Pekka Abrahamsson • Kai-Kristian Kemell • Juhani Risku • Ville Vakkuri (Eds.)

Advanced Software Business Studies 2018

Results from the TJTS5780 Information Systems Master Course

JYVÄSKYLÄN YLIOPISTO
UNIVERSITY OF JYVÄSKYLÄ

IT

Startuplab JYU
LabStartup

Advanced Software Business Studies 2018

Results from the TJTS5780 Information Systems Master Course

2018

JYU

JYU
University of Jyväskylä
Faculty of Information Technology

ISBN 978-951-39-7741-2 (printed)
ISBN 978-951-39-7742-9 (electronic)

TJTS5780-2018 course book at JYU, 2018

Book design and layout by Johannes Impiö and Juhani Risku

Printed by Digipaino Kirjaksi.Net

Contents


FSL 26.850
Server
17 Treads @ 280mm
19 Risers @ 172mm
W3.04
W3.05

Foreword

Students as consultants in software business

The course on Advanced Software Business Studies (TJTS5780) is an optional master's level course in the Information System studies at the Faculty of Information Technology in University of Jyväskylä. Every year about 60 students enrol to the course.

Course re-vitalized

As of January in 2018, I re-vitalized the course with a hope to increase the student motivation to study business aspects better by involving local, national and international companies in the course setting in a novel way. Students in the new edition of TJTS5780 course become junior consultants on software business overnight. With some basic preparation work and discussions on consulting, a generic software business analysis framework is constructed that provides a practical starting point for the newly born consultants. The next task is to find three clients that are willing to give the team a case to be solved. The team has then 30 calendar days to complete the analysis and report the results to the company board in a face-to-face meeting and a presentation. The results are also shared in a half-day business seminar where the managing partner at Gearshift Group, Dr. Jussi Autere served as the president of the jury to decide the best consulting team of the year 2018.

Impressive results

The course is completed by preparing a scientific paper for the book that you have at hand now, the Advanced Sofware Business Studies 2018 papers. Each paper in this book reports the results of three cases using the same scientific paper structure. I sincerely thank the students for their efforts and companies for providing interesting cases to be solved. The results are impressive! The cases range from the brand, image and marketing analysis to developing internationalizing strategies. The feedback from the companies was predominantly very positive and students were excited of the opportunity to work with real clients and problems. The cases are anonymized and the companies have reviewed and approved the chapters.

In Jyväskylä, April-3rd 2018

Pekka **Abrahamsson**
Professor of Information Systems and Software Engineering
IT-Faculty, University of Jyväskylä
email: pekka.abrahamsson@protonmail.ch

Case Studies on Three Finnish IT Companies: Market Analysis, Evaluation on Business Models and Benchmarking Analysis

Hartio Mika, Kantola Juho, Leistiö Noora, Sorvisto Anssi, and Viljanen Simo

University of Jyväskylä, Faculty of Information Technology
P.O. Box 35, FIN-40014 Oulu, Finland

mitataha@student.jyu.fi, jualkant@jyu.fi,
noleisti@student.jyu.fi, anjusorv@student.jyu.fi,
sieevilj@student.jyu.fi

Abstract. Our group assignment was to consult three different software or IT companies and bring them valuable information for their business problems or needs. Two of the chosen companies, Company A and Company B, are startup companies. For Company A we researched suitable business models for their upcoming low-code development platform and composed five possible solutions: Free and open software model, focus on current ERP software as a main product, selling it as addon modules, building a suitable package for startups to use and a subscription-based model. Company B had already conducted some market research, but they wanted us to expand it to Nordic countries and a couple specific ones. Chosen countries were Sweden, Norway, Denmark, Estonia, and Germany. The group came into conclusion that big venues are problematic, and Company B should focus on smaller chains. Company C wanted us to gain information about competitor companies who operate in Finland with similar service. We found and presented them information about companies that practice in the same field as they.

1 Introduction

As part of Advanced Software Business Studies course, we consulted two startup companies and one larger IT company for their business needs. The objective of the consulting was to deliver new insights and possibly resolve business problems that the companies may have. We applied a business analysis framework as a starting point in our consulting to understand the basic principles of the IT businesses we were dealing with. The business analysis framework is discussed in more detail in the section 2. After we had gained a broad view on the consulted IT businesses, we analyzed each company's business needs with tailor-made analysis frameworks that are presented in the next paragraphs together with some general information about the IT businesses.

The Company A, an early phase startup company, has been developing a low-code development platform that allows to create applications with minimal coding skills.

The company wanted us to come up with alternative business models that it could adopt once the platform is finalized. Hence, our objective was to deliver feasible business models that take into consideration the current competition in the market. In the research we utilized the business model canvas by Osterwalder and Pigneur (2010) to outline proposals for business models.

The Company B is also a startup company that is at the phase of launching its product for digital out-of-home ("DOOH") advertising. The company needed more information about the potential markets that it may enter. Thus, we carried out a market analysis of Sweden, Norway, Denmark, Estonia, and Germany. In our research, we applied a market analysis framework by Internet Center for Management and Business (2010). The key focus points in the analyses were market size, market trends, profitability of the market, key success details for entering the market, and possible legislation that needs to be considered when entering the market.

The Company C, a large IT company in Finland, is striving to become a leading provider of application management services ("AMS"). The company needed more information about its rivals in the Finnish market so that it could stand out against the competition. To fill this need, we conducted a benchmarking analysis of competitors that operate in Finland. In the benchmark analysis we attempted to find out the competitors who offer similar service as Company C, how they describe their service, how significant part of the overall business the given service is, what kind of financial metrics can be found, who are the customer, and what kind of service promises are given.

The remainder of this paper is organized as follows. Section 2 describes the analysis frameworks that were used in this research. The section 3 presents the case companies and section 4 presents the results of the analyses. Section 5 discusses the key implications of the three conducted analyses and gives recommendations for the consulted IT businesses. Finally, section 6 concludes the paper with some general discussion.

2 Analysis Framework

We divided our business analysis framework into six main sections where each one focuses on one specific aspect of company's business model. The *Customer and Market* section have its weight on customer's needs and product's place in the market. Wedel and Kamakura (2012) define market as a combination of customers (actual and potential). *Product and its life cycle* is related to always evolving markets where customer finds suitable values. Yang, Xing and Lee (2010) define product service systems as something that seeks to make the service or product meet customer requirements. Value is created by satisfied customers needs that are fulfilled by using different *Processes and Tools*. According to Dumas, Aalst and Ter Hofstede (2005), certain processes and tools are required in software related business models to create

stability and quality. Right tool and process use, and other financial gains can be measured by using *Financial Metrics*. Its main function is to analyze money income and outcome, and it can influence *Resource Management* and how different assets can be categorized and exploited. Also, Galbreath (2005) defines resources as factors that have the potential to contribute to organizations economic benefits. Lastly, *Vision Mission Values (VMV)* creates the drivers required to improve the business in a changing market, and the means to maintain customer happiness.

The business analysis framework was used to gain general information on the IT companies. However, we needed more specific frameworks to resolve the given business problems of the companies and chose to apply the business model canvas framework by Osterwalder and Pigneur (2010) and a market analysis framework by Internet Center for Management and Business (2010). Instead of using a formal benchmarking analysis framework for Company C, we used our own due to given assignment. These frameworks are explained in more detail in the results of analyses.

3 Case Companies

In this chapter we will provide a brief description about the three consulted companies. We will describe their businesses and shed light on their goals for the future. We will also briefly explain each company's current situation and available possibilities.

3.1 Company A

Company A is a small ERP company seeking to introduce a low-code development platform. They have an established base of customers for their ERP solution and they have been adapting their ERP software into a version that is compliant with their low-code development platform. Their goals are two-pronged: the development of the ERP software through the advantages gained by it becoming low-code development platform compliant and the introduction of low-code development platform into the market. They hope to make it self-sustaining platform that has a large enough developer and customer base. On the other hand, their goals for the ERP platform is to become something widely available whose ease of use is better than the current market leaders. Their stated goal is to launch a separate company for the introduction of the low-code platform.

3.2 Company B

Company B is a startup seeking to utilize a hardware/software solution whose stated goal is to take advantage of unused screens, info screens mostly in different indoor

spaces, arguing that a screen that is not utilized in a meaningful manner is a valueless screen. Their intention is to use a device with face recognition technology that would target ads based on demographics. Such a solution would also utilize a software to manage the screens and ads displayed in them. The cameras could also be used for crowd size and other types of analysis that may be useful for the owner of the screen and space. Company B already has a number of businesses interested of obtaining their device for use.

3.3 Company C

Company C is a software/cloud company that provides cloud-based solutions and software development by utilizing the public cloud service providers. One of the key aspects of their service portfolio is to provide ongoing support and software development of customer's legacy systems. Company C has a focus on service support and monitoring. In this respect AMS is an important focus in their business.

4 Results of the Analysis

In this section we will present our results to given assignments. The first analysis is about composing potential business models for Company A. For Company B, we studied the foreign market potential of given countries by using adjusted market analysis framework Internet Center for Management and Business Administration Inc, (2010) For Company C, we researched Finnish IT companies that offer AMS. We studied their service descriptions, the significance of the service in company's total service portfolio, available financial figures, customer references, and service promise for their AMS.

4.1 Company A

Company A wished that every team member would separately focus and present different solutions to Company A's business model problem. Potential proposals were then assigned to team members for further research. It was decided that each member would fill a business model canvas to recognize the possible issues within the business model. At the end of the process, five business model proposals were composed some of them being complementary to each other. Finally, each proposed business model was analyzed through SWOT analysis to identify its strengths, weaknesses, opportunities and threats.

4.1.1 Model: Free and Open Source Software

Free software is software that is given away without a direct payment, instead, revenue can be attained through other ways like restricting software or through donations. Open software means that user has access to software's source code and user can modify it to personal or organizational needs. Software that use these types of models are usually easy to access and risk-free. Through this model Company A's low-code development platform may gain the attraction needed to gain popularity, but with freeness come some future restrictions.

Key partners

In terms of software vendors who distribute the software, is it desired that the low-code development platform is widely spread for example via different software websites or is it more desirable to have the low-code development platform bound to a certain platform where it can also be developed? Cooperation with software developers that use low-code development platform may give important insights such as how the software is being used, what kind of user experience it provides and what needs users and developers may have of the low-code development platform. Developers who are willing to solve the latter keep software development alive and fresh. All in all, it should be decided what kind of platform the low-code development platform uses. Does it work through API, is the code free or only partly free with the core locked in some way.

Key activities

The low-code development platform is based on freedom where modification and personalization are central factors in user experience. With the free software it is easy to bind the user to use the solution.

Key resources

Community driven development keeps the software fresh and available. According to Meirelles *et al.* (2010) source code size and complexity have a negative impact to attractiveness of free software. When structural complexity of the code grows it may decrease the positive feedback caused by just adding features. Meirelles *et al.* (2010) claims that according to Forrester Consulting survey, 92% of older IT-related businesses felt that they gained more than they expected from free software. Many of the free or open software revenue models are based on customer relationships and in this case also community relationships.

Value proposition

Obviously, the biggest strength of offering the software for free is having no direct cost to the user. It gives the users easy access to free resources. The downside is that the trust for anything free needs to be built and even advertised. Lakhani and Wolf (2003) argue that open or free software development is driven by the needs of the user, the intellectual stimulation of writing code and being creative. On the other hand, external motivational factors can be beneficial for job or career advancement.

Customer relations

The community management is critical and depends on utilized revenue model. Working with the customers must be done on personal level without automation. Community can solve its own issues and problems, but the efforts of a voluntary community must not to be mixed or confused with the company's own chargeable technical support.

Channels

The greatest challenge is to gain awareness and getting evaluated at all. In order to build a community, a functional website needs to be in place. One must consider can the software itself be delivered through other channels and what is the development environment for the low-code development platform? Offering software directly to a known user base, like ERP software users could create an initial user base.

Customer segments

Considering the customer segment that comes with free software users, the potential is wide. Company A should focus on ERP users, companies with databases, or find another wanted target audience. Casaló, Flavián and Guinalíu (2007) argued that satisfying customer needs, guaranteeing a sustainable community, allowing consumers to gain familiarity with the community and different sorts of communication promotion and encouraging group cohesion in participation are ways to make the consumer participate.

Cost structure

Acquiring customers introduces costs. Gaining attraction and awareness is costly. Working as a software vendor brings costs like servers and online storage. Community requires moderation and tool development. Money transaction solutions also generate costs.

Revenue streams

For open software there are many ways to monetize the product. (Wikipedia, 2018) list ways like:

- Dual-licensing, where free software can be developed and sold if license is bought.
    - Otherwise all developed parts must be shared with community.
    - Depending on license, makers of features can be forced to give them away with or without benefits or pay to keep them private.
- Income can be gained through support and consulting services.
- Selling the development kit, right to modify the software.
- Freemium -model ideology.
    - Core software can be free but the company gains partial income from the sales of plugins, add-ons or extra features like automatic updates.
    - Offering core element binaries to paying customers.
- Software can be free with a delay, where previous versions are free but the newest one must be purchased.
    - Or outdated versions of the software are given away free to demonstrate the potential.

4.1.2 Model: Status quo and moderate growth

One alternative business model for Company A we considered is focusing on converting the existing ERP system into utilizing the low-code development platform and continue selling licenses for the existing ERP system. This is a more conservative, risk averse path. Assuming that the conversion of the ERP software to a low-code-compliant version proceeds smoothly, there is an existing customer base that that can be used in both securing future financing and as a proof of a viable product when marketing the ERP system and the low-code development platform for future customers. The value this specific ERP solution would provide in comparison is its customization in comparison to competing products. In fact, Ram, Corkindale and Wu (2014) write with regards to the effect of perceived system quality on competitive advantage that ERP systems are costly to customize after initial purchase, meaning that businesses need to carefully consider aspects of an ERP system before acquisition. In this matter, the low-code development platform allows fairly non-technical users to customize an ERP system which can create competitive advantage for the company.

In addition, having an existing interesting key product can be beneficial for any potential future for the low-code development platform itself. If Company A is to seek a user and developer base, it most likely needs some sort of key product that will raise enough interest to make the low-code development platform viable as a platform.

Poba- Nzaou, Raymond and Fabi (2008) introduce the concept of "best of breed" model of ERP implementation where modules from different suppliers are applied. However, applying such a system requires that different modules have ways to interface with them. Overall if Company A manages to implement a backend/frontend solution that allows easy and fast implementation of an ERP system on mobile this could work as a competitive advantage. However, existing clients may be worried about any migration efforts into a low-code-enabled platform, and any migration has to take utmost care in order not to interrupt the operation of existing ERP solutions that the Company A is offering. If Company A intends to expand its customer base through the ERP solution, existing website and marketing material will need an overhaul to provide potentially interested customers with a better overview of the business and features of the potential ERP software.

4.1.3 Model: China and developing countries

One mentioned approach for the business is focusing on SMEs in developing countries that may not have such a large market penetration for ERP systems. Zhang, Gao and Ge (2013) claim that training is important in developing a positive attitude in an organization for the implementation of an ERP. However, the authors found that only "effective training" can help with ERP adoption, but it is further complicated by the potential relative lack of technology skills among users in Chinese organizations. They also mention that supposedly due to Chinese collectivistic culture decisions for ERP adoption come from the top.

On the other hand, Li (2011) claims that the decision support capabilities of an ERP may not be utilized by local managers in Chinese organizations as they tend to rely more on personal judgement according to Li (2011). This kind of environment may prove challenging from Company A's perspective as well since Company A does not possess an authoritative user/organization support in comparison to larger service providers, and one implied way of getting support to client organizations would be some sort of local entities or experts within the client organization. Li (2011) also cites the lack of education and lack of vendor support among others as challenges. This may make any potential entering of the Chinese market difficult due to this perspective alone. Many of the same findings that apply to China and ERPs can probably be applied to other developing countries. Even if the choice to try and enter the Chinese market was done, there will probably be a need to find a suitable partner for the distribution of the software and to ensure that a competing local business does not just create a similar product, assuming Company A's ERP or a low-code development platform delivers unique value.

4.1.4 Model: Add-on

The add-on model bases its idea on establishing partnerships with existing ERP companies and offering the product to the customers of these ERP companies in the form of ready-to-use add-ons for the system they already are using. Rather similar model was made successful by Mendix (2018), which is also the biggest competitor of Company A's low-code development platform. Companies can modify the models to their liking or create modules of their own. Company A's community would work as the supporting service for the developers. Marketplace for the community (user created modules) could be implemented after the business has grown.

Key partners

ERP providers such as SAP or Oracle as they provide the "core system", which Company A's product supplements

Key activities

Key activities consist of maintaining the relationships and understanding with the key partners and community. These both can be deemed equally important, at least until to the point when community is creating great amounts of value by itself. Also the development of new modules is critical especially in the beginning when gaining positioning in the market is crucial. Lastly, maintenance of the system must be done in order to keep everything constantly running.

Key resources

Key resources for the Add-On -model are deeply in Human Resources (HR). Marketing personnel (general marketing + ERP provider relationships) are obviously a key to acquiring the market; consulting personnel are needed for education for the customers and for the implementation of the system for a company. Developers are needed to create new modules and to maintenance the system. Customer support personnel are naturally required to take care of the community's and customers' needs and requests.

Value propositions

The low-code development platform could function as add-on modules for existing ERP systems without the need of expensive ERP customization. This ought to be possible as the product is connected to the same database with no problems with other ERP systems. Customers can also customize the modules for their liking and create

their own modules. The product's community for developers creating new modules/software makes it simple to seek support from other product users as well as Company A's personnel.

Customer relationships

Maintenance and support of the product and its modules are keys to customer satisfaction. Additionally, community support needs to be conducted.

Channels

In the case of marketing, phone marketing (includes both; Key Partners and customers) could be conducted to quickly reach customers and in the same time advertise the company. Online marketing would also be required as the main portal to company information (website, advertisements, social media, community). Marketing channels acquired through ERP partners could also create great value.

Customer segments

Companies with existing ERP systems and developers if the market place for component distribution has been opened.

Cost structure

The costs consist of human resources, module development, marketing, and maintenance (the product, modules, community, website). Additionally, part of the sales would go for the partner ERP companies to create them value and attract their interest.

Revenue streams

Revenue streams would consist of module sales, and subscription costs. Subscription cost is required, because users can create software on their own. If the marketplace is opened, sold modules could also add a percentage from each sold piece.

4.1.5 Model: Subscription based model

The following proposal is a subscription-based business model for selling Company A's product as Platform as a Service (PaaS) to IT vendors and non-IT companies that have their own IT departments. Company A can help these companies to build applications faster with minimal costs. The proposed business model can be combined with a freemium model.

Key partners

Company A's key partners are public cloud computing providers such as AWS, Google Cloud and Microsoft Azure.

Key activities

The key activities are maintaining and upgrading the software and adding functionalities that support current and future trends in the field of information technology, such as internet of things, machine learning and cognitive computing. Also, providing training and technical support are important activities for the delivery of the value proposition to customers.

Key resources

Key resources comprise of the software, cloud services and personnel. Personnel includes at least the owners of Company A and sales and marketing person(s) and technical support.

Value propositions

With the low-code development platform IT vendors can rapidly build proof-of-concept prototypes for their customers. If the prototype gets traction in the market, it can be easily developed into full functioning application that supports a large number of users. Low-code platform such as Company A's product allows to build prototypes in weeks instead of months. IT vendors can also modify or expand their customer's existing systems with reduced development time when deploying Company A's product. Since the development time for building an application is significantly accelerated and costs reduced, it can attract new customers but also increase customer satisfaction among old customers.

The product can also help non-IT companies to find new business opportunities. It can help these companies quickly translate their new business ideas into working prototypes with minimal costs and test the business idea in the market.

Customer relationships

Customer assistance is handled through self-service, ticketing system and on phone.

Channels

The product is distributed as a cloud service and can be subscribed to on Company A's website. Customers are also acquired through personal sales activities.

Customer segments

There are two main business customer segments: IT vendors and non-IT companies.

Cost structure

Costs of cloud services, marketing and sales related activities, salaries of personnel.

Revenue streams

Revenue is generated through monthly subscription fees per user or fixed price per company. Additional revenue streams come from on-premise training packages.

4.1.6 Model: Low-code development platform + ERP

This business model would utilize software startups and open source development. Main proposition is to gain attraction and sizable user base. Basic principle is to use proven open source models to create attraction. This creates value for the brand which can be utilized to include new revenue models or to sell the assets.

Key partners

Startup platforms, software startups, software package distributors and software developers.

Key activities

Marketing low-code solution to startup platforms, and other software distribution channels.

Key resources

Marketing and consulting personnel, some form of development team and a community of developers.

Value propositions

Software companies get a cheap ERP and a development tool and a supportive community. Community driven support and development for tools. Developers can customize the software to suit their needs and get community support for their software problems.

Customer relationships

Mainly focuses on the concerns of the distribution platforms. Development community support should handle the rest.

Channels

Possible inclusion of the low-code development platform in software development packages. Possibly distributing the low-code development platform and ERP via startup software packages.

Customer segments

Startups, software developers, companies with ERP.

Cost structure

Early development cost and website upkeep. Should be launched soon as possible to mitigate cost to minimum.

Revenue streams

Paid modules, premium versions, donations

Table 1 SWOT Analysis of Case A

Internal		External	
Strengths	Weaknesses	Opportunities	Threats
• Reliable • Advanced software for professional use • Possibility to integrate with other systems (e.g. ERP) • Easy customization • Multiple possible business models to choose from • Low cost structure	• No brand • Existing competition on the market • No current partners • Lack of team • Product not finished yet • Has similarities to other existing low-coding platforms	• Product has the possibility to reach big markets if marketed well • Customization can create a large community and thus quickly brand the product (potential for growth) • First of its kind, and can thus enter the big markets • If community development is successful, momentum can gain "free workforce" from the developers • Low-code development platform market is a growing business	• Needed partners find no interest in the company • Competition can be stagnating since the market is highly competed • Customers find the product insufficient for their needs • Someone steals the idea/concept

4.1.7 Key observations

There are couple problems concerning Company A when making this analysis. The core product is somewhat functional but is not a working prototype yet. Usually this is not a problem because we can form an idea about the product, but this is not the case with the low-code development platform. The platform is still in development phase and some of its functions are inside the head of its mastermind. There are some benefits and problems with that. We cannot identify how the core product differs from its competitors and what the unique value proposition is. This can be viewed as a positive point because the low-code development platform can be developed with an edge by observing what the competitors are doing and gaining edge by doing something that they cannot do or doing it better.

Gaining edge

The low-code development platform can gain edge with service, prizing, quality, visibility, gaining core customers or by partnering up. Prizing can be done with several ways, for example, using freemium, premium and licensing revenue logic. Quality of the software should be better in at least one of these categories when comparing low-code development platform to its competitors: usability, accessibility, and functions.

Core vision

The core vision of the low-code development platform is to provide a way to create a program with interface without doing any coding. The low-code platform is mainly used to add functionalities to existing ERPs. Customizing one's ERP to suit one's needs is usually very costly and thus avoided activity, but with Company A's low-code development platform people with basic understanding about the systems and functionality of an ERP can alter the ERP to suit their needs.

4.2 Company B

The group had a meeting with the Company B to gain understanding of the company's business and their needs. This section will show the results that our group developed. Five chosen countries were divided between five group members, each taking one. The team chose to use slightly modified market analysis framework by Internet Center for Management and Business Administration Inc (2010) to direct searches and to synchronize found answers. Used tools included Vainu, a business statistic service, and other statistic websites, Google's services, websites of competitors and other available info about local companies.

Our assignment was to conduct a market analysis of German, Estonian and Nordic countries, including Sweden, Norway and Denmark, excluding Iceland. Finland was also excluded as it was already examined by the Company B. We analyzed each country's market size in terms of current and potential out-of-home (OOH) advertising net revenues, market trends and profitability, and key success factors and detail for entering the market. We looked mainly for local gym, pizzeria and hotels chains and other potential business partners. Also, the legislation that might hinder or support the market entry was considered where applicable

4.2.1 Estonia

Market size

According to Outdoor Advertising Association of America (2016), the net advertising revenue of Estonian OOH media companies was about 9.7 million euros in 2016. The digital share was 11% which is little below average when compared to global market. Statistics by Viniczai (2015) says that the OOH share in total advertisement was 10.42% in 2015.

Market trends

Statista (2018a) predicts that in 2018, 89 million euros are spend in advertising in general and that number slowly rises a couple millions per year. Within these given numbers, we can predict that market is slowly growing and competition already exists.

Market profitability

In Estonia there are multiple companies that already have a foothold in indoor and outdoor advertising. One of the biggest of them is a Tallinn based company called Digiekraanid LLC, which specializes in OOH screen-based advertisement in outdoors and indoors. They also develop touch screen technology and guide screens such as digital menus in restaurants. These advertisements and info screen are not based on customer dynamics, but according the company's website they have plenty of screens available in and out of stores. According to company's CEO Priit Pedanik's LinkedIn Profile (Pedanik, 2018), in 2015 Digiekraanid had 10% OOH advertising market share in Estonia, which is largest in the country.

JCDecaux has also a branch in Estonia. They are quite new in Estonia, launching their first digital screens in summer of 2017 in Tallinn. JCDecaux only has screens outdoors but has integrated real time dynamics to their screens. These include reactions to weather, linking social media to advertising and metadata changes.

According to their website this technology is already used in 15 (unnamed) countries. JCDecaux Eesti OÜ, (2018). There are no mentions of cameras or other customer recognition methods used in advertising.

Tallinn based shopping Center Solaris includes over 10 restaurants and other stores potential for company's interest. According to UK based Onelan's website ONELAN, (2018), they have strong representation and control on the screens in Solaris. Onelan's technology does not include cameras or other ways to recognize customers but in practice it is very similar to Company B's hardware-based solution.

Although many of the screens are already taken, there was no evidence that screens would use any kind of camera technology based on information given. The market is quite competitive on crowded places like shopping malls and outdoors and requires footwork to get a hold on.

Key success factors

MyFitness is a noteworthy Estonian gym chain, which has about 12 gyms in Tallinn area alone, some in shopping centers. As for pizzeria, Peetri Pizza has over 20 restaurants in Tallinn area alone. Outside of McDonald's, Subway and Hesburger, there are no clear chains in Tallinn. According to Hotel Chains (2018) the biggest hotel chain in Estonia is Tallink hotel, with 8% market share in country and 14.9% share in Tallinn. Tallink Group could be a good partner.

One of the biggest shopping malls in Tallinn is the Ülemiste Keskus, which is located very close Tallinn's Airport. The Shopping Center includes about 160 stores and other services. The center is owned by Norwegian Awilhelmsen AS through their real estate daughter company Linstow AS (Vainu, 2018). The biggest renter of Ülemiste Keskus is Latvian Rimi chain's hypermarket, which also has stores in Lithuania. If implementation with Rimi works out, it could open door to other Baltic states.

The shopping center Rocca al Mare was bought by Finnish real estate company Citycon Oyj in 2005. In the last few years Citycon has shown slow but steady growth (Vainu, 2018). Being a Finnish company and having an ideal business in Tallinn would be good place to start, before going after individual companies that work in Rocca al Mare.

The biggest media houses and store fronts are based in Tallinn so it is only logical to pilot the advertisement program there, although many of the public screens might already be in use by other advertisement companies. Company B's strongest feature is being able to show how business owners can gain better results with their technology than with their competitors. Going after smaller individual businesses like MyFitness, Peetri Pizza or Hesburger instead of bigger shopping malls could provide a better ground for a pilot program.

Noteworthy legality is Estonian Advertising Act, which determine what kind of advertisement can be shown. Special attention should be given on advertisement directed to children and use of children in advertisement. Riigi Teataja, (2008.)

4.2.2 Norway

Market size

Norway's market is full of competition regarding public screen advertising. Market leaders include Scala, MultiQ, Reklamservice, Citycon, Jcdecaux, and Clear channel, whose turnover ranges from millions to hundreds of millions (Vainu, 2018), but similar services as the Company B's barely exists. Did-Norway (Did Digital Development AS, 2018) offers similar type of service with statistics and face recognition but is still in startup phase with only one current customer. They do not give information about the hardware in their solution. Many small and medium size companies also exist in the screen marketing business in Norway (Vainu, 2018). Since the market is filled with big multinational companies, the space of bigger markets such as outdoors (train and bus stations) and large indoor spaces (shopping centers) are already taken. Company B's possibilities upon entering the market would most likely lie in a smaller niche markets such as gym chains and some local restaurant chains. Outdoor marketing has been growing in steady fast pace in the last few years (Medienorge, 2018). It has one of the highest rates of growth in advertisement segments, with 23.2% growth in 2017 to reach 57.25 million euros (https://en.portal.santandertrade.com/analyse-markets/norway/reaching-the-consumers). Company B's approach does also count in as a segment of display advertising, which is also a fast-growing segment, with 61.25 million euros expenditure in 2017. Turnovers and profits of the competitors have also been in a steady growth (Vainu, 2018). According to MediaNorway (Medienorge, 2018), the market size is currently growing and is predicted to keep doing so.

Market trends

As with other developed countries, trends of marketing are focused on digital segments (Medienorge, 2018). The earlier leader of press marketing has largely diminished in size and focus has been changed to internet, TV, and outdoor screens, meaning that customers are more likely to pick Company B's product now than a few years ago. The most interesting trend-changer could lie in the face recognition technology. The law of Norway states: "There is no requirement to inform regulatory body in case of non-recorded video surveillance. However, for recorded video surveillance, the regulatory body has to be informed which has the power to prohibit video surveillance", meaning that Company B's product could be used rather easily (Rajpoot and Jensen, 2015). However, it is required to inform public about video surveillance via signs (Rajpoot and Jensen, 2015).

Market profitability

Upon creating good partnerships, profitability can be great in theory, but the fact is that the biggest segments such as shopping malls and train stations are likely to be in the possession of other companies. The threat of substitute products does exist, but cannot be seen as high, since the only upcoming rival according to this research is Did-Norway. Screen marketing companies' biggest costs are in advertising their service and providing sufficient screens and service for the customers, meaning that a competitive advantage could be acquired through Company B's original technology, over sheer marketing power.

Distribution channels

Local partnerships are critical when distributing the products locally. Local partnerships are critical when distributing the products locally.

Key success factors

Acquiring the partnerships and successfully finding a large set of screens to utilize will be in the key role. Regarding the similar types of services, Did-Norway is just in startup phase and thus can be competed against if Company B acts quickly. Continuous development of the software is in a key role when it comes to competition with similar products (Internet Center for Management and Business Administration Inc, 2010). Gym brands and restaurant chains (or similar type of service providers) that are willing to adopt the Company's B product across their locations will help greatly when entering the market. Largest gym chains in Norway include Elixia, Fitness24seven, SATS, Fresh Fitness, and EVO. Biggest pizzeria chains in Norway include Peppes, Pizza Pancetta, and Domino's. Biggest hotel chains in Norway include Scandic (20.7%), Nordic Choice Hotels (20.0%), and Thon Hotels (12.8%) (Hotelchains.com, 2018b). One possibility would be to approach these companies first. It is important to note that there has been some face recognition-based marketing done, particularly in one of the pizzerias of Peppes. In this case no info was given about the existence of a camera and this case was badly viewed by the public. No third-party organization was mentioned. (Turton, 2017.)

4.2.3 Sweden

Market size

The market size of OOH advertising is evaluated through the current market volume. The OOH advertising net revenue was EUR 180.3 million in 2016. Net revenue of the DOOH advertising was 17% of the total OOH advertising revenue which equals EUR 30.6 million. (Outdoor Advertising Association of America, 2016.)

Market trends

Market trends are evaluated through competitor analysis. Five major competitors in Swedish OOH and DOOH advertising market are identified with similar products and services. Clear Channel, MultiQ Systems AB, Visual Art and AdCityMedia offer both indoor and outdoor screens for advertising, but JCDecaux Sverige AB only offers outdoor advertising options (Clear Channel AB, 2018; Multiq Systems AB, 2018; Visual Art AB, 2018; AdCityMedia AB, 2018; JCDecaux Sverige AB, 2018). None of the competitors offer similar indoor advertising service as Company B which means that a niche market exists in Sweden.

Market profitability

The EBIT margins of the competitors vary from 9% to 37.3% (Vainu, 2018; AdCityMedia AB, 2016).

Key success factors

To access the Swedish market, Company B needs to establish partnerships with Swedish businesses that operate in leisure and hospitality industry. The company should try to reach restaurant, cafe, gym and hotel chains if they want to scale their business fast and with reduced costs.

Examples of gym chains are Elixia, SATS and Fitness24Seven. Hotels chains include Scandic, Elite Hotels of Sweden, Nordic Choice Hotels, Best Western and First Hotels. Example of a cafe chain is Espresso House that operates in various Nordic countries. Max Burger, Sibylla, Frasses represent fast-food chains. Pizza Hut and Vapiano are some of the pizzeria chains that operate in the Swedish market.

Trying to partner with shopping malls may not be a viable path to take since the biggest shopping malls in Swedish cities are already populated by Clear Channel and

Visual Art (Clear Channel AB, 2018; Visual Art AB, 2018). However, restaurants and cafes within the shopping malls are something to consider.

It must be noted that the results of face recognition are regarded as biometric data which means that the Company B needs to comply with the policies of General Data Protection Regulation that comes into force in EU countries on 25 May 2018.

4.2.4 Germany

Advertising is highly competitive in Germany and the law that deals with advertising can be complex and it is usually suggested that companies use lawyer counsel when dealing with advertisements. It is way easier to approach a marketing company that has already penetrated the German market, and which may be interested in acquiring a new way of bringing its advertisements to customers. This kind of partnering could be achieved by utilizing advertising companies and their desire to gain edge over the competition. Advertising companies may be interested in gathered metrics and that could provide unique value to their product when compared to possible competitor's advertising mediums.

Market size

Outdoor advertising revenue in Germany is estimated to be 1100 million euros 2018 (Statista, 2018c). Germany is a big market with large number of competitors competing to gain attention in public spaces. Current rate of digital marketers and their reach in Germany is measured in millions of users OVK report 2017. Since competition is so high, gaining notice among advertisers is going to be a hard task to achieve. According to Statista, 2016 industries with the highest advertising expenditure in Germany were: (2016 in million euro) E-Commerce with 1.864,5, Car industry with 1.764,7, online services with 1.502,8, medicine with 1.227,4, food retailing with 1.165,2 million, corporate advertising with 1.133,4, sweets industry with 847,2, mobile industry with 840,1, furniture and furnishings with 754,2 and haircare with 524,4. The listed industries may provide potential customer chains since they spent huge amounts of money in advertising.

Market trends

Ad blocking is one of the growing trends. Information overload and people avoid advertisements. Many people are annoyed by advertisements, but billboards and other forms public of advertisements are considered less annoying. Maybe consumers view public screen advertisements as less annoying which could lessen any negative impacts of ad campaigns.

According to Statista, 2018b these are leading advertising companies in Germany and they might provide suitable partners: Heimat Berlin inkl, TBWA Germany, DDB Group, BBDO Group, Serviceplan Group, Scholz & Friends, Kolle Rebbe, Ogilvy & Mather, Thjnk, Leo Burnett, Philipp und Keuntje.

Market growth rate

It seems that all form of out-of-home advertising is growing in Germany. According to Statista (2016) OOH advertising in Germany has increased (in millions of euros) Table 2:

Table 2 Growth of OOH advertising in Germany

	2014	**2015**	**2016**
Billboards	1283	1349.6	1464.1
Transport media	160.9	207.4	220.1
Retail media	79.9	107.2	112.9
Ambient media	39.2	50.4	51.1

Ad blocking may help to convince market actors to seek more ad space in OOH marketing. Germany's advertising market is quite diverse and large. It is highly competitive and profitable.

Market profitability

Since the market is highly competitive in Germany it is far more cost effective to work with partners that have the clientele than trying to build one's own client base from the ground up.

4.2.5 Denmark

We didn't utilize the market analysis framework for Denmark as there were no authoritative sources about the state and growth of the advertising industry in Denmark that we could access. There seems to have been a dip in overall advertising turnover in Denmark from 2013 to 2014 Statistics Denmark (2018), but the turnover seems to have risen in 2015 in comparison to previous years.

Denmark's outdoor advertising market is saturated by a number of global actors such as Clear Channel, JCDeaux, etc. There are number of local manufacturers and service

providers that focus on either manufacturing info screens for use within organization an organization for the benefit of its employees or informing visitors or customers.

For example, Immediad Group is involved in LED monitors and solutions tailored to info screens including a piece of hardware designed to deliver image into a display device. They do not however mention of solutions for advertising. They do, however, indicate that some sort of content management system is involved, most likely with their hardware device they are offering (Immediad Group, 2018).

Similarly, Databoard is a startup that claims to specialize in delivering software solutions to info screens that help to customize the information displayed in them with minimal technical competency. Databoard ApS (2018a) & Databoard ApS (2018b)

DNP (dnp denmark AS, 2018) is involved in creating displays with external projection. DNP Denmark seems to be the subsidiary of Dai Nippon Printing which is apparently involved with face recognition (Nikkei Asian Review, 2017) by developing technology.

Piranya ApS is involved with info screens and with software specialized in controlling them remotely (Piranya Software ApS, 2018).

There are also at least some cases of publicly funded services utilizing info screens that have advertisements in them such as the case of North Denmark's bus services operating 50 buses with information screens on them (CIVITAS Support, 2012).

All in all, however, there is no solution that incorporates both cameras with face recognition or crowd analysis, information screens and advertising. So, there is no direct competition for the solution Company B is offering. However, businesses such as DNP may take the initiative and offer a similar solution since they have the existing technological know-how of implementing a similar solution in-house. In Denmark there seems to be an abnormal amount of info screen and flat panel manufacturers. However, these businesses do not mention whether they manufacture their own flat panels or outsource the actual panel manufacturing to other entities. This is noteworthy as flat panel manufacturing is centered on a few global entities.

Cursory view through the major parent companies of Danish supermarket chains reveal Dagrofa, Supermarked A/S and Coop Danmark as the prominent entities in the Danish market (Dagrofa aps, 2015; Dansk Supermarked Group, 2016). According to Coop Danmark A/S (2018), Coop employed 36 000 employees at the time of writing. In comparison, Finland's S-Ryhmä employed roughly 38 000 at the end of the year 2016 (S-ryhmä, 2018). Seeing Coop is such a large entity, it may make a logical choice for a partner in Denmark. According to Hotelchains.com (2018a), the top 3 hotel chains in Denmark are Scandic, Arp-hansen Hotel Group and Cabinn As. A cursory search utilizing Google Maps (Google, 2018) seems to indicate that the most numerous gym chains in Denmark are Fitness World, Urban Gym and Crossfit, last of which however is a franchise. It may be worthwhile to consider attempting to partner up with these chains. Interestingly W. C, (2016) claims that many of Denmark's restaurants and cafés seem to be struggling financially indicating that the field might

be volatile. When making efforts into finding long term partners it may be advisable to consider the apparent volatility of this specific field in Denmark.

4.3 Company C

Company C was different than Company A and Company B in the sense of that they gave the assignment in a straightforward manner. We were assigned to benchmark companies that provide Application Management Services (AMS). Scope was set on companies that operate in Finland. A simple framework was made from the wishes of the Company C to answer the critical questions. Used tools included Vainu and other statistical websites, competitor websites and other available info about local companies.

4.3.1 Task

Company C wanted to us to find answers to the following questions:

1. What kind of product description does the competitor have?
2. How significant part the AMS is in the overall service portfolio of the competitor?
3. What financial figures are available?
4. What kind customer references can be found?
5. What kind of service promises are given for AMS?

4.3.2 Results

EVRY Finland Ltd

1. The company promises to integrate the entire application landscape, infrastructure and operations, maintenance and new development (EVRY A/S, 2018c).

2. Key services include Application Management, BI & Analytics, Digital Transformation, Enterprise Applications, Cloud Services, Infrastructure & operations, and Workspace (EVRY A/S, 2018c).

3. EVRY is a Norwegian IT service and software provider that operates in Nordic region. Turnover of Finnish subsidiary was EUR 77 000 and EBIT was 41.60% in 2016. Number of employees in Finland is unknown. (Suomen Asiakastieto Oy, 2018.)

4. Customer references can be found on (EVRY A/S, 2018b).

5. “As a service and cloud integrator, EVRY integrates and consolidates your applications into an efficient solution – perfectly tailored to both your existing and future needs” (EVRY A/S, 2018a).

CustomIT Ltd

1. The company provides customized IT landscape maintenance together with development services. It does not explicitly mention AMS services. (CustomIT, 2018.)

2. Service portfolio includes IT maintenance, Projects and Consulting, Softwares, and Devices (CustomIT, 2018).

3. Net revenue was EUR 471 000 and EBIT was 15.1% in 2016. The number of employees was two. (Fonecta Oy, 2018b.)

4. Customer references include Juustoportti, Luoman Oy, PlatePower Oy, PiriSteel and Yrityslaskenta Oy (CustomIT, 2018.)

5. No explicit service promise is given but the company promises to offer customized IT solutions delivered by certified professionals (CustomIT, 2018.)

Innofactor Plc

1. The company offers a service called ‘Intelligent Cloud’ that encompasses Microsoft cloud technologies with Analytics, Machine Learning and Internet of Things, hybrid environments, licences, and services for maintenance and continuous development (Innofactor Oyj, 2018c).

2. The service portfolio consists of Digital Vision and Processes, Digital Business, Business Productivity, Flexible Collaboration and Intelligent Cloud (Innofactor Oyj, 2018d).

3. Net revenue was EUR 59.6 million and operating margin 8.1% of net sales. Number of employees was over 600 in Finland, Sweden, Denmark, and Norway. (Innofactor Oyj, 2018b.)

4. Customer base includes over 1500 companies and public-sector organizations in Finland, Sweden, Norway, and Denmark. Examples of customers can be found on (Innofactor Oyj, 2018a).

5. Service promise: “Our objective is to offer a better cloud experience to our customers” (Innofactor Oyj, 2018c).

Accenture

1. Accenture describes their service as Liquid Application Management. Their product description does not go into detail but outlines their methods as Lean engineering to offer customers improved speed and agility in their businesses. They use analytics, artificial intelligence, and automation to improve efficiency, competitiveness, and security.

2. Accenture offers a huge variety of services in many sectors of business. If we look more into the application side of services, Accenture lists in total seven types of services: Application Management, Agile Transformation/DevOps, Testing/Digital Testing, Architecture, Application Modernization, Capacity Services, and Program, Project and Service Management. From this we can make a hypothesis that Application Management is about 1/7 of their offered application services. It is still important to note that the number of articles promoted by Accenture in their website tend to lean rather heavily on how application management is changing the future, meaning that they are investing on the sector more and more.

3. According to Accenture's own case study, they moved a large company's application portfolio to the cloud and through Application Management they decreased the amount of service request creation by 50%, application management costs by 25%, and multiplied the speed of marketing major releases from 4-6 months to one month. In their other case study, they used Application Management to reduce product rollout time by 50% and incident volume by 60%. Accenture's chief executive Bhaskhar Ghosh stated that the business will shift towards automation more and more in the future (Ghosh). Finnish Accenture's service section's turnover 2016 was 50.5 million and profit 7.9 million, decreasing slightly for the past few years (Vainu, 2018). Technology sections turnover was 46.6 million with 3.4 million profit (Vainu, 2018)

4. Accenture has more than 411 000 clients across 120 countries across more than 40 industries and business functions (Bennink, 2017). Info regarding customers in Application Management sector is not given. Accenture's cloud partners are: Pegasystems, Salesforce, Google Cloud, and Workday.

5. The offered service (Application Management) enables clients to automate their business, improve efficiency across people, applications and vendors, and increase productivity in general.

Digia

1. Application Management is mentioned on the company's website, but it is not separated as a service sector. It is integrated into a general service package from which the customer can choose wanted services. It is only mentioned that the service can be delivered from a cloud or be built in the customer's environment.

2. As the Application Management is not listed as a headline in the company's service section, and is only mentioned twice within their whole webpage, hypothesis can be

made that the AMS sector does not play a big part in the company's service portfolio. They also barely promote the service through any channels. Alternative hypothesis is that AMS is considered such a natural part of their service that it is not mentioned separately.

3. There are no figures presented regarding Digia's AMS, but in general for the Finnish Digia, their turnover for 2016 was 84.6 million euros, with profit of 1.9 million (Vainu, 2018).

4. Regarding partnerships in combination with AMS (cloud services), Digia utilizes Microsoft Azure, IBM Bluemix, and Amazon AWS cloud platforms to offer solutions, which makes them likely to be used in AMS services as well. For the data managemet Digia uses inRiver's services. Digia has been a partner with Efecte from 2014. Their partnership is used for delivering software applications for Business and IT Service Management (Efecte Oyj, 2014). Digia has customers within 13 industries, but the customers which have received AMS services are not mentioned at all even though the service is mentioned on the company website and 80 customer stories have been listed, meaning that it is possible that there is yet to be a customer for AMS services.

5. No service promises were given regarding AMS.

Deloitte

1. In their own word they offer "Value Driven AMS" that delivers low cost labor and access to highly-skilled specialist. They offer digital, enterprise resource planning, information management and system integration.

2. Company is mainly specified to consultant, accounting, risk mapping and other areas. It is hard to say how big part of the company is focused on AMS, but it's clear that it isn't the main service that is offered. Hard to say the size as the company does so much different stuff it could easily be just a one of the provided services.

3. Deloitte's turnover has been slowly growing adding two to three million euros per year, in 5/2017 sales being 42.4 million euros with 352 employees and revenue development being +6% for past two years. Revenue in 2017 was 5 million euros. The latest EBIN being 11.4%. (Vainu, 2018).

4. Deloitte have worked with Adobe, Marathon Oil, Novant Health and Yamaha

5. Deloitte promises specialist to work with customers and fine tuning. Very generic promises. (Deloitte Oy, 2018.)

Solinor

1. Solinor offers cloud-based architecture and payment applications. For cloud solution they use Amazon Web Services (AWS). With AWS comes cloud automation

and no need for separate hardware. They list features that AWS can provide to their customers in basic, mobile, coding and other uses.

2. Company may use AWS in its other services as a base, but AWS services are one out of six given service descriptions.

3. Solinor with its 36 employee offers large scale of digital service consulting and softwares. Their turnover was worth of 4.1 million euros in 2016, making 415k euros revenue, EBIT being 10.1%. (Vainu, 2018).

4. Solinor's customers are t. ex. RAY, nets, DNA, Fundu, Pins, Watson, Maksuturva, Fressi, Bailataan.fi, Paytrail and Pizza Online.

5. Given promises were nonexistent or very generic.

Tieto

1. Tieto offers Azure based platform as a service model named Tieto OneCloud, where they offer IoT, Analytics, DevOps, storage, disaster recovery, data platform services and Infrastructure-as-a-Service (IaaS).

2. For Tieto AMS is just one of the services. Using application services Tieto promises up to 30% better cost-efficiency, 35% improved agility and operational efficiency and revenue gain of 10%.

3. Tieto Finland's turnover has been slowly declining two to three million euros per year, in 12/2016 sales being 655.5 million euros with 3008 employees and revenue development being -3.1%. Revenue in 2016 before taxes was 5.1 million euros. The latest EBIN being 4.6%. (Vainu, 2018).

4. Tieto's customers include Ericsson, Nokia, Unisys, Polystar, Giesecke & Devrient, Orga Systems, Argela, Mobile Arts Concurrent Systems, InnoPath, Myriad, and Patternmatched technologies

5. Possible 30 more cost-effective, 35% more agile and 10% more profit, at max. (Tieto Oyj, 2017.)

Atos

1. Atos offers range of different products; hybrid cloud solutions and Atos are Microsoft Cloud Solution Provider (CSP). Atos SE, (2016a) Atos describes its services "Atos provides a coherent and robust environment for application transformation, development and ongoing management. distinguished by its underlying focus on business outcomes" They describe their Application Management approach as Re-engineering application models. Atos offers multiple services that are customizable including Multi-Cloud Application Platform. Atos SE (2016b) Atos

foundry is described as follows: “Build, run and scale next generation applications and microservices with a fully managed multi-cloud application platform” (Atos SE, c). Atos describes its services claiming to be “Faster, smoother, more responsive applications for a changing world” (Atos SE).

2. It is hard to find exact numbers, but it’s included in their service. Atos does not share numerical information about their revenue structure. Atos AMS has been described to have high quality AMS Gartner, Inc (2017).

3. Turnover was 29.6 million euros 2016 according to Fonecta Oy (2018a). According to Atos, it has 13 billion euros and 100 000 employees in 73 countries, serving a global client base Atos SE, (2018a). Their turnover has steadily decreased in Finland from 65.5 million euros 2013 to current 29.6 million euros Fonecta Oy, (2018a).

4. According to Yle news Atos services to Pyeongchang 2018 Olympic games. Atos has listed their service coverage of Olympics on their website. They are also providing service for 2020 summer Olympics. Atos SE (2018c). Finnish government It framework deal for four years Jensen (2015). They have wide range of partner organizations. They divide those tree categories Alliances, Partners and other partners Atos SE, (2018b).

5. “A target for applications savings of 20% is modest – but the real objective is to boost business performance.” (Atos SE, b) “Full application lifecycle management and Re-engineer applications.” They also provide training, consulting, testing and digital assurances. They say that their service has an industry and a business focus. Organizations everywhere are optimizing their applications landscapes to drive up effectiveness and efficiency and reduce their costs.

TCS

1. TCS provides AMS. TCS offers Oracle AMS (Tata Consultancy Services Limited, 2018b) and SAP AMS (Tiwari, 2014), TCS Launches Enterprise Cloud Platform Powered by Cisco Application Centric Infrastructure. (Tata Consultancy Services Limited, 2017)

2. Gartner, Inc (2017) provides some examples of TCS AMS but it is hard to form complete picture how big of a part AMS is TCS revenue. TCS doesn’t share numerical values for AMS.

3. Global employee count 385 000 (Mynewsdesk, 2017) and revenue 14.26 billion euros (Gartner, Inc, 2017).

4. In Finland they work with: Lähitapiola, Euroclear Finland, Vattenfall Ab, TCS Cargotec, Nokia Siemens among others (Tata Consultancy Services Limited, 2018a). TCS is number one in customer satisfaction in Finland (Mynewsdesk, 2017).

5. It was hard to find specific information concerning their AMS. It seems that TCS’s have divided their application management services to three following categories: “1. Service management layer, 2. service integration layer and 3. service provision layer”.

The first layer is described to be central mechanism for IT governance it includes supplier and contract management. The second layer governs critical functions between customers and service integrator, application development teams and others. The third layer governs Application management and delivery. (Tata Consultancy Services Limited, 2017.)

5 Managerial implications/recommendations

5.1 Company A recommendations

Depending on openness of the low-code development platform and how easy it is to develop on top of it, some models like delayed freeness may not apply. Open code is hard to take back once given away. Free software models could solve the awareness problem where only so-called power users would gain revenue to company. Startup scene provides an angle to grow developer base and brand. Open source revenue models apply at the start, and it is possible to implement new revenue channels down the road or sell the assets. Open Source appeals to small companies.

If add-on model structure is chosen, customer segments are easily approachable through ERP providers. The fact that the model locks products to be offered only to ERP customers reducing the choice of possible customers need to be addressed. Alternatively, if Company A wants to adopt subscription based business model, it needs to compete on price, in other words, offer the platform at lower price than key competitors.

5.2 Company B recommendations

The global OOH advertising market will continue to grow steadily in the future but DOOH advertising will be the key component for industry growth between 2016-2021 (PwC, 2018). That said, we presume that each analyzed country will gain momentum in DOOH advertising since they are all technologically advanced countries. The most compelling countries for entry are Nordic countries with low entry threshold and similar market structure.

In Estonia a pilot program with Tallink or smaller chains like MyFitness is recommended to test the ground. Sweden can be considered as a potential market for entry since there exists a niche market for Company A's product and potential business chains for establishing partnerships. In Norway small chain businesses seem to be the optimal route to take, since bigger markets are already taken. There was recently a scandal of using uninformed face recognizing technology in a similar small chain, which needs to be addressed. Germany is a different kind of market which is highly competitive and regulated, so we recommend, working with partner companies that already have a presence in Germany.

5.3 Company C recommendations

After presenting our AMS benchmark analysis, Company C can and will clarify their service promise. We discovered that companies which provide AMS usually have vague description about the service. Company C will respond by writing comprehensive description of their AMS to clarify their services for potential customers. It also helped them to gain conformation to specify their service attraction by keeping the client specific specialist, who would be the main person of contact with the provided service.

6 Conclusions

As a result of conducted analyses, we produced three deliverables that addressed the business needs of the consulted IT companies. The Company A wanted us to consider alternative business models. By utilizing the business model canvas framework and knowledge of competitive landscape of low-code development platforms, we were able to compose five business model proposals. The Company B needed more information about the markets that they were considering entering in the future. We analyzed five markets and made recommendations on the most suitable markets for them to enter. With the help of the market analyses, the Company B can now make a more informed decision on where to head next. For Company C, we carried out a benchmarking analysis of their competitors. The results of the benchmarking can be used to improve the marketing efforts of their application management service. Now it is in the hands of the consulted IT companies to realize the value of the results by taking them into consideration when making strategic business decisions. Thanks to the course, we feel that we have gained valuable hands-on experience in consulting different IT businesses.

References

Laanti, M., Salo, O. and Abrahamsson, P., 2011. Agile methods rapidly replacing traditional methods at Nokia: A survey of opinions on agile transformation. *Information and Software Technology*, *53*(3), pp.276-290.

AdCityMedia AB (2016) 'Årsredovisning'. Available at: http://www.bequoted.com/bolag/adcitymedia/download/?file=arsredovisning-2016-56373/AdCityMedia_Arsredovisning_2016.pdf (Accessed: 25 Feb 2018)

AdCityMedia AB (2018) Digital Signage. Available at: http://adcitymedia.com/sv/digital-signage/ (Accessed: 5 March 2018).

Atos SE (2016a) Atos tarjoaa nyt Microsoftin pilvipalvelut, Atos. Available at: https://atos.net/fi/suomi/atos-tarjoaa-nyt-microsoftin-pilvipalvelut (Accessed: 5 March 2018).

Atos SE (2016b) Multi-Cloud Application Platform, Atos. Available at: https://atos.net/en/solutions/application-cloud-enablement-devops/multi-cloud-application-platform (Accessed: 6 March 2018).

Atos SE (2018a) Company Profile. Available at: https://atos.net/en/about-us/company-profile (Accessed: 5 March 2018).

Atos SE (2018b) *Partners and Alliances*, *Atos*. Available at: https://atos.net/en/about-us/partners-and-alliances (Accessed: 6 March 2018).

Atos SE (2018c) *What we deliver*, *Atos*. Available at: https://atos.net/en/olympic-games/what-we-deliver (Accessed: 6 March 2018).

Atos SE (a) 'Application Management'. Available at: https://atos.net/content/dam/global/documents/your-business/atos-pht-brochure.pdf (Accessed: 6 March 2018).

Atos SE (b) *Application transformation and management*, *Atos*. Available at: https://atos.net/en/solutions/application-transformation-management (Accessed: 6 March 2018).

Atos SE (c) *Atos Cloud Foundry Factsheet*. Available at: https://atos.net/wp-content/uploads/2016/11/atos-cloud-foundry-factsheet.pdf (Accessed: 6 March 2018).

Bennink, J. (2017) *Accenture Named a Leader by Everest Group for Automation in Application Development and Testing | Accenture Newsroom*. Available at: https://newsroom.accenture.com/news/accenture-named-a-leader-by-everest-group-for-automation-in-application-development-and-testing.htm (Accessed: 5 March 2018).

Casaló, L., Flavián, C. and Guinalíu, M. (2007) 'The impact of participation in virtual brand communities on consumer trust and loyalty: The case of free software', *Online Information Review*, 31(6), pp. 775–792. doi: 10.1108/14684520710841766.

CIVITAS Support (2012) Aalborg's bus info screens taken up across North Denmark. Available at: http://civitas.eu/content/aalborgs-bus-info-screens-taken-across-north-denmark (Accessed: 8 March 2018).

Clear Channel AB (2018) Clear Channels digitala nätverk växer kraftigt efter avtal med AdCityMedia., Clear Channel. Available at: https://clearchannel.se/news/clear-channels-digitala-natverk-vaxer-kraftigt-efter-avtal-med-adcitymedia/ (Accessed: 5 March 2018).

Coop Danmark A/S (2018) *In English*. Available at: https://om.coop.dk/koncern/in+english.aspx (Accessed: 5 March 2018).

CustomIT (2018) *Palvelut*, *CustomIT*. Available at: http://www.customit.fi/palvelut/ (Accessed: 5 March 2018).

Dagrofa aps (2015) *Dagrofa i dag*. Available at: https://web.archive.org/web/20150402123653/http://www.dagrofa.dk/da-DK/Om-Dagrofa/Dagrofa-i-dag.aspx (Accessed: 6 March 2018).

Dansk Supermarked Group (2016) *Key numbers*. Available at: https://dansksupermarked.com/about/key-numbers/ (Accessed: 5 March 2018).

Databoard ApS (2018a) 'About - What is Databoard?', *Databoard*. Available at: https://getdataboard.com/about-info-screen/ (Accessed: 5 March 2018).

Databoard ApS (2018b) *Product*, *Product*. Available at: https://getdataboard.com/product-info-screen/ (Accessed: 5 March 2018).

Deloitte Development LLC 'Application Management Services'. Deloitte Development LLC.

Deloitte Oy (2018) *Application Managed Services*, *Deloitte Oy*. Available at: https://www2.deloitte.com/fi/fi/pages/technology/solutions/csf-emea/managed-services-csf.html (Accessed: 5 March 2018).

Did Digital Development AS (2018) *Did – Digital Development*. Available at: http://www.did-norway.com/ (Accessed: 5 March 2018).

dnp denmark AS (2018) *About us*, *dnp Screens*. Available at: http://www.dnp-screens.com/en/about/about/ (Accessed: 5 March 2018).

Dumas, M., Aalst, W. van der and Ter Hofstede, A. (eds) (2005) *Process-aware information systems: bridging people and software through process technology*. Hoboken, N.J: Wiley-Interscience.

Efecte Oyj (2014) *Digia Becomes Efecte's Service Management Partner*. Available at: http://article.efecte.com/news/digia-becomes-efectes-service-management-partner (Accessed: 5 March 2018).

EVRY A/S (2018a) *Application Advantage*. Available at: http://www.evry.com/en/what-we-do/key-services/application-management/ (Accessed: 5 March 2018).

EVRY A/S (2018b) *Customers*. Available at: http://www.evry.com/en/customers/ (Accessed: 6 March 2018).

EVRY A/S (2018c) *EVRY*. Available at: http://www.evry.com/en/ (Accessed: 5 March 2018).

Export Entreprises SA (2018) *Reaching the Norvegian consumer*. Available at: https://en.portal.santandertrade.com/analyse-markets/norway/reaching-the-consumers (Accessed: 8 March 2018).

Fonecta Oy (2018a) *Atos - Y-tunnus: 2324120-2 - Yritystiedot, taloustiedot, päättäjät & hallituksen jäsenet*, *Finder.fi*. Available at: https://www.finder.fi/IT-

konsultointia+IT-palveluja/Atos/Espoo/yhteystiedot/2382962 (Accessed: 5 March 2018).

Fonecta Oy (2018b) *CustomIT Oy - Y-tunnus: 2515452-4 - Yritystiedot, taloustiedot, päättäjät & hallituksen jäsenet*, *Finder.fi*. Available at: https://www.finder.fi/IT-konsultointia+IT-palveluja/CustomIT+Oy/Sein%C3%A4joki/yhteystiedot/2754533 (Accessed: 5 March 2018).

Galbreath, J. (2005) 'Which resources matter the most to firm success? An exploratory study of resource-based theory', *Technovation*, 25(9), pp. 979–987. doi: 10.1016/j.technovation.2004.02.008.

Gartner, Inc (2017) *TCS Application Management Services*, *Gartner*. Available at: https://www.gartner.com/reviews/market/oracle-application-services-worldwide/vendor/tcs/ (Accessed: 5 March 2018).

Ghosh, B. 'A New Beginning For Application Management', *APAC CIOoutlook*. Available at: https://healthcare.apaccioutlook.com/cxoinsights/a-new-beginning-for-application-management-nwid-4423.html (Accessed: 5 March 2018).

Google (2018) *Gym, Denmark*, *Google Maps*. Available at: https://www.google.fi/maps/search/Gym,+Denmark/@55.6838408,9.5178687,7z/data=!3m1!4b1?hl=en (Accessed: 4 March 2018).

Hotelchains.com (2018a) *Hotel chains in Denmark*. Available at: https://www.hotelchains.com/en/denmark/ (Accessed: 5 March 2018).

Hotelchains.com (2018b) *Hotel chains in Norway*. Available at: https://www.hotelchains.com/en/norway/ (Accessed: 5 March 2018).

Immediad Group (2018) *Immediad Group*. Available at: https://immediad.com/led-screens/ (Accessed: 5 March 2018).

Innofactor Oyj (2018a) *Customers*, *www.innofactor.com*. Available at: http://www.innofactor.com/partner/customers (Accessed: 5 March 2018).

Innofactor Oyj (2018b) *Innofactor in Brief*, *www.innofactor.com*. Available at: http://www.innofactor.com/company (Accessed: 5 March 2018).

Innofactor Oyj (2018c) *Intelligent Cloud*, *www.innofactor.com*. Available at: http://www.innofactor.com/intelligent-cloud (Accessed: 5 March 2018).

Innofactor Oyj (2018d) *The Innofactor Offering*, *www.innofactor.com*. Available at: http://www.innofactor.com/solutions (Accessed: 5 March 2018).

Internet Center for Management and Business Administration Inc (2010) *Market Analysis*. Available at: http://www.netmba.com/marketing/market/analysis/ (Accessed: 6 March 2018).

JCDecaux Eesti OÜ (2018) *JCDecaux Estonia launches digital screens*. Available at: http://www.jcdecaux.ee/en/newsroom/jcdecaux-estonia-launches-digital-screens (Accessed: 5 March 2018).

JCDecaux Sverige AB (2018) *Products*, *JCDecaux*. Available at: https://en.jcdecaux.se/products/ (Accessed: 5 March 2018).

Jensen, G. J. (2015) *Atos signed framework agreement with Finnish government*, *Atos*. Available at: https://atos.net/en/2015/non-classe_2015_06_17/pr-2015_06_17_04 (Accessed: 5 March 2018).

Lakhani, K. R. and Wolf, R. G. (2003) 'Why hackers do what they do: Understanding motivation and effort in free/open source software projects'.

Li, Y. (2011) 'ERP adoption in Chinese small enterprise: an exploratory case study', *Journal of Manufacturing Technology Management*, 22(4), pp. 489–505. doi: 10.1108/17410381111143130.

Medienorge (2018) *Medienorge - fakta om norske massemedier - hovedsiden*, *medienorge*. Available at: http://medienorge.uib.no (Accessed: 5 March 2018).

Meirelles, P. *et al.* (2010) 'A Study of the Relationships between Source Code Metrics and Attractiveness in Free Software Projects', in. IEEE, pp. 11–20. doi: 10.1109/SBES.2010.27.

Mendix (2018) *Win in a Software-Driven World with the Mendix Platform*, *Mendix*. Available at: https://www.mendix.com/ (Accessed: 5 March 2018).

Multiq Systems AB (2018) *A complete solution provider*. Available at: https://multiq.com/our-offer/a-complete-solution-provider (Accessed: 5 March 2018).

Mynewsdesk (2017) *Tutkimus: TCS Suomen ykkönen asiakastyytyväisyydessä*, *Mynewsdesk*. Available at: http://www.mynewsdesk.com/fi/tata-consultancy-services-tcs/pressreleases/tutkimus-tcs-suomen-ykkoenen-asiakastyytyvaeisyydessae-1937016 (Accessed: 5 March 2018).

Nikkei Asian Review (2017) 'Smartphone facial recognition tech developed for Japan banks', *Nikkei Asian Review*. Available at: https://asia.nikkei.com/Business/Companies/Smartphone-facial-recognition-tech-developed-for-Japan-banks (Accessed: 5 March 2018).

ONELAN (2018) *Estonian shopping and entertainment enhanced with Digital Signage*. Available at: https://onelan.com/case-studies/dooh/solaris-shopping-mall-estonia.html (Accessed: 6 March 2018).

Osterwalder, A. and Pigneur, Y. (2010) *Business model generation: a handbook for visionaries, game changers, and challengers*. John Wiley & Sons.

Outdoor Advertising Association of America (2016) 'Worldwide OOH Advertising Market'. Outdoor Advertising Association of America. Available at:

http://oaaa.org/Portals/0/Public%20PDFs/MAGNA%20Global%20OOH%20Map.pdf.

Pedanik, P. (2018) *Pedanik, Priit*. Available at: https://ee.linkedin.com/in/pedanik (Accessed: 23 February 2018).

Piranya Software ApS (2018) *informationsskærme anno 2018!* Available at: https://piranya.dk/infoscreen (Accessed: 25 February 2018).

Poba- Nzaou, P., Raymond, L. and Fabi, B. (2008) 'Adoption and risk of ERP systems in manufacturing SMEs: a positivist case study', *Business Process Management Journal*, 14(4), pp. 530–550. doi: 10.1108/14637150810888064.

Rajpoot, Q. M. and Jensen, C. D. (2015) 'Video surveillance: Privacy issues and legal compliance', *Promoting Social Change and Democracy Through Information Technology*, p. 69.

Ram, J., Corkindale, D. and Wu, M.-L. (2014) 'ERP adoption and the value creation: Examining the contributions of antecedents', *Journal of Engineering and Technology Management*, 33, pp. 113–133. doi: 10.1016/j.jengtecman.2014.04.001.

Riigi Teataja (2008) *Advertising Act*. Available at: https://www.riigiteataja.ee/en/eli/522082014006/consolide (Accessed: 5 March 2018).

S-ryhmä (2018) *S-ryhmä lukuina*. Available at: https://www.s-kanava.fi/web/s-ryhma/s-ryhma-lukuina (Accessed: 5 March 2018).

Statista (2016) *Gross revenues from out-of-home advertising (OOH) in Germany in 2014 and 2016, by segment (in million euros)*, *Statista*. Available at: https://www.statista.com/statistics/590785/ooh-advertising-revenues-by-segment-germany/ (Accessed: 5 March 2018).

Statista (2018a) *Advertising spend Estonia 2007-2018 | Statistic*, *Statista*. Available at: https://www.statista.com/statistics/491773/advertising-spend-estonia/ (Accessed: 5 March 2018).

Statista (2018b) *Leading advertising agencies in Germany 2017*, *Statista*. Available at: https://www.statista.com/statistics/381209/leading-advertising-agencies-in-germany/ (Accessed: 5 March 2018).

Statista (2018c) *Outdoor advertising: revenue Germany from 2003 to 2021* (in million euros)*, *Statista*. Available at: https://www.statista.com/statistics/386811/outdoor-advertising-revenue-germany/ (Accessed: 5 March 2018).

Statistics Denmark (2018) *Advertising services*. Available at: https://www.dst.dk/en/Statistik/emner/erhvervslivets-sektorer/serviceerhverv/reklamevirksomhed-serviceydelser (Accessed: 5 March 2018).

Suomen Asiakastieto Oy (2018) *EVRY Finland Oy taloustiedot*. Available at: https://www.asiakastieto.fi/yritykset/fi/evry-finland-oy/18191968/taloustiedot (Accessed: 5 March 2018).

Tata Consultancy Services Limited (2017) 'Application Management Services for the Upstream Oil and Gas Industry'.

Tata Consultancy Services Limited (2018a) *Tata Search - Finland*. Available at: https://www.tcs.com/application-management-services#type=search&start=1&filter=All&q=finland (Accessed: 5 March 2018).

Tata Consultancy Services Limited (2018b) *TCS implementation services for Oracle Cloud applications*. Available at: https://www.tcs.com/implementation-service-for-oracle-cloud-app (Accessed: 6 March 2018).

Tieto Oyj (2017) *Tieto strengthens its cloud ecosystem – offers customers a wider scale of cloud services*, *tieto.com*. Available at: https://www.tieto.com/news/tieto-strengthens-its-cloud-ecosystem-offers-customers-a-wider-scale-of-cloud-services (Accessed: 5 March 2018).

Tiwari, A. (2014) *TCS in Top Three: Gartner Worldwide SAP AMS Report*, *Enterprise Insights*. Available at: http://sites.tcs.com/blogs/enterpriseinsights/tcs-gartner-sap-critical-capabilities-report/ (Accessed: 6 March 2018).

Turton, W. (2017) 'A pizza shop used facial recognition in its ads and they're pretty sexist', *The Outline*. Available at: https://theoutline.com/post/1528/this-pizza-billboard-used-facial-recognition-tech-to-show-women-ads-for-salad (Accessed: 5 March 2018).

Vainu Finland Oy (2018) Available at: https://vainu.io/ (Accessed February / March 2018).

Viniczai, A. (2015) *Economic and advertising trends in Central and Eastern Europe*. Available at: http://www.wecan.net/page/detail/34/economic-and-advertising-trends-in-cee (Accessed: 5 March 2018).

Visual Art AB (2018) *Digital Signage*. Available at: https://visualart.com/en/digital-signage/ (Accessed: 5 March 2018).

W., C. (2016) 'Denmark's restaurants and cafés struggling financially – The Post', *CPH Post*. Available at: http://cphpost.dk/news/denmarks-restaurants-and-cafes-struggling-financially.html (Accessed: 5 March 2018).

Wedel, M. and Kamakura, W. A. (2012) *Market segmentation: Conceptual and methodological foundations*. Springer Science & Business Media.

Wikipedia (2018) 'Business models for open-source software', *Wikipedia*. Available at: https://en.wikipedia.org/w/index.php?title=Business_models_for_open-source_software&oldid=827081532 (Accessed: 5 March 2018).

Yang, L., Xing, K. and Lee, S.-H. (2010) 'A new conceptual life cycle model for Result-Oriented Product-Service System development', in *Service Operations and Logistics and Informatics (SOLI), 2010 IEEE International Conference on*. IEEE, pp. 23–28.

Zhang, S., Gao, P. and Ge, Z. (2013) 'Factors impacting end-users' usage of ERP in China', *Kybernetes*, 42(7), pp. 1029–1043.

Author biographies

Mika Hartio is a master's student at the faculty of Information Technology in the University of Jyväskylä, Finland. He is majoring in information systems science and minoring in Japanese language. He was conducting these cases from Japan, where he is spending his student exchange year.

Juho Kantola is a master's student at the faculty of Information Technology in the University of Jyväskylä, Finland. He is majoring in information systems science.

Noora Leistiö is a master's student at the faculty of Information Technology in the University of Jyväskylä, Finland. She is majoring in information systems science.

Anssi Sorvisto is a master's student at the faculty of Information Technology in the University of Jyväskylä, Finland. He is majoring in information systems science.

Simo Viljanen studies IT. Did this for credits.

How Can Finnish Software Companies Improve Their Marketing, Sales and Project Management?

Ikävalko Juuso, Mattayev Mark, Puikkonen Marjo and Yrjänä Laura

University of Jyväskylä, Faculty of Information Technology
P.O. Box 35, FIN-40014 Jyväskylä, Finland

juuso.j.o.ikavalko@student.jyu.fi, mmattayev@gmail.com,
marjo.h.puikkonen@student.jyu.fi, laura.a.yrjana@student.jyu.fi

Abstract. Finnish software companies are facing various challenges throughout their lifecycle during which they become resilient and grow while others bankrupt and close down. Since there are numerous reasons influencing the outcome of the operations of Finnish software companies we were determined to find out which ones affects the success of three carefully chosen companies within a set analysis framework. In order to achieve this we conducted interviews with the companies, diagnosed specific fields of struggle and tailored a solution that would assist in achieving their own mission and vision. The context of the study was part of course at the university of Jyväskylä named "Advanced software business studies". By the end of the process the companies received a presentation which shed more light into success factors in each area. This report documents the analysis framework, case challenges and proposed solutions.

1 Introduction

The background of this report is a consulting project which aimed to analyze business activities of three software companies. For the project a group of four people was created and the companies contacted were chosen informally. The main criteria for the selected companies were the geographical location, to arrange the meetings with ease, and the size of the company, to get diverse insights to the consulting work. The addressed companies are of different sizes and operating in different market areas. All of them are operating fully or partly inside Finland. The aim of the research project was to provide insights of software companies' business operation and detect challenges that each individual company was facing. For the challenges some recommendations were made with the help of an analysis framework. The data collection method for the analysis was an interview of each company's management representative.

Company A is a small Finnish software company that has a quite standardized but adjustable software product for a specific customer market. In addition the company provides project activities like consulting and project management. The main challenge of company A was to find new markets that the software product could fit into.

Company B is a small Finnish software company that provides data center solutions and software development. The main challenge of company B was reducing the failures and overstated risk that they are taking when producing software to small projects.

Company C is a leading international software and equipment provider in Finland. Among others, they provide Hybrid information technology, cloud services, infrastructure services,cyber security and consulting solutions. The addressed challenge of company C was how digital marketing tools would work in B2B marketing. One of the implications this analysis noted was that the challenges the companies were facing had some similarities. All of the companies faced some level of difficulties in marketing operations and customer acquisition.

Firstly the used analysis framework is introduced. After that the case companies with each framework section are presented. The next section provides the recommendations of the authors for the companies' challenges. The final part includes a conclusion of the research conducted. Acknowledgements, references and author biographies are presented at the end of this report.

2 Analysis Framework

This section describes the analytical lenses for our consulting work. The framework was developed in the framework development workshop in January 2018. The framework includes the following sections: Customer/market, Product/service life cycle, Financial metrics, Resource management, Vision, mission, value (VMV) and happy people and Processes/Tools (Productivity management). Within these six subtitles is described different information about the case companies in order to find operations that needs correction. Some of the case companies had own vision about their fixing point so in these cases the analytical framework wasn't applied as effectively as in cases where they had no fixing points in mind.

2.1 Customer/market

In this element is described the customers and market of the analyzed companies. The purpose of this element is to find out what are their key customers (individuals, big or small companies), what is their market area (in Finland, in other countries), what is their company size comparing to their competitors, what is their position in competition and how are they marketing their products. Through this lens is searched information about possible pitfalls within the case companies' customer segments and market orientation as well as possibility to move to a foreign market.

2.2 Product/service life cycle

In this element is described the main products of the case companies as well as their service life cycle. In order to find out the information about their products and service

life cycle, series of questions were asked. The questions were: what are your main products and services and how those are different than the competitors, what is your main revenue generation model (SaaS, PaaS or something else), what are your strengths comparing to your competitors, do you have something new incoming, how you keep your place in market, how much time you spend for innovation, what kind of value your products offer to your customers (Unique Value Proposition), what do you find hard in doing business in your field and do you use Lean startup methods in your product development(fuzzy front end, etc.). The purpose of this analytical lens was to find out the information about the case company's product supply and main revenue generation model in order to find weaknesses within their products and business around their product.

2.3 Financial metrics

In this section is described the case companies financial metrics. The purpose of this section is find out sales, revenue and other significant metrics about the companies in order to find out possible problems with their metrics and causing of the problems. To find out the metrics these questions were asked: what is your cost structure, how your sales are and what is causing them to increase or decrease, what is your revenue this year and the estimation of the revenue in years to come, and what is your expectation for getting more (new) customers in future (Customer Acquisition Cost).

2.4 Resource management

In this section is described the case companies main resources and processes related to resources. The interesting questions are how many employees they have right now, are they planning going to recruit more in the near future, what skills (from the employee) they prefer to have, what do they think about expanding their company to other city or country and do the case companies think they have enough resources (money, employees, time, other) to success in the future. The main purpose of this section is to find out if the case company have problems with their resource management or the analysis shows knots in their resource processes which can be solved afterwards.

2.5 Vision, mission, value (VMV) and Happy people

By understanding what is the vision, mission, values and the relations to human resources we are able to determine whether the company is achieving its stated goals while ensuring the sustainability of their workforce. In this section we attempt to recognise if there are any company policies which guide employees to achieve their mission and if there is enough awareness of these instructions.

2.6 Productivity management

This section describes the processes and tools used to generate the outputs of the company and how these are managed. In this study the focus lays on the main processes of each company that describe the general steps for a typical project and the tools that are used in these processes. The purpose of this section is to gain an overall picture of the company's productivity management and to get information about possible challenges related to it.

3 Case Companies

In this section is described the basic information of case companies and their main business idea. For the anonymity of the companies, they are named Company A, Company B and Company C.

3.1 Company A

Company A is a small Finnish software company who sells their own innovated enterprise system combined with work management tools. The software is developed for service business and mobile work and due to its flexible nature it can be fitted to different kinds of customer needs. The other part of the business includes project activities like consulting and project management. Currently around 20% of the revenue comes from the product sales and 80% from project activities. The company has achieved a stable growth in the past years and at this point it focuses on a certain customer market inside Finland. Also first steps of taking the business outside Finland have been taken.

An essential part of the company's marketing activities is the participation in business fairs. The company has also followed through some bigger marketing campaigns during the past years, however with little success. Because of that the company mainly relies on its own sales and the main customers come through it.

3.2 Company B

Company B is a Finnish software company which has two main product: data center solutions and software development. Their business started as data center and has transformed to software business by buying different smaller software companies as well as generating their own software development. The company is a small to medium sized when compared to other Finnish software companies. They have not paid dividends since they have invested their revenues for innovation and new software development. The company has gained steady growth in recent years.

The income for the company B comes from the data center, software development with their completed products which requires little or no modification, and pay per hour software tailoring. They are trying to specify their product to certain business

areas since it is easier and more profitable to modify the system in that field when the major tailoring is already done.

3.3 Company C

Our third case company is a leading international software and equipment provider in Finland. With their widespread activities in these field they aim at attracting more and more customers for digital software services via digital marketing channels. Therefore, the main focus area for our study was to choose the most relevant digital marketing tools in Business to Business context in order to promote their brand and increase awareness. To conduct this study we followed an analysis framework which was shared with two company representatives who later on replied to specific questions regarding their operations and market development.

4 Results of the Analysis

In this chapter we described the analysis results of the three case companies. It is based to the framework that is described in chapter 2.

4.1 Company A

For the case study we interviewed the CEO of the company A. The CEO has worked for the company for several years and could provide an overall picture of the company's operations and way of working. We focused our interview on the markets and sales from the product business point of view since the current plans of the company are related to maintaining their growth by seeking new customer areas for the software product. Even though the product is of good quality, the challenge lays on selling the product to get new customers and increasing the product business. The company has been thinking about the next steps of the product business and what markets the software could fit into. This analysis provides some insights to those questions.

4.1.1 Customer/market

The company has customers all over Finland and at this point it is planning to also go outside Finland in the near future. Most of the company's customers, related to both product and project business, are bigger company's and the number of small sized companies is rather small. The biggest customers of the company come from government and public sectors and are related to project activities. In the product sales the customers are from a certain customer segment.

There is some competition in the same market area that the company operates in. However it has managed to build strong customer relationships with the easy to use,

ductile and high quality product, and a customer oriented project approach. The product benefits are that it is agile and it can be customized to many kinds of customer needs.

The customers come mainly from their own selling and also via competitive tendering. Either the company or the product is not that well known, so the customers usually don't take straight contact. From the current customers point of view the value that the company carries out is related to the easy approach to the company, credibility of the company and the good mutual understanding with each other.

The company followed through a marketing campaign in the past year, but reached little success through it. One of the main marketing activities is participating in business fairs, to get new leads. The company's marketing activities focus more on the product business, but also activities on the project business side have been started to add lately. In the future the company has planned to spread email letters and after that contact the customers by calling them. The company has been industrious in its marketing efforts, but still face some challenges in growing their customer base especially for their product.

The company were facing the problem that how they will concruit new customer markets and what kind of markets they should concentrate on? What kind of customer or customer relationship models would be most profitable for them? Or should they consider of some partner model? The next framework helps to clarify the company's present state and gives some introduction for our solutions.

4.1.2 Product/service life cycle

The business of the company is divided in two parts: project business and product business. The project business includes activities like consulting and project management. The main product of the company is an ERP and work management tool developed for the needs of service business and mobile work. Due to the software's agile nature it can be fitted to many kinds of needs. The software can be implemented as an extension to the customer's other software components or as the main information system. The product's revenue generation model is Software as a Service. The customer pays an implementation fee and after that a monthly payment.

The product business has achieved good efforts in the past years. However, its future development trend is still a question mark and one challenge of the company is to consider what the best next steps could be to gain business value through their product. Should they invest more in product development, so that the product would suite better to new markets?

4.1.3 Financial metrics

The company has grown its sales continuously in the past years. Within five years it has doubled its size and now the revenue is over one million euros. This has been achieved by providing a feasible software product that has been targeted to a certain

customer segment, but can be fitted to many different needs. In addition and also the bigger part of the revenue comes from project activities that have been sold to big companies (on the Finnish scale). In the future the company wants to pay more attention to maintain the growth from the product's point of view by considering opportunities to find new customers and increase the sales. What are the main key functions that would help to get more sales with this product?

4.1.4 Resource management

At the moment the company employs less than 50 people. The workload is divided approximately in half which of the one is working with the project business part and the other with the software product part. Most of the employees working with the product are full stack developers. In the near future the company is planning to hire more employees especially with technical expertise as it helps in all of the projects and the further development of the software. Since the people are the most important resource of the company the wellbeing of the personnel is of great importance in everyday work and enhancing the atmosphere is an ongoing process of the company. Would it help to maintain the growth, if more people were involved to the product development?

4.1.5 Vision, mission, value (VMV) and Happy people

The company's values are: the benefits of a small company, agileness, initiativeness, trustfulness and taking into account customer needs. The goal is to have the best tools to control the workloads. The mission is to help the customer in their competition and to take responsibility of the customer's software. As a quite small company, the cooperation from the customer's point of view is easy and the needs are taken into account. The company is determined to get the work done and to maintain strong customer relationships. As a result successful customer stories have been created. As the problem is to get new customers from new markets, would it help to make different kind of customer relationship models?

4.1.6 Processes/Tools (Productivity management)

In the development process the company uses agile development methods like Scrum and Kanban. The project starts with defining the problem and the requirements which is followed by planning and implementation of the project. Keeping in touch with the customer during the whole process is essential and every team member will join the meetings. The teams don't have project managers. The projects last from one month to one year depending on the scope of the project. Usually there are around 2-3 projects going at the same time. The organization structure is low which helps in dividing the workloads.

4.2 Company B

For the analysis we interviewed the financial director of the company B. The financial director has been working in the company for several years and have wide knowledge about the company's current situation and problems. The focus of the interview was on the exact problems that the company B has encountered throughout their existence. Since the interviewed is in the charge of finance, the raised issues are closer to economic side of the business rather than technical aspects of the company.

4.2.1 Customer/market

For the company B, they have no particular key customers. The strength for the company is tailored services which they are producing to every kind of business. If a customer is willing, the company will produce the product for them. The company prefers bigger companies since the smaller project often go over budget and causes losses for the company. The company's market area is in Finland. In Finland, the software market is very divided which means there is startups and market leaders. The company B is situated somewhere in the middle and would be considered as medium sized company. As well as size, the position in market is rather stable as the sales have been increasing with the market average.

4.2.2 Product/service life cycle

The main product of the company is ERP-system. Their ERP-system is tangible and can be modified to different business sectors quite simply. Also, their data center runs Company B products for their customers and also external customers can buy room from their servers to run their systems. The company's software development focuses on ERP-systems which they have sold to many different business sectors. Also the company has working time monitoring systems and other smaller software's which they have gained through buyouts.

Their main revenue generation model is Software-as-a-service (SaaS) where the customer pays fee per month for agreed amount of time.The company calculates their income by adding the pay per month fees with the fixed term contract which reports their maximum costs. The customers often continue to use the service after the fixed-term contract expires which generates more than calculated income for the company.

Compared to other vendors, the company B offers the full service with the data center and ERP-system solutions as well as helpdesk availability. The customer pays one payment per month for the whole service. That gives the company leverage compared to their competition.

4.2.3 Financial metrics

The company have increased their income and revenue yearly. They are planning to continue their growth by developing their existing product as well as innovating new creations. Also they are providing their main ERP-system to new business sector which aims at getting new customer segments to the company. Their revenue has not been as high as they had hoped since smaller project failures cause revenue losses.

4.2.4 Resource management

The company B has less than 50 employees. The majority of the company's employees are working with the code of the products. Also they have salespersons, datacenter employees and IT-support. The company prefers different skills depending on the position of the employee. The main skill is to understand the information technology environment as well as the software business processes. The company has considered internalization but have come to conclusion that legal and process modification for their system is too costly and it is not relevant at this stage. Mainly the company have enough resources for efficient business.

4.2.5 Vision, mission, value (VMV) and Happy people

The vision for the company is to provide services to different clients by offering superior solutions for their business problems. They are trying to create conditions for reliable partnership and cooperation that progresses both the client's and company B's businesses. They are trying to succeed together with the client via open and discussing atmosphere.

4.2.6 Processes/Tools (Productivity management)

The company B is developing product with the agile and waterfall method. Mainly they are using agile methods but the method is dependent on the project. Usually the bigger project are producing good income and revenue for the company but they have had problems with the smaller projects. The most profitable and risk free solution for the company is pay-per-hour developing which is often the case with long term customers.

The trickiest part fort the company is project where the price for the product is agreed beforehand. Especially this is problem with the smaller project (10000 to 20000 euros) where system specification and developing often causes the project to go over time and budget. Smaller project are important since they often provide long term clients for the future. The main focus of the company is to have more large clients which are willing to do the pay-per-hour developing for their products. Smaller project are a way gain these clients. Also they have communication problems with some of their customers which often cause failures for the projects.

The company is looking for solutions on how to manage the smaller project so that they don't cause losses. Also they are finding answers on how to avoid pitfalls which are causing unnecessary losses in their projects and solutions on how to more precisely calculate the price of the system for the client. The solution could be a framework or a tool for managing and calculating the project. That may help to evaluate the project beforehand in order to decide is it profitable for the company to do the project at all or should they stay out of it. Also more cooperation with the client is needed.

4.3 Company C

For the analysis of company C we conducted an interview with two representatives, one who is an expert consultant and the other is a division director. Both have been working for the company extensively and have deep insights.

4.3.1 Customer/market

According to the company representatives, their key customer segments are in public administration such as municipalities and central government in Finland and also in Nordics. In addition there are customers in private sector whose software needs differ based on their business areas. Compared to its competitors, the size of the company is relatively big and they consider themselves to be a market leader as their position has been growing in the past few years. Nonetheless, the software segment of the business is similar to its competitors and since the Finnish market is fragmented both small and big companies are actively competing for the same projects.

The means by which the company has been promoting its offerings have been mainly face-to-face meetings, different expert events and networking in the area of our solutions and segments. In order to achieve the most effective marketing results the company has been employing marketing specialists, who help with marketing material and campaigns with the visual expression and in marketing action. The role of marketing differs from one department to another yet in expert solutions area (B2B) there is the most need for it in order to increase the awareness level of our offers which usually result in new customer acquisition and new market opportunities.

4.3.2 Product/service life cycle

The main products and services in the area of information management, case and content management and electronic archiving and e-services (self-services). Their solutions form a coherent service portfolio with interoperable modules for customers to manage their information intelligently. Information guides the operations and it can be used for automating the processes and acting as a basis for analysis for business intelligence. The main unique value proposition offered is agile services which quickly respond to the changing needs of the legislation and markets. The revenue

model varies and the Services can be offered based on SaaS (software as a service) or on-premises solutions, depending on the customer's industry or needs.

Compared to its competitor's usability is definitely one key differentiator. Another is adaptability which allows them to integrate into any other system. Additional important differentiator is strong partnership cooperation with public owned in-house companies, owned by e.g. municipalities and other municipality organizations, such as public education organizations. By agreements with these in-house companies, the customer and owners of these companies are able to acquire services directly from them.

4.3.3 Financial metrics

Historically, the case company has had a steady stream of revenues and it expects to grow its revenues from software and digital services. The long term relationship with local municipalities secures a solid foundation for expansions.

4.3.4 Resource management

The company is considered to be one of the biggest employers in the IT field and continuously looking for skilled employees from various technical backgrounds. Since it is a multinational brand we believe that it has the power to attract skilled employees. The employees are participating in various trainings to upkeep their knowledge and knowhow. The wellbeing of the employees are measured periodically through surveys.

4.3.5 Vision, mission, value (VMV) and Happy people

The vision of the company is to create a networked society which would bring about a prosperous future. Their mission is to contribute to the economical and reliable software development and hardware design globally. The core values are respect for diversity and support individual growth, being a trusted partner while focus on building mutually beneficial relationships and innovation. New employees are introduced with the vision, mission and values and are expected to follow them through company work policies.

4.3.6 Processes/Tools (Productivity management)

Project and process management are highly important and managers undergo a unique training program by which they are equipped with the knowledge of internal processes which provide on budget, timely and high quality solutions. Process may also include Kanban for visualization and Scrum for agile development. The

measurement is made through defining SMART objectives and key performance indicators.

5 Managerial implications/recommendations

This chapter describes our solutions and recommendations for every company's challenges. We have used some theoretical background in every case to get deeper viewpoint to these solutions.

5.1 Solutions for Company A

The company's main product is an adaptable cloud-based enterprise system designed for needs of service business and mobile work. The current customer group operates in the field of maintenance, repair and installation. The company has managed to create valuable customer relationships through their high-quality product and customer-oriented project approach. However, the target market is narrow and new customers segments, sales increasement through marketing and internationalization have to be considered in order to maintain the growth.

One challenge that the company is facing is how they can get new customers for their specific product. As they are now selling it for the certain customer group, it should be considered if the product is suitable for other ones. The company's current product is quite easily tailorable to different kinds of customer's needs, so the main thing to consider is what the most valuable customer groups would be. The software is developed to a working environment where work is mobile and happens outside the office. Their current customers are from maintenance and repair companies, like electricity, construction and guarding sector and the new sector should be even larger in order to get more sales through it.

One potential customer segment for the company's product could be wholesale. Wholesale markets are large and companies are operating geographically dispersed. The range of different kinds of users is wide which underlines the importance of a feasible, agile enterprise system that is easy to use. Wholesale operation functions include i.a. materials management, management accounting, sales, distribution and marketing. According to one study, that focused on Finnish wholesale companies' selection of ERP systems, software features like the continuity of the software's product development, specialization to the company's industry, reporting features and support for decision making, adaptability and flexibility, and integrability to the company's other systems were considered as important factors. (Sarpola, 2003) The wholesale markets are quite heterogeneous but main activities are mutual and a need for an adjustable enterprise system with effective work management features might be substantial and could be a valuable benefit.

Another suitable customer segment could be in healthcare business. The field of healthcare is large and includes service business and mobile work like home care

services for seniors. There is a need for a work management tool, which employers can use outside the office, on the road. In healthcare business the security requirements are very strict. The system has to be trustful and well protected so that the patient's data stays secure, which has to be taken to account. Also legal issues must be considered. Other segments could be in insurance and cleaning companies. These are smaller than the healthcare business, but very good for increasing the sales.

Another challenge lays in marketing operations. Marketing and customer relationships are key concepts that should be taken care of. It's important to get good customers stories, because that's how gaining new leads gets easier. As this product is quite new, it needs some marketing to support its sales. Also internationalization needs good marketing behind. The product has to be developed continuously so that the sales won't stop to the one customer segment.

The challenge is not only in the segments but also in the sales. The product is quite hard to sell, because the work management tools in customer companies is changed seldom. One has to be there at the right time, when companies are willing to change it. One solution could be cooperating with some well-known companies for example ERP systems providers or companies that offer financial management services. The key is to get the product better known, so that it would market itself. The product needs some marketing behind it, because otherwise it won't be seen.

Another crucial thing in the sales increasement is to win the customer's heart. Clear communication is in the main role and it has to be simple. Looking outside in helps to understand the customer's problem points. The following framework (see figure 1) shows the key questions that the customer considers choosing the new ERP systems. These questions the company should think of when selling new system to customer. The usual challenges in winning the customer, are the old habits. Company management might be old fashioned and want to stick to their old habits. Changing the way of work needs lot of work and good change management behind. The companies might not be ready for this kind of work yet. It's important that the customer sees the benefits and values that this brings, not only the hard work and costs.

Item	Question
Vendor size	1. Does the vendor's size suit our company?
Complexity	1. Is the ERP system too complex, or is it a good fit? 2. Does it fit our requirements, or is it overqualified?
Cost vs. budget	1. What is the total cost of the project? 2. Can we accept the difference between the cost and budget?
Domain knowledge	1. What is the provider's target domain and market? 2. Does it match to our business needs?

Flexibility	1. Is the technology flexible and durable?
Covering requirements	1. Does the system and its modules cover all our requirements?
Fundamental	1. What database and hardware can be supported by the system?
Information technology	1. Does the vendor provide other information systems, such as SCM, MES, DW, CRM, and EC? 2. Does the vendor widely integrate its system with other partners' information systems?
Implementation methodology	1. What is the implementation methodology? 2. Is it feasible and simple?
Service maintenance	1. Who supports upgrades and maintenance? The software supplier or the reseller? 2. Does the vendor have any local service point or a branch company?
Consulting service	1. Does the vendor provide consulting services? 2. Does it cooperate with another consultant company?
Financial consideration	1. How did the vendor perform financially over the last two years? 2. What is its current financial forecast? 3. Does it have any venture investment or warning signs?

Figure 1 Examples of screening questions (Wei & Wang, 2004)

What it comes to exporting, in consequence of the limited potential of the home markets, small software firms very often cannot avoid internationalization. (Bell, 1995) At this point the company has made their first moves outside Finland and there might be great potential to go further. When going global the company should consider a strategy that fits best to their product and business. On the one hand, with a highly standardized software product, cooperating with target market's leading customers' plays a key role what it comes to staying ahead in the competition. On the other hand, with a tailored software product, inter functional coordination is of great importance and regardless to the geographical location quality of customer response should be well managed. (Ruokonen, 2008)

5.2 Solutions for the company B

Since one of the biggest troubles for the company is the failures and overstated risk that they are taking when they are producing software to small projects, there should be a guideline to handle these projects. The easiest way to avoid these problems would be to not do them at all but since the company needs new clients and produces software to all kinds of businesses, that is not acceptable. One of the suggestion could be an agile contract model. The company has used agile methods when they have developed systems to bigger clients, but have not been able to use them as much in the smaller projects since the budget is not that easy to calculate and these clients value solid prearranged price. The problem with the fixed-price is that the company takes on all of the scope risk and the required contingency makes projects extremely expensive (Eckfeldt, Madden & Horowitz, 2005).

Clients also lose out in fixed price because they commit themselves to a scope too early in the project and then suffer the cost and difficulty in making changes once they realize their needs are different (Eckfeldt, Madden & Horowitz, 2005). In the agile contract model, the contract is based on target cost. The total hours is used to calculate the target cost for the project (Eckfeldt, Madden & Horowitz, 2005).The negotiating focuses on standard hourly or daily rate which is based on a review of the projects' cost structure (salaries, overhead, downtime, sales, costs, etc.).

The upsides with the agile contract model is the shared risk with the producing company and the customer. The customer agrees on fee that is not fixed on prearranged manner but rather than for the scope of the price. The company gives the customer price range which the project settles and the final price depends on the modifications and customizations of the system that is developed. Also the customers may be more willing to commit to the project since they have possibility to gain savings by doing their part as best they can. That may improve communication and co-operation with the customer.

One downside could be that the agile contract model requires customer involvement which may cause problems with some of the clients. Since a research on contract type effect on project performance showed that partnering/alliance contracts are more likely to successful, the customers that are ready to be involved in the project should favored (Suprapto, Bakker, Mooi & Hertogh, 2016).

Another downside is the lack of solid price for the customer which may be a pitfall in the selling stage. The easiest way to avoid this problem is to analyze a simplified product, a target product and a superior product for the customer. Different products have different features and upgrade in features affect price. For example if the calculated price for simplified product is 20 000€, price for the target product 25 000€ and superior product 30 000€ the scope for the system price is 20 000€ -30 000€. The average price is the price of the Target product. The final price is based on the features that are added or left out from the system within the project. Example from the product pricing is found on Figure 1. If the customer wants simpler system as was previously negotiated, the price drops, and if the customer wants more features than designed, the cost for the customer is the price of the superior product.

Figure 2 Example of the price scope

The agile contract model offers a solution for the fixed-price problem, which often causes the budget to go over, as well as for the communication problem with the customer. When using this method, the company B is able to reduce their risk and share it with the client. The client has the ability to have a more appropriate system for their use as well as gain savings through the agile contract model.

5.3 Solutions for company C

Despite the fact that the case company uses various digital marketing tools in its communication efforts, the knowledge and connection between sales and marketing in B2B context is ever evolving and becoming more relevant not only in B2C settings. Therefore, the main focus of the study was to make suggestions on how digital marketing tools would work in B2B marketing, especially focused in public sector customer segment.

In order to find the most relevant B2B tools we categorized them into three main marketing functions: sales, branding and customer service.

To increase the brand awareness and communicate a new message to a targeted group of stakeholders the company can make use of the following tools:

Search Engine Marketing: Advertising on search engines is considered a very efficient tool as it indicates a direct expression of field of interest by user (Larson & Draper, 2017). For instance if a user searches the term "cyber security services provider in Finland", this is a strong indicator that the searcher might be interested sourcing the services of the case company. In such manner, the case company can use this tool by paying for ads on search engines to display their website or landing page among the first few results when a specific search term is used.

Targeted Display Advertising: Display ads are graphical ads offered in several formats in predetermined chosen sites (Google, 2018). Display ads can communicate a new brand message only on certain websites where the company believes its target

decision makers are visiting. The uniqueness of such ads is their ability to capture the attention of the reader and drive him to learn more about the offered product or service.

Linkedin ads: Social media tools have been more relevant for B2C marketing, yet some social media tools are suitable for B2B segments such as Linkedin. The market of the case company is specific and if it wishes to target a certain company and position, Linkedin advertising may be a very efficient tool through account targeting (Business linkedin, 2018). In this way a unique designated content will be shown to a decision maker in a specific chosen company. For instance, one ad can be posted on the homepage of an IT manager in the municipality of Tampere which turns it to a highly relevant content.

Influencer Marketing: An influencer in the marketing context is an individual who is perceived as having an impact, an influence, with a business' purchasing client base. For instance, they can be members of the blogging community, industrial analysts, prominent consultants and even trade association leaders (Olenski, 2017). The case company can scout for the influencers in their field and partner with them so they can spread their message and promote their brand.

In order to increase sales with digital marketing tools, the following are recommended:

Marketing Automation: A Corporate Executive Board study of more than 1400 B2B buyers found that customers rely heavily on online information sources and complete nearly 60% of a typical purchasing process before contacting a seller (Adamson, Dixon, & Toman, 2012). Chaffey and Ellis-Chadwick (2016) define marketing automation as "automated tasks in marketing and sales process to deliver more relevant communication", which in this case means, that certain actions made by a website-visitor could lead to contacting that certain consumer at the right time. In this plan, we are trying to integrate marketing automation to content marketing efforts. Therefore, Marketing automation software may assist in creating marketing qualified leads which will then be passed on to the sales department.

Geo Fencing: The case company conducts various events and conferences where they report they do not collect enough leads. Geo fencing, as a location-based digital technology, allows the selection of a geographic point using latitude and longitude and then create a virtual "fence" around that point of a given radius in which your ads can be served up (Lustig, 2017). This may increase the amount of traffic to the website and increase the possibility for a follow up.

VR demonstrations: Virtual Reality glasses allow a highly immersive presentation of products and services (Lustig, 2017). During the many fairs the company participates in, VR demonstration may be a highly effective tool to capture the attention of the users and thus increase retention. Moreover, once the customers understands how a certain system operates and its benefits visually they can make a better informed purchase decision.

Fore customer service optimization we propose the next two tools:

Online Customer Communities: In order to increase engagement with customers cost efficiently, online customer community can be introduced to existing customers as they enhance several cognitive, behavioral and emotional factors, such as customer satisfaction, brand loyalty and trust (Brodie, Ilic, Juric & Hollebeek, 2013). In these communities the case company can encourage peer to peer support and sharing product and service feedback for future improvements.

Live Chat: Live chat offers an instantaneous responsiveness for customers. This tool was shown to increase trust, competitiveness and customer satisfaction (Larson & Draper, 2017).

With all the nine different digital marketing tools, we believe that their marketing efforts can be improved.

6 Conclusions

Our mission was to find solutions for the challenges that these three companies were facing. Although all of the software companies were different at the age and company size, the challenges were quite similar. The challenges were related to marketing and sales. The questions, that this report answered, were the following: How to capture new market areas to increase sales? How to get projects more profitable? And what digital marketing tools are most suitable in B2B setting for public sector customers?

This case study was made by interviewing the key persons from each company. The framework consists of the questions about customer /market, product / service, financial metrics, resource management, vision / mission / value (VMV) and processes / tools. The answers were find from customer relationships, continuous development, new marketing methods and new contract and cost structure models.

The solution we proposed for the company A was in marketing, reacting to the changes and developing continuously. The challenge was to step into the new field. As the product wasn't so well known, it needed good marketing behind. One solution was to create a network with others, for example companies that are dealing with ERP and financial management systems. Good recommendation would help to make this product better known and in capturing new fields. This would need investigation of the new markets, more resources and money. New contract and customer relationship models should be also considered.

The solution we introduced for company B was to use an agile contracting model in their business. The problem with the company was multiple failures with smaller projects mainly caused by lack of communication which then caused budget and timetable overflows. With the agile contracting model, the company is able to share their risk with the customer by agreeing with a scoped price for the final product. Also added communication with the client induced by a mutual goal is a secondary aspect of the model.

The third case company is an international equipment and software provider with a wide range of services and solutions operating in the Finnish market. The short

analysis was made following an interview with the case company in order to choose a focus topic. The case company was interested in getting familiar with up to date digital marketing tools in order to promote their brand online. The recommendations provided various tools in three main marketing fields; sales, customer service and branding.

Acknowledgements

We would like to thank all the case companies that made this project possible and provided valuable contribution to this case. Also, our mentor Kai-Kristian Kemell, who supported us in this journey and our professor Pekka Abrahamsson, without his innovation and effort this book would have never seen daylight.

References

Adamson, B., Dixon, M., & Toman, N. 2012. The end of solution sales. Harvard Business Review, 90(7–8), 60–68

Bell, J. (1995). The internationalization of small computer software firms: A further challenge to "stage" theories. European journal of marketing, 29(8), 60-75.

Business Linkedin. 2018. Account targeting. Available: https://business.linkedin.com/marketing-solutions/ad-targeting/account-targeting

Accessed: 4.3.2018

Brodie, R. J., Ilic, A., Juric, B., & Hollebeek, L. 2013. Consumer engagement in a virtual brand community: An exploratory analysis. Journal of Business Research, 66(1), 105-114.

Chaffey, D. & Ellis-Chadwick, F. 2016. Digital Marketing. Pearson Education Limited. Edinburgh Gate, Harlow.

Eckfeldt, B., Madden, R. and Horowitz, J., 2005, July. Selling agile: Target-cost contracts. In Agile Conference, 2005. Proceedings (pp. 160-166). IEEE.

Google. 2018. about display ads, https://support.google.com/adsense/answer/9739?hl=en Accessed: 5.3.2018

Larson & Draper. 2017, Fundamental of digital marketing

Lustig, B. 2017 5 Innovative B2G Marketing Strategies For 2018, https://www.bluetext.com/5-innovative-b2g-marketing-strategies-2018/ Accessed: 23.2.2018

Olenski.S, 2017, The Importance Of Influencer Marketing For B2B Marketers https://www.forbes.com/sites/steveolenski/2017/08/10/the-importance-of-influencer-marketing-for-b2b-marketers/#502699d04871 Accessed: 1.3.2018

Ruokonen, M. (2008). Market orientation and product strategies in small internationalising software companies. The Journal of High Technology Management Research, 18(2), 143-156.

Sarpola, S., & Scott Judy, E. (2003). Enterprise Resource Planning (ERP) software selection and success of acquisition process in wholesale companies. Helsinki School of Economics.

Suprapto, M., Bakker, H.L., Mooi, H.G. and Hertogh, M.J., 2016. How do contract types and incentives matter to project performance?. International Journal of Project Management, 34(6), pp.1071-1087.

Wei, C. C., & Wang, M. J. J. (2004). A comprehensive framework for selecting an ERP system. *International journal of project management*, *22*(2), 161-169.

Author biographies

Juuso Ikävalko is a Master's student atthe faculty of Information Technology in the University of Jyväskylä Finland.He started his studies in 2015 and completed his Bachelor's degree in December 2017. He comes from Elimäki, Kouvola, Finland. Juuso is an enthusiastic gym trainer and sport spectator.

Marjo Puikkonen is Master Student in Information Systems in University of Jyväskylä Finland, started in year 2017. She's previous background is in business economics and marketing, where graduated year 2004 from Mikkeli Polytechnic. After that, year 2010, she got degree of accounting and financial statement from Marketing Institute, Helsinki. Marjo has long working experiment in marketing and in business economics field. On free time she likes to play badminton. Her hometown is Mikkeli,Finland.

Mark Mattayev is Master Student in Digital Marketing and Corporate Communication in University of Jyväskylä Finland, started in year 2017. His previous background is in International Business graduating from JAMK. Mark has been working with various high-tech startups and currently works for Trulyprotect Oy, a Finnish cyber security company. On free time he likes playing soccer and ping pong. He is originally from Jerusalem, Israel.

Laura Yrjänä is an information systems science master student at the University of Jyväskylä. She started her studies in 2014 and finished her Bachelor's degree in 2017. The spring semester 2017 she studied at the University of Potsdam, Germany. Laura is a sports enthusiast and her main hobby is American football.

Software companies treat their employees better due to shortage of IT specialists: A multiple case study

Atte Siirtola, Pinja Tuori, Eliisa Uusitalo and Janina Virtanen

University of Jyväskylä, Faculty of Information Technology
P.O. Box 35, FIN-40014 Jyväskylä, Finland

atte.j.a.siirtola@student.jyu.fi

pinja.s.tuori@student.jyu.fi

eliisa.m.uusitalo@student.jyu.fi

janina.m.virtanen@student.jyu.fi

Abstract. *The aim of this project is to learn how to consult software development companies by interviewing different companies' authorities who have experience on the field. Interviews are done by following a specific framework that includes questions about companies' customer segments, products, financial metrics, resource management and processes. This project's findings suggest that software companies have knowledge on how to find and maintain their customer segments. Software companies have also understood that they need to increase their employees health in order to keep them healthy and motivated, as there is a shortage of IT specialists. Most of the software companies want to do cooperation with universities as they educate future IT specialists. The project also showed that companies have a desire to expand their business activities and that companies want to improve their communication with employees and customers.*

1 Introduction

Reasons behind this project are to train future consults in order to find out how they can consult companies by forming a framework and interviewing specialists from the line of field. Project is carried out under the course TJTS5780 – Advanced Software Business Studies. One of the motives behind the project is to find out why so many software companies fail at business by consulting case companies. According to Coad (2013) word "failure" isn't a good term of classification for these business exits that many software companies must face nowadays. Failure is seen as a negative result from meaningless efforts, even though all economic activities have not been for nothing (Coad, 2013, p. 727). Software companies make business exits for numerous reasons and project tried to find out what companies can do to prevent them. We interviewed three mature software companies and according to Tyrväinen (2018) mature companies have challenges at four sectors: Industry, Network, Firm level and

Operations. He states that for mature companies technology changes can challenge them to make big changes around company and it can be difficult to keep up. Tyrväinen also states that changes on platforms, business models and processes can be challenging (Tyrväinen 2018).

We interviewed personnel from three companies. Firstly, company A is a global provider of physiological analytics for professional sports, consumer products and well-being. Secondly, company B is an established Business Intelligence provider of data collecting and analyzing solutions. Lastly our third case company C is a customer management systems provider.

Research problems varies between companies. A common problem is how to find some new aspects for companies that have operated already quite a long time in the business. We needed to find three different case companies who are specialized in the software development field and consult their operations. This multiple case study analyzes if there is any new ideas that can be provided to companies by this framework.

Report structure starts with presenting the framework at chapter 2 and reasoning why these questions were selected to the framework. At the chapter 3 report presents case companies and chapter 4 answers the results of the analysis. Chapter 5 presents recommendations for the case companies based on different specific areas which are analyzed for them. Chapter 6 rounds up the different themes which are highlighted throughout the report.

2 Analysis Framework

This chapter describes the analytical lenses that we used in our consulting work. We created a framework in a framework development workshop and it consist of 6 parts. The framework includes the following: Customer/market, Product/service life cycle, Financial metrics, Resource management, Vision, mission, value (VMV) and Happy people, Processes/Tools (Productivity management) as follows.

2.1 Customer and market

The first part of the framework is customer and market. With this we wanted to know what are the companies customer segments and what do they deliver to the customer. Does the companies business model concentrate on niche markets, mass markets, diversified, segmented markets or something else? We also wanted to find out that what the companies think that their customers' needs are and how are they answering to these needs. These, as well as a potential customer segmentation technique is discussed in a study by Ha Sung Ho (Ha, 2007). We also wanted to know what kind of competitive advantage the companies have and is it something that cannot be copied easily. We asked the following questions:

- What are the customer segments?

- To what customer segments does the company's business model concentrate on?
- What are the customer needs? What does the company deliver to customer?
- How does the company create competitive advantage?

2.2 Product and service life cycle

The second part of the framework is product and service life cycle. We also looked the reversed concept of the product life cycle that Moon (2005) suggests. Moon (2005) says that companies can alter customers mental product categorization if they place products in surprising way.

With this part we wanted to know what products or services like consulting and support the companies are offering. Also we wanted to analyze what kind of channels the companies are using to get the products to the customers and what is the preferred one. We asked the following questions:

- What products or services is company offering?
- What channels are company using in order to reach customers?
- What is preferred channel for customers?

2.3 Financial metrics

The third part of the framework is financial metrics. With this part we wanted to know how does the companies receive their revenues. Does the revenue only consist of business to business and business to consumer sales or also from royalties from third parties using the companies' software? For this we took a look in a study focused on the revenue generated by digital goods (Clemons & Lang, 2003). In this part we asked the following question:

- How does the company receive revenue?

2.4 Resource management

The fourth part of the framework is resource management. With this part we wanted to know what resources does the companies have. Does their resources consist of machinery, products, services, employees or something else? Resources of the company are important assets that can't be left out of the business. According to Osterwalder and Pigneur (2010) every business model needs key resources. These resources are cornerstone of the business as they allow company to offer value, reach markets, maintain relationships with customer segments and earn revenues. Company's resources can be physical, financial, intellectual or human. (Osterwalder & Pigneur , 2010.)

In this part we asked the following question:

- What kind of resources the company has?

2.5 Vision, mission, value (VMV) and Happy people

The fifth part of the framework is vision, mission and value (VMV) and happy people. With this part we wanted to know what are the companies' visions, missions and values and how do they create value for customers. Also we wanted to analyze what motivates employees to work in their companies and how do they keep their employees happy. In order to achieve competitive advantage companies should have well defined vision and mission. According to Conger and Kanungo (1998) the concept of Vision was defined as companies products and strategies were rapidly outdated by competition. Vision refers to a concept that provides direction that ensures both organizational adaptation and employee empowerment (Conger & Kanungo, 1998). According to Berson et al. (2001) usually the content definition of vision includes the image of the future, in order that the company can follow the right direction. They also relate that "strong vision statements reflect greater levels of optimism, confidence, and value orientation, and emphasize the importance of the mission, the importance of followers' contribution, and the intrinsic rewards associated with its achievement" (Berson et al, 2001, p.61).

In this part we asked the following questions:

- What are the company's vision and mission?
- How does the company create value for customer?
- How does the company keep employees happy?
- What motivate employees to work?

2.6 Processes and tools (Productivity management)

The sixth part of the framework is processes and tools. With this part we wanted to analyze what kind of productivity management tools the companies are using. Do they have many different project management tools and software. For this we consulted Bal's study in process tools and made our own conclusions as stated in sections below (Bal, 1998). We asked the following question:

- What kind of processes and tools does the company use?

3 Case Companies

In this chapter all three case companies are introduced. Case companies are software providers and in this report each company has been given a pseudonym. Company A provides physiological analytics for three different customer segments. Company B

provides business intelligence solutions for business customers and Company C is a customer management system provider.

3.1 Company A

Company A was founded in early 2000 in Finland and it is a global provider of physiological analytics for professional sports, consumer products and well-being. Physiological analytics is based on physiological research that transforms heart rate variability into personalized information on stress, exercise and recovery.

Company A produces software based solutions that aim to provide actionable feedback to their users on performance and wellness in order to help them to learn how to live healthier, happier and more productive lives. Company A does business in professional sports, consumer products and wellness services with professionals, individuals and corporate world. Millions of individuals are using this physiological analytics in order to perform better and live healthier.

3.2 Company B

Company B is an established Business Intelligence provider of data collecting and analyzing solutions. Company has been operating already almost decade and has proved to have a strong knowledge of how to use information to improve profitability. Company has approximately hundred customers all over the country from different line of business's. Customers vary from middle-sized customers to large operators on the field.

Company B provides Business Intelligence solutions to improve companies' profitability through collecting data from different platforms to a single platform where data can be analyzed as a whole. Information forms a visually understandable knowledge of customers company and helps to make better financial decisions faster. Solution provides real-time information and it is easily available to be viewed and modified to customer's needs.

Company B also provides full services from acquiring license for the customer to software initialization and training. Company's aim is to create a packet from their services to accommodate customer's needs. Company wants to offer a reliable, honest services and strong knowledge about business.

3.3 Company C

Company C is more than a decade old provider of customer management systems. The company offers various circulation and delivery management software, hosting and colocation services and a wide selection of services for newspaper and magazine publishers, and for associations.

Company C's strong standing in its business area, as well its knowledge of its customers business models and behavior lend it the strength and expertise to function as a leading figure in its chosen business area.

4 Results of the Analysis

This chapter consists of results of the analysis. The results are based on the interviews. Each interview took approximately one hour. First, the results of the Company A interview are presented. Secondly, the results from Company B and finally results from Company C are presented. The results of the analysis are following the analysis framework.

4.1 Company A

In order to perform the analysis we interviewed one member of the management group from the company A. The analysis data consisted of interview data, information from websites and company presentations. The specific target of the analysis was to create some new insights and ideas for the company A's challenge in communicating to various target groups.

4.1.1 Customer and market

Company A has three main business areas: professional sports, consumer products and wellness. All of these segments also divide hierarchically into lower levels. Professional sport markets are firstly targeted to coaches, then executives and finally athletes. Consumer products consist of organizational equipment manufactures and after that the consumers. Wellness is mainly targeted to HR and CEO, after that professionals and finally employees. Traditionally the markets have targeted goal-oriented athletes for example marathon runners that use sport watches. Nowadays the market is shifting to lifestyle wearables that anybody can use.

Company A sees that their customers needs are to control stress, sleep better, perform better, feel better and achieve goals. And that is what they are aiming for, to produce best possible information about customers physiology and help customers learn how to actively use that information. In order to achieve customers needs company A delivers software that is used in devices or in services and devices.

Company A's competitive advantage is years of experience in physiologic know-how. They know how to digitize physiology and transform that into individual and personalized information.

Company A has comprehensive customer segments but it would be possible to expand it even more. Company A has well defined customer needs that support their vision, mission and value. Their competitive advantage is hard to copy and gives them advantage that is hard to beat.

4.1.2 Product and service life cycle

Company A delivers different kind of solutions for its customers. The main product is a software that provides personalized physiological analytics by using heart rate variability methods. The software can be licensed to device manufacturers and then the hardware comes from the manufacturer. The software can also be included into different kind of packages that can include the software, hardware and services. Services consist of technical support, product support and training. The package is always based on the software, company A doesn't provide services without its physiological analysis.

Company A uses online channels to get the product to the customers. Customers are expected to order the product online and receive it by mail delivery or if customer has bought the license the delivery is made online. Company A also uses online channels to reach the customers, digitized marketing is the basis but also direct contacting is a one way to reach the customers.

Company A's main product is software but they also provide packages that include software, hardware and services. It would also be possible for them to expand in the field of products. Company A's channel for delivering product to the customers is commonly used these days and even expected because it is easy for the company and the customers, it increases availability, reduces costs and it is faster.

4.1.3 Financial metrics

Company A receives their revenue by selling product packages that include software that provides personalized physiological analytics, hardware and services. They also license software products to other equipment manufacturers. The company is seeking further international growth - already over 80 percent of the company turnover comes from abroad. In year 2016 the revenue was 7 million and the 2017 revenue is expected to be nearly 10 million.

Company A's main revenue comes from abroad and when looking the business from financial metrics point of view it has divided into separate segments of sport, wellness and licensing. Company A's revenue is also increasing.

4.1.4 Resource management

Company A has intellectual and human resources. Company A has a multidisciplinary team with over 100 people that consist of physiologists, mathematicians, programmers, sales and marketing personnel. Also patents for physiological modelling is one of the main resources.

Company A's resources add value to the company because with multidisciplinary team they have the capability to produce more vision and knowledge. Intellectual and human resources also add value to the company because they are almost impossible to copy.

4.1.5 Vision, mission, value (VMV) and Happy people

Company A has a vision that everyone should be able to live healthier, happier and more productive lives. Their mission is to use physiology and science in order to reveal human potential in health, performance and productivity. Value emerges when customers learn from their physiological data. Company A has a brand promise in which they help customers learn from their physiological data in order to improve their performance and well-being.

Company A keeps their personnel happy by including them into the continuous manifesting with customer encounters and sharing experiences. Company A has culture that interests in health and sport and provide weekly exercise during workdays in order to keep employees healthy and happy. Their culture is also science based and encourages learning and problem solving.

Company A's brand promise is well suited for their vision, mission and value. Also Company A's culture that interests health and sport fits for their vision, mission and value.

4.1.6 Processes and Tools (Productivity management)

Company A uses processes and tools like Hubspot marketing platform, CRM, project management Basecamp and Trello etc. With Hubspot marketing platform company A send emails, publishes and uses it as a analytics tool. Customer relationship management (CRM) tool is used in the whole company and Microsoft tools for intranet.

4.2 Company B

From Company B we interviewed member of the company's management (Interviewee 1) and finances (Interviewee 2). We performed an interview based on the framework we created. Aim was to get to know the company and get insight how software development companies work. Analyze includes interview and information which can be found from company's website.

4.2.1 Customer/market

Company B has approximately hundred customers all over the country from different line of business's. Customers vary from middle-sized customers to large operators on the field. Customers turnover start from approximately 10 million and over in order that company can mine information from the quantity of data that customer has. Data quantity must be larger, so customer gets all the benefits from the data mining.

Company thinks their strongest fields on business are media, to be more precise print media, power companies, waste facilities, logistics and wood industries. Before company tried to concentrate on several lines of industries to find profitable

customers. Now when company has established its place in the field, they have started to focus more to find customers who are the most profitable to the company.

Usually their customers have many different systems to control, such as financial management, customer relationship management, accounting, production and logistic control. Many times, all systems have their own reporting and all these separate actions makes examining company's current state difficult. Customers' needs are to be able to see their company as a whole and be able to make fast decisions based on the information they get from the solution Company B provides.

Product is delivered to customer when customer has purchased license for the software, then company forms a custom packet solution to the customer and trough software development they make an agreement when solution is delivered to customer.

Company B's competitive advantage is how fast they can deliver their solutions to the customer and they have good marketing. They also have strong business knowledge and an established place on the market. Company can compete through their know-how and not through the pricing because of their many years on the market and reputation.

Company B's main customer segment is medium and large-sized companies from different business areas. Customers purchases licenses for the softwares and company B deliver the customized product packet to customer. Company B achieves their competitive advantage by delivering reliable and high quality BI solutions to customer.

4.2.2 Product/service life cycle

Company B provides data analyzing and visualization tools for customers who need to see the data they have as a whole and in understandable way. Solution Qlik Sense collects information automatically from different sources and acts as a data storage at the same time. Information links to Qlik Sense and it stays always up to date. Then information can be visualized to understandable form. K4 analytics is commonly used to budgeting. K4 analytics is a tool to input information to Qlik Sense. Before budgeting was managed in Excel and when information was distributed between many departments, it was prone to mistakes and confusion between versions. With Qlik Sense information can be modified by defining what is being changed and what is not. Qlik Sense makes distribution easier because customer doesn't have to keep track of different versions.

Company B's most important channel to reaching the customers is marketing, 80% of their sales leads come from digital marketing. Company has various guide books, articles, blog and email campaigns which attract customers. Company has a different company which handles their marketing. Before marketing worked by phone calling to potential customers, company started from the top of the sales pipeline and now because of the digital marketing company has reached the halfway of the sales

pipeline. Now company can identify potential customers by following example who downloads their guide books.

Next important channel is customer recommendations. Customer recommendations work by one of their customer showing to another company, which is not their competitor, how Company B has solved their problems. Company B also organizes events to introduce them to the potential customers.

Customers preferred channel is by searching information through internet. Company gets information from the company who monitors their marketing, about who downloads the guide books and can be a potential customer. Company doesn't have a social network to marketing them. They do LinkedIn campaigns, but they feel that other social networks are more directed to consumers. Company doesn't see social media as a potential marketing platform for them.

Company B is aware that Qlik Sense has competitive advantage over other solutions and company's personnel has educated one employee be a certified instructor for Qlik Sense. Company has also found their customers preferred channels and uses them to find more potential customers.

4.2.3 Financial metrics

Company B receives their revenue mostly from consulting. According to interviewee 1 almost 60 percent of company's revenue comes from consulting. They also receive revenue by selling software licenses and providing maintenance. For example, if the customer buys a software license that costs 10 000 euros the annual maintenance fee is 2000 euros. Besides that the small part of the revenue comes from producing the same software as a service (SaaS) and being a subcontractor. They also provide training for customer to get the most of new software. Due to the software usability the training is not that big part of the revenue, only about 5 percent, but it will increase in the future.

Although the main revenue comes from consulting and selling software licenses, company B will increase their revenue by raising the share of training. Training will help the customer implementing new software and getting all benefit from the software.

4.2.4 Resource management

Company B's main resource is know-how and human resources. According to interviewee 1 they have top-quality know-how and it creates competitive advantage. They have employees with different education backgrounds so they can provide experts in different situations. For example they have financial management experts as well as statisticians. They are investing in the fact that always some of their employee will know also the customer's field and by through that advice the customer better.

Company B also invests in well-being at work. They have renovated the office a couple of years ago and they provide electronic desk for employees and different kind of office chairs. Company B also provides fruits every day for their employees. They want to protect their employees and their know-how by providing a comfortable working environment.

Company B receives their competitive advantage because of their top-quality employee know-how. That is why they want to keep their employees motivated and increase their work health.

4.2.5 Vision, mission, value (VMV) and Happy people

Company B didn't have any defined vision or mission, but the interviewee 1 described that the company wants to help the customer achieving competitive advantage by using better data management. Company B also wants to be appreciated company among personnel, customers, and entrepreneurs. The most important thing is that the employees and employers know company values and work in accordance with the values. Company B creates value for customer by providing predictability and quick response to decision-making. They also provides decreased working load and better management practices.

Company B keeps their employees happy by providing flexible working hours and a possibility to remote work, giving them luncheon vouchers and cultural vouchers and arranging communal events where you can bring your family as well. There are also many employees who are willing to organize events voluntarily and the company encourages employees to attend e.g. in marathon events. Company B also organizes development discussions where employees can bring up new ideas and discuss about current situations.

According to interviewee 1 they also use The Belbin Team Roles test in order to find out what kind of team workers they have inside the company. The test has taught employees to understand how other employees work and why the work in a way the work. The main point of the Belbin Team Roles test is to find right mix of people to be effective. Through the Belbin Team Roles test the company has learned to appreciate each other.

According to interviewee 2 the biggest work motivator is positive feedback from customers. She also points out that employees can continuously develop themselves in their work. Besides that the most important thing is a good working community and co-workers.

Company B has a strong motivation to keep their employees and customers happy. Their value proposition is to provide predictability and quick response to decision-making as well as provide decreased working load and better management practices. They also invest in employees well-being and provide benefits for employees so that they are motivated to work.

4.2.6 Processes/Tools (Productivity management)

Company B uses many different kinds of management tools in order to manage information. For example they use Procountor for financial management and Visma Severa for project management. They also use tools like Confluence as team collaboration software where they can write and share information and Jira as a task manager. For sales promotion they use a tool called Vainu which is sales prospecting and sales intelligence platform. Besides that they use SalesCall and Slack.

Company B has also used a lot of process control charts and methods to improve their business practices. The employees have also completed various training programs and courses. Besides that company B uses outside services in financial management and project management as well as in corporate strategy services.

In order to support their business practises company B benefits from various management tools, for example tools for financial, project and task management. Company B also uses process control charts and allow employees to attend training programs.

4.3 Company C

From company C we interviewed the head of operations from one of the company's offices in a certain city in Finland. The aim of the interview was to gather information on the company's current state of affairs to be analyzed as stated in the analysis framework we created as mentioned above. The analysis will be using this interview as well as the readily found information about the company from its website as the basis.

4.3.1 Customer/market

Company C's primary customers are various publishers both in the country and abroad. Their main customer relationship is to provide a software to manage the circulation and distribution of both printed and digital material of their customers. Nowadays the company has also been developing more emphasis on product development and service business. The service business provides customers a subscription service, payment monitoring, delivery to the printing presses etc. The customers then receive only regular reports on the company's activities. This type of service business is being provided in one of the company's offices in Finland.

Company C has also been acquiring new customers from abroad, mostly from Sweden and central European countries, such as Germany and The United Kingdom. Through their connections they have also begun to approach markets in The United States. Mostly the company has done localisation of their products in central Europe.

Company C has noticed that the popularity of printed magazines is on the decline and many of their customers are now demanding more digital content. As solutions Company C provides products that control user rights, content management and

interfaces. Company C also provides its customers with the ability to sell combined products of printed products bundled with digital goods. Company C provides their products to the complex infrastructure of its customers, meaning they also apply their knowledge on integration, interfaces and the analysis and storing of information. Mostly their customers need revolve around the digital world, content management, different distribution channels and their softwares as well as well as the integration of these different aspects.

Company C has 3 different approaches to providing their customers with their products and services, as well as some hybrid versions of these in special cases. The first one is the traditional license method, where Company C provides their product which is then installed into the customers or their partners data centers and integrated into their system. In this case the customer has full control and responsibility of the usage of the product and Company C only provides future updates and offers possible additions to their product as stated in their contract. The second approach is that Company C installs their product on data centers provided by themselves or their partner and the integrates it with the systems of their customers. The customer is then given the authority over the usage of the product, but the responsibility of the products upkeep lies with Company C. Company C will handle some matters for the customers, such as moving payment information files as stated in the contract they have made with each individual customer. The third approach is that Company C handles both the hosting of their product as well as its usage on behalf of the customer. The customer only receives regular reports on the activities of Company C regarding subscriptions, payments, channels etc. According to Company C the trend among their customers is that they are starting to prefer Company C to host and manage the their product on their own data centers.

According to Company C, their competitive edge lies in their strong business skills and in their long history of doing business in this field. Furthermore, Company C believes that their product is also an asset in this as the products in this field need to be able to meet the customers needs as they change as well. Understanding the customers business and adapting to it is crucial. Company C also believes that by concentrating on making their product be the best in the business, while leaving matters they are not so well versed in to their partner organisations will give them an edge. As there are not that many providers in this business and due to its nature keeping the reputation as an accomplished and well established provider is an angle which will make the company stand out.

The main conclusion we can come to from this analysis is that marketing and gathering new customers is tricky for the company, as the company has acquired most available customers from their business area in Finland. This will be our focus in the recommendations for the company's customer segments.

4.3.2 Product/service life cycle

According to Company C the amount of customer contacts is rather small, as many small magazine publishers have come together under bigger companies. However

thanks to the recent merges with other companies and the customer base of different products the amount the amount of customers Company C has is about 150 and most of their correspondence is done face-to-face and with their bigger customers Company C organizes forums in which to discuss their current and future relationships. Most of the company's marketing towards central Europe is done via the IFRA-convention and with the help of their parent company, as well as through a german publishing company. Company C offers them their subscription management software and in turn receives the use of the german company's circulation and delivery systems. As the publishing business is b-to-b type of field, most of Company Cs customers get directly in contact if they are interested in Company Cs products, according to the interviewee.

Company Cs current products are client-server based multiple layer architecture designs runnable from browsers and which operate in the Windows environment. The database service used is Oracle. The next technological update on their products is to make them wholly operable from the users browser.

The main conclusion we came to in the product segment is that the traditional license and hosting services have no glaring issues and can continue as is. However we will concentrate in the company's full-coverage service as the focus for our recommendations.

4.3.3 Financial metrics

The main source of income for Company C is their product license sales and product subscriptions. On top of the sold license, Company C receives annual income based on a certain percentage of the original licenses cost, in exchange of providing their customers with technical support and regular updates to their software. The support is given mainly during the open hours of the company's offices, but Company C also provides VIP support service during a time a customer critically needs around the clock support. Alongside that Company C provides full coverage of publishing to several clients. This includes a subscription service, delivery, payment management etc. In case the customer needs Company C to host their software on their end the company buys datacenter space from their partner organization and then bills their customer with a certain margin of profit. Company C also provides database management and customer register monitoring to some clients. During the integration process of installing their software to the customers datacenters Company C also provides the customer with the necessary personnel to perform the project and to train their staff in the usage of the software.

Company C's largest costs come from personnel wages and other personnel related costs. According to the company it is easier to not shut down the various offices they have acquired during purchases and merges, as it does not matter where their able workforce is located. Thus the amount of offices means that the next largest part of the company's costs comes from the amount spent maintaining the offices and the leasing costs. Datacenter leasing from their partner organization as well as material and equipment costs for each employee are marginal.

Our conclusion on the company's financial metrics is that it is suitable for enabling light growth in their customer area. However we will concentrate our recommendations on accelerating growth so that the company's financial metrics can keep up with it's expansion.

4.3.4 Resource management

Company C employs around 50 people with most of them working in Finland and a small minority in Sweden. Currently the gender distribution among the company is about equal. The age distribution of the company is from the youngest employees of 20+ to the oldest of 70 years old. Many of the older employees of the company have been employed since the company's inception. The educational background of the employees is various, but every employee has some kind of background at least from a vocational school and most have a higher education such as an university degree. Some technology projects get support from organizations such as TEKES.

Our conclusion on the company's resource management is that it is suitably varied and has the potential which the company needs for its growth. In our recommendations we focus on acquiring resources relevant for the other areas of and their growth.

4.3.5 Vision, mission, value (VMV) and Happy people

Company C's mission is to offer field of media solutions which help customers to act faster and in a more effective way, so they can be more profitable. Company C wants to help their customers to have more time to work innovatively than use all that time to manage their customers. Every customers situation is analyzed, then their needs are mapped out, so the company can form the best suitable solutions from their or their cooperation partners service. Company C is globally acknowledged and leading provider on Nordic media field and system developer on distribution, digital media and advertisement.

Company C's values are to be committed to operate as a customer's long-term partner by providing strong knowledge from media field's business and system solutions to improve competitivity and productivity. Company C also promises to support and develop their personnel's know-how and capability to react to changes at customers operational environment. Ability to react to changes is one of the important values to company. According to company key is that their employees are active participants to develop their own and company's operations. Company C values to act openly towards their employees, stakeholders and customers and, they want to carry their responsibility to society.

Company C keeps their personnel happy by providing different kinds of challenging task where employees can develop their expertise and career. Their work is very project oriented and challenging but their workers are highly motivated according to the company. They want to bring credibility and meaning to their employees through salary. Company tries to figure out some types of incentives, but they must keep in

mind that company must be also successful to be able to give something extra. Because the company is spread across the country, they can't have joint group activities so often, but they try to have office-specific get togethers once a year. Group spirit is seen as very good, because company has workers all the way from 90s and younger generation has kept with them also. Company has work health survey going on now to figure out how to improve workers well-being.

Company C wants to remain to be reliable and long term partner to their customers. Company makes value to their customers through fast and approachable services. They keep their personnel happy by providing opportunities to develop their know-how and career. Company feels that important to them is to give credibility to their personnel.

4.3.6 Processes/Tools (Productivity management)

Company is trying to solve how to join three different business cultures together because of the merge of three company. They have big business development project to analyze which tools they are going to start using, example is which system service and support requests are going to be placed. At this moment company has three different systems that are working and now company is considering which they are choosing to use at the future.

Company has Erp-solutions and ticket systems. Project management is partly done with Erp, browser based, Basecamp-project management -tools or Excel. Product development uses Visual Studio and now they are going to browser based development tools which surround Linux.

Process starts when the company get a customer lead, then they contact the potential customer and offer their solutions and services. Then Company C arranges a contract with the customer and creates a project for the commission. When they deploy the system, the company also does product development where they add more features, interfaces and when product is moved abroad they localize. When a project ends, starts the upkeep state, after-care and addition sales.

Company is trying to find the suitable tools to fit their merged business culture and has a big development project to find them. Company also has defined process that helps them to find the right ways to serve the customers by customizing suitable service package for them.

5 Managerial implications/recommendations

This chapter describes managerial recommendations for each company. Recommendations are based on specific areas that were analysed from the case company. For company A recommendations concentrates on communication to various target groups. Recommendations for company B concentrates on VMV and

expanding the customer segment. And finally the recommendations for company C concentrates on team spirit, full coverage service aspect and software security.

5.1 Company A

Company A's specific question that we analysed was the challenge in communicating to various target groups. One of the goals was to unify brand image in order to convey the same kind of image of the company to different user groups. Our recommendation was to raise the awareness of company's brand to the consumers. Currently most of the consumers don't choose these particular products in order to get the Company A's software. Instead consumers choose these products without knowing who the software producer is. The mission is to turn this around.

Our recommendation for raising the awareness of the brand is co-branding with the equipment manufacturers. Shen, Choi & Chow (2017) explain that there are different forms of co-branding and one of them is ingredient co-branding and it is formed when the ingredient brand is contained within the manufacturer's brand. Our recommendations is that ingredient co-branding terms would be included into the license "package" and would have bigger role than before. Company A's name and brand image would be more visible in the equipment manufacturers products and advertising.

Also raising the awareness of the years of experience in research gives the image of reliable, accurate and leading provider of heart rate variability data. Company A could also work together with ambassadors like professional athletes, non-professional athletes and lifestyle bloggers. With these different ambassadors company A could reach out to different kind of consumers. Professional and non-professional athletes would target consumers that would be interested in recovery, performance and physical stress. Lifestyle bloggers would target consumers that would be interested in overall wellness and lifestyle wearables.

We noticed that there is a possibility to expand the markets according to the framework analyze that we did. So we raised the question that what if company A would analyze the possibility to expand the market segments and launch their own products with their own software. If they someday would decide to do so, unified brand and consumers knowledge about the brand would most likely boost the launch.

In conclusion, our main recommendation for the challenge in communicating to various target groups is raising the awareness of the company's brand to the consumers with co-branding and brand ambassadors.

5.2 Company B

From company B analysis we concentrated on a specific area of Vision, Mission and Values and customer segment. The company didn't have any officially defined vision or mission. Vision and mission are important aspects in business world. Employees

should know company's vision and mission in order to obey them and to understand the meaning of their work.

Firstly, our recommendation for vision is "to be an appreciated company among personnel, customers and entrepreneurs which help customers to achieve competitive advantage in a changing business environment". Secondly, our recommendation for mission is "company B wants to help the customer achieving competitive advantage by using better data management and providing quick response to decision-making". These suggestions for vision and mission are based on the interviews and specially answers given by interviewee 1. We analysed the interviews and identify these aspects to be an important things for company B.

The second part of the recommendations is related to customer segment. Currently the company B has medium-sized and large enterprises from Finland as a customer. This result from the software they provide: it is more suitable for companies that produce a lot of data. Our recommendation is to provide software also for smaller enterprises in order to widen customer segments. If the recent software is not profitable to smaller companies Company B should consider including a new software to application portfolio. The web page of the company B was only in Finnish. Our recommendation is to provide same information also in English so they can widen the customer segment also abroad or at least English speaking customers in Finland.

5.3 Company C

From our analysis we can infer certain assumptions about the company. Firstly in its market segment and customer relationships. As a leading business provider in its area, the company has gained most of the possible customers available in Finland. This is also due to the nature of the business area in which the company operates. It is also in our opinion not advisable to start aggressively marketing the company to the remaining possible customers, as they will likely choose not to partake in a deal with the company as it is now. According to the company some of those possible customers also left as they felt threatened due to the merges the company has undergone. As the company is still undergoing change due to that it is unlikely the possible customers will return as of now. Thus we advise the company to seek new customers elsewhere, as they are already doing, by marketing themselves to central Europe via their partners. We advise the company to continue this and be more aggressive in this endeavor if their wish is to seek new customers, as very likely they will come from outside of Finland. Then what comes to the company's concern on the foreign customers still deciding to choose local providers, we advise the company to use their market leading status in the nordic countries as a means to lure in more customers. Our advice is that the company should try to aggressively market themselves as better than the local variants using their status and try to establish themselves as the best in central Europe as well, trough reputation if not actual facts. The company should use their current partners to market themselves to their foreign customers, as according to Reichheld, loyalty among customers will eventually provide you with marketing edge as well (Reichheld, 2003).

As for what comes to their products and services, their license and hosting product and service can stay as is as we see no problems with their current status. What we advise the company to focus on now and in the future is their full-coverage service. In our opinion the full-coverage service could become one of the company's most important pillars when it comes to revenue. As in Finland as well as central Europe the GDPR (General Data Protection Regulation) and its enforcement date is fast approaching. Thus it will make companies that are not that used to ICT related issues to seek third party options, as the appropriate and industry standardized methods may prove to be too difficult for a non-IT company to handle (Tankard, 2016). As a third party provider the company can take advantage of this and offer their full-coverage services, even if the service only covers digital content, as the company's expertise and status can pull in customers. By focusing on the full-coverage service, it's function and marketing, the company can establish itself an important source of revenue in the future. Thus we advise the company to market its full-coverage service more aggressively to both local and foreign customers and to keep updating and bettering the service itself. That brings us to another point of the company's products that we have advice on. Together with the full-coverage service, the company's other products security should be made into the main concern. By making sure that their products information security is top notch in the GDPR governed world the company can use that to market all of their products and to raise their status into a provider whose products the most reliable. This is also necessary for the GDPR itself, but also to make the customers want to have the full-coverage service or other products.

The resources needed to fulfill both investing into the security of the company's products and their full-coverage service might be more than the company can handle at its current state. For that certain amount of growth is necessary. As such we advise that if the company were to aim for pursuing our ideas, then they would need to acquire more personnel to run the full-coverage service as well as personnel to modify and oversee the products security. For that the company will likely have to rely on its partners and parent company, however luckily due to the company's location the availability of security informed possible employees is high.

Because company is so widely spread across countries, our last recommendation is to raise team spirit by providing activities outside of their working place. Company could provide discounts to different activities, example to some sport activities. Personnel then can arrange to go together or/and with their families and that then improves their relationships.

6 Conclusions

Case study proved that through a framework there can be found some new aspects for companies that have worked already a long time on the field and have an established place on the market. From these three case companies we found that companies had realized the shortage of IT specialists and had already done some measures to keep their existing personnel and ensured their future know-how by doing cooperation with IT education departments. Companies felt that sustaining their teams spirit also made

companies more tempting for future workers. We found that companies want to improve their communication between their customer segments and one way could be to raise the awareness of companies' brand. One important aspect we found out was that defined VMV is important guide line for company's workers to follow. Lastly trough framework we knowledge that software companies want to have a full coverage, reliable and fast services.

Companies acknowledge the challenges which software companies face, but they also have done measures to find out how to avoid them. If companies can't avoid these challenges, they adapt and evolve.

One aspect that creating this case study has taught us was that consulting big established businesses can be intimidating, but by doing so we learned how companies operate in real world and observing these companies from outsider's point of view can have beneficial results for both company and for our studies.

Acknowledgements

Our team would like to express our special thanks to our professor Pekka Abrahamsson as well as our mentor Juhani Risku who gave us the great opportunity to do this fascinating and didactic project. We would also like to thank all the three companies that made this project possible by participating the interviews and sharing information about their business practises.

Secondly we would like to thank all our team members who took part in carrying out this project within the limited time frame.

References

Bal, J. (1998). Process analysis tools for process improvement. *The TQM Magazine*, *10*(5), 342-354.

Berson, Y., Shamir, B., Avolio, B.J. and Popper, M., 2001. The relationship between vision strength, leadership style, and context. *The Leadership Quarterly, 12*(1), pp.53-73.

Clemons, E. K., & Lang, K. R. (2003). The decoupling of value creation from revenue: A strategic analysis of the markets for pure information goods. *Information Technology and Management*, *4*(2-3), 259-287.

Coad, A., 2013. Death is not a success: Reflections on business exit. *Sage journals, International Small Business Journal 32(7),* p. 727.

Conger, J.A. and Kanungo, R.N., 1998. Charismatic leadership in organizations. *Sage Publications,* pp. 153-157.

Ha, S. H. (2007). Applying knowledge engineering techniques to customer analysis in the service industry. *Advanced Engineering Informatics*, *21*(3), 293-301.

Moon, Y. (2005). Break free from the product life cycle. *Harvard Business Review*, 83(5), 86-94.

Osterwalder, A. and Pigneur, Y., 2010. Business model generation: a handbook for visionaries, game changers, and challengers. *John Wiley & Sons*.

Reichheld, F. F. (2003). The one number you need to grow. *Harvard business review, 81(12), 46-55*.

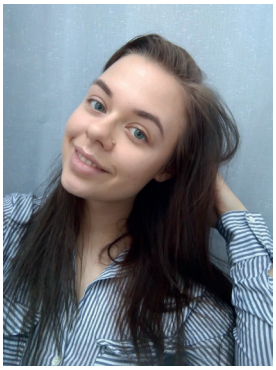
Shen, B., Choi, T. M., & Chow, P. S., 2017. Brand loyalties in designer luxury and fast fashion co-branding alliances. *Journal of Business Research,* 81, 173-180.

Tankard, C. (2016). What the GDPR means for businesses. *Network Security*, *2016*(6), 5-8.

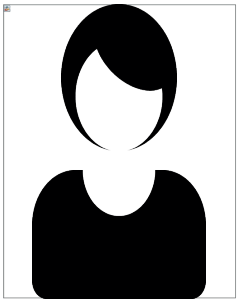
Tyrväinen, P., (16.1.2018). How Do Incumbent Software Businesses Fail?

Author biographies

Atte Siirtola is a master's student at the faculty of Information Technology in the University of Jyväskylä Finland. Atte started his studies in 2012 and continued his studies to the master's level after finishing his bachelors' at the same university. Born and raised in Jyväskylä, Atte enjoys reading books and a good cup of coffee. From autumn 2015 to autumn 2016 Atte was studying abroad in Kanazawa Japan.



Pinja Tuori is a master's student at the faculty of Information Technology in the University of Jyväskylä Finland. She started her studies in 2016. Pinja has designers degree in graphic design. She is very passionate about tea and coffee and loves to find the perfect way to make a cup of great tea. She comes from Kalajoki, Finland.



Eliisa Uusitalo is a master's student at the faculty of Information Technology in the University of Jyväskylä Finland. She started her studies in 2014 and has been working as a student tutor in autumn 2017. She comes from Vaasa, Finland and she has been an enthusiastic swimmer throughout her life. Eliisa was an exchange student to Stockholm University, Sweden in autumn 2016.

Janina Virtanen is a master's student at the faculty of Information Technology in the University of Jyväskylä Finland. She started her studies in 2017 as a master's student. She has previous studies in Turku University of Applied Sciences, a degree on Bachelor of Business Administration, Financial Management and Jurisprudence. She has working experience in the banking sector and currently in Finland's Financial Supervisory Authority. She comes from Helsinki, Finland and plays American Football in the Maple League.

The same cap doesn't fit every head – Three software business cases from different stages of maturity

Leevi Leppälä, Aleksi Lokka, Taneli Pylkkönen

University of Jyväskylä, Faculty of Information Technology
P.O. Box 35, FIN-40014 Jyväskylä, Finland

leevi.a.leppala@student.jyu.fi

aleksi.o.v.lokka@student.jyu.fi

taneli.x.pylkkonen@student.jyu.fi

Abstract. In this paper we analyze three different IT-companies and especially their business. We used a pre-defined business analysis framework which contains six different analysis viewpoints: Customer/market, Product/service life cycle, financial metrics, resource management, vision, mission, values + happy people and channels. Companies that we studied were Small Game Company (SGC), Robot Mind Company (RMC) and Big Expert House (BEH). Each company is of different size. SGC was founded in late 2017, RMC was founded 2015 and BEH was founded 2002. SGC has two employees, RMC has four employees and BEH has nearly 400 employees. SGC and RMC are quite new startups and BEH is older company which recently had an IPO. Every company has different products and markets. Our recommendations and findings vary especially for BEH, which is much larger than other companies and has more specific issues. Smaller companies' business is improving and nature of their problems is more general.

1 Introduction

In this paper we research three different IT-companies and their business. Our business analysis framework is explained in the next chapter. All companies were in different situation in their business and two companies were startups and one was bigger company which has recently had initial public offering. First company was Small Game Company (SGC) which was founded in late 2017 and was still very early startup and business was not take shape. Second company was Robot Mind Company (RMC) which was founded in 2015 and they have more business going but still revenue was negative and business had lot of improve. Third and last company was Big Expert House (BEH) which was founded in 2002 and had just had IPO and their business was in the very good shape already. All companies were selected because we wanted to find different companies with different problems.

Our analysis process was quite simple. We have our analysis framework and we meet companies face to face and ask our questions based on our analysis framework. BEH company was the only one we didn't even met face to face but they send very

large material what we analyze and we also had chance to ask more detailed question with email. Some of the questions were little bit hard to answer for the smaller companies because they are founded so short time ago. Basically we still had lot of good data for the companies to our analysis.

Smaller companies have a lot of elements in their business which are clearly not in desirable shape yet and they can still improve their products, business and processes a lot. BEH company has done their business for a way longer time and basic business was in very good shape already and analysis is focused on more detailed problems that the company has, and on the risks related to whole field of business.

This paper consists of five additional chapters, which are as follows: Second chapter is about our analysis framework. Third chapter is general description of the nature of the companies, their differences from each other and specialties. In the fourth chapter we cover our results of our analysis. Fifth chapter is our recommendations based on the analysis. Lastly, the conclusions are presented in the chapter six.

2 Analysis Framework

In our framework our aim was to create a model that takes in to account holistic view of the companies status in their current state. The framework builds from 7 different parts that analyze the company, their products and current standing in the market they compete in. Based on this view, we offer solutions for the future development of the company. The seven parts of the framework are: Customer/market, product/service life cycle, resource management, vision, mission, value (VMV), Processes/tools and channels.

2.1 Customer/market

Aim of this segment is to form a picture in what markets are the companies involved with, who are the customers and how they are prioritized and what is the value promise that company holds to the customer. This allows us to reflect if the company is in the right market, are the current deals are the ones that are the most beneficial and mostly if the company has understanding of its own position.

2.2 Product/service life cycle

This segment goes deep in to the what is the main bread and butter of the company. We take a look of product/service's life cycle, competition and content. We aim to understand how company treats its products, how customers have reacted to them in the past and overall estimate the viability of it in current market.

2.3 Financial metrics

This part of the framework contains simply the analysis of the cost structure, revenue streams and the profit the company is making (if they are). We also estimate company's products on financial scale in order to understand the product/service portfolio they offer and if they are profitable now and in the future.

2.4 Resource management

From the resource point of view we seek understanding in what are the key resources, how resource are acquired, what are the policies in company regarding the resources and what methods are used in resource management. This allows us to understand how resources are allocated, what are the resources in use and how to utilize them in best possible manner. In addition to this we look if there are any resources from stakeholders unutilized.

2.5 Vision, mission, values + happy people

The main emphasis on this segment is to evaluate how company views their VMV and how it is actually realized. If there are any contradictions or such values have not been thought, we encourage the company to form such. Other part of the segment is how the company takes employees well-being in to account which contains different programs and nonproductive events that could enhance the morale and increase the value of the company in its employee's eyes.

2.6 Processes and tools

First, we take a look what are the concrete tools in use, are they effectively utilized, and if there is any level of standardization in their processes. In addition to this we also measure employee's standings towards these processes, allowing them to consider if there is something that should be done differently. To understand these factors makes it possible to reflect upon existing forms of productivity management and thus point out possible flaws in usage of tools or give recommendations which tools would enhance the workflow towards direction that is useful.

2.7 Channels

Company cannot survive without proper communication and in our framework the main view is the communication with stakeholders, especially with the customers. We aim to bring forth the importance of continuous dialog that should start from the offering of company's services and if possible, to last until the end of the company's days. This in our view is the key to success due to new possibilities from old and new customer base alike.

3 Case Companies

First company is called Small Game Company (SGC), which was founded recently in the end of 2017, and has only two employees. Company have two different fields they work on. The first field is a city simulation and planning field where their target customers are Finnish cities and municipalities. Currently, they just have one city under contract but they are trying to get more customers. Another field is game business, where company has just published their first game.

Second company is called Robot Mind Company (RMC) which is focused on machine learning and artificial intelligence. They are currently trying to develop their own product, but also at the same time they are offering consulting services for other companies. Consulting services are currently generating more revenue but a product of their own would make the total revenue stream more stable.

Third company is called Big Expert House (BEH) and its main focus is digitalization related services: IT consulting, designing and building IT services, service design and cloud services. Company has recently completed an IPO successfully and they have expanded company's business and number of employees a lot in last couple of years.

3.1 Company SGC

Small Game Company is fresh, 2-man start up that has been found in 2017. The company has just released their first game and it has had a positive reception from audiences. Previously company has made profit from city modelling projects. Despite this company is still dependent on institutional money in order to cover their costs.

Company works in two very different markets despite the competencies of the owners/employees can be utilized in both environments. The modelling market is aimed at smaller public customers without competencies for city modelling themselves. The ambitions though lie in game development and in that area their aim is for the large audiences. The short-term goal for the company is to turn it profitable business within the following years.

3.2 Company RMC

Robot Mind Company was founded in late 2015 in Jyväskylä. Company's main business is AI and machine learning consulting and their own product. RMC has currently four employees which are also founders of the company. Company's business based on business to business consulting. Currently company has raised their revenue to 10 000 (2016) to 100 000 (2017), but their profit is still negative.

Robot Mind Company is a quite typical startup which tries to get more revenue and the profits are still negative. They have investors' money that they could still use to improve their product and business. Salaries account for most of the operating costs and everything else is quite marginal. Their employees and their knowledge are company's key resource.

RMC has currently improving their processes and one focus area is how to get more customers that are more than single project. If the company finds way the make longer customer relations that would make their revenue more stable. Main customers are all the companies that have lot of data and wants to find specific information there. Company's customers are still very different kind and that makes improving processes harder.

AI and machine learning field is still very new and still growing so company doesn't have very much competitors yet. Company offers customers value with the automatization and customer companies can do same job with less human resources. Average customer is company that have lot of data but they don't make use of it.

3.3 Company BEH

Big Expert House was founded in 2001 in Tampere. It offers digitalization related services and consulting. In our analysis, which takes in account last 5 fiscal years we found tremendous growth in the company from 2012 to 2016, when total revenue reached 18.6m euros. During 2017 BEH had their IPO, which contained 40 to 49,4% of their stock base keeping the majority of the ownership in the hands of the initial owners. BEH has nearly 400 operatives in 3 different European countries. The foundation of the company is highly skilled workforce and their biggest customers are from the public sector but they have a lot of customers also in private sector.

BEH works in highly competed, yet growing market that's boundaries haven't being defined yet as digitalization comes more relevant issue as companies reach certain level of maturity. Company has multiple existing programs that aim to increase employee well-being and involvement in the company. Their productivity management is guided by their own idea of minimum viable management with side of scrum which aims to create effective and self-directed workplace with benefits of agile development.

Because of the highly competed field and because company's key resource is their employees and their knowledge, it is very important that company take good care of their employees and that is one biggest single values that company has. BEH's one mission is change world not only with digitalization but also with changing work culture and make employees happy and motivated.

4 Results of the Analysis

The results of the analysis done for each company is heavily dependent on what information we could extract from them. Therefore, there is no clear consistency on what factors are highlighted per analysis. Most of the analysis done is based on our general understanding of the software business field. Our aim with each analysis was to create information and material that could be beneficial to the company in discussion and thus offer a holistic outside view on the problems they are facing. Each of the company represents different stages of maturity and this has to be kept in mind

in order to understand the nature of problems per company. Overall this section will offer useful, albeit limited insight into the IT software field in 2018 in Finland. The results of the analysis are shown below. They are organized based on your cases.

4.1 Company SGC

As the company is young and without active relationship with the customer we aimed to look for the details that could help company reach financial stability and establish themselves on the market. This of course includes on what the main focus of company should be as being a small operation with few customers the used hours do count. We also consider the current working methods effectivity and scalability.

We interviewed the CEO (other main shareholder) that could reflect the fiscal situation of the company rather well, but on operational level had only some understanding of what the other worker was doing. Factors such as communication channels and PM methods offered very little as the working methods of the company haven't been yet standardized in the company.

4.1.1 Customer/market

In the customer/market side we found that the company had currently no active sales protocol which would be crucial to the continuity of the company. The company could already turn to their competencies in to service packages that had fixed price depending on the size of the project, so offering this solution should be relatively easy to turn in to practice. Our research revealed that there are nearly no competition on this market and the dream of making interactive models standard in housing business is something that company could go after.

On the game development the first question to address is the profitability. The market is heavily competed and success is dependent on visibility that can be only offered from publishers or the company must be ready to spend some time on small-scale guerilla marketing that requires establishing relationships with known promoters. The CEO estimated that publishers take over half of the generated profits and therefor it is questionable can game that doesn't necessarily reach its target audience be enough to support two full time workers.

4.1.2 Product/service life cycle

As was said on the previous section, company already has a service package that they can sell. How to extract more value from this is question of art of salesmanship. Also the question what parts of product can be reused/automated is something that they should look in to.

In the game context, the company can't produce games for major audiences with hopes of success as it is highly unlikely or at least very lucky to find the sweet spot that tickles everybody. Therefore, we suggest that they should look in to the niche markets of the games and start building products for these markets. This raises the

chance of success as the product is more likely what the target audience is looking for and won't drown in volume of similar products.

4.1.3 Financial metrics

As the company cannot perpetually live off the institutional money, they are limited to two courses of action, which are seeking for investors that are willing to invest in the company and acquiring more customers to generate revenue. The main aim in 2018 should be able to cover all the costs the company has and even pay some salary or dividend.

4.1.4 Resource management

As had been said the core competencies of the owners reach over both sides of the business, but the question is how much two men can do in a one day. It is understandable that the sole contractor situation on city modelling is a trait that one doesn't like to share on light bases, but as company is located in a town filled with tech-savvy students with no-work or previous experience, it is relatively easy to draw interns and other unpaid workforce to aid you in these projects. This is the lifeline of many companies with heavy skillset but few working hands and you should utilize it. If the company decides to focus on the game development, there are multiple to be professionals in the field in the operating vicinity and this would reduce the production times to sensible levels, thus lowering the risk of following the path of game development.

4.1.5 Vision, mission, value (VMV) and Happy people

In student life we all learn that nothing makes lasting relationships and tears down tension than open bottle and good company. Company already had celebrated its success (the first game released) and this is something we encourage in the future. The main question is, that will the company be modelling company or game company. The modelling mission "standardizing interactive models in housing business" is more well defined than the gaming mission "Fun things to do for all". If the path leads towards latter, that should be redefined.

4.1.6 Processes/Tools (Productivity management)

The SGC describe their working method as smoothed, but yet it isn't very well defined. They claim that they don't use any official method for organizing their work and they just do time-cost estimations and milestones based on the amount of work they have. This creates situation where other part of the workforce currently isn't completely aware of what part is being worked on, not an issue in two-man company where simple question will do, but if you look at scalability the issue is more severe.

If the guidelines proposed on section 4.1.4 are followed there must be a way to direct the workforce and putting thought work on these manners early save time and effort on long run.

4.1.7 Channels

The company itself already realized fairly well what needs to be done in order to reach the stability in aim. Games require marketing, but according to the company there is solidarity in the market between Finnish companies that makes it easier. The focus should be either creating a profitable publisher deal or finding partnerships with promoters. The city modelling contract at hand was reached by contacts previous to the company's existence but they view that in future they need to start making targeted sales propositions in order to create more revenue.

The company always makes major decisions with the customer and during the production period there is continuous dialogue with customer which we see as an huge asset.

4.2 Company RMC

We interviewed company's CEO. And ask him a question based on our analysis framework. We had a good basic information of a company and its business and way how they work. Because of the company is quite new we didn't have very much financial data but we had a good overall picture how company works.

Because of company's age we look company more about how they are planning to improve their processes and how their way of working and processes had improved so far. We also look how company could make their customer relationships better and how they could improve their projects.

We also look at what kind of tools company is using and what kind of technologies company have. Because of the company is still small we focus on areas that company could improve easily. One of the specific field that we found was improving their processes and project management.

4.2.1 Customer/market

Market in AI and machine learning field is still quite new and it's growing fast. There are not very much competitors in Finland currently, but there would be more need for AI and machine learning.

Currently companies that have a lot of data and don't use it effectively are in different fields for example health care, information security, tele-communications. Normally RMC's customers have their own systems already and RMC have to integrate their solutions to customers systems. Very typical example for a customer that RMC have could be company that works on information system and have lot of

traffic data in their system and they want to find something interesting and meaningful information of their data.

4.2.2 Product/service life cycle

RMC have their own solution that they are currently developing. Lot of revenue is currently coming in consulting services that they sell. One main problem is that many of current customer relations are just one single project. That is one main thing that company is trying to improve in their business.

One thing we find out was that company is still having problems that it could take a lot of time with customers when they are trying to looking what kind of data customer have and how could they offer customer the best solution for make use of that data. Sometimes it might take almost year after first meeting that project could really start RMC could start develop the solution for the customer.

4.2.3 Financial metrics

Company is quite typical startup and its revenue is growing fast. For example, 2016 revenue was 10 000 EUR and in 2017 revenue was 100 000 EUR. In 2018 company's revenue is expected be double that it's now, 200 000 EUR.

RMC's profit is still quite low. In 2016 profit was –100 000 EUR and in 2017 company's profit was still negative. Company's cost structure shows that biggest cost is employees' salaries, and other costs are quite marginal when compared to the salary costs.

4.2.4 Resource management

Company's key resource is employees and knowledge they have. Company is still small and they have only four employees in the team they have to focus how much time they use in different things.

Currently RMC is paying quite good salaries to their employees and employees have good changes to affect their work and how much they want to work. Company offers very flexible working hours and change to do work from home.

4.2.5 Vision, mission, value (VMV) and Happy people

RMC's vision is bringing AI in the field because there are a lot of data without any use. Their mission is get other companies wake up and start utilizing currently unused but possibly critical data that they have. RMC wants to help other companies make their business better with using data. Values of the company are trust, especially between the founders. They want to do things together and professionally.

4.2.6 Processes/Tools (Productivity management)

To improving their processes are one field company where company is not ready yet. Some of the processes are already partly standardized but still there is lot to do in that field. Customers are so different so far that making processes standard are hard but with most simple processes RMC has already make some standardizing work.

RMC is that small company that they don't use any clear project management methodology. CEO is doing some management based on their project plans and other documents they have. Way of doing work is improving all the time, but yet they have lot of work to do.

4.1.7 Channels

RMC's one problem is that when they are first time touch with customer it may take almost year that they can start building their solution for customers problem. In that time, they usually meet customer several times and try to get good picture of customers business.

RMC is making software with agile style methodologies so they are iterating product a lot and it's very important that company communicate with customers well. During the projects they have make demos and show customer different iterations to the product until customers are satisfied.

4.3 Company Big Expert House

In the case of Big Expert House we had almost all the data that we could desire from their IPO documents. All the key metrics regarding the market, finances, resources and so on were at our disposal, yet we were not able to touch the everyday life of the company in any form and what we gathered were from official sources. Therefore, this analysis reflects heavily on the business aspect of the company and is more of an overall view on the situation, rather than detailed description of their problems. Then the profit margins that have been averaging 13,5% of the company's revenue during the last five years and growth to five times larger revenue in past five years leave very little to question in this success story. In our interviews we had no face-to-face time and questions we formed were answered via email.

4.3.1 Customer/market

Currently BEH is working on domestic (Finland) and European markets. The market for the digitalization is heavily competed and there has been steady growth in the market as well as in competition. The clear lines of digitalization are vanishing and it seems more of an umbrella term to contain variety of services that include things such as cloud services, software development, consulting and so forth. The public sector is main source of the income and 5 largest customers constitute to 42% of the revenue.

This is an issue that should be targeted as it seems that competition is tough and losing one of these customers would be crucial.

We suggest for scouting other customers beyond the public sector or expand the public-sector services to other markets beyond existing ones. This allows you to balance company's client structure and lessen the dependency on current customers. Other option that we recommend for issue of dependency is creating a dependency that is directed towards the company. This can be achieved by offering services that are dependent on company's expertise to maintain. Other forms that support this dependency is superb products that excel on areas where the competition fails.

4.3.2 Product/service life cycle

We gained little to no information on products and how the products are treated in the company. This might be due to the large portfolio of the company's services. The most important part that the company has brought forward are especially service oriented architecture (SOA) that allows integration in future as the products are by nature independent and have open source interfaces. This allows customer to create any services that use the components of the system for any kind of usage. This is what we suggest BEH should go after, besides offering the initial service core, they could sell addons to this core that they would deem useful for certain type of customers thus extending commitment and adding years to their life cycle.

4.3.3 Financial metrics

There has been steady increase in profits past 5 years, from 2015 12,5% to 14,4 in 2016 and from that 16,9% in 2017. This must be reflected to the fact the revenue has increased 49,9% from 2015 to 2016 and 76% from 2016 to 2017. Mainly the cost structure comes from employees, some write-offs and other costs that aren't defined any further. We suggest that BEH continues whatever formula they are using for their business as long as the market growth is possible. Thorough estimation of competition and their respected shares of the market should be conducted in order to understand which markets offer possibilities for services that BEH offer. In addition to this the company should look to stabilize their operations further on markets they dominate as the saturation point of the market can be reached fairly quickly in small markets such as Finnish domestic market.

4.3.4 Resource management

Company started as an software development house, and moved on to the cloud services when Saas platform for it was developed by amazon. From this history their core competencies formed and they were able to move on to microservice model under which they are operating this day. The company views these capabilities (and individuals who possess them) as their most valued resource. They have trimmed out all unnecessary leading positions and strive for self-guiding touch for the employees

allowing them to be free to work as they please at their position. Only recommendation we can offer is an thorough evaluation of resources at disposal now (are they well utilized, is something missing) and estimation what kind of competencies would it require in future to exceed the competitors service portfolio.

4.3.5 Vision, mission, value (VMV) and Happy people

BEH have clear mission: Change world through digitalization and by renewing ways of work. Their vision is to be the driving force in digital transformation and to be recognized for our innovative company culture and as the best possible workplace. BEH values are to be great workplace and company thrives on customer success.

4.3.6 Processes/Tools (Productivity management)

BEH uses their own MVM (minimum viable management) concept as their productivity management tool. The teachings of agile also run deep in the company and most of the development is done in this manner. The sales and marketing is crowdsourced to whole company, and people working on customer layer have been empowered to make additional sales. Company has reached it respective size due to these philosophies, approaches and methods and only thing we can recommend is to be more experimental with different styles of productivity management. As the company has reached its stability, on smaller scale projects it is possible to test alternative styles for development of the services. This can lead to innovation and enable the valued employee satisfaction to new lengths.

4.3.7 Channels

BEH have sales director who is responsible of company's sales and company have sales organization. Sales organization is organized by each sectors (Wire, Shape, Build and Cloud. The purpose of sales organization is to find more customers, and also to sell more to current customers. Even though company has a special sales staff BEH it encourages all employees which work with customers to do selling if it's is possible.

Company's marketing strategy is based on that every employee is part of the marketing also. Main point of marketing is increase awareness of the company and its brand and to promote a positive employer image.

5 Managerial implications/recommendations

Here we describe our proposals and recommendations for the companies based on our analysis. This section will have short imperatives that respected company should follow.

Our recommendations for SmallGameCompany are as follows:

4.1.1 Customer/market

1. Start selling your existing products systematically
2. Decide on what markets you want to exist in
3. Form relationship network that is beneficial for you

4.1.2 Product/service life cycle

1. Look into recycling components and automation practices in city modelling
2. Try to find a niche market for your next game project

4.1.3 Financial metrics

1. Cover the costs of the business
2. Gain profit during this fiscal year by increasing sales

4.1.4 Resource management

1. Establish project management direction
2. Attain developing labor

4.1.5 Vision, mission, value (VMV) and Happy people

1. Choose between games of modelling as main mission for the firm
2. Try to refine your games mission
3. Keep having fun

4.1.6 Processes/Tools (Productivity management)

1. Establish set of working methods
2. Start to control your workflow
3. Aim for scalability

4.1.7 Channels

1. Attain and upkeep customer relationships
2. Create partnerships with people that can make your vision come true

Our recommendations for RobotMindCompany are as follows:

4.1.1 Customer/market

1. Find clear target customers
2. Focus on own product

4.1.2 Product/service life cycle

1. Improve customers relationships that they are not just single projects
2. Try to improve starting the project period

4.1.3 Financial metrics

1. Revenue should be increased rapidly
2. Need of more profit

4.1.4 Resource management

1. Employees should be recognized as key resource
2. Focus on how to allocate employees time that is most useful

4.1.5 Vision, mission, value (VMV) and Happy people

1. Vision, mission and values should be evaluated continuously

4.1.6 Processes/Tools (Productivity management)

1. Try standardize processes
2. Try learn from older projects and improve way of work

4.1.7 Channels

1. Try improve communication when starting project to get project run faster.
2. Remember good communication with customers

Our recommendations for BigExpertHouse are as follows:

4.1.1 Customer/market

1. Diversify client structure beyond public sector
2. Increase customer dependency on you as service provider

4.1.2 Product/service life cycle

1. Create addons to existing products

4.1.3 Financial metrics

1. Conduct extensive market research on current status in Europe
2. Stabilize the existing standings in markets with possibility to dominance

4.1.4 Resource management

1. Try alternative approaches on small scale projects for innovation

4.1.5 Vision, mission, value (VMV) and Happy people

1. Vision, mission and values are in a good shape
2. Because of that key resource are employees it is good that company's value is to be a great working place

4.1.6 Processes/Tools (Productivity management)

1. Try alternative styles for development of services

4.1.7 Channels

1. Crowdsourced company's sales and marketing to all employees is great way to show that company is great workplace and everything works.

6 Conclusions

This research covered three fairly different companies, in their different stages of the maturity. The aim of this study was to gather relevant information of these companies under our framework and affine it to a form that delivers practical suggestions for the future direction of the company. In total, we present four meaningful and relevant findings. First, as can be seen, it is easier to point out directives for relatively new companies that yet don't have it all figured out. Second finding was that, to our great pleasure, the framework turned out to be useful tool to evaluate these companies holistically, that made our analysis much easier task. The third, and in our opinion, the most important finding that we count to cover all of the companies, is the importance of finding your place in the markets and after that improving them by excelling in the said market. Also, fourth and final finding is the importance of stabilizing the revenue streams in new companies, which we found to be possibly the most alarming task for them to do.

Our analysis process was quite straightforward. We had our analysis framework and we met companies face to face and interviewed them by asking questions based on our analysis framework. BEH company was the only one we didn't even met face to face but they sent very large material what we analyzed and we also had chance to ask further and more detailed question with email. Some of the questions were quite challenging to answer for the smaller companies because they were founded so short time ago. We still had a lot of applicable data of the companies for our analysis.

Smaller companies had lot of issues their business which weren't clearly not very good shape yet and they had still improved their products, business and processes. BEH company has done their business way longer time and basic business was very good shape already and analysis is focus on more detailed problems that company has and risk of whole business field.

Acknowledgements

We would like to thank student space Kattila for supplying coffee. In addition we would like to thank student restaurant Piato for supplying coffee and other refreshments.

References

Osterwalder, A. and Pigneur, Y., 2010. *Business model generation: a handbook for visionaries, game changers, and challengers*. John Wiley & Sons.

Popp, K., 2011. Software industry business models. *IEEE software*, *28*(4), p.26.

Author biographies

Leevi Leppälä is a master's student (or very close to that, bachelor's thesis is still not ready) at the faculty of Information Technology in the University of Jyväskylä, Finland. He started his studies in 2013. He is also working as software developer in Solutos Ltd. He was chairman of Linkki Jyväskylä ry 2017 and is now Director of Innovation and Marketing in Linkki Jyväskylä ry.

Taneli Pylkkönen is a master's student at the faculty of Information Technology in University of Jyväskylä, Finland. He started his studies in 2012. His studies cover cognitive sciences, psychology, metaphysics and broad spectrum of system development.

Aleksi Lokka is a master's student at the faculty of Information Technology in University of Jyväskylä, Finland. He started his studies in 2012. His studies cover organizational and management aspects of IS.

International growth challenging software companies in Jyväskylä, Finland

Johannes Impiö, Milla Rintamäki, Terhi Solanterä and Jenny Tähtinen

University of Jyväskylä, Faculty of Information Technology

johannes.m.impio@student.jyu.fi

milla.e.rintamaki@student.jyu.fi

terhi.m.a.solantera@student.jyu.fi

jenny.m.i.tahtinen@student.jyu.fi

Abstract. This paper is a business analysis on three case companies based on an analysis framework created on a course TJTS5780 Advanced Software Business Studies, University of Jyväskylä, Spring 2018. The aim of this paper is to create a better understanding on business models of software companies. Our consultancy group interviewed each case company based on the analysis framework created and formed an analysis on the strengths, weaknesses, opportunities, and threats of each case company's business model. The economical situation of Company A can be considered strong, whereas Company B was established only a few months ago which is why the financial situation is more unstable. Company C has a strong economical situation, but it is working on a sector where economic fluctuations are frequent and risks are large. Our results suggest that the main challenges for the companies include how to attract new customers and broaden the services into new business areas. The companies aim to grow internationally, which requires them to attract more intellectual and capable workforce.

1 Introduction

This paper is a business analysis on three case companies based on an analysis framework created on a course TJTS5780 Advanced Software Business Studies in University of Jyväskylä, Spring 2018. The aim of this paper is to create a better understanding on the business models of software companies. Today, many software businesses fail or otherwise disappear during the years and even the big players may lose their market position very quickly as happened to for example the Finnish mobile phone producer Nokia.

This paper aims to give more information on why software companies fail and how it could be prevented. According to Rönkkö (2018) the five reasons for software company failure are 1) insufficient resources or capabilities, 2) not enough funding, 3)

fail at transitions, 4) opportunity disappears, and 5) lack of motivation. Even mature software businesses may face difficulties that challenge their profitable functioning. These could be for example changes in industry or network level such as technology changes or emerging platforms, or firm level and operations changes such as growth management development or business process issues. (Tyrväinen, 2018.) On the other hand, Tyrväinen (2018) suggests that growth orientation is needed to create success stories in software business and to renew the industry.

The paper gives insights into three case companies and their business models. The aim is to predict what kind of difficulties they might face in the future as well as give suggestions on how to come up with solutions for the challenges faced. The case companies focus on software development and are based in Jyväskylä, Finland.

The consultancy group interviewed each case company based on the analysis framework created and formed an analysis on the strengths, weaknesses, opportunities, and threats of each case company's business model. Company A is a Finnish company offering software for appointment reservations mainly for public organisations. Main findings indicate that Company A should support its growth by broadening its customer base into private businesses or through internationalization.

Company B is a freshly established video game company that is still forming its business model. The main findings include that to increase the sales, a salesman is needed in the company. Due to its agile nature, instead of focusing only on game development, the company should keep the eyes open for new business opportunities that can be found in surprising places.

Company C is focusing on the exchange of cryptocurrency and it offers services to consumers and businesses. Our results indicate that the company should aim to broaden its currently rather homogeneous customer base by targeting the marketing for different customer segments. Since the company is growing fast, it should focus on maintaining its attractiveness as an employer to keep the current intellectual and highly professional employees in the company and to acquire more highly skilled workforce.

The paper continues as follows: section two will present the analysis framework created on the course and explain the linkage between the framework and the interview questions. Section three gives a brief introduction on each case company interviewed and analysed. This background information will help the reader to understand better the implications of the analysis. Section four presents the results of the analysis by explaining the information gained in the interviews and connects it to the six framework elements.

Section five focuses on managerial implications and recommendations that can be given to the case companies management based on the analysis done in the previous section. Section six concludes the report.

2 Analysis Framework

This section describes the analytical framework utilized in our consulting work. The framework consists of six dimension: 1. Customer and market, 2, Product and service lifecycle, 3. Financial metrics, 4. Resource management, 5. Vision, mission, and value (VMV) and how to make people happy, and 6. Processes and tools (productivity management). Each dimension of the framework is presented more detailed in the following sections 2.1-2.6. The basic questions of the interview are also presented.

2.1 Customer and market

Customer and market element focuses on explaining for whom is the company creating value (Osterwalder & Pigneur, 2010), and describing the market environment. According to Foss and Saebi (2017) some customer segments can be recognized to be more willing to pay for the product or a service offered by a company than others. Combining this information on customers and markets to other aspects of a business model such as the delivery and appropriation mechanisms may lead to a competitive advantage. For this reason we included customer and market as an element in the framework and created the following interview questions focusing on this element:

- Who/what kind of customers are your most important customers?
  - Current customers
  - Target customers
- What is your situation in the market compared to your most important competitors?
  - Are you aiming to grow your market share or trying to keep your business within the current position?
  - If you are aiming to grow, what is your current situation compared to your target, e.g. the market share, the number of customers and/or the annual turnover?
  - Is there some extra value you can provide to your customers compared to your competitors?
- How do you find/reach new customers?
  - Is your customer acquisition working effectively or need improvement?
  - What kind of channels you use?
  - Are your investments in marketing cost-effective compared to the results?
- How do you keep/take care of your current customers?

- Are your investments profitable, so that you have been able to keep your existing customers and they have made even further acquisitions from you?

2.2 Product and service life cycle

The way the companies make profit is based on the product and/or services the company offers to its customers in order to create value to the customer (Osterwalder & Pigneur, 2010). The interview questions focusing on this element were the following:

- What is/are your main products/services?
- What kind of life cycle your products/services have?
- How do you keep your customers up-to-date about your new or updated products/services?
- Are your customers actively updating and/or buying new products/services e.g. when the old ones are outdated? Have you made it easy enough?

2.3 Financial metrics

According to Foss and Saebi the consequences of the current business model can be viewed based on the financial metrics of a company. The financial performance is linked to the effects the existing business model has on the company. For this reason, we included a set of questions focusing on financial metrics on our interview. Our case companies were very heterogeneous on their financial performance which is why we only included the following general questions on financial performance to all case companies:

- Are you profitable?
- What was your annual turnover and profit?

2.4 Resource management

The key resources of a company are the ones that enable the company to create value to the customer and earn revenues (Osterwalder & Pigneur, 2010). To gain understanding on the company's key resources as well as their resource management, the following questions were included in the interview:

- What are your key resources?
  - Physical
  - Intellectual

- Human
- Financial

- What are the development needs, comparing the current and target situation?

2.5 Vision, mission, value (VMV) and how to make people happy

According to Chun and Davies (2001) a traditional way to express a company's character and personality is mission and vision. An inspiring and overreaching vision is something that connects the most successfully positioned companies and brands (Chun & Davies, 2001). In order to understand 'who' the companies are, an element of vision, mission, value and how to make people happy is included in the framework. In software businesses the employees are often the most valuable resource of the company for which reason it is vital to keep your employees happy. In order to have a successful business it is important to keep the customers happy, too. The VMV often form the core of pleasing the people connected to the company. These interview questions focused on this element:

- What is your vision?
- What is your mission?
- What are your values?
- How do you make people happy, both your employees and your customers (current and potential)?

2.6 Processes and tools (productivity management)

In order to understand a business from a high-level strategic perspective, a business model has to describe business processes and how processes are realized by applications and technology eg. the tools used (Caetano et al., 2017). The role of business processes in a company is to use and transform business objects that are assigned or executed by business actors. These business processes eventually form the products and services the company offers to its external clients. (Caetano et al., 2017.) Processes and tools used in a company were clarified using the following questions:

- What kind of processes do you use for following up and managing the productivity?
- What kind of tools do you have for that purpose?

3 Case Companies

Three case companies were interviewed to gain understanding on their business models. The first case company, that we refer to as Company A, produces appointment reservation software mainly for the public sector organizations, is presented in section 3.1. The second case company, Company B, is a new game developer company and is presented more detailed in section 3.2. The third case company, Company C, is working with cryptocurrency. Section 3.3 will gives more detailed information of the third case company.

3.1 Company A

Company A is a Finnish company offering software for appointment reservations mainly for public organisations. Company was founded in 2004. The software is produced in Jyväskylä, Finland. Company A is a market leader in appointment reservation software on Finnish municipal sector with 50-60 established customers. Company A has developed a flexible platform with a broad selection of functionalities that can be utilized in both private and public organisations as needed. The simplest option is to use the software for appointment reservations only but at broadest it can function even as an enterprise resource planning system.

During the years, the company's yearly growth has been around 10%. Traditionally Company A has focused on the Finnish municipal sector customers but has recently expanded on other sectors as well including Finnish congregations and hospitals. New ways to utilize the software in the private sector and abroad are in the interest of Company A.

3.2 Company B

Company B is a Finnish video game company started in Jyväskylä, Finland in October 2017. The company aims to produce video games on consumer markets but it currently focusing on fundraising and marketing. Funds are mainly raised by different software development subcontracting projects offered to local companies in Jyväskylä area. Other ways to raise funding are looked for, too.

The first prototype of the first video game was published in the end of January 2018 and is now available as a free online version. The current customer projects include cooperation with University of Jyväskylä in developing cyber physical devices with a help of virtual reality development environment. The company has taken part in a digital art project where augmented reality was utilized and offers 3D modelling know-how to other local companies.

3.3 Company C

Company C is a Finnish company focusing on the exchange of cryptocurrency and it offers services to consumers and businesses. It was founded in 2012 and located in Jyväskylä, Finland. The company offers six different products and services to its customers including cryptocurrency exchange services, cryptocurrencies in a physical form, and a news feed for cryptocurrencies.

On its business area, Company C is a market leader in Finland and currently there are no real domestic competitors. However, the exchange of cryptocurrencies is not restricted by location which makes the competition global. At the moment, Company C has around 60 000 customers with the turnover being 3 million euros and the exchange volume reaching 50 million euros in 2017. As a whole, as much as 90% of the current customers are Finnish and a typical customer is Finnish young or middle aged male.

4 Results of the Analysis

This chapter presents the results of the analysis by summarizing the answers of the case company interviews. The chapter provides insights into the business models of the case companies and is organized according the framework presented in the previous chapter 3.

The results of the analysis are shown below. The chapter continues as follows: section 4.1 presents the analysis results for Company A, section 4.2 is dedicated to analysis, and results of the Company B, and analysis for Company C are gathered on section 4.3.

4.1 Company A

From Company A there were four participants in the interview: CEO, Product Manager, Customer Service Manager and Product Development Manager. Since there was a representative from almost all of the company's departments, we were able to get a great overview of the company's business.

We received information about company's products, financial metrics, resources, staff and markets. CEO and Product Manager both told us that company's yearly growth has been around 10% which has been good but could also be better. Company A is especially interested in private sector opportunities and also in opportunities abroad.

4.1.1 Customer/market

Currently Company A has a wide client base in the public sector. Customers are municipalities, churches and healthcare. Competition has split through different sectors: in some fields Company A is a challenger and in appointment reservations software on Finnish municipal sector Company A is a market leader with 50-60 established customers.

Municipalities can utilize the systems broadly, since they usually have a lot of different rooms (sports centres etc.) to book. In appointment reservation system field there is only few competitors and it can be said that in all the municipalities with more than 20 000 residents, the municipal manager knows the Company A.

In churches the opportunities of the system are not that widely recognised yet, but Company A is doing persevering job in the field. One of the biggest congregations in Finland is already a customer and that is a great reference in the field.

Company A has one customer abroad: Haaparanta. After Haaparanta decided to invite the nordic service providers to tender in 2010 they found Timmi as the best solution for their collaboration with the city of Tornio.

Company A contacts new customers through sending directed brochures for the target customers' representatives and contacting them after that through a phone call. Company A has also participated in several conferences or fairs of a fields of interest. These kind of events have provided direct access to officers in municipal and sport field.

Current customers are taken care of by constantly providing new services for them. Company A's customer service team is very interactive. Customer service is always taking customer feedback into account and the product is developed further according to the customer needs.

All in all it can be stated that Company A has a strong position within customers in public sector, especially in municipalities. Company A has built long lasting customer relations bringing value for customers in many fields. Company A's question for our consultancy was to think about new market and customer opportunities possibly abroad and in private sector.

4.1.2 Product/service life cycle

Company A's product is a wide system ensemble that consist of the following systems. First system is the appointment reservation system that enables the user to book and reserve room and staff. Conference and course management system includes event planning and registration. Cash flow controlling system includes invoicing, cash desk system, online payments and self-service automaton. Company A also provides access control system that has a user specified pin-code to a certain room.

Company A's system can be utilized in appointment reservation only or as an whole ERP system. The products' strengths are the wide platform that can be modified according to the customer needs. Customers may order more building blocks to their system as their needs evolve. The software can be integrated for example with already existing ERP systems. Other examples of integration are Exchange-synchronizing, Suomi.fi-, CPU- and Bambora-interface for online payments. The platform also provides user authentication possibilities and registration functions of customers, room and staff.

4.1.3 Financial metrics

Since Company A has been founded in 2004 and has been a strong operator ever since, it can be stated that Company A has a good financial standing. Company A's revenue of 2017 was around 1,4 million Euros. The annual growth has been around 10% which has been strong enough for the company not to expand the business abroad.

4.1.4 Resource management

Company A considers highly skilled and productive people as their most important resource. Company A has currently 18 employees, 15 of them are located in the head office in Jyväskylä. Motivated staff is what brings the results and growth for the company. Customer service is in a very important role, since it is the way the company gets valuable information about customer satisfaction and improvement ideas for the product.

The people of Company A stay productive mostly due to great team spirit. One of the goals in all the recruitments is to find people that share similar interests and spirit. In previous corporate acquisitions the challenge has been how to unify a heterogenous group of people sharing different corporate cultures. Company A is also devoted to build long-lasting employments: the average time of an employment is 9 years.

4.1.5 Vision, mission, value (VMV) and Happy people

Currently Company A is in a process to renew the specification of their vision and mission, as the company just recently started a collaboration with a new advertising agency. The vision as briefly described is to be the number one product in the selected area.

The most important values of Company A are agility and flexibility. Happy people is also a very important value for the company, since as stated earlier, people are the company's most important resource. Company A's CEO says that the well-being of the staff comes first. The staff is taken care of by providing lunch benefits and

exercise opportunities. Company A also organizes events for the staff to lift up the team spirit. Working times are flexible and for example university studies are easily combined with the work in Company A.

4.1.6 Processes/Tools (Productivity management)

Company A's process for system development with one customer is to first sell the platform with already existing building blocks providing needed functionalities. After that, customer service representative(s) sets up meetings with customer to implement the system. Company A also instructs the customer with the product and picks up development ideas for the system development team.

Company representatives didn't provide us with any specific information about the productivity management.

4.2 Company B

To collect information of Company B for the business analyses we interviewed their CEO and Co-Founder, who is responsible for the marketing, sales and managing of the company. He is also one of the 4 shareholders of the company. We received information about their current projects and services, long and short-term goals, resources, vision, mission, values and productivity management.

We were asked to search for possible future opportunities and customers based on their skills and knowledge. Additionally, some details of the company were collected from their website.

4.2.1 Customer/market

Despite company B's young age, they have managed to gather a good portfolio of customers around them. Currently their biggest customers are the City of Jyväskylä, the University of Jyväskylä and some local SME companies.

In collaboration with the University of Jyväskylä, B has been building a VR development environment for companies that can implement development work in a virtual environment and experiment with results with the use of compactors even before the parts are needed to order. Before, when companies wanted to test projects, they had to order parts and wait weeks for the parts to arrive before they could test them in their projects. In comparison, this virtual testing solution saves lots of time and therefore also saves lots of money.

The City of Jyväskylä has commissioned the company to develop a service and a networking tool for the city's needs. Company B also participated in the city's digital art project utilizing augmented and virtual reality in their museum exhibition and city paintings.

Local small and medium sized companies have different needs based on their background. B offers services for these SMEs include building homepages, system development and mobile apps.

4.2.2 Product/service life cycle

The company's main product is game development. The company released its first game at the end of January 2018. The game is a co-op play for 4 players. The short-term goal is to gain visibility for the business and get user access with the free version of the game. The free version also provides the company with data on players' gaming behavior, which allows the current and future games to be developed forward. After the development work, the aim is to focus on marketing the game and obtaining funding for the game.

The company's other projects related to the current fundraising phase include corporate system development, web pages, mobile applications, digital art projects, and utilization of VR and AR technologies. The company collects its clientele by implementing a wide range of projects requested by companies within their own competence.

4.2.3 Financial metrics

Due to the young age of the company, it has been difficult to estimate financial figures. However, the turnover was positive in 2017. Company B has calculated that if the number of projects and new customers remains at current rate, the 2018 estimated turnover is approximately 120 000-150 000 €.

The company's current mission is to raise funds for the future, so they can concentrate their resources on game development. This is scheduled to take place by 2019. They consider the current stage as positive, unlike other startups, they are able to grow the assets of the company and thus bring security to the future, but this slows the focus on their main goal in game development.

The current primary focus is to develop their customer base and brand reputation mainly in Finland markets. There are also interested in international projects and customers as they arise because the long term goal is to succeed globally.

4.2.4 Resource management

The most important resources Company B possess are their team, who have extensive knowledge of software development. The company founders' experience is a great asset and their credibility in this area is beneficial in securing new customers and projects, as well as recruiting new team members.

However, in the current situation, the resources are tight and they are currently considering using the future trainees to encode existing projects so that they will be free to focus on game development. The company is also hiring a new salesman which hopefully will bring help in finding the new right customers.

4.2.5 Vision, mission, value (VMV) and Happy people

The company's vision is to become one of the largest Finnish game companies that deliver unique games and experiences for their customers. The current mission is to develop the company's turnover so that it will be able to concentrate its resources around the company's core competence, that is, the development of games in the future.

The company's goal is to develop games for the consumer market, utilizing games and development platforms as widely as possible. The company values consist of developing and learning self-esteem and maintaining a good team spirit within the company. To ensure that the company's staff remains happy, the Company has invested a lot in the employee's comfort. Employees of the company work in relaxed conditions and are consistently encouraged to be in good spirits. The good spirit of the company is one of the most important safeguard items emphasized by recruiting new people. The new "experience" must be well-suited to the team and reach out to all members.

Equality is ensured by the fact that the operation is very transparent and information is not pledged by anyone, but it is accessible to all members equally.

4.2.6 Processes/Tools (Productivity management)

Customer relationships have been built through networks the founders had pre-existing from previous working relationships. It is also possible to contact customer needs through the web pages. Potential customers are contacted when needed, mainly by phone. Also, co-operation with local players is in the majority of

customers' control: If the company's own resources are not enough for new customers, they will be redirected or recommended to other companies in the industry.

The wide range of customers as well as the demand for different services pose challenges, as it has not been possible to build clear models for scaling them up to new customers. Resources are also spent on a lot of design work that is not always cost-effective. The company also mentioned that they often encounter a problem where customers want new services and products because they have hear they are popular among other companies, but they do not really understand the real value those solutions.

4.3 Company C

To collect information about Company C for the business analyses we interviewed their Commercial Director, who is responsible for the sales and marketing development of the company. She is actively involved in business development and also coordinates the internationalization process of the company. We received information about their products and services, financial metrics, aims, resources, vision, mission, values and productivity management. The Commercial Director did not name any special problem they would like us to consider more closely.

Some details of the services were collected from the web site of the company and some further information was also found from web articles.

4.3.1 Customer/market

At the moment Company C is the leading bitcoin service provider in Finland and in the Nordic countries. Some new companies have been established during the last few years also in Finland, but currently Company C does not have any real domestic challenger. The biggest competitors of the company are international operators like Bitstamp, Kraken or Coinbase. The company is still a small operator in the global market with their 60 000 customers, 50 million euro exchange volume, 17 million euro valuation and 3 million euro revenue in 2017, while Coinbase had 10,6 million users, over 20 billion dollars exchange volume, 1,6 billion dollars valuation and over 1 billion dollars revenue in 2017.

Due to the fast growth of the sector many large operators have declined the level of customer service. Company C has seen this as an opportunity. They have aimed to keep the growth sustainable and succeeded to maintain good customer service through automating their processes, so that the return rate of their customers has been over 40 %. They believe they have the capacity and the know-how to increase their turnover and market share faster than their competitors by maintaining a better customer

service. They also believe that their strong experience and well developed, trustworthy brand will be the key competitive factors in their internationalization process.

The bank sector abroad is already offering services addressed to companies operating in cryptocurrency sector, but currently the cooperation with Finnish banks is challenging. Their attitude towards bitcoin is conservative, and they consider it extremely risky to invest in. For example Nordea has told their employees not to invest in cryptocurrencies. In 2019 the EU regulations of cryptocurrency exchange will be tightened, which will make cryptocurrency investments more reliable. After that also Finnish banks will probably include cryptocurrency investments in their services. They have to respond to the increased demand and fulfil the needs of their customers.

The majority of bitcoin investors are young and middle-aged males who are willing to take some risks. In general, women seem to be more conservative and avoid risks in their investments. However, recently their interest towards making investments has started to increase rapidly. In Finland different kinds of economical theme groups and social investment networks for women have become extremely popular and continue to grow fast.

4.3.2 Product/service life cycle

Currently the main business of Company C is to offer cryptocurrency exchange services for investors. Their customers can invest to cryptocurrencies through an investment platform or make exchange operations by using their own wallets. Soon they will launch a merchant platform for companies, which enables their clients to accept bitcoin and over 50 altcoins in their stores and manage their funds. In addition, Company C has over five years experience in blockchain technologies. At the moment their blockchain lab concentrates on developing blockchain technology to increase the performance of their own services. They are focusing in new technological solutions and currently e.g. in the development of Lightning Network, which is a second layer payment protocol that operates on top of a blockchain. In addition to bitcoin Company C has planned to start exchanging also Ethereum and Litecoin cryptocurrencies.

The company offers a comprehensive range of cryptocurrency related products and services under six different brands. We named the brands in this report as Brand A, Brand B, Brand C, Brand D, Brand E and Brand F.

Brand A is a cryptocurrency investment platform targeted mainly for investors and customers who want to exchange larger amounts of money, which in this case usually means thousands or more in euro. The service enables registered users to buy, sell and store bitcoins. It is used for fast payments, instant trading and transfers, but also as a secured wallet. Most of the customer funds are kept in storage, which is secured by multisignature technology. Soon there will be also private banking service available

for customers with considerable investment property. At the moment about 10 % of Brand A customers are from foreign countries. The most typical user is about 30-45 years old Finnish male.

Brand B is a bitcoin community and broker service providing news, information, forum, blogs and weekly review for the users. The users can also buy and sell bitcoins without being registered by filling in a form. On average the exchanged sums are smaller than the sums exchanged via Brand A, which usually means some hundreds in euro. The most typical user is about 20-25 years old Finnish male. Currently the service available only in Finnish, but soon it will be available also in Swedish. The business of Company C started with Brand B new portal.

Brand C is a service for instant bitcoin purchases. The instant transfer service is provided for registered users. The service is suitable for transferring smaller sums.

Brand D offers merchant services for companies who want to accept cryptocurrency as payment. The service can be used e.g. in shops and stores where private customers can use bitcoins to pay for the products and services.

Brand E is a physical bitcoin and works as so called cold storage wallet, which is most often used by collectors. It can be used for storing bitcoins and for trading offline. In this area Company C is the leading operator globally. About 70 % of Brand E customers are from foreign countries.

Brand F is a Bitcoin ATM network which allows users to trade bitcoins. It is the most significant Bitcoin ATM network in the Nordic countries. Users can buy bitcoins with cash or sell bitcoins and draw cash. At the moment there exists 9 Brand F Bitcoin ATMs in Finland.

Some of the services are still under construction, like Brand D. Because the sector is developing and growing fast, also the existing services are constantly developed further, like e.g. Brand A investment platform. Company C aims to make cryptocurrency investing mainstream, and to achieve this they need to establish commercial partnerships with traditional companies, which provide investment services.

4.3.3 Financial metrics

Company C has been the leading bitcoin brokerage in Finland for years. Earlier their main market area used to be Finland, but in 2016 they decided to acquire their most significant local competitor Brand A, which helped them to better expand their company to international markets. In the summer 2017 Brand A service surpassed the turnover of Brand B and became the largest service of the company.

The business of Company C has been profitable in all sectors since the summer 2016 and growing rapidly. Their revenue consists mainly of exchange commissions. It has increased significantly during the last few years. In 2015 the revenue was 340 000 € and in 2016 it increased 142 % to 822 000 €. In 2017 the revenue was about 3 million

€ with 270 % increase from the previous year. Their exchange volume in 2017 was about 50 million € and their valuation about 17 million €. Their aim is to achieve a significant market share in Europe and to increase the revenue in the coming years so, that it will be 16 million € in 2020.

The predictions based on the first six months last year were 1,3 million € revenue and 610 000 € business result for Company C. In the end of 2017 the exchange trading volumes and the value of bitcoin increased rapidly, and after all the revenue of Company C was about 3 million €. The final business result information was not yet available. The market value of bitcoin changes rapidly, but it has not had much impact on Company C's business. Their current economic situation is strong.

4.3.4 Resource management

The most important resources for Company C are intellectual. The team members are skilled experts from various fields and have wide experience in entrepreneurship, business, technology, programming, cybersecurity, marketing, sales and internationalization.

The founders of the company have high technical expertise in public blockchain technologies and their CEO is an internationally known expert in cryptocurrencies and blockchain technology. The advisors and investors of the company include experts from the bitcoin sector and the strategic management of major global technology companies.

The company has currently 20 employees. Five of them were hired only recently. There are five persons working in the customer service, but the actual exchange processes are all automated.

4.3.5 Vision, mission, value (VMV) and Happy people

The traditional investors are seen as a great future potential in Company C. They believe that cryptocurrencies will challenge the traditional currencies in the upcoming years and many people will soon start diversifying their investments into cryptocurrencies. To reach traditional investors an easy interface and some new services are needed as well as new types of investment products, which could be made in partnership with traditional financial companies. Their vision is to provide the best user experience in the sector of cryptocurrency services.

The knowledge and interest of cryptocurrencies has begun to spread to larger masses. New services need to be developed and made easy to use for ordinary people. Company C has an extensive network in the bitcoin sector and have collaborated with numerous other operators in the field. Their CEO has personal contacts with several directors in cryptocurrency business, which enables them to build new potential partnerships. They have also worked with many financial groups and they believe that

cooperation will grow in the future. Company C is actively exploring different models for potential cooperation.

The company has considered listing to Nasdaq Helsinki First North during the next few years. Their plans include developing an investment fund which invests in bitcoin. They have also planned to launch in Nasdaq Helsinki an ETF-fund, which follows bitcoin.

The mission of Company C is to help their clients to start investing in cryptocurrencies while sharing their knowledge and know-how for the benefit of their customers.

Honesty and transparency in the operations are important values, that are shown in practice e.g. by taking excellent care of the customer funds and always pointing out that investing in bitcoin is a risk. One of the most important factors in the business development of a company in cryptocurrency sector is trust. As one of the first bitcoin companies in the world Company C has invested heavily in building trusted services. The security of their technology and systems is high and they have not faced any security issues.

Company C wants to take care of their employees by providing good employment conditions and meaningful, compelling work. They also organize annual workshops abroad. The employees are motivated and happy as they share the passion and interest to cryptocurrencies. Their trust to the company management is strong, because the managers are highly skilled experts and positioned in the core of the sector. The CEO himself is a reference for the company and he is often interviewed both in Finland and abroad. The company is considered an attractive workplace.

The existing customers are kept up-to-date e.g. by sending monthly newsletters via email and by publishing weekly reviews and bulletins in Brand B and in social network. The customers with high volumes receive discount and a reward is granted for those who bring a new customer to the company. The most important customers may sometimes get physical bitcoins for free as Christmas present.

Company C has attended Slush and other events in the sector, and they have also given physical bitcoins as a present for some speakers in cryptocurrency related events. New customers are most often acquired via their own services and e.g. by Facebook advertisements, Facebook-live, Google ads, blogs and webinars. Company C has also gained visibility by sponsoring different kinds of events. Most of their promotion is carried out in the Internet. In April 2017 Company C arranged some informational investment events, where they shared information about bitcoin as an investment opportunity.

4.3.6 Processes/Tools (Productivity management)

The increases and decreases of bitcoin exchange rate are followed closely in Company C as well as the sale and expenses. From the summer 2016 onwards all their services have been profitable. They have recently hired a Chief Financial Officer, who is responsible for the financial management and profitability calculation of all their services. The company uses Procountor software in their financial management.

5 Managerial implications/recommendations

This section describes our proposals and recommendations for the case companies. The recommendations are based on the analysis presented in section 4 and aim to give the case companies practical implications and recommendations to improve their business further.

The structure of this sections is as follows: section 5.1 presents the recommendations for Company A, section 5.2 focuses on the recommendations for Company B, and section 5.3 gives recommendations to Company C.

5.1 Company A

Company A has already operated successfully since 2004 and has a stable financial and organizational standing. Currently Company A's main customer segment is in municipal sector. Company A's main interest for this analysis was to concentrate on new market and customer opportunities possibly in the private sector and abroad.

5.1.1 Customer/market

Company A's question for our consultancy was to think about new market and customer opportunities. Starting with the opportunities in Finland, the first potential target customer could be private healthcare. Since Company A already has a Smart Hospital -concept that has been marketed to the public healthcare, it could be a highly potential way to also hit the private sector market.

As Company A's appointment reservation system has been already used in the churches for especially Exchange calendar synchronizing, the same technology could be utilized also in bigger private sector companies like UPM. In these kind of companies it could be useful for especially people in managerial positions to be able to control the appointments, business trips etc. and to provide the available time slots in their busy schedule for others to book meetings and conferences. Company A has

also already considered for example recruiting/staffing agencies as a possible target customer.

Possible target customers abroad could be the Nordic countries with similar kind of municipal governments. Company A has already one customer in Haaparanta and the company has thought about expanding the business in Sweden. The challenge is that there is already Swedish operators in the market and it is difficult to find competitive advantage to them. Investing in market research abroad is also a risk, since it is difficult to say if there is real business opportunities.

The next objective could be to enlarge the selection of services in Haaparanta and possibly try to get into the healthcare sector abroad with Smart Hospital concept. One way to global market could also be through big private sector companies as presented before: selling the product for a bigger private sector company in Finland could open doors for that same company's international offices too.

5.1.2 Product/service life cycle

Company A's strength is in the product, which is highly scalable and modifiable according to the customer needs. At the moment Company A has been able to respond to customer demands by providing new building blocks that bring new features to the already existing platform.

5.1.3 Financial metrics

Currently the company has a good financial standing. The revenue could be possibly increased by the new customers and markets that are represented in the chapter 5.1.1.

5.1.4 Resource management

Since people are Company A's most valuable resource, it is highly important to maintain the satisfaction of the employees and also keep the recruitment processes in a way that suitable people can be found. One additional thing the company could do in the field of recruitment is to add collaboration with student organisations. That could be a possible way to get to know possible employees beforehand.

5.1.5 Vision, mission, value (VMV) and Happy people

As vision and mission statements are still in the making phase with Company A's new advertising agency, it is difficult to comment on them. However, the vision of willing to be the number one product in the selected market is suitable for this company. They have already proven that they have the market leading product in municipal sector and

their products are designed, developed and modified with professional competence of many years. To achieve that vision it is also important to keep the people happy.

5.1.6 Processes/Tools (Productivity management)

The processes of customer acquisition and customer relations management are suitable for the current situation. If Company A decides to expand to the global markets, new processes might be necessary to consider.

5.2 Company B

Company B is a very young gaming startup company, which gives them challenges cause lack of experience, but also advances to be flexible with their solutions on their field. We were asked to search for possible future opportunities and customers based on their skills and knowledge.

5.2.1 Customer/market

The company's experience with the University of Jyväskylä and the Jyväskylä City could offer some scalable solutions for schools and cities. Also strong references from current customers could build a stronger portfolio that can be selection criteria for potential new customers. With the help of their new salesman, company could be able to map the market and possibly find new areas where demand for business services would be greater.

The face-to-face progression mentioned by the company is probably the most effective way to go in game industry in Finland. With this, participation in as many events, training programs etc. as possible is vital in order to maintain reputation and visibility.

5.2.2 Product/service life cycle

In the current phase of widening a large customer base, we could measure current and future customers and project profitability. Even if the main focus would be on game development in the future, there is nothing to prevent a few customers from taking part in the field or through trainees, thus increasing the cash flow of the company's assets without endangering the game. Opportunities and demand can be found in surprising places and, for this purpose, project analysis can produce benefits for the company.

5.2.3 Financial metrics

Due to the young age of the company B, there is not enough existing data to analyze their current financial metrics. However, accurate monitoring of turnover is critical in order to maintain growth and to keep the 2018 estimates (120 000-150 000 €).

The company has to remain the defendant until it is able to concentrate its resources entirely on its core competence. Instead of a fundraiser, one might think maybe an external fundraiser that would allow a faster transition to game development.

5.2.4 Resource management

In the context of current projects, development of workers skills can be very important. The more widely the company can offer its services to customers, the more efficiently it is able to accumulate capital. The communality mentioned with other companies in the field can produce new business opportunities.

Increasing the company's skills by receiving consulting and guidance from other companies can also be one important sector in their business in the future as knowledge and networks are important resources for a young company.

5.2.5 Vision, mission, value (VMV) and Happy people

Even though the company's goal is to be full-time in game development, it is worth considering all the possibilities around their area of expertise. The company is young and looking for a place in the market so exploring opportunities can be valuable for the future. However, the sooner an enterprise can develop its know-how in the company's own goal, in game development, the sooner it will advance in a sector where hard competition requires strong skills and resources to stand out from other competitors.

5.2.6 Processes/Tools (Productivity management)

With current solutions, too many resources are expended on acquiring new customers. However, the customer base is too wide to be able to find a single solution. It would be good for the company to find ways to utilize existing solutions to get new customers or to develop some template that could be applied more than once.

Building a broader portfolio also provides opportunities for better pricing negotiations when the company can share the cost of a project based on previous jobs.

The goals mentioned by the company to become a member of the affiliate programs of game platforms should be well-considered in advance, considering how the information obtained can be effectively exploited by looking at statistical success factors and avoiding unnecessary work already done.

5.3 Company C

Company C did not name any special problem area they would like us to consider more closely. We base our implications and recommendations to the information we collected during the interview and from some internet resources.

The business of Company C is growing fast and their aim is to increase their market share in Europe significantly. Currently most of their promotion is carried out in Internet via their own services, social media, blogs, webinars etc. The majority of their customers are young and middle-aged males. They want to expand their client base to new segments and especially to reach the extensive group of traditional investors. Company C has six strong brands offering a wide range of cryptocurrency related products and services. Their intention is to provide high-quality customer service also in future.

5.3.1 Customer/market

Company C sees the traditional investors as a great future potential. To reach them better they could utilize also more traditional marketing and advertising channels. Many investors in this group are wealthy, older people and even though many of them use different kinds of digital services, they might be reached better via the traditional channels through well targeted, informative advertising campaigns. In future the new EU regulations will also help to reach these people better, because cryptocurrency investments will become more reliable and banks will include them into their services. It is important to save as good relations as possible also to the traditional financial institutions.

Another interesting potential are women. They present a half of the population and as such should be also taken as a great future potential. Recently their interest towards making investments has started to grow fast. In order to increase their interest also towards cryptocurrency investments and to to get more of them as customers Company C could consider designing advertising campaigns, informative events and even special products targeted especially for women.

Brand D merchant services will bring not only new companies as customers, but also new private customers who want to use bitcoin as payment. Well targeted marketing campaigns with e.g. possible discount offerings for newcomers and special events where representatives from potential customer companies would be invited to could help to raise interest and build new customer relationships.

5.3.2 Product/service life cycle

It could be worthwhile not only to concentrate on the large masses in marketing the cryptocurrency services, but at the same time develop some special products and service combinations targeted to smaller, specific consumer groups and companies. Especially urban, successful people appreciate personalized services and bring their money to service providers who offer individualised services which are developed and maintained according to their changing needs.

5.3.3 Financial metrics

The business of Company C is growing fast. The markets may change fast and it is vital for the company to save their agility and to be able to quickly adjust their business models and strategies whenever necessary.

5.3.4 Resource management

Due to the expected quick growth of their business Company C should consider well beforehand how to constantly maintain their attractiveness as an employer to save their intellectual and highly professional employee resources and also to acquire more highly skilled workforce. Even though most of their processes are automated, fast growth in the global markets will require more resources. There will be new customer segments and new business models. Also new and constantly developing technologies will require new kinds of expertise and more resources.

5.3.5 Vision, mission, value (VMV) and Happy people

Both customers and collaborators appreciate the reliability of services. The expected growth of business will increase quickly the number of customers and transactions. It is necessary to ensure the availability and stability of the services by increasing the capacity and performance of the systems early enough. Company C has invested heavily in building trusted services, and the security of their technology and systems is high. In future this will be even more important due to the constantly growing threat of cyber attacks and hacking. From the customer point of view it is always good to emphasize that the company takes continuously care of their customer security by investing heavily on security and the latest technology.

Even though the number of employees may increase in future, it is important to save the current enthusiastic and inspired atmosphere in the company. A good balance between the private and working life will help the employees to clarify also the more hectic periods and stressful situations.

Utilizing some traditional marketing and advertising channels as well as developing some more targeted services to defined customers or customer groups could help to expand the customer base to new segments and also to strengthen the relations to the existing customers.

5.3.6 Processes/Tools (Productivity management)

Company C has already invested in productivity management by hiring a Chief Financial Officer to take care of the financial management and profitability calculation of their services. Along with the fast growing business and quick changes in the sector it will become even more important to analyse and adapt the existing processes frequently and to be prepared to economic fluctuation to save the solvency even during longer recession periods.

6 Conclusions

As a result of this work our team was able to create a better understanding on the business models of software companies and to find out why the selected case companies are successful in their business. The work was interesting for the team, because all our case companies were working on different sectors. One of them is a new startup company, one has been established in 2012 and one in 2004 on the basis of an old telephone company. Thus their economical and market situations were very different as well as their challenges and recommended solutions. We interviewed each case company based on the created analysis framework and formed our analysis on the strengths, weaknesses, opportunities, and threats of each case company's business model.

The economical situation of the first company can be considered strong and it is working on a sector where even economical depression may not cause serious effects. The second company has been established a few months ago and the economic situation is not yet very stable. Also the sector where they are working in is quite challenging. The third company has a strong economical situation, but it is working on a sector where economic fluctuations are frequent and risks are big. Each of the companies invest in growing their business and aim to expand to the international markets.

Acknowledgements

We would like to express our special thanks of gratitude to professor Pekka Abrahamsson as well as our mentor Juhani Risku who helped us through this great project on the topic business analysis. We came to know many new things and are really grateful to them.

We would also like to thank all the case companies attending our project, which we got to interview. The different case companies offered us great insights and versatile viewpoints to the topic. The project would not have been possible without your efforts.

References

Blomster, H. (2017). *Prasos - pohjoismaiden johtava bitcoin-välittäjä tähtää kansainvälisille markkinoille.* Available at: https://www.salkunrakentaja.fi/2017/12/prasos-pohjoismaiden-johtava-bitcoin-valittaja-tahtaa-kansainvalisille-markkinoille (accessed 23.2.2018).

Caetano, A., Antunes, G., Pombinho, J., Bakhshandeh, M., Granjo, J., Borbinha, J. and Da Silva, M.M., 2017. Representation and analysis of enterprise models with semantic techniques: an application to ArchiMate, e3value and business model canvas. *Knowledge and Information Systems*, *50*(1), pp.315-346.

Chun, R., & Davies, G. (2001). E-reputation: The role of mission and vision statements in positioning strategy. *Journal of Brand Management*, *8*(4), 315-333.

Foss, N. J., & Saebi, T., 2017. Fifteen years of research on business model innovation: how far have we come, and where should we go?. *Journal of Management*, *43*(1), 200-227.

Osterwalder, A., & Pigneur, Y., 2010. Business model generation: a handbook for visionaries, game changers, and challengers. John Wiley & Sons.

Pietarinen, H. (2017). *Bitcoin-huuma iski Suomeen: jyväskyläläinen Prasos kerää rahaa kryptobuumilla.* Available at: https://www.is.fi/taloussanomat/art-2000005495538.html (accessed 24.12.2018).

Prasos - bitcoin sijoittaminen valtavirtaan (2017) Available at: https://www.invesdor.com/fi/pitches/875 (accessed 23.2.2018).

Rönkkö, M. (2018). TJTS5780 Advanced Software Business Studies Lecture Material, University of Jyväskylä.

Tyrväinen, P. (2018). TJTS5780 Advanced Software Business Studies Lecture Material, University of Jyväskylä.

Virtuaalirahan ympärille syntyy uusia yrityksiä - “Nörtit omaksuneet tosi hyvin” (2014) Available at: https://yle.fi/uutiset/3-7404657 (accessed 24.2.2018).

Author biographies

Johannes Impiö is a bachelor’s student at the faculty of Information Technology in the University of Jyväskylä, Finland. He started his studies in 2017. He is currently working as a research assistant at the University of Jyväskylä. He comes from Rovaniemi, Finland.

Milla Rintamäki is a master’s student at the faculty of Information Technology in the University of Jyväskylä Finland. She started her studies in 2014. She has been a member of the board of the local student union Dumppi ry in 2015 and 2016. She comes from Vaasa, Finland. Milla was an exchange student to University of Copenhagen, Denmark in Spring 2016.

Terhi Solanterä is a master’s student at the faculty of Information Technology in the University of Jyväskylä, Finland. She started her studies in 2017. She has a long experience of working as an application specialist and a tester in a global ICT company. She comes from Kouvola, Finland.

Jenny Tähtinen is a master’s student at the faculty of Information Technology in the University of Jyväskylä, Finland. She started her studies in 2014. Jenny Tähtinen comes from Huittinen, Finland. She was an exchange student in Alexander Technological Educational Institute of Thessaloniki, Greece in spring 2017.

The Happiness Mission: A glimpse into the Finnish IT-field

Ida Korpivaara, Noora Hämäläinen, Henri Korko, Santtu Kauppila and Atte Tuomisto

University of Jyväskylä, Faculty of Information Technology
P.O. Box 35, FIN-40014 Jyväskylä, Finland

idelkorp@jyu.fi

noora.k.hamalainen@student.jyu.fi

henri.a.korko@student.jyu.fi

sapekaup@student.jyu.fi

atesemtu@student.jyu.fi

Abstract. There are many ways to build a successful software business model. This case report presents business models analyses of three different software companies. The aim of the analysis was to identify practical improvement possibilities for the case companies especially regarding their own areas of interest. The analysis was conducted in two parts: first, an analysis framework was created based on existing literature and second, the framework was systematically applied to case companies. Data was collected by three structured interviews and one survey. The results of the analysis suggest that despite of business models ranging from customer relationship -model to subcontracting, the three companies shared similar interests and concerns. All companies had contemporary flat organization models, passion for employee well-being and a high interest in their imago among potential employees. Additional interest areas included scalability especially within process and knowledge management. The key interest in all companies was employee well-being, how to best achieve it. The results suggest that companies could benefit from cooperation with universities in their future talent acquirement.

1 Introduction

There are many ways to build a successful software business model. This case report explores business models of software companies by systematically analyzing three case companies. The aim of the analysis is to identify strengths and weaknesses within each business model and single out practical improvement possibilities for the companies in scope. Each company has been given a possibility to name particular focus areas for the analysis according to their areas of interest.

The analysis is conducted in two parts. First, an analysis framework is created based on a literature review regarding business analyses software business models. Second, the framework is systematically applied to each case company. Data for the analysis was collected by structured interviews of key persons in the companies and by a survey among students that aimed at collecting information about the image and recognizability of the companies. The limitations of the study include a low number of respondents that was caused by time restrictions. Furthermore, financial analyses of company performance were determined to be left out of the scope due to data unavailability. Due to the restrictions and purpose of the analysis, the companies were limited to Finnish companies.

The results of the analysis show that despite of their different business models, all case companies share similar interests and concerns. All companies have modern and flat organizations, passion for employee well-being and high interest in their image among potential employees. Furthermore, they are interested to improve their resource management and processes to enable scalability. The analysis concludes that all of the case companies could benefit from cooperating with universities to improve their visibility among potential employees.

This work is structured as follows. Chapter two presents the framework that was employed in the study and the dimensions that the companies were analyzed on. Chapter three briefly introduces the case companies. Chapter four presents the results of the analysis while chapter five discusses their practical implications and managerial recommendations. Finally, the results and implications of the study are concluded in chapter six.

2 Analysis Framework

These six analytical lenses were explored in two phases. First phase was based on external analysis of company related information that could be found from the Internet or other external resources and the second phase involved a semi-structured interview with a key person from the company. We looked for interviewees with clear views on both, upper management and production. All interviews were conducted using the same framework, however, each conversation strayed according to the individual interests of the companies as opportunities and topics presented themselves.

Our analysis process used scientific theories an articles to interpret the phenomena we learnt about during the interviews and to refine our findings into plausible suggestions. We also left room for creative thinking in our managerial implications and drew new ideas for the companies by looking through the company's profile and practises with an external points of view.

Following subchapters will introduce the six key areas in our analysis framework and talk about our interest within that area of analysis and the theoretical background we gathered for the analysis. Additional emphasis was placed on the interests of the companies and some areas are left quite barren in comparison.

2.1 Customer/market

Our companies were very interested in markets and their main competitors at the moment. We started to build the picture by asking what are the main strengths of each company.

We were also interested in how the companies differentiate from the others in the same market. IT-business is evolving all the time and we also had few questions about trends and how they do decisions with trends. We also asked whether their customer base is likely to remain the same in the future or is there some other market that has not been digitalized yet.

It is also crucial to create strong relationship with customers. We ask what kind of models they are using and has it worked as they thought. Do they contracts month by month or with discounted price if something need to be fixed?

Theoretical backgrounds and tools for analysis:

Based on Khodakarami & Chan (2013) huge amount of money is invested in CRM systems but those systems do not bring the planned value. We analyzed how these companies take care of their customer relationships.

2.2 Product/service life cycle

Our companies were service-focused rather than product, which shaped our lens on service lifecycle. We were particularly interested on why they had chosen these exact offerings over others and how they kept their service portfolios up to date. We also wanted to know what kind of relations the services had and if there's a main service that the others support or complement.

We also asked the customers to walk us through a typical customer case involving one of their main services.

Theoretical backgrounds and tools for analysis:

Fischbach et al. (2013) have published article about service lifecycle management. In service lifecycle analysis, we tried to inspect the company's service portfolio with fresh eyes and think outside the box, but we also used following theoretical starting points in our analysis.

Popp (2011) divides IT-companies into four categories: creator, distributor, lessor, and broker. In general, the three case companies fall into the category of creator but all of the other options were kept as perspectives in their respective analysis should an opportunity present itself in diversifying their portfolio.

2.3 Financial metrics

With financial metrics lens, we wanted to highlight what kind of metrics the companies themselves follow, who follows them, how and when. Do they have business intelligence tools that allow them to follow metrics in real time or do they prefer to go through metrics in specific intervals?

We were also interested in customer structure and if the companies have couple of larger customers or if the revenue streams are more evenly distributed. Offer acceptance/reject -rate was also discussed, as well as their common processes involving propositions and offerings.

We made a strategic decision to not to focus more on the other areas of our framework and instead of using science- or theory-based analysis methods for financial metrics, we wanted merely to inspect how companies themselves follow these metrics. We felt that within the limits of this project, we wouldn't be able to

produce any data analysis results, that the companies wouldn't probably already have, and thus decided to focus our work efforts towards other lenses.

2.4 Resource management

Our second main strategic decision with the analysis framework was to focus solely on human resources management within this lens, since it is often the key resource element in IT business. Our model involved questions on management and development of people, organizational spirit and environment, and recruitment processes.

In terms of management, we were interested in leadership roles and organization models, resource utilization rates, knowledge management, and reward schemes.

For development, we considered when and how people get training and feedback. How important they consider continuous training and how they detect the need for more training. We also reviewed how individual or group success and failures are handled.

Organizational and team spirit was also topic in the next section, but in terms of management, we were particularly interested on how teams are built and how the company creates and keeps up their spirit. Who decides what kind of team building activities there are and all truly able to participate in the chosen kind of activities?

The employee recruitment processes were also looked into. In addition to the interview on company's own views on their recruitment processes, our analysis included job opening ad reviews and queries charting company's the employer image. To sustain the level of anonymity, we keep the review and query results publicly undisclosed and focus on the insights gained from the interviews.

Theoretical backgrounds and tools for analysis:

Our theoretical toolset for the analysis of human resource management focuses on contemporary leadership, management, and organization models. Instead of exploring all possible models, our tool set focuses on models related to those that we encountered in our case companies. Furthermore, since the companies were very interested in student cooperation and acquiring young talents, we also involved theoretical insights on the managing of workers from generation Y (those born in between 1980-2000), also called millennials.

Mielonen (2011) inspected shared leadership, which can be seen as the opposite of traditional, vertical leadership and refers to power and influence being distributed among team members instead of centralizing it into the hands of a single individual. In order to share leadership, the team members must be able to offer leadership services to each other, but also be willing to let the other team members lead them.

Wang, Waldman, and Zhang (2014) researched shared leadership and team effectiveness in their research and found a link between the two, but the effect was stronger if the shared leadership styles followed modern leadership styles (charismatic, transformational) instead of traditional ones (initiating structures and consideration). The more complex the team's work was, the more strongly they could observe the effects of shared leadership and the research also noted that increased effectiveness came mostly through attitudinal outcomes, behavioral processes, and team emergent states, rather than actual team performance.

Youssef and Luthans (2007) explored the impacts of positive psychological capabilities (incl. hope, optimism, resilience) to different work-related outcomes and found general support that these capabilities contribute to these outcomes. They suggested that employees should be trained to set goals and clear steps on how to reach the desirable results and overcome obstacles on the way. This practice developed their optimistic explanatory style and built risk-management processes, which then again built their hope, optimism, and resilience.

In their interview in Helsingin sanomat (Vainio, 2018), doctor of economics Charlotta Niemistö and postdoctoral researcher Ilona Suojanen gave the following list of best practices for managing the generation Y :

- Pay attention to the employee's humane endurance instead of taking full advantage in short periods. This will affect in productivity in the long run.
- Ask how the employees are doing and listen to them. When people are looked after well and their potential unwellness is noticed, they are often loyal to their employers and their tendency to change jobs reduces.
- Trust in your employees and be truly flexible. Allow the experts to do their work the best they can.
- Give feedback and educate. Generation Y wants to constantly develop themselves and expects to be lead as individuals, not as a mass.
- Don't micromanage (exaggerated monitoring, critique, and control). The experience of control over their work is important for the generation Y. They want to decide themselves in which order, and how and where they do their jobs, in order to reach the best possible results.
- Communicate clearly what is demanded and expected from the employee.

In her doctoral dissertation, Susanna Kultalahti (2015) also formed managerial contributions on the leadership and management of millenials. The study highlighted the significance of good leadership for millennials and identified coach leadership style as preferred style based on their stories of great leadership. They also felt easily content with work that had a sense of meaningfulness and was appreciated by their supervisor.

The same study also recommended that supervisors should get more help from HRM and their managerial skills should be trained more extensively. It also noted that

supervisors are often overburdened with tasks that are unrelated to leading their subordinates and may not have sufficient tools. They should be given enough time to fulfill their supervisor duties instead of less important tasks and tools for following employees' training needs, competences, and development. The study also suggest that HRM should reach out and take a bigger role to fulfill millenial's expectations on work environment, meaningfulness of work, and work-life balance. (Kultalahti, 2015.)

According to a study on work well-being of Indian software developers, experiences that increased the risk of job burnout were role ambiguity and conflict, schedule pressure, irregular shifts, group noncooperation, psychological contract violation, and work-family conflict (Pankaj, Suar & Leiter, 2012). The matter of work well-being is further discusses in chapter 2.5., but as the factors above show, managerial and organizational models may indirectly have very deep implications on the company's employees. In this case, the burnout increased employees' performance, but decreased their organizational commitment and interpersonal relationships.

2.5 Vision, mission, values and happy people

The lens of vision, mission, values and happy people focused on softer and intangible things. We wanted to know if company had defined their vision, mission and values, and who were involved in this defining process. How the chosen values can be seen in company's everyday life and how their employees and customers relate to them?

We tried to grasp the concept of happy people through the formerly mentioned organizational spirit management, but also considered occupational wellbeing and if it was monitored or emphasized. Are the employees given a change to affect the quality and amount of work they have? Is there a change to get social support from peers? Do the employees stay with the company for long career periods and why, in employer's opinion, the employees want to work there above all else. How diverse pool of employees there is?

Company brand was also considered, especially their brand as an employer. We wanted to know what kind of external image the company kept up and, in our opinion, how well it matched their internal image. How and through which media the companies market themselves and the opportunities they offer for their employees? Do they have sponsorship contracts or public references to increase visibility?

Theoretical backgrounds and tools for analysis:

Our theory-based toolset for analysis within this lens focuses on the matter of happy people. There are many theories involving occupational stress and work well-being, especially within organizational psychology and management studies, but we chose to

explore the most commonly referenced and to briefly explore the phenomena of happiness.

Rothmann (2008) talks about work-wellbeing in his study on job satisfaction, occupational stress, burnout, and work engagements as the components or dimensions of work well-being. He highlights that despite common operationalization, work well-being is shaped through more than just job satisfaction. In his study, occupational stress indicates anxiety versus comfort at work, while job satisfaction indicates pleasure vs. displeasure at work, burnout indicates fatigue vs. vigor at work and work engagement indicates enthusiasm vs. depression at work.

One of the earlier and most cited models on occupational stress is a model by Karasek (1979) which models occupational stress through levels of demands, control, and social support that the employee faces. Later significant models include Siegrist's (1996) model of occupational stress as a effort-reward imbalance, and Job Demands-Resources Model (JD-R) by Demerout et al. (2001) which divides job related features in to either demands, which consume energy, and resources, which grant more energy.

Shaufeli et al. (2009) performed a longitudinal study with telecom company managers, that gave support to the JD-R -model. The study's practical implications suggested that in order to reduce chances of burnouts, the amount of exposure to job demands (work overload, emotional demands, work-home interference) should be reduced and resources (job autonomy, learning opportunities, social support, performance feedback) should be provided. The role of adding job resources was emphasized over limiting demands, since resources not only enhance work engagement, but also the lack of them results in the decrease of employee motivation and performance. The study also refers to Warr's Vitamin Model (2007), which lists nine types of job related resources ("vitamins):

- Opportunity for personal control (AD)
- Opportunity for skill use (AD)
- Externally generated goals (AD)
- Variety (AD)
- Environmental clarity (AD)
- Availability of money (CE)
- Physical security (CE)
- Opportunity for interpersonal contact (AD)
- Valued social position (CE)

Later iterations of the model also have added three other resources:

- Supportive supervision (CE)

- Career outlook (CE)
- Equity (CE)

Another longitudinal study among Finnish managers took closer look into the Warr's vitamin model and further discussed that work characteristics are often considered to be linearly related to work wellbeing, but the vitamin model involves resources that have an Additional Decremental (AD) effect on mental health. Their effect is curvilinear rather than linear, since they have positive effects only up to a certain level, after which they'll start causing unfavorable effects. The model also involves Constant Effect (CE) resources, which do not have negative effects even in higher doses. However, the study by Mäkikangas, Feldt and Kinnunen (2007) gave no support for the curvilinear associations, thus suggesting aiming for high resource levels and organizing the work in a way that there are possibilities to feel comfort (feeling relaxed, calm, and contented).

Fisher (2010) has explored the concept of happiness and suggests that happiness could be "the glue that retains and motivates the high-quality employees" in the otherwise insecure and loosely connected future work-life. According to her, happiness includes a large number of constructs from moods to attitudes, that can be inspected in levels of transient, person, and unit. The experienced happiness in a workplace is affected not only by events and conditions, but also individual attributes such as personality. Any disparity between personal expectations and what the organization offers effects workplace happiness, as well as expectations, needs, and preferences. According to Fisher, there is evidence supporting the "happy-productive worker hypothesis", but recent Finnish research suggest that the pronounced quest for happiness may also turn against itself. In an interview for local newspaper, postdoctoral researcher Ilona Suojanen described how some members of generation Y (those born between 1980-2000) have taken happiness as one of their main demands in life and may feel pressured to act happy in work environments, even against their true feelings (Vainio, 2018).

2.6 Tools, processes and productivity management

Last but not least, we took a closer look on tools, processes and productivity management within the company. In this part, we were especially interested in the maturity of processes. How the processes are shaped: through planning or by doing? Are processes described or documented? How processes and productivity is monitored and measured? Is this data used to develop the processes and if so, how does it manifest?

Scalability of processes was also highlighted due to the rapid growth tendencies, that all of our companies shared. Can the current processes easily scale up with increased demand and output or will there be problems? Are these problems anticipated or do they stay committed to a process as long as it works?

Theoretical backgrounds and tools for analysis:

Our theoretical toolset for process analysis focuses on scalability, performance and process maturity models.

Joachim Stempfle and Petra Badke-Schaub (2002) talk about different strains in design. They divide these as *normative strain*, *empirical strain* and *design-as-an-art-strain*. Normative strain speaks of methodologies and following the 'best' practises. This would manifest as using Agile manifesto to all of its requirements, without considering the applicability, necessity, and importance of each point. Thankfully, none of the companies in this case analysis were blindsided by the 'best' practises and instead have adapted each practise to their particular needs and form. Empirical strain consists of physical impossibilities or trade-offs to a product. While this aspect is rarely present in systems development itself, it manifests in systems that require a real-world application or counterpart, like the size of a touchscreen. The last strain, design as an art, argues that design shouldn't be constrained by any rigid practises and that real world should conform to better design. Any result would be better-off with a creative and productive liberties of the designers in what tools to use and how to apply them.

Abbott and Fisher (2015) write in their book, The Art of Scalability, on how the key element in managing a company's or product's growth, is people. The importance of attracting and retaining the right people allows the company to focus on the processes and frame of the scaling. This title of the 'right' person means not only the type of personality but also their job description. The 'right' people for a company might change according to the current situation and step in scaling. In the most extreme cases, an employee might be essential in scaling but not fit for the final product, leading to many examples where the employee was terminated after their part was fulfilled. We don't advocate going this far but instead focus on ways to attract the right kind of people to the companies.

A company's strategic goals and values should be measured against performance, or so writes Vincent Charles and Mukesh Kumar (2014). According to them, it is important to keep iterating these strategic goals to make sure the current vision of the company is aligned with the current leadership and employees within it. If a company's current objectives don't align with the current situation of the industry or their performance is coming to odds with the company values, the paper recommends initializing the iteration process. Any trade-off towards company values and goals needs to be made with a throrough understanding and acceptance of everyone involved.

3 Case Companies

Three companies participated in the interviews and analysis. Our team consciously chose three companies of distinctly different sizes and locations for comparison. Due to the restrictions and purpose of the analysis, the companies were limited to Finnish companies. Some key information regarding the companies will remain abstract so as to maintain their anonymity. Size indicators of the companies are presented in Table 1.

Table 1. Companies by size indicators

Company	**Revenue class**	**Employees**
Company A	1-5 million €	25-75
Company B	0,5-2 million €	10-25
Company C	5-10 million €	75-150

Two of the companies were contacted through email and one was chosen through personal connections. All of the companies were founded in the 2000's and have experienced rapid growth after their creation. Some have undergone major shifts in focus and processes, which will all be elaborated. All interviews were conducted in Finnish. Following chapters will shortly describe our case companies.

3.1 Company A

Company A operates within digital service design and web solutions. Specifically, it offers three kinds of services: consultancy related to digital roadmap, visual and user interface design and digital marketing. Company A's experts include both designers and developers which enables it to support customers all the way from digital strategy formulation to digital service design, content planning and implementation. Company A's customers range from SMEs to large companies in Finland.

3.2 Company B

Company B specializes in on a very specific technology vendor and focuses on full-stack development with their technology stack.. The services of Company B cover web solutions through web application framework, cloud solutions and desktop solutions on their chosen environment. In addition to software development, company provides consultancy, subcontracting and educational services. Company's customers range from small start-ups to some of Finland's top 100 firms.

Company B's professional meet actively with other experts on the field and engage themselves in the technical developments within their area. Company's experts have been invited as keynote speakers regarding cloud services at one of the chosen vendor's largest seminars. Company's employees are encouraged to use their work time for learning and developing their skills and they actively share their experiences through blog posts and Twitter.

3.3 Company C

Company C focuses on customized software solutions and maintenance services. The services it offers range from software development to mobile development, payment, merchant solutions and logistics, IoT development and continuous services. Company C has a particular focus on having innovative and customer-oriented approach in its services.

Company C's customers include mainly medium-sized and large national and international companies from a wide range of different industries. Current focus segments of Company C include especially payment solutions for retail, automotive-related services and manufacturing industry. In terms of revenue and employees, Company C is clearly biggest of the case companies of the study.

4 Results of the Analysis

This chapter presents the results of the analysis for each of the case companies. The structure of the chapter follows the analysis framework that was introduced in chapter two. While the same framework has been applied to all case companies, the dimensions of the framework are weighted differently according to the wishes from the case companies. The views represented in this chapter are our interpretations based on the interviews and external inspection, and may not fully align with the comprehensive reality of the companies.

4.1 Company A

Company A had a particular interest in recruitment and image for potential employees. Therefore, the themes of resource management and VMA and happy people were focus areas in the analysis. Information on Company A was collected first from public sources, after which one in-depth structured interview was carried out in the company.

4.1.1 Customer/market

Company A operates within the B2B market for web solutions and digital service design. Its main strengths include its agility and diversity: instead of being just a software developer, Company A also has expertise in service design and content management. In each project, there are always both developers and designers working together on the case from early on.

Most of Company A's customer relationships are long term. The aim is that after a development project, the customer relationship would continue on monthly subscription with continuous improvement and measurement services. A limitation for customer relationships is that customer must have strategic decision-making within Finland as otherwise the agility in the development would be lost.

Interestingly, Company A willingly went up against some of the biggest companies in the field, boasting that their agility in customer contacts would give them a competitive edge. Relative company size only mattered in the number of projects a company could undertake, not in their ability to complete similar projects as the industry giants.

4.1.2 Product/service life cycle

Company A provides services on digital service solutions in three different areas: consultancy, development, and implementation and continuous improvement. Consultancy refers to the planning of a customer's digital strategy, and potential development in all aspects from service design to content planning. Continuous improvement includes solutions for marketing, optimizing, and performance measurement.

Project normally start by customer interviews and workshops that aim at defining customer requirements. Information gathering is followed by web strategy development and web content planning. Programming is the last part of the projects. Current focus in customer projects is on Product Information Management systems.

4.1.3 Financial metrics

Sales, invoicing and tenders form the basis for financial performance management in Company A. Targets are followed up monthly and actions are taken in accordance. If monthly target is not met, sales functions are activated and new opportunities are looked for in the existing networks. Tender acceptance rate in Company A is about 40%.

4.1.4 Resource management

Company A has recently undergone significant changes in its organizational structure. While it used to have a team-based structure, it has now flattened its organization down to just one large pool of experts under the CEO. Middle managers exist, but mainly to assist their subordinates in personal development and to carry out administrational tasks. Project manager role has been dismissed and replaced by a shared project team responsibility regarding the communication with the customer. This has had a significant positive impact on employee satisfaction. The change also means that almost all employees are in direct contact with customers.

Company A manages personal development of its employees by quarterly performance dialogues. Each employe has a "skill card" that lists not just his or her skills and responsibility areas but also future ambitions and free time interests. The aim of the cards and the dialogues is to enhance holistic well-being and development of the employees and to facilitate the process of forming teams for projects. The dialogues are supported by employee satisfaction surveys twice a year. Results from the surveys show that satisfaction in on level 4 out of 5.

Company A recruits through digital channels. Even if the recruitment process begins by defining the expectations for the role, main focus in the process is on the person itself. Company A looks for independent, responsible and social individuals with

entrepreneurial spirit and desire to try out new things. In addition to individual interviews, recruitment process includes programming tasks, group interviews and recommendations. As students is a particularly focus area within recruitment, Company A has a desire to deepen its cooperation with universities.

4.1.5 Vision, mission, value (VMV) and Happy people

Company A has explicitly defined values and communicated them to the entire organization in December 2017. Values were co-created in the organization and based on its activities. The definition process lead to three main values: experimentality, authenticity, and impactfulness. They refer to experimentality as the desire to try out new ideas and techniques. Authenticity means that customer interactions are as authentic and meaningful as possible, and company really makes an effort to "speak the same language" with the customer. Impactfulness refers to desire to focus on things that really do matter and create value.

Inside the company, employee satisfaction is achieved and team spirit is build by events that are hold together. These include ski trips, floorball, activities on breaks, common breakfast, summer party and pre-Christmas celebration. Company has a special volunteer team to organize trips and events. A speciality among the events is a remote work week, that is a week long trip during which the entire company travels to work from some holiday destination. Remote work and other flexible practices are enabled by culture that expects everyone to take responsibility over their own tasks.

Outside the company, Company A aims to be open and active especially through social media. Image is partly created through personal brands to give "faces" for the projects. Public references are also central for the image of Company A, and the company has an ambition to increase their number in the future.

4.1.6 Processes/Tools (Productivity management)

All projects of Company A follow similar process steps. First, a concept is created in cooperation with the customer. Second, the concept is broken down into a work plan. Third, the price for the technical development is estimated. Forth, the plan is taken to the project follow-up system. The actual costs and workload is followed closely by daily reporting of hours. In the projects, there are process coaches to help minimize developer and designer time used for bureaucracy.

Quality in Company A is managed by iterative processes. Throughout the project life cycle there are checkpoints that act as triggers for iterative loops. In order to further ensure quality, all results are presented internally before showing them to the customer. Customer satisfaction is not measured explicitly but there is a strong focus on regular communication with the customers.

4.2 Company B

This chapter presents the analysis results for Company B. In compliance with the wishes from the company, the analysis was structured especially around the theme of leadership and resource management. The product life cycle dimension, on the other hand, had less weight in the analysis since the company had already clearly defined its specialization and focus areas. The results were collected by conducting an in-depth interview with a company CEO.

4.2.1 Customer and market

Company B operates on the market for software development with a specialization for specific technologies. This specialization, along with executive passion for technological development, is also one of Company B's main strengths as it allows the company to stay on the top of technological advancements in the field and therefore differentiate itself from competitors. Company's founder is very active in networking and cooperating within the technological development on the chosen technology stack. The employees of the company are also encouraged to develop their technical skills and knowledge by participating to different seminars and events and using their work time for learning.

Company B's customers come from multiple different industries and range from small start-ups to some of Finland's largest companies. The specialization in specific technology stacks has not proven to be a barrier for customer acquisition. Most of Company B's projects are characterized by long-term customer relationships where project may change while the relationship lasts for several years.

4.2.2 Product/service life cycle

Company B's services range from software development to consultancy, subcontracting and education and training services in the field. At the moment, most common type of project for Company B is subcontracting within Enterprise Resource Planning development projects. New projects are generally acquired through tenders. However, Company B does not have a compelling need to win in tenders as even if it loses, its competitors usually buy development from it as a subcontracting service. Subcontracting within these projects means mainly renting of resources.

In addition to software development, Company B offers education and training services. However, there has not been possibility to provide these on ongoing basis and thus the provision of training services is not active. The end result so far is an unspent pool of talented and willing lecturers and teachers. While the company has aimed for a while to develop this, they were hoping for more tangible suggestions towards achieving this.

4.2.3 Financial metrics

Most important financial metric for Company B is the share of staff expenses from total turnover. In addition, the executive management has a strong focus on operating margins that refer to the profit before depreciation and taxes. As in consulting in general, Company B also follows closely the utilization rate of its resources. The target for billable time for each employee is 80%.

Within sales, Company B aims to perform so that it has work scheduled for 3-4 months to come. Even if agreeing on contracts well in time "to the stock" might bring comfort, Company B does not aim for that to keep the risks manageable. In order to maintain control over projects, their quality requirements and risks, Company B avoids too large projects.

4.2.4 Resource management

Company B is led by an executive committee consisting of its four owners. The executive management aims to be as accessible for the rest of the organization as possible. As a contrast to the large corporations where the owners worked before, the distance between employees and the management is made as short as possible and all kind of excess bureaucracy is avoided. However, the management still carries responsibility over the performance of the company.

From resource management point of view, personal development of employees is a particular focus area in Company B. For students, Company has a special four-week trainee program and for full time employees, it organizes different training days and sends representatives to seminars. The company also encourages employees to learn through feedback from each other through for example cross checking of programs. It has made an effort to create an atmosphere in which one does not need to be afraid of making mistakes. The company does not carry out questionnaires on well-being at work but has organizational feedback meetings every Friday where employees may speak up regarding their concerns and plan how to tackle them.

As Company B is still relatively small, it does not use any systems for knowledge management. There is no need to explicitly note down the kind of "who knows what" knowledge because members of the organization know each other. However, this is an area the company may need to invest in the future.

Company recruits through job announcements on its web pages, job sites and student mailing lists. So far, the company has been happy with the results. One area of recruitment the company would like to develop further is cooperation with universities. Company B would like to do for example more lecture visits.

4.2.5 Vision, mission, value (VMV) and Happy people

Company B regards values as an important basis for its operations. However, it sees values as something that have to show in company's everyday operations and be part of its incentive schemes. Therefore, Company B does not have a separate process for defining values. As its current values, Company B names: desire to learn, willingness to share knowledge, and developer centricity.

Inside the company, team spirit among employees is achieved by events that are held together. Examples of these include annual summer celebrations and pre-Christmas parties as well as weekly after works. The company is originally founded by a one experienced professional and it wishes to keep its friendly, casual atmosphere in the future.

Outside the company, Company B wishes to be remembered especially as a technological frontrunner. The company's founder has acquired the top level acknowledgements for their knowledge and competence with the chosen technology stack, which has granted them an access to inner circles of the developers of this technology. The company does not wish to seem too result-oriented.

4.2.6 Processes/Tools (Productivity management)

Company B uses a software engineering method that is a mix between Agile and traditional models. Like in Agile development model, progress is demonstrated to the customers every two weeks to get feedback. However, the frequency of meetings in Agile is considered to be too high and too rigid. Technical specifications are kept to a minimum; instead, focus is on functional requirements.

Quality management is built on common practices. All employees undergo regular trainings related to the practices to ensure uniformity in ways of working. Quality is checked in two steps: firstly, all code is cross-checked to find errors and deficiencies and secondly, programs are run against automated integration test suite..

The main risk in the processes is that certain functions tend to depend too much on certain persons. In addition, scalability is seen as a future challenge. Currently processes are not very thoroughly documented, but that might change with time.

4.3 Company C

This chapter presents the analysis results for Company C. As the company was interested especially on suggestions regarding its inter-team communication practices, management structures, and orientation of new employees, since they themselves were currently developing these areas. As such, we decided to give special attention in the analysis to these themes. The data was collected by a structured interview with company representatives.

4.3.1 Customer and market

Company C operates within the market for software development. In order to provide industry-specific know-how for its customers, Company C focuses especially on car industry, merchantry and payments. As one of its strengths, Company C is eager to adopt new technologies early. As the next potential industries and trends, Company C names blockchains, mixed reality, and big data solutions that are already on high demand for Company C.

One of Company C's key strengths include long-term customer relationships. Because of the strong focus on relationships, Company C has numerically very few customers that it services on a high level. Customers of Company C are mostly medium to large-sized Finnish companies.

4.3.2 Product/service life cycle

The service areas of Company C include traditional software development, mobile development, payment, merchant solutions and logistics, IoT development, and maintenance services. The development projects generally last between two to six months and include the phases of requirements definition, sprints, piloting, production, and maintenance. The contracts on continuous services are generally made for one year at a time.

Company C provides also consultancy services. These refer to situations where a customer for example needs advice in choosing the most fitting payment solutions for their specific need. However, consultancy services are a minor part of Company C's offering and they are generally not sold as separate service.

4.3.3 Financial metrics

Within financials, Company C especially follows turnover. Unlike many competitors, offers and tender acceptance rates are of little interest to Company C. This is because of Company C's business model that is strongly based on customer relationships.

Most offers are done for existing customers, and generally only when the sale already starts to look probable.

Even if Company C's customer base consist of relatively few large customers, it avoids turnover from concentrating too much to certain customers. None of the customers has a share of turnover exceeding 25%. 2-4 of the customers have clearly the highest shares of turnover, followed by a group of 8-12 other big customers.

4.3.4 Resource management

Company C follows a "host leadership" model in its organization. It does not believe in totally flat organization models and therefore does have managers or project managers. On the other hand, it believes that managers should first and foremost have a facilitating role. Teams have autonomy within projects.

Company C facilitates personal development of employees by providing education and training. In addition to formal trainings, employees can get funding for free time development projects to learn about new technologies. Personal development is further enhanced by regular feedback practices. Giving feedback is the responsibility of managers and project managers, but is also facilitated by company's internal social media channels. For new employees, education and training also include a mentor. However, Company C sees its current onboarding model as insufficient and wishes to develop it in the future.

For knowledge and human resource management, Company C utilizes an information system, which includes information on the technical skills and previous projects of all employees. However, in order to have more holistic records on employee skills and performance, Company C wishes to develop its knowledge management system in the future.

Company C recruits through job announcements on its web pages and social media. Recruitment visibility is further enhanced by cooperating with student organizations of local University of Technology. Potential candidates undergo an interview which also includes programming tasks.

4.3.5 Vision, mission, value (VMV) and Happy people

Company C had very recently refined their vision, mission, and values, to two key values: commitment and caring. These key values were defined through iterative discussion process involving all employees. They had also put effort on communicating the chosen values within organization. Other value related themes revolved around employees as a community, their happiness and commitment. They are also interested in building customer perspectives through values in agility, quality and customer satisfaction.

Company had also emphasized work well-being by offering various services and benefits. They wanted to maintain casual, open and cooperative spirit within the organization through community events, flexible work practises and empowerment. They wanted teams to have creative freedoms on how to reach their goals, but also to have close support and guidance, if needed. Employees were encouraged to be creative and develop themselves constantly with extensive training opportunities and by supporting employees' hobbies.

While discussing the company's public image among potential customers and recruits, they felt pretty happy with it, even though they were under the impression that their visibility was very locally centered. Most of new talent and customer acquisition happened through employee or customer recommendations. Company C had recently began to think about crafting their brand in marketing into something more visible and extensive,, and thusly were interested in how to best move forward in this aspect.

4.3.6 Processes/Tools (Productivity management)

Due to a high degree of customization, Company C's customer projects chooses not to follow a specific mainline approach completely, such as agile approaches, instead deciding whatever is most appropriate for each particular project. The employees within the company are highly educated professionals and allowed to use their own judgement while steering each unique project. In order to maintain quality and ensure success, the Company continuously evaluates the performance of each project, taking corrective actions whenever necessary. While Company C does not conduct explicit studies on customer satisfaction, it believes customer satisfaction to be high, based on a very low churn rate and from informal interactions with customers.

As Company C is growing, its next challenge is to find solutions and processes to support its scale-up. It is particularly concerned about maintaining its corporate culture during the growth. Other development points include communication between teams, manager structure, and onboarding of new employees. All developments are aimed to be implemented in an iterative manner to avoid paralysis caused by sudden changes.

5 Managerial implications

This chapter discusses the results of the analysis that were presented in the previous chapter. Based on the analysis, at least one recommendation per analytical lense per company has been identified. All recommendations have been formed based on the material that we were able to gather through employee interviews and the external inspection, and may not fully reflect the companies' own views. In the following, the recommendations are presented company by company.

5.1 Company A

Company A's business model was based on long-term projects within digital content and software development. Main findings from the analysis of Company A show that company A has a high interest in employee well-being, leadership, and modern organizational forms yet is still looking for ideas to improve them further. Compared to its competitors, Company A's solutions cover a larger part of the value chain. However, company A does not regularly follow its competitors. Furthermore, the analysis revealed that Company A is a skilled user of social media yet it lacks ideas to further improve its visibility among potential employees. The recommendations for Company A are gathered in **Table 2**.

Table 2. Recommendations for company A

Dimension	**Recommendation**
Customer and Market	Consider highlighting user interface design services more on web pages
Service life cycle	Consider offering consultancy also to non-continuous customers for building interest
Financial metrics	Consider using customer satisfaction and expectation surveys as lead indicators for sales
Resource management	Consider adding more content on website recruitment page Consider cooperation with service design studies with JYU
VMA and happy people	Consider including value reflection to the quarterly performance dialogues
Processes	Consider asking regular feedback from customers Consider the use of host leadership rather than complete self-guidance

Within the area Customer and Market, we recommend Company A to highlight its user interface design services more on its web pages. This service has the potential of differentiating Company A among its competitors but only if customers are aware of it.

Within the area of Service life cycle, we recommend Company A to offer consultancy services also to non-continuous customers to arise interest in their services and potentially raise new customer relationships.

Within financial metrics, we recommend Company A to start measuring its customer satisfaction and expectation rates. The willingness of customers to recommend Company A's services could give the company indication on its future projects and income.

Company A had a particular interest to develop its imago among potential employees. To do this, we recommend it to add more content regarding recruitment to its home pages. Even if its home pages were very modern and attractive, there were few comments about open positions and recruitment process. Furthermore, to raise interest among potential employees, we recommend Company A to cooperate with higher education institutes such as Jyväskylä University by offering for example teaching regarding service design.

Regarding employee satisfaction, we recommend Company A to ask its employees to reflect on its newly established values, This way, Company A can help its employees to internalize the values and capture potential dissatisfaction or conflict of values early.

Within the area of processes, we recommend Company A to regularly ask feedback from its customers to capture improvement points. Other companies have mentioned their distaste towards self-guidance and individual responsibility. While Company A is still in their testing phase for their model, we recommend host leadership as an option as middle ground.

5.2 Company B

Company B's business model is based on subcontracting services. The results of the analysis showed that Company B has a special interest in improving its attractivity and visibility among potential employees but lacks means to do it. Company B clearly is a technological frontrunner but does not fully to leverage that status in for example customer acquisition. Furthermore, Company B is interested in improving its resource management processes as currently many functions depend on certain key people. The recommendations for Company B are summarized in **Table 3**.

Table 3. Recommendations for company B

Dimension	**Recommendation**
Customer and Market	Leverage technological frontrunner-role more in customer acquisition and branding
Service life cycle	Offer more training services
Financial metrics	Consider project management tools to manage risks so that contracts can be made for longer terms
Resource management	Consider creating different themes on web pages for potential employees, students and customers Add content and variety to web pages by for example including career stories on them Consider giving specific reasons for experts to focus on its chosen technology area Increase visibility among students
VMA and happy people	Consider involving employees in the value-setting work for example through a workshop
Processes	Consider job rotation to reduce dependencies on key people Consider knowledge management systems in preparation for company scaling

Regarding the analysis area of Customer and Market, we recommend Company B to leverage its technological frontrunner role more. State-of-the-art technical knowledge and great networks clearly are strengths for Company B yet they are not obvious from the web pages or other information Company B publishes.

It is a shame to hear the willing and talented teachers at Company B to lack a proper channel for their company values and mission. As such, we recommend building a proper product and service out of their extensive knowledge about their chosen technology area. Be it through explicit cooperation with Jyu or opening their in-house training programs to paid use. Similarly, their status in their field might make it possible to provide proper certificates about their chosen technology.

Regarding image and identity, we recommend Company B to develop its web pages a bit more. Even if the pages are clear and modern, more content and variety might catch the attention of potential employees and customers better. The web pages could for example include career stories of current employees, and there could be different sections for students, job seekers, and customers.

Many students are afraid to limit themselves to one technology right after graduation in order to keep all the options open in the future. In order to raise more interest among students and other potential employees, Company B could list the benefits of specializing in its technological area for example on its web pages. Company B could also in general increase its visibility among students for example by taking part in university career fairs or by cooperation with one of the student associations.

The values and mission of the company are admirable, but can the same amicability be applied to all employees of the company? We recommend including regular employees in workshops to promote company values within the company.

Within the area of processes, the concentration of skills and know-how to certain people was seen as a problem as it caused dependencies on certain individuals. In small companies it is difficult to avoid so called key persons, but to ease this problem, we recommend Company B to adopt job rotation. This could take place especially in the summertime or other non-critical period for business. As Company B didn't yet utilize any knowledge database on the talents of their employees, we recommend them to work on one in preparation for company growth.

5.3 Company C

Company C's business model is based on long-term customer relationships within software development. The analysis of Company C showed that it has a special interest in improving its processes and especially communication within projects. Furthermore, Company C is looking for better approaches to onboard its new employees. The recommendations for Company C are summarized in **Table 4**.

Table 4. Recommendations for company C

Dimension	Recommendation
Customer and Market	Consider enhancing visibility in the market and deploying new methods for customer acquisition Consider implementing some of the essential pastime innovation projects in-house
Service life cycle	Consider the productization of these pastime results Consider educating other employees to project content and maintenance to reduce reliance on key personnel
Financial metrics	Big data and business intelligence methods for projects and decision making
Resource management	Uphold and continue improving in-house knowledge management to maintain unity Consider customizing in-house learning projects to match company needs Consider improving the mentor-apprentice model in new employee and project orientation
VMA and happy people	Consider recruiting new employees in pairs to rid cumbersome mentoring needs Consider clarifying possible promotion opportunities to leverage company size as advantage
Processes	Consider asking regular feedback from customers Consider involving customers in educational forums

Company C's current projects and employees are mostly gained through inter-company or employee recommendations. They mentioned a considerable lack of free-market personnel and project. While the company itself doesn't see this as a

problem, we recommend the company to invest in a greater visibility, be it through more involved student cooperation, for example in-house workshops, or social media presence and marketing.

Company C mentioned how they build employee competence by sponsoring their free-time activities and hobbies with significant monetary contributions. Employees can use these benefits to whatever activity they choose. The company could leverage this activity and further motivate employees by implementing some of these pastime innovations as future products.

In service life cycle, we recommend Company C to spread their knowledge about maintenance and those particular customers to reduce the dependency on key personnel, especially in smaller projects. This can be achieved by using maintenance as a training ground for new employees for example and introducing them to customer contacts through such projects. Furthermore, as mentioned in the previous paragraph, some of the employee's pastime projects could be adapted as new products.

In financial metrics, we recommend Company C to go through with their plans on big data and business intelligence through cooperation with other willing companies. Opening a door to further cooperation and mutual benefit is undoubtedly plausible and preferable. This experiment can then later be expanded to a Company C specific business intelligence once the need demands it and company size allows it. The high-end skills gained through extensive in-house business analytics and intelligence can be reused in customer cases.

In resource management, we recommend Company C to further enhance their current knowledge management processes to meet the possibly emerging needs due to the continuous growth and geographical spread. The company had already created processes and databases to support knowledge management, but in a company the size and growth of Company C, continuous development in this area is recommended. Especially with the company expanding to new locations, it is important to keep a clear comprehensive outlook on the company's skill pool. The company could also consider improving the mentor-apprentice model in new employee orientation and involving more comprehensive processes to incorporate new employees to projects.

Through our interviews and subsequent conversations, we found that highly polarized skill levels between the mentor and apprentice may hinder the overall learning process. Instead, we recommend for example pairing up people whose skill levels aren't too far apart from one another, and even taking new recruits in pairs to achieve this. Having a companion in a similar position and situation to yours promotes growth and motivation.

In a short questionnaire we performed on the student population of Jyu, it became apparent that the biggest companies were the most desired to work in. We theorize this is due to the perceived ability to grow within the same company, without having to risk the dangers of leaving. As such, we recommend for the company to leverage

this aspect in cognition towards larger companies in clarifying job promotion opportunities to upcoming applicants.

In processes, we recommend Company C to involve their customers in a more intimate feedback in order to verify whether their sporadic communication is warranted. These events may also be the case of customers lacking understanding of Agile principles. As such, we recommend hosting small education forums for new customers, especially in fields that are only now digitalizing, to promote interest in said digitalizing.

Other important aspect of customer involvement is to create a general practise between all company projects. Without a unified structure or guideline in customer involvement, there is a fear of process fragmentation as the company continues to expand into other cities and decentralize itself. One method of achieving this could be through periodic customer surveys.

6 Conclusions

This case analysis explored the business models and processes of three different software companies. The aim of the analysis was to identify practical improvement possibilities for each case company regarding their own areas of interest. The analysis was carried out in two parts. First, an analysis framework was created through a review of existing literature regarding business analyses and software business models. Second, each of the case company was systematically analyzed though this framework. Data for the study was collected through structured interviews and a survey regarding the recognizability of the case companies.

The literature review resulted in an analysis framework that consisted of six different analytical lenses. These lenses included Customer and market, Service life cycle, Financial metrics, Resource Management, Vision, Mission, Values and happy people, and Processes and tools. While all case companies were analyzed through all the lenses, the focus areas of each analysis varied according to the specific interests of each company.

The results of the analysis showed that, despite of working within the same industry, there were differences in the business models of the case companies. While company A focused on end-to-end customer projects that covered concept design, content planning, and business analyses, companies B and C provided mainly software development and maintenance services. Where companies A and C focused on long-term customer relationships and made an effort to build continuous relationships after projects, most income for company B was generated by subcontracting development projects. Company B was the only one to limit its focus to one technology, while companies A and C defined their scope more in term of the industries of customers.

Despite of the differences in business models, there were observed common trends among the business models. All the companies for example had contemporary organization models with minimized distance between management and employees, and all of them also regarded values as an important part for their organization. Furthermore, results suggest that the companies shared similar interests and concerns. These interest areas included especially employee well-being, image of the company among potential recruits, and cooperation with universities and other educational institutes. Since all companies had experienced recent growth, scalability of processes, and service and knowledge management were also among common interest areas.

The managerial implications for the companies were clustered especially among the identified areas of interest. For companies struggling to create visibility and interest among students and other potential employees, recommendations included for example cooperation with courses at Jyväskylä University by providing guest

lectures, and participating in job fairs of educational institutes. For companies concerned with knowledge concentration on few key persons, recommendations included job rotation and more sophisticated knowledge management systems. All in all, the improvement suggestions concentrated especially around the topic of recruitment.

The limitation of the study included a relatively low number of respondents due to time restrictions. Furthermore, financial analysis of company performance were not carried out due to unavailability of data. All companies operated on Finnish market. In the future, it would be interesting to expand the analysis scope to include also financial analysis and to compare companies from different markets.

Were we to make assumptions on the overall state of the industry in Finland, a key problem arises in overall obliviousness towards competition. It is likely that by crafting even a simple study on the field, any company in the IT-field could produce a great competitive edge towards their competitors. Then again, taking such a cutthroat approach might bring unnecessary business practises on the shores as cooperation and community were key values for many of the companies.

However, the need for some sort of advantage seems to be necessary as many of the interviews raised a concern with the disparity between employer costs and customer pricing. While the overall magnitude and requirements for each project became more complex and expensive, customers are more and more averse towards increasing prices. This leads to a spiral where companies require more talented workers in more elaborate projects without being able to demand appropriate pricing. The margins of profit narrow, creating risk for the company. Similarly, the increasing demand for talented personnel create a very worker centric field, reducing employee retention and an increase in wages. The result is a race towards the most hospitable work environment as competing with wages becomes unsustainable.

Overall, the Finnish IT-industry is doing great, with its fair share of innovators, experimenters, and teachers. Many of our recommendations had already been internally considered, making our contribution more closer to confirming than informing. This does mean a very down-to-earth approach in leadership positions, which reflected greatly from the open and welcome attitude of each CEO and manager interviewed or viewing. There are no delusions in any of the companies. Each of them are tackling similar, real problems using realistic solutions. Despite having different sizes and being in different stages of their business life cycle, the questions posed were quite similar. This leads to believe that either these questions are recent, unsolvable, or, more likely, with a solution, that is constantly evolving and improving.

Acknowledgements

First and foremost we wish to thank all the case companies for sharing information and providing valuable insights by taking part in the study. We are especially grateful

to our interviewees for the inspiring discussions and for making us feel welcome. Furthermore, we wish to thank our mentor Juhani Risku for all ideas, support and feedback during the analysis process. Finally, we wish to thank Pekka Abrahamsson for guiding us through the course, encouraging us to take our work to next level and providing a great learning opportunity with real-life relevance.

References

Demerouti, E., Bakker, A.B., Nachreiner, F. and Schaufeli, W.B., 2001. The job demands-resources model of burnout. J*ournal of Applied psychology,* 86(3), p.499.

Fischbach, Michael., Puschmann, Thomas., Alt, Rainer. 2012. Service Lifecycle Management. *Business and information system Engineering.* 1/2013. 45-49.

Fisher, C.D., 2010. Happiness at work. *International journal of management reviews*, 12(4), pp.384-412.

Karasek Jr, R.A., 1979. Job demands, job decision latitude, and mental strain: Implications for job redesign. *Administrative science quarterly*, pp.285-308.

Khodakarami, Farnoosh., Chan, Yolande. (2013). Exploring the role of customer relationship management (CRM) systems in customer knowledge creation. *Information and Management. 51(1). 27-42.*

Kultalahti, S., 2015. It's so nice to be at work!. Adopting different perspectives in understanding Generation Y at work. *Acta Wasaensia,* 339.

Mielonen, J., 2011. *Making sense of shared leadership. A case study of leadership processes and practices without formal leadership structure in the team context.* Acta Universitatis Lappeenrantaensis.

Mäkikangas, A., Feldt, T. and Kinnunen, U., 2007. Warr's scale of job-related affective well-being: A longitudinal examination of its structure and relationships with work characteristics. *Work & Stress,* 21(3), pp.197-219.

Popp, Karl Michael. 2011. Software Industry Business Models. *IEEE Computer Society.* p. 26-30.

Rothmann, S., 2008. Job satisfaction, occupational stress, burnout and work engagement as components of work-related wellbeing. *SA journal of industrial psychology,* 34(3), pp.11-16.

Schaufeli, W.B., Bakker, A.B. and Van Rhenen, W., 2009. How changes in job demands and resources predict burnout, work engagement, and sickness absenteeism. *Journal of Organizational behavior,* 30(7), pp.893-917.

Siegrist, J., 1996. Adverse health effects of high-effort/low-reward conditions. *Journal of occupational health psychology, 1*(1), p.27.

Singh, Pankaj, Damodar Suar, and Michael P. Leiter. "Antecedents, work-related consequences, and buffers of job burnout among Indian software developers." *Journal of Leadership & Organizational Studies 19,* no. 1 (2012): 83-104.

Vainio, A., 2018. Pakko olla onnellinen: Y-sukupolven nuoret aikuiset kokevat ura- ja onnellisuuspaineita jopa niin, että osa heistä sairastuu työuupumukseen alle 30-vuotiaana. *Helsingin sanomat, 25.2.2018*, pp B14-B16.

Wang, D., Waldman, D.A. and Zhang, Z., 2014. A meta-analysis of shared leadership and team effectiveness. *Journal of applied psychology, 99*(2), p.181.

Youssef, C.M. and Luthans, F., 2007. Positive organizational behavior in the workplace: The impact of hope, optimism, and resilience. *Journal of management,* 33(5), pp.774-800.

Joachim Stempfle and Petra Badke-Schaub, 2002. Thinking in design teams - an analysis of team communication, *Design Studies 23 (2002) PII: S0142-694X(02)00004-2*. pp 473-496.

Marlin L. Abbott and Michael T. Fisher, 2015. The art of scalability: Scalable web architecture, processes, and organizations for the modern enterprise. *Pearson education,* ch. 1

Vincent Charles and Mukesh Kumar, 2014. Business performance measurement and management. *Cambridge scholars publishing*, pp. 8-9

Author biographies

Ida Korpivaara is a master's student at the faculty of Information Technology in the University of Jyväskylä, Finland. She started her studies in 2017. Prior to her studies in Jyväskylä, Korpivaara has graduated as a Master of Science in Industrial Management from Lappeenranta University of Technology in 2015. Alongside her studies, Korpivaara works as an information analyst in banking. She comes from Kouvola in South-East Finland.

Henri Korko is a Master's student at the faculty of Information Technology in the University of Jyväskylä Finland. He started his Bachelor's studies in 2013 with major in Computer Science and now his major in Master's is Information Systems. Minor studies in Business Administration.

Santtu Kauppila is a Master's student at the faculty of Information Technology in the University of Jyväskylä Finland. He started his studies in 2013, majoring in Information. His personal interests have taken him to minor in Business and Japanese language. Other interests fall in Tourism, Translation, and Script writing, with plans to expand on self-learning and adapting algorithms. Santtu is born and raised in Jyväskylä Finland with multiple exchange student years in Japan and Mexico.

Atte Tuomisto is a master's student at the faculty of Information Technology in the University of Jyväskylä Finland. He started his studies in 2014, majoring in Information Systems and minoring in Business and also in Human Resource Management. Alongside his studies he works as a software developer and his interests are in programming, leadership and IT-field in overall. He comes from Tampere, Finland.

Noora Hämäläinen is a Master's student and a research assistant at the University of Jyväskylä. She started her. Bachelor's studies in 2012 with Information System as her major and over the years she has also completed minor studies in Basic Business Studies, Management and Leadership and Cyber Security. She is currently finalizing her Master's thesis on blockchain technology and information security. In addition to her current position as a research assistant, she has worked as a security analyst and a software specialist alongside her studies. Noora is from Jyväkylä in Central Finland.

Notes

Advanced Software Business Studies 2018

Students of the TJTS5780 on Information Systems Master study program @JYU course become junior consultants on software business. Their task is to find three clients that are willing to give the team a software business problem to be solved. The team has then 30 calendar days to complete the analysis and report the results to the company board in a face-to-face meeting and a presentation. The results are now packaged in this scientific book that portrays more than 30 software business cases solved.

JYU 2018