0	0	0	0	0	228.782