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IMPLEMENTATION OF THE EMBROIDERY PRODUCTION ON THE FINNISH MARKET

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<p>Abstract</p> <p>This thesis describes a process of implementation the sole trader embroidery production on the Finnish market.</p> <p>In this thesis the background information of obtained knowledge and a theoretical explanation of the embroidery process were described. It was explained how the idea of embroidery production appeared and how this idea was implemented. The work contained the evaluation of profitability of a small embroidery business in Finland, Kuopio.</p> <p>The thesis observed the stages of business realization from the first steps of registration to future budget calculations. The working process of embroidery was described. The evaluation of software, equipment and materials that are the most convenient for small embroidery production were also provided.</p>			
Keywords Embroidery, production, entrepreneurship			

LIST OF ABBREVIATIONS

B2B = Business-to-Business

B2C = Business-to-Consumer

HR = Human Resources

LLC = Limited Liability Company

MSRP = Manufacturer's Suggested Retail Price

PRH = (fi. -Patentti- ja Rekisterihallitus) - the National Board of Patents and Registration of Finland

US = the United States

VAT = the Value Added Tax

YEL = compulsory pension insurance for the entrepreneurs in Finland

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1 INTRODUCTION

The main idea of the thesis is the implementation of an embroidery production on the Finnish market with further development solutions. This work describes the stages of setting up a sole trader firm with analysing possible existence and profitability of this type of production.

The thesis contains a theoretical part where basic operations and definitions are explained. There is also an evaluation of possible equipment and software for this type of production. All the background information about experience while studying is included into this work.

The company's name is Cat-Made. It was registered and established in August 2018. It is a small business that is just starting to grow. Cat-Made bases on home embroidery production of a small or medium amount of pieces per one order. The company produces patches and embroidery on clothes or ready-made goods. In the thesis the ideas about purchasing and sales are observed. The student considers solutions to the problems that appear when a new business starts its functioning. This thesis project can be presented as an extensive business plan that will cover both production and business sides of this company.

The data from the actual business plan of the company will be presented in the diploma. This information includes the company's core idea, market analysis, manufacturing stages and financial statements.

1.1 Background information

The student was attending the degree program in industrial management since 2013. The knowledge after graduation should contain both business and engineering experiences. Registration and development of the start-up production always require management promoting of a new business, elevating customers' awareness of the firm and recruiting new business partners. The student needs to be able to calculate later risks, evaluate further budget etc. A list of lessons and courses that allow avoiding such risks included software project and management data, B2B marketing, project planning etc.

An automatic production includes an understanding of computer development as well as maintenance of working machines. Such courses as computer skills, computer-aided design, and maintenance and manufacturing automation gave the student the strongest background that is requested for servicing production. Academic knowledge helps the student with the first stages of implementation the sole trader company on the Finnish market by the many aspects.

Internships, that the student was attending while the studying, are an important practical background. It led to the setting up the sole trader production. During the first practical training in Eho-Nord, Russia 2014 the student received a lot of information about the embroidery production and could simply proceed with any unpredictable break down. The second practical training in Dpoint-

group, Spain, 2017 gave the student the knowledge in fields of management and sales, as well development of international markets, building client relationship. The student was dealing with B2B marketing operations. The acquired experience helped with business operations while setting up the production. It was also a great opportunity working in the Finnish start-up in 93' Degree Coffee Shop, 2018. It helped to understand the country's businesses model. The student was inspired by the experience that was gained. This background was the important beginning of the implementation of the new business.

1.2 Objectives and results

The objectives of the thesis project are to show the opportunities and obstacles that can be faced while building a startup in Finland; to explain what embroidery is and why it can be profitable on the given market; to explore the pitfalls of starting a business.

There are a lot of opportunities to start a new business in Finland, but also young entrepreneurs have certain obstacles to face. For example, undergraduate students might have problems with business registration or banks might deny opening a business account for foreign students, as it was with Cat-Made. Fortunately for the company, the issues have been solved.

Patches are very popular among Finnish citizens. Cat-Made's mission is to show a different type of embroidery, which is fresh and contemporary. The interest in embroidery is high on the market, so there definitely will be demand.

It is clearly seen, that the owner of the future company had strong prerequisites to start exactly the embroidery business due to the experience gained through the internships and to the established supplier relationships. This explains the choice of the Cat-Made's business field. The more detailed research and development solutions will be presented in the next chapters.

2 THEORY BASE

2.1 What is embroidery?

There are different variations of embroidery. Historically it was requested for different cultural aspects. Mostly it was based on sewing threads into a fabric creating a design using single stitches for visualization the image. Since the 20th century, embroidery became machinery based and its production reached a new level of popularity and meaning. Machine embroidery or digital embroidery is the process of creation pattern of stitches on textile. In this process to create a final good embroidery equipment and software are needed. The production contains two main stages. The first is the development of a program that is adapted to the production machine. The second is production and consuming of the final good.



FIGURE 1. The example of embroidery (Cat-Made 2018)

Nowadays machine or digital embroidery (Figure 1) became a popular accessory. It is widely used in fields of art and design. It became a popular attribute to the clothes and interior. It appears that embroidery is the machinery production of a designed art object.

So, basically, embroidery production starts from converting the image to vector format with special software. There are different file formats needed for different types of machines. Some hardware suppliers provide their own software. There are programs that can work with different types of formats, which means that the amount of suitable equipment for it will be bigger. (TECFA, 2018)

Machine or computerized embroidery requires several steps of realization. The working flow itself starts from creating a drawing. The image can be updated in such formats as tap, jpg etc.; simply hand drawing can also be suitable. Color reduction and even changing the image are sometimes required in individual cases. Then the file should be imported into embroidery software. Programs allow drawing in vector formats that are adapted to the production machine. The stitches are generated accordingly to pattern specialization and design parameters. Colors and the working order are

usually written as other files. A further step is to adjust the parameters of stitch's density, shape, angle, type of fill etc. Every machine brand has its own specialty that depends on the parameters of the drawing. Materials, type of thread, upper and lower threads tension should be also taken into account. Different types of fabric react differently to the process of embroidery.

Machines mainly consist of the monitor for some standard edition of inserted design and the engine that moves professional hoops in different directions which hold fabric or ready clothes. Another detail is the head that leads and changes threads from top and bottom. The most common mistakes and breaks of equipment usually happen with those parts. For example, if a thread breaks it is needed to disassemble a few parts to archive positive results. All machines are needed to be lubricated with oil in some period of time to keep them in working shape. (TECFA, 2018)

2.2 Digital embroidery software

Technically embroidery software allows creating a suitable for embroidery file format in vector or digital format of the drawings' assembly parts, with all the parameters that are needed in this process.

So, there can be several types of embroidery software. Their duties can be combined on one program or be the different ones. This software list includes vectorizers or digitalized for creating vector format of converting the image. Viewers help to observe the final 3D version of the final embroidery. Transformers and editors allow transforming file in color, size, angle, etc. and adding stitch format, parameters. The lettering programs are also important. Fonts and its implementation in embroidery is a wide topic to discuss. And, of course, converters are the final step for file preparation. It sets the files format that is suitable for the type of equipment that is used.

There are embroidery equipment companies that provide their personal software for their particular product. On the other hand, there are companies that provide only embroidery software that suits for different types of machine brands. Some programs are in open source.

All the programs are working with different formats. They are divided into duties that they are accomplishing. Combining software abilities leads to a high functioning of the program. (TECFA, 2018)

2.3 Comparison of embroidery software

There are a lot of embroidery Software providers (Table 1). Some equipment suppliers provide their own software, such as Janome, Brother etc. Unfortunately for Mac iOS users most amount of software can be applied only on Windows platform. The most software suppliers are bases in Europe such as Embird etc. or USA such as Brother and Amazing design. There also are Asian software developers such as Janome etc. One of the most influent embroidery software developers of Wilcom is located in Australia. Because of this, most programs are equipped with an English language interface.

Some programs are making several embroidery tasks at once. It can be a combination of few editors, working in one program. Embird, for example, provides software for different types of embroidery machines and is able to import and export a large variety of file formats, letters, stitches parameters, etc. Such companies as Amazing Design is providing customers with separate software, adding each function to a new program.

All types of software differ in its price. From official distributors, it can variate from a few dollars up to a few thousand. There also are free software providers, but such programs can be lack of functions, needed formats or technical support. Each type of equipment requires its own file format, so the software should be chosen according to the machine brand. (WaybackMachine, 2008)

TABLE 1. Comparison of embroidery software

Software title	Provider	Platform	User languages	Input embroidery formats	Output embroidery formats	Price	Price
						MSRP (USD)	EURO
- Applique It! - Digitize 'N Stitch - Letter It! - Monogram It! - Size It!	Amazing Designs	Windows	en	blf, pes, pec, art, sew, emd, gnc, jef, exp, pcs, vip, vp3, xxx, csd, dst, shv, hus	blf, pesv9, pesv8, pesv7, pesv6, pes, emd, sew, jef, exp, pcm, pcs, vip, vp3, emd, xxx, csd, dst, shv, hus	\$ 99.99 \$ 399.00	€ 88.79 € 354.31
- Bernina Software - EmbroideryStudio - Hatch Embroidery	Wilcom	Windows	en	art, arx, pes, pec, emd, gnc, hus, shv, vip, sew, exp, pcs, pcd, pcq, pcm, csd, xxx, dst, amt	art, pes, pec, emd, hus, shv, vip, sew, exp, pcs, pcd, pcq, pcm, csd, xxx, dst, amt	\$ 1 999.00 \$ 899.00 \$ 3 999.00 \$ 149.00	€ 1 775.11 € 794.00 € 3533.40 € 130.00
Digitizer MB	Janome	Windows	en	jef, jef+, sew, emd, pes, pec, hus, vip, vp3, exp, pcs, pcm, csd, xxx, dst	jef, jef+, sew, emd, vp3, pes, exp, pec, pcs, hus, pcm, vip, csd, xxx, dst	\$ 1 999.00	€1 775.11
Embird		Windows	en de fr it es cz	10o, 9mm, art, bro, csd, dat, dsb, dst, dsz, ecf, emb, eof, exp, exy, fxy, gt, hus, inb, jef, jef+, jpx, ksm, m1, m2, m3, max, mit, new, pcd, pcm, pcq, pcs, pec, pes, phb, phc, plt, psf, ptm, pum, sew, shv, spx, ssp, sss, sst, stx, tap, tbf, t01, t03, t04, t05, t09, uxy, u**, vip, vp3, xxx, zxy, z**	10o, 9mm, bro, csd, dat, dsb, dst, dsz, exp, exy, fxy, gt, hus, inb, jef, jef+, ksm, m1, m2, m3, max, mit, new, pcd, pcm, pcq, pcs, pec, pes, phb, phc, plt, ptm, sew, shv, spx, ssp, sss, sst, stx, tap, tbf, t01, t03, t04, t05, t09, uxy, u**, vip, vp3, xxx, zxy, z**	\$ 150.00 \$ 1 000.00	€ 130.00 € 880.00
Embroidermodder		Windows, Mac iOS, Linux	en	10o, 100, bro, col, csd, dat, dsb, dst, dsz, edr, emd, exp, exy, fxy, gt, hus, inb, jef, ksm, max, pcd, pcm, pcs, pec, pes, phb, rgb, sew, shv, stx, t09, tap, thr, u**, vip, vp3, xxx, zsk	col, dst, edr, exp, hus, jef, ksm, max, pcd, pcs, pec, pes, rgb, thr, xxx	Free	
Ink/Stitch Inkscape extension	Inscape	Windows, Mac iOS, Linux	en de fr pt it	100, 10o, bro, dat, dsb, dst, dsz, md, exp, exy, fxy, gt, inb, jef, jpx, sm, max, mit, new, cd, pcm, pcq, pcs, pec, phb, phc, sew, shv, stc, stx, vg, tap, tbf, txt (g-code), u01, vp3, xxx, zxy	csv, dst, exp, jef, pec, pes, svg, txt (g-code), u01, vp3	Free	
PE-Design	Brother	Windows	en	pes, pec, phc, exp, dst, pcs, hus, vip, shv, jef, sew, csd, xxx	pes, dst, hus, exp, pcs, vip, sew, jef, csd, xxx, shv	\$ 1 299.99	€ 1 154.39

2.4 Equipment

There are different types of embroidery machines. Home embroidery equipment are small sewing machines, mostly with one needle, which means that only one color can be used without technical support of the worker. The examples of this type of machines are presented by such companies as Bernina, Janome etc.

2.4.1 Commercial embroidery machine

Industrial or commercial embroidery machine is a machine that is designed for production embroidery professionally in large amounts. Industrial embroidery machines are mostly featured with several needles for each color separately. That allows the machine to walk through the working flow by itself; no personal intervention is required, except for control. Commercial machines are made from hard metal parts that prevent the destruction of equipment. The most popular commercial machine's examples are such brands as Tajima, Barudan, SWF, Melco, Toyota, and Brother. It is an interesting fact that Brother, Janome etc. also make home machines.

The most known and regarded embroidery machine suppliers are located in USA or Japan. Tajima and Brother were the first who were working on the production of such machines. Brands are trusted and their equipment is reliable and secure. Happy has been the most popular Japanese machine since some time in business. Janome is also well-known.

2.4.2 Home embroidery machine

Personal or home machines contain only one needle with a particular thread color. Of course, it could be simply changed with hands, but home machine embroidery process requires time and personal attention. They usually have a lot of plastic details, because they are not designed working under the pressure and busy flow. This type of machines covers less space and is the most suitable for small individual jobs and runs. On the other hand, they are less expensive than industrial machines. One of those can be simply bought on the personal savings from the regular sew shop.

Although, on large industries, there is no time and amount of workers to follow the machine requests, such as cutting the thread or changing it to the right color. As it was mentioned, one main difference between personal and commercial machines is the number of needles on the machine's head. Commercial ones are able to change needles automatically, providing the right color of the stitches how it was set in embroidery program.

Such machines are also divided into two variations of single-head and multi-head machines. One head embroidery machine is equipped with only one station. It mostly has the main computer to upload files and partly edit the design if required, thread take-ups, thread guides, presser feet, thread tension regulator and from five to eight spool threads in different colors each for its needle. These machines are perfect for small industries. It is easy to maintain if thread breaks etc. Needles with required colors are changing about the program. There are a lot of different embroidery accessories

that are available from the machine suppliers such as cap hoops etc. The single-head is able to provide both a small wholesale production and a custom work on a difficult design.

2.4.3 A multi-head machine

A multi-head machine is the one that has more than one station. So basically such equipment is the sum of single-head machines, as two single-heads perform multi-head already, which is connected with the hoops line construction that allows achieving the huge speed of production. All heads are also connected to one computer that sets designs to each head. Most used machines are counted with two, four or six stations, although there is equipment that contains from three to thirty stations on one machine. Multi-head machines are much cheaper, compare to the price of few single-head machines. An individual station can be turned off in case of emergency. (Encyclopedia, 2013)

3 IMPLEMENTATION

3.1 Cat-Made company description



FIGURE 2. Cat-Made's logo (Cat-Made 2018)

Under the gained experience and knowledge the student has registered the sole trader embroidery production in Finland, Kuopio. The company is called Cat-Made (Figure 2). It was set up in August 2018th. Sole trader is the smallest form of business structure and it means that the founder is legally responsible for all aspects of production. The student is making all the decisions about starting and running the company's business. The student has prepared a market analysis, purchasing the materials and equipment for the firm. All details about company's actions, stages of implementation on the market, its further plans and estimations are described in this thesis report. The mission of the production is to cover the market with individual highly qualified products.

Despite the fact that the firm has only been on the market for a short while, the quality control has already been passed and now the company is working on the extension and promoting of the production. The student is discussing problems that can be faced while further production development and their solutions.

3.2 Permissions and agreements needed for the business implementation

For registering a new business the permission from the National Board of Patents and Registration of Finland is needed. Start-ups activities are also regulated through the PHR service. Cat-Made has its own Tax Identification Number that can be viewed through the open sources by anyone who is interested in company's official information. Moreover, there is a possibility of arranging a free appointment in the center of support of new businesses. Professional lawyers are providing help with registration details of new organizations.

Under every business, cooperation lays responsibilities and agreements. Procurement materials from a potential supplier on the regular bases, for example, should be confirmed with working contracts or agreements. As well as cooperation contracts with potential business partners who would be interested in purchasing our firm's goods could be counted as working agreements. Implementation of

one's production into a profitable industry requires partnership with supporting or supplying companies on your side.

3.3 Human Resources

A student is working on developing of the sole trader embroidery company Cat-Made. That makes the student the only employee that is working on this production. Although, the company has ideas and plans on cooperating with other companies or small businesses for the mutual benefit and support of start-ups. Moreover, on the further stages of business, the company must require human resources to run the larger amount of production or to develop a business marketing strategy with further promoting. The student is also considering applying for setting LLC, on the background of the sole trading company.

3.4 Core concept

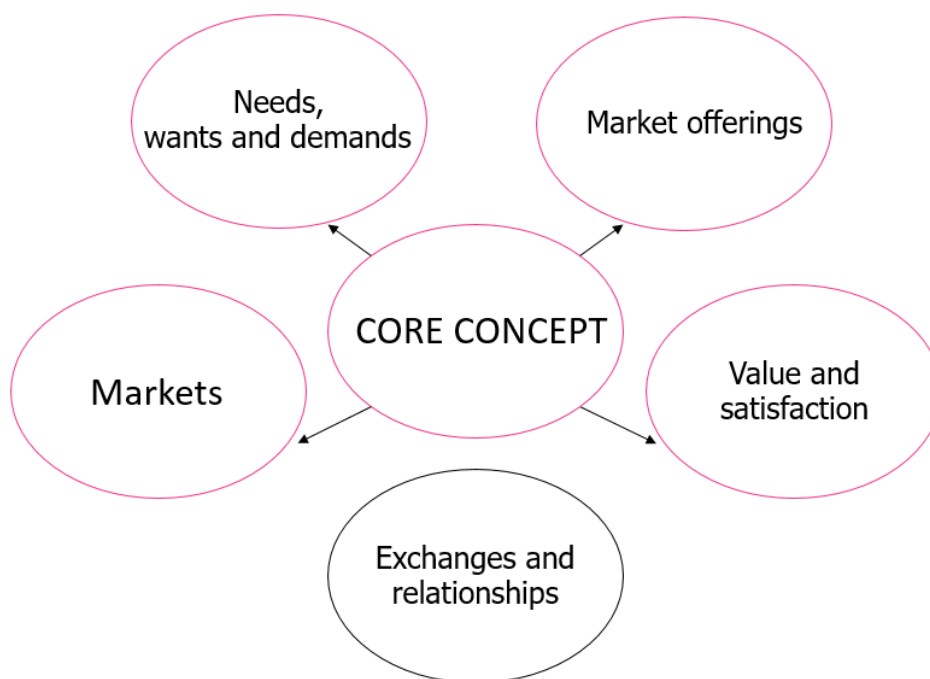


FIGURE 3. Core marketing concepts

The core concept is an essential part in analyzing and understanding customer behavior and the marketplace. In this thesis, the main four core concepts, which are necessary to consider before any marketing decision or action is taken, will be described. Those are needs, wants and demands, market offerings, value and satisfaction and markets. (iEduNote, 2017)

Usually there are five core concepts (Figure 3). The missing one is exchanges and relationships, which is mostly about stakeholders and sponsors. Cat-Made is not yet considering the sponsoring concept. The company is now focused on getting customers to be aware about Cat-Made's offerings. Cat-Made embroidery is not actively looking for stakeholders at this moment. Due to that fact, the exchanges and relationship concept will not be described.

3.4.1 Needs, wants and demands

This concept is the most basic of fundamental marketing. It describes human needs, wants and demands, which are not created by marketers. They are a primary part of customer nature. There are different variations of human needs: physical, social or individual needs.

Wants are the same needs but affected by a certain culture or a type of personality. Customers might have the same needs, but the form of those needs differs due to cultural and social factors of an individual. Those special personal features assemble the want itself. With the ability to make purchases, wants create demands. Consequently, needs and wants are the main components of demand.

Cat-Made mainly covers social and individual needs, such as a need for self-expression or need for some sort of social acceptance. An individual patch some way expresses personality. Most of the students have patches, so rare and unique product will not be disregarded. Also, a certain patch can emphasize its owner's views, positions or preferences, which could be accepted by other people who share the same thoughts, what can lead to further socializing and communicating.

The company offers its customers to express their needs in a way they would like to see the product. This gives a customer the opportunity of creating any design, which means that the customer can choose exactly what is wanted. So the difference between needs and wants is that needs are common, while wants are individual. Cat-Made embroidery services are focused on the uniqueness of its products and offers, what could work favorably for future demand.

3.4.2 Market offerings

Consumers needs and wants are satisfied with the help of market offerings. It can be a combination or mixture of physical products, services, ideas or information presented to satisfy a need or a want.

It is important to avoid the most popular mistake called "marketing myopia", when the company is trying to make the right decision. That term means paying more attention to the certain product which is offered than to the customers' benefits and experiences produced by that product. It is quite necessary to understand that a product or service is only an instrument for a solution of customers' problems. It is clearly seen, that Cat-Made put its consumers' needs, wants and demands first. The company's product is a patch, which is fully designed by the customer. It shows the company's priority of the customers' opinion.

Cat-Made Embroidery grants an opportunity for the clients to be clients and design creators at the same time. Moreover, the company's services are aimed at total satisfaction. Due to that, Cat-Made offers consulting services for the better understanding of customer wants and a communication establishing.

3.4.3 Value and satisfaction

Everyday consumers face with a wide range of products and services presented in a form of market offerings that might satisfy a specific need. Customers choose from this variety of options according to their expectations about value and satisfaction, which are key factors for establishing and developing customer relationships. That means that it is important to set the right level of customers' expectations. Those market offerings that are not enough correct will not allow marketers to capture value in return of satisfaction. Cat-Made uses a free sample method to avoid such mistakes. That allows customers to make corrections for better results.

Fully satisfied consumers will be purchasing again and spread the word about the company's products and services. Cat-Made is always selling exactly what the company agreed on with the customer. By discussing and consulting with a consumer, the expectations will be meet in reality.

3.4.4 Markets

The market is a combination of actual and potential buyers. The certain efforts are undertaken for managing markets for profitable customer relationships. For establishing such loyal relationships analysis and research work must be done. Marketers must research their customers' behavior for creating beneficial market offerings, which include setting prices, promoting them. The proper analysis should include customer research, development of product, communication and the ways of distribution.

Cat-Made is undertaking efforts by making the online promotion of its services through different Internet platforms, where customer communication is taking place. This allows sharing information and getting customers' feedback and orders as fast as possible.

The company's product can be additionally developed according to customers' needs by getting feed-back and comments about Cat-Made and its offers. There are several ways of distribution for Cat-Made. Customers can purchase directly from the company representative or order online from the mentioned Internet platforms. These ways should suit everyone interested in the company's service.

3.5 Core Methods

3.5.1 Market analysis

For analyzing the possibility of implementation the embroidery production on the Finnish market a few core methods are needed to be used. While setting up a new business one should start with competitor research and market evaluation.

Embroidery production is well developed in Finland. It covers a lot of services and is used widely in many spheres of life. Embroidery production attracts not only single customers but also business

groups and organizations. The demand for embroidery patches on student overalls is very high. As one of the main ideas of production is an individual approach, students are one of the most profitable opportunity for services that Cat-Made is interested to provide. As one of the examples for the company's further development is such cooperators as a student organizations that are the main patch distributors. Also, small companies that are selling clothes or accessories could be interested in cooperating and supporting the embroidery production. Logos or emblems are always in the high demand in for example the service sector.

Moreover, the possibility of online distribution of embroidery goods cannot be avoided. The company is also working through social networks. Today customers are interested in the opportunity of ordering online. Embroidery software allows making a pre-drawing of the final version of the product, so the supplier can be simply contacted via email or other sources. Cooperation with small businesses and supplying goods not only locally but wider and internationally is one of the priority methods of implementation the product that the company produces.

One of the main target groups for embroidery production is students and educational institutions. Although, local businesses interested in small or medium amounts of fast services would also be an important part of the company's sales. Cafes, shops, construction companies, student organizations, sports organizations any sphere of business is one target group for embroidery. A diversity of possible customer groups allows applying both B2B and B2C model of business management, providing goods for individual consumers and business organizations.

Searching for partners is also one of the core methods of implementing the business. The company is looking for stakeholders or investors and possible support from their side.

3.5.2 Competitors

As embroidery production has such an influence and popularity in Finland there are companies that are providing embroidery. Besides, there are a lot of small businesses that are not specializing in embroidery production. They are wholesalers who distribute patches to local stores or businesses such as Etsy, Packforce etc. Such companies are working in the small locations.

On the other hand there also are industrial embroidery manufacturers. They are competitors that are distributing the product all over the country. This list includes Merkillinen Oy, Hoopee, and Promler etc. The main strength of the most influential industries is a large amount of production that they can afford at once. The minimum size of a single order is 50 pieces in Merkillinen Oy eq. They are one of the most reliable and known companies on the market. Merkillinen Oy works with organizations, using a B2B business model, supplies their production for further distribution or implementation. Located in Turku, they are working with up to 3000 pieces in one order. Merkillinen Oy was working not only with Finnish companies but also with European and American franchises. They are providing high-quality goods for wide selling.

Also, the competitor's strength is the Finnish customer's awareness. The possibility of manufacturing large amount of merchandise is also the facility that Cat-Made has not yet achieved. But on the other hand, most of the embroidery suppliers in Finland are specializing on the wholesaling of their product. Smaller companies are distributing already made patches or producing embroidery using ready design, without involving software at all. Already made designs are usually provided by equipment supplier, or can be found on the specialized embroidery web pages. Unfortunately already existed files could not be editing from the machine's computer. Industrial giants such as Merkillinen Oy or Hoopee are working with design adaptation, but they are not dealing with individual orders or with a small or medium amount of merchandise needed.

3.5.3 Tasks and responsibilities

The first task for the implementation a business is to collect the information about market and competitors to evaluate the possibility of the idea's existence. As the student has noticed, the embroidery production will be in demand on the Finnish market. After evaluating the profitability of industry the official part is to register one's business, for its legal functioning. The student starts with the registration a sole trading and a small production. The business idea is based on the possibility of manufacturing embroidery from home. Because of this, on the first stages of work the firm would request the minimum of one's own living space. That is why the rent question for this type of business is solved. One of the main tasks while setting up the production is purchasing software and materials. Analyzing different offers and finding the suitable one is the challenging thing to do. It requires accurate learning of equipment and programming producers. A program should be suitable for equipment while the equipment requires being suitable for a few criteria. From the very beginning, the student is managing all the companies' actions and expenses as yet the only employee. Communicating with customers and arranging new corporations are important business duties. Also, promoting and marketing help to develop the company and fasten its place on the market. Consumers would be noticing service faster, which can increase the number of orders.

4 DESCRIPTION OF THE WORK PROCESS

4.1 The process of digital handling

Ordering embroidery starts from contacting Cat-Made with a previously deliberate image of customer idea. As the working process involves using of the quality software, the picture can be drawn by hand or in any image format such as jpg, tiff etc., or vector format. As the company is already registered in social networks, the image can be sent via source that is suitable for a customer. There is also an option to arrange the meeting and discuss details personally. Color, density, stitches shape, thread type should be also considered and affirmed. Working on the image editing, starting from drawing separate parts of the image, setting parameters and counting the estimation of working time and cost takes usually one working day.

4.1.1 Software

The choice of software for Cat-Made was Embird. It is one of the most popular embroidery programs. Embird software is reliable and trusted. It works with many types of embroidery formats. It combines a lot of operations that are required for the embroidery design creation from the first step to the final design. It allows creating a vector image with all the needed transformation and setting stitches parameters (Figure 4). Viewers are also included in its operational facilities (Figure 5), as well as lettering and converters. It simplifies the process of computer adaptation of embroidery image. This software is working with different types of embroidery machines because of such a wide variation of the output formats. That means that with such software the enterprise can purchase different brands of machines, working on one program, not individual equipment software. It also simplifies the process of computer adaptation of embroidery image.

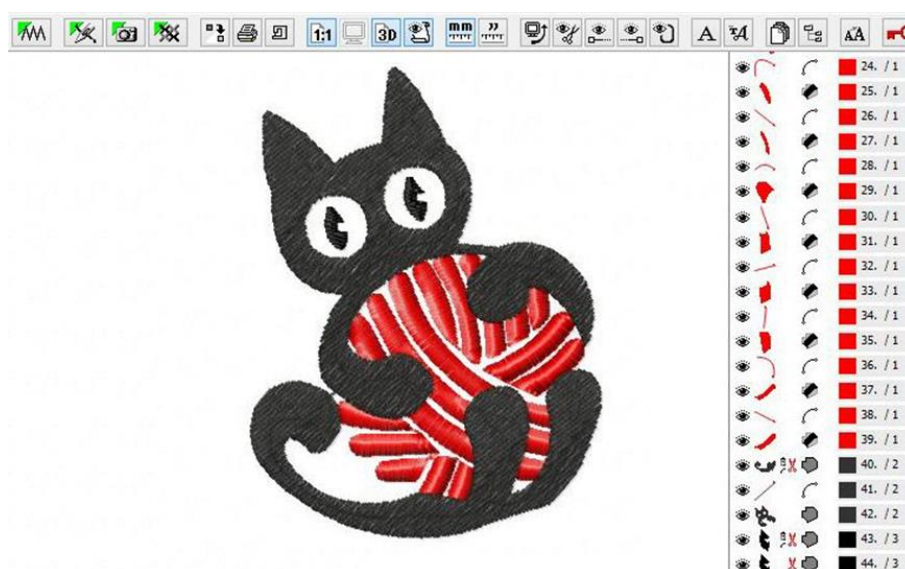


FIGURE 4. A screenshot from Embird Design Studio, vectorizer (Cat-Made 2018)

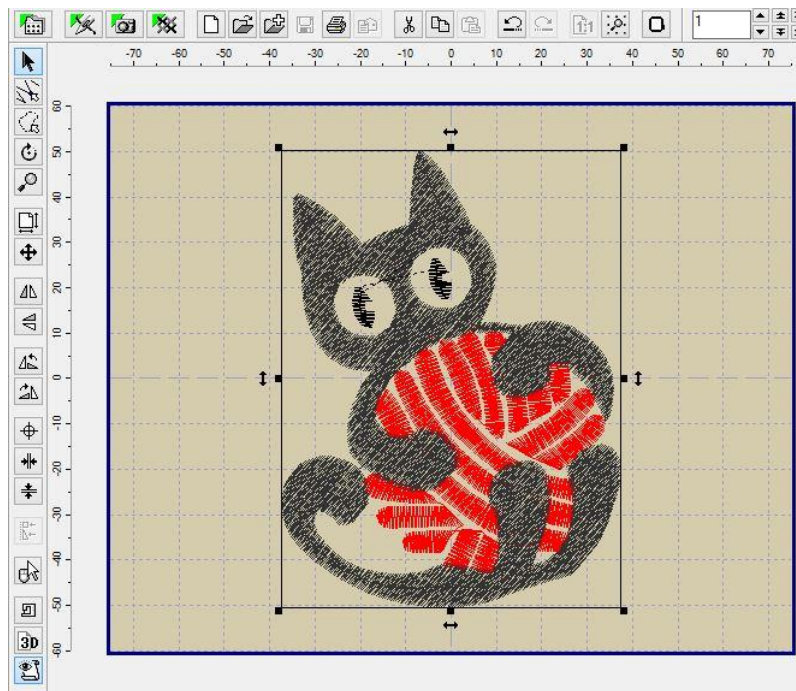


FIGURE 5. A screenshot from the Embird viewer (Cat-Made 2018)

The cost of such software is reasonable. There also is an option of downloading a free version of the software. After purchasing the program all facilities are switched on. That makes Embird software affordable solution to an embroidery design. With all the advantages above, the fact that the student has a working experiences with these program lefts it with no doubt of choice.

A vector graphic designer is needed for the further company's development and improving the quality of embroidery. A vector graphic can be simply applied to Embird, generating already made embroidery layers. The order and parameters of drawing's layers that can be set initially from the graphic designer are setting the future shape of embroidery. For these goals, such programs as CorelDraw, Inkscape or Adobe Illustrator can be suggested.

4.2 The process of embroidering

Fabric that is used for the background of a patch or ready clothes should be delicately put into hoops. After fastening the hoops the design is being allocated on the fabric and is ready to be made. Design is transferred via USB stick. Machines are usually equipped with a touch-screen, internal memory and the inside computer that allow to adjust the drawing's size, angle, quantity. It can be rotated, dragged & dropped, zoomed or copied.

4.2.1 Equipment

The company had no limit in choosing the equipment because the software applies to many models. Embird works with formats that are suitable for such machines as Husqvarna, Happy, Janome, Brother, Tajima and also with other software programs such as Wilcom, and Tajima software.

For purchasing the equipment the entrepreneurs choose to stick to the home machines first. On the one hand, industrial machines are perfect for making commercial designs, such as student patches or advertising business gifts. However, home machines have more plastic details that can be simply damaged by inappropriate using. Moreover, home machines ask for changing the thread manually every time when the color is changed.

On the other hand, home machines have plenty of advantages to consider to be the best solution for beginners. First of all, home machines are easy to maintain. They are not working on the high speed so there is a small corruption rate. A not very high speed of work makes them more or less silent unlike industrial machines, which should be set only in soundproof placement. Home machines are not bothering even if you are standing right next to it while working. One of the biggest advantages of home machines is the space that they need. This type of embroidery machines are as compact as sewing machines and can be used at home. Cat-Made company offers the possibility of ordering an individual design in single quantity. The student is improving the knowledge and experience in digital embroidery design editing. It is important for the company not to overcome with large amounts of production, but to work on achieving a better quality. That is why a home machine is the most suitable variant for the Cat-Made.

There are several equipment suppliers that are mostly known on the embroidery market. Although, reliable and durable home equipment providers can be counted with fingers of one hand. While choosing the suitable machine brand the company's attention was caught by Japanese firm that produces sewing and embroidery machines.



FIGURE 6. Janome Memory Craft 350E, home embroidery machine (Cat-Made 2018)

Janome Memory Craft 350E (Figure 6) is the most suitable variant for the beginning of the production. The machine's measures are: width 20 cm, height 32 cm and depth 20 cm. That makes this machine very compact. It already includes three languages for Monogramming and 100 readymade standard designs that can help with quality assurance of the embroidery process by itself. Embroidery speed for this machine is 650 stitches per minute, which makes it not so fast in production. This machine is working with jef. format. All characteristics mentioned above are important to be considered for the understanding the equipment choice for the company. (Janome, 2018)

Janome Memory Craft 350E is reliable and tested. It is affordable and simple in use. This high potential home machine can be purchased new from official Janome dealer or delivered when ordering via a web-page. These machines could also be found used. Because of the good quality with the proper treatment Janome products can be used for years. While the price of new machines is weight higher than for used ones.

4.3 Final stages of production

After a patch is sewed it must be cut by its frame. If edge threads dishevel on the fabric while process, then edges need further processing. There are materials that do not need any further working on them. The firm also applies material that glues patches to the clothes, fabric material, backpacks, notebook cases etc. It works under the temperature so that good can be simply attached. First of all, a readymade patch is placed face up on the gluing material. The patch's sphere is cut out from the foil. Then, the temperature applies for some time. After glue cools, a protective paper sheet can be removed and a good is now finished. Customer just needs to apply heat the second time and attach the product to the wishful fabric surface. It will take from one to two days before the foil finale adaptation and solidify. During this time excessive wash can lead to loss of glue strength.

4.4 Materials that are used in the production

4.4.1 Spools of threads

Not only the knowledge of software and equipment influents on the quality of embroidery. Threads of popular brands produce spools of different lengths, colors, materials. The company is working with a well-known American distributor Gunold (Figure 7), one of the top sellers of embroidery threads. They are producing Fire Retardant Threads, polyester (POLY) and cotton cones of thread in different thickness. Cotton can be used for embroidering on kids clothes, it is also no allergic. Fire resistant threads are suitable for repair services, workers, firefighters, and police or military. Products embroidered with polyester threads can be bleached. Size of each cone varies depending on treads type. (GUNOLD, 2018)



FIGURE 7. Multicolored Gunold polyester threads (Cat-Made 2018)

The question why does the company choose Gunold is partly clarified with the fact that this supplier has a lot of interesting specialties. For example, Light reflective Gunold reflex cry thread, that unfortunately is able only in 500 m spools, is really useful and interesting for light reflective night patches! They also recently presented metallic glitter thread cone that is really impressive and unusual.

4.4.2 Felt Fabric



FIGURE 8. Felt Fabric in different colors (Cat-Made 2018)

Felt (Figure 8) is ideal for embroidery projects because it is non-elastic, soft with a smooth surface. Needles are going easily through it, making stitches. High-quality appliqués, emblems, and patches are easy to make. This material suits for patch production. It is quite new on the market because not many productions are using this material yet. It is also really practical. On final steps of embroidery production the patch should be cut by its shape. While using other fabrics, eagles crumble after

cut, but not with felt. Felt fabric does not tighten or stretch. It elevates the quality of production. It goes in a roll of 900 mm to 50 m in different colors and densities from 80 g/m² to 300 g/m². For Janome machine working with thicker material is easier because the thread tension remains low. (GUNOLD, 2018)

4.4.3 Permanent Heat-Seal Film

For the quality patch production, the film for thermal appliques Gunold BSN with glue is used. This material is used for the further attachment of the readymade patch to the customer's fabric, e.g. clothes. It is enough to iron the bottom side of the good to which the patch will be hanged for a few seconds. This material dissolves, transforming into glue and fasten our product to the customer's good. It is an easier way than sewing for the company and customers. Permanent Heat-Seal Film is the most effective solution for the lack of sewing equipment.

4.4.4 A nonwoven fabric

A nonwoven fabric is also one of the purchased materials for implementation the embroidery production. It is used for embroidering only on customers clothes (T-shirts, sweaters, jackets, jeans etc.) or other ready products (bags, pillows, bedclothes etc.). It is usually enclosed underneath the base fabric for making it thicker for a better quality. That is necessary to use non-woven fabric while embroidering right away on thin materials because fabric might stretch during embroidery. Non-woven fabric stabilizes the base and adds the quality to an embroidery design. It provides greater stability and prevents deformation. After the embroidery is finished, the nonwoven material is simply removed with the water.

4.5 Product sales

If the order request is simple, the whole production takes approximately one to two working days. The firm has a policy of making the first sample for free. If the customer is satisfied, the product is sold. Of course, making from one to few pieces is less profitable than making a bigger order of same drawn design. Making qualitative and careful drawing takes much more time than sewing it. Because of this, the price for small orders is a little bit higher. The customer can get a ready order personally or request a post delivery. Delivery cost is estimated through the term of central Finnish post company Posti Oy, Itella.

4.6 Quality assurance

After settling up production, the equipment that was purchased got through the first testing. There is a time needed to understand the equipment's features and parameters that fit the best. Equipment suppliers offer wide specter of machine accessories. Bigger hoops or cap hoops, thinner needles, different thread materials expands the firm's facilities, or any other ideas can be implemented and more materials can be used. Although, the machine should be calibrated before the production. All the accessories should be settled and tuned.

After arranging the working place with equipment, software, and materials, the first order was ready to be done. The student considers embroidery partly as an art piece, design production, partly as industrially produced good, that is why several aspects of work should be checked and evaluated on the first customer. Of course, the first samples made were for the personal evaluation. The student has to see the development of production skills. The first who was asked to evaluate the product independently was satisfied with it. The drawing was made carefully and materials were rated as quality ones.

5 ESTIMATION OF COSTS

5.1 Start-up expenses

There are different types of business variations that are possible to register. For the sole trader the official registration costs € 100. These are the first expenses before starting the production (Table 2). The further development requires purchasing of equipment and software.

TABLE 2. Start-up expenses

EXPENDITURE REQUIREMENTS	
Cost of establishing the business	€ 100.00
Equipment	€ 800.00
Materials	€ 630.00
Software	€ 175.00
Phone/Internet	€ 27.00
Total Expenditure Requirements	€ 1 732.00

The official latest Embird software costs US \$ 199 or € 175 from their web-page. By this price, their customer receives the fully functional program equipment. There are other company's developments that could be featured in the basic program. Studio digitizing tools with extra embroidery facilities costs US \$ 150. Sfumato stitch studio that allows working with photos and edit and create super realistic embroidery costs US \$ 90. Cross stitch works with stitches for hand embroidery costs US \$ 75. Font engine is an additional program for generating fonts. It costs US \$ 145 and Pre-digitized Alphabets are US \$ 15 each. On the first stages of business development, the work is implemented by using basic programs. However, in the nearest future Cat-Made is planning to start using the trial version of Sfumato Studio e.g.

For the equipment, a new Janome Memory Craft 350E costs \$ 1 999 MSRP that is approximately € 1 700. Delivery can be arranged by the supplier. However, there are a lot of resources that are selling used embroidery equipment. Janome provides reliable machinery. Customers' feedback from embroidery forums advise not to be rushing in buying a new machine. Home machines are used in small amounts of embroidery work. Home machine's owners are usually changing them on commercial ones, to develop the production speed. That is why it is always an option to buy used equipment.

There is a list of materials in the table (Table 3) that will be needed to start embroidery production. There are the material's names, information about what does it made of, its description and its price from the official dealer.

TABLE 3. Cost of needed embroidery materials

Name	Material	Description	Pricing	
			USD from the official supplier	Euro
Threads Gunold	Polyester	- 5,500 yd. (5 km) in cone	\$ 9.75	€ 8.66
		- 1,100 yd. (1 km) in cone	\$ 9.75	€ 8.66
		- 1,650 yd. (1,5 km) in cone	\$ 9.75	€ 8.66
	Cotton	- 5,500 yd. (5 km) in cone	\$ 9.75	€ 8.66
	Glitter	- 6,540 yd. (6 km)	\$ 9.75	€ 8.66
	Reflective Thread	- 550 yd. (500m)	\$ 9.75	€ 8.66
	Glow in the Dark Thread	- 1,100 yd. (1km)	\$ 9.75	€ 8.66
	Bobbin Thread (bottom)	- 10 km/15km, polyester	\$ 9.75	€ 8.66
It is also possible to purchase threads set, that includes several cones in different colors				
Felt Fabric	- 65% polyester - 35% cotton	- 16 standard colors	\$ 170.00 per roll	€150.96
		- Density 80/215/300 g/m ² - Roll Size 900mm to 50 m	\$ 4.50 per 1m	€4.00
Permanent Heat-Seal Film	Glue material	Washable up to 40/95° Fast to dry cleaning Apply also possible with home iron	Approximately \$ 10.00 is the average cost per one meter of the material	€ 8.84
Nonwoven fabric	Nonwoven 40g/m ² White color	Roll 350mm x 200m	\$ 5.50	€4.88
		Roll 1,05m x 200m	\$ 141.50	€ 125.65
		1 meter of the material	\$ 0.90	€ 0.80
		Roll 350mm x 200m, white	\$ 81.00	€ 71.93
	Nonwoven 48g/m ² White/black color	Roll 350mm x 200m, black	\$ 86.00	€ 76.37
		1m piece, white	\$ 1.40	€ 1.24
		1m piece, black	\$ 1.50	€ 1.33

5.2 Recommended retail price

The company's policy is to charge for the number of stitches that were used for the design production. Firstly, there is no difference in price of materials that are used, or in the thread's color. From the material analysis it is seen that it is not the biggest expense for the company. Comparing the amount of embroidery that the company is trying to achieve for now and the basic thread's length, one color of threads can be used for months, for example.

As it is mentioned, the drawing design process requires a lot of time, sometimes even more than the embroidering process. That is why Cat-Made charges more for orders from one to five similar pieces. After five items in one order the customer gets a discount. So, for 1 000 stitches from a single order to five items € 0.70 is charged, when the same amount of stitches after five pieces are € 0.50. For the clear understanding of ratios between price and size, 1,000 stitches are a fully filled with stitches square area with dimensions of 40 mm x 40 mm. The production cost of this amount of embroidery is € 0.20.

One cone of the most common polyester threads consists of 5 000 000 mm in each with the price of € 9.00. The average stitch used in filling is 2 mm. So the price of one stitch is approximately € 0.0000035. The average patch is 10 cm diameter and contains 10 000 stitches. So the thread cost of one patch production is € 0.035 (Table 4).

TABLE 4. Explanation of thread materials cost

	Stitches	Length (mm)	Cost (€)
Stitch	1.00	2.00	€ 0.0000035
Cone	2 500 000.00	5 000 000.00	€ 8.66
1 patch	10 000.00	20 000.00	€ 0.035

If consider an average patch as 10 cm diameter, 1x1 meter of fabric and glue material is used for 100 patches. One meter felt costs € 4.00, for production of one patch € 0.04. Heat-Seal Film for one meter costs € 9.00, while production of one patch would be € 0.09 (Table 5).

TABLE 5. Explanation of fabric materials cost

	Quantity of patches	Cost (€)
Felt	100.00	€ 4.00
	1.00	€ 0.04
Heat-Seal Film	100.00	€ 8.84
	1.00	€ 0.09

Combining the prices, one patch's production would require € 0.16 material's cost, without including other expenses such as electricity, phone, internet etc. These calculations lead to the explanation of the production cost of € 0.20.

5.3 Budget planning

5.3.1 First months of production

TABLE 7. Sales calculations for one month period in the beginning of Cat-Made development

SALES CALCULATION (PER MONTH)		
Product	1-5pcs	> 5pcs
Sales price	€ 7.00	€ 5.00
Costs	€ 2.00	€ 2.00
Margin	€ 5.00	€ 3.00
Sales quantity	50	150
Total Sales	€ 350.00	€ 750.00
Total Purchases	€ 100.00	€ 300.00
Margin	€ 250.00	€ 450.00
TOTAL		€ 700.00

The budget planning is presented in two sections. The first calculations are analyzing a first month of selling products and the first year of estimating costs and profit. As it is seen from the tables (Table 7), the first month's profit stays lower than € 10 000 per one year in business. VAT and YEL are not required for this period of implementing the start-up. Also, the company would not be provided by any loan. That means that all the expenses are covered by the entrepreneur. The first month's estimated profit is € 700. With such calculations, the approximate total sales will be € 12 000, where the profit is € 9 600 (Table 8).

The fixed cost consists of insurance, electricity and communication cost. Procurement of materials and supply for one month of work is approximately € 50. Of course, the starter kit of materials should be purchased for a few months to fill up the storage and prevent unexpected lacks.

TABLE 8. Profitability calculations in the beginning of Cat-Made development

PROFITABILITY CALCULATION	EUR/month	EUR/year
Target profit	€ 800.00	€ 9 600.00
INCOME AFTER TAXES	€ 800.00	€ 9 600.00

Funding requirement	€ 800.00	€ 9 600.00
OPERATING MARGIN	€ 800.00	€ 9 600.00
Insurance	€ 100.00	€ 1 200.00
Electricity	€ 8.00	€ 96.00
Communication costs	€ 27.00	€ 324.00
TOTAL FIXED COSTS	€ 135.00	€ 1 620.00
SALES MARGIN REQUIRED	€ 935.00	€ 11 220.00
+ purchases + materials and supplies (net of VAT)	€ 50.00	€ 600.00
NET SALES REQUIRED	€ 985.00	€ 11 820.00
VAT 24%	0	0
TOTAL SALES	€ 985.00	€ 11 820.00

5.3.2 Further budget planning

TABLE 9. Sales calculations for one month period after a one year of Cat-Made development

SALES CALCULATION (PER MONTH)		
Product	1-5pcs Euro	> 5pcs Euro
Sales price	€ 7.00	€ 5.00
Costs	€ 2.00	€ 2.00
Margin	€ 5.00	€ 3.00
Sales quantity	100	250
TOTAL SALES	€ 700.00	€ 1 250.00
TOTAL PURCHASES	€ 200.00	€ 500.00
Margin	€ 500.00	€ 750.00
TOTAL		€ 1 250.00

After the further work of the company the profit must grow in a suitable amount (Table 9). The company's target profit is starting from € 1 250 per month and € 14 000 per year. In that case, the net profit of the company would be approximately € 2 313 per month and € 27 766 per one year of work (Table 10).

TABLE 10. Profitability calculations after a one year of Cat-Made development

PROFITABILITY CALCULATION	EUR/month	EUR/year
Target profit	€ 1 200.00	€ 14 400.00

INCOME AFTER TAXES	€ 1 200.00	€ 14 400.00
tax 22%	€ 264.00	€ 3 168.00
Funding requirements	€ 1 464.00	€ 17 568.00
OPERATING MARGIN	€ 1 464.00	€ 17 568.00
YEL 18.798%	€ 197.00	€ 2 364.00
Insurance	€ 100.00	€ 1 200.00
Electricity	€ 8.00	€ 96.00
Communication costs	€ 27.00	€ 324.00
TOTAL FIXED COSTS	€ 332.00	€ 3 984.00
SALES MARGIN REQUIRED	€ 1 796.00	€ 21 552.00
+ purchases + materials and supplies (net of VAT)	€ 70.00	€ 840.00
NET SALES REQUIRED	€ 1 866.00	€ 2 392.00
VAT 24%	€ 447.84	€ 5 374.08
TOTAL SALES	€ 2 313.84	€ 27 766.08

6 SWOT ANALYSIS

All the estimations and descriptions of the company lead to the SWOT analysis to sum the main ideas (Table 11). It shows the information about company's positive and negative aspects, internal and external challenges, solutions and company's possibility of the further development.

TABLE 11. SWOT analysis

	Internal	External
	Strengths	Opportunities
Positive	<ul style="list-style-type: none"> • Individual Design • High Quality • Compactness 	<ul style="list-style-type: none"> • Young audience • Cooperation with organizations • Social Networks
	Weaknesses	Threats
Negative	<ul style="list-style-type: none"> • New equipment is needed • Development needs 	<ul style="list-style-type: none"> • Customer unawareness • Strong and well-known competitors

6.1 Strengths

6.1.1 Individual Design

The main Cat-Made Embroidery's strength is a customers' opportunity to create their own design. That allows a patch to be personalized and unique. A patch could be anything that customer wants. The order can be corrected at first stages of this process to produce a patch as qualitative and attractive at the same time as it can be.

Moreover, consumers can make orders starting from one patch, what means that there is no need to order a large number of similar patches. The competitor analysis shows that Finnish embroidery companies usually offer only B2B services because such companies are wholesales oriented. As it is mentioned above, Cat-Made is working in both, B2B and B2C, directions. The prices are quite competitive, which makes the purchase process highly convenient and eminently affordable.

6.1.2 High Quality

Cat-Made offers the only highest quality of its products. As it is said above, the student has gained a lot of valuable experience and information during the internship at Eho-Nord. This definitely helps in

understanding the insights of the working process, what allows using the acquired skills to make the highest quality possible.

Furthermore, there have been orders for Cat-Made already. Customers are fully satisfied with the quality of their patches at a comparably low price. As a small and new start-up, the company is trying to communicate with customers even after they got a product to know their feedback. It is important for Cat-Made to make sure that the product remains the same condition as it was at the time of purchasing.

6.1.3 Compactness

One of Cat-Made's strengths is the ability to work directly from home, because the equipment does not require a large space. The orders can be taken and confirmed without even leaving home, which means that customer communications are well-established.

The compactness of the equipment allows being fully involved in developing of business at the beginning stages. Cat-Made has no strict limit of working hours. Therefore, the orders can be taken during the weekend also, so customers can get their patches in a truly fastest way possible, which makes a purchase process easy for both the clients and the company.

6.2 Weaknesses

6.2.1 Development needs

One of the company's problems is that Cat-Made needs to be more developed for customer attraction. The main aim for the company now is to work hard getting to know what business is from different angles. That will help mostly with the company's problem solving. For the new company, it is an essential part to solve the most common problems in the early steps to avoid them in the future. However, there are a few segments that need to be developed now.

For example, the company has a form of sole trader, but it still needs personnel for the faster workflow. It is said above that the equipment that Cat-Made uses requires manual adjusting, which affects time of production. It is much faster when the working process involves several people instead of just one.

6.2.2 New equipment is needed

The other weakness is a need of new equipment. Now Cat-Made has a quite good embroidery machine. But this equipment is made for home embroidery, which means that the machine is small. It takes more time to make a patch than if the industrial equipment is used. Industrial production machines make larger batches than the company can produce now. Such equipment saves the time of a working process, but it costs its price, which is rather high. Cat-Made cannot afford it at this mo-

ment. Therefore, the bigger equipment requires the bigger space. Today Cat-Made is operating from home, but in the future, Cat-Made will be using more efficient machinery.

On the other hand, it is enough for the company to use available equipment for now. Cat-Made is looking forward to growing and purchasing a better machine. The company is already considering its options. Apparently, the best option for Cat-Made now is to acquire a new home machine, but functionally better than the one that company is using now.

6.3 Opportunities

6.3.1 Young audience

Today a big amount of Finnish students wear their university's overalls. Each overall has a lot of patches on it, which makes students the main target group and a big opportunity for Cat-Made. To be more exact, the company's target group consists of students aged from 17 to 25 years old. So Cat-Made's patch is a good and easy way to express oneself.

Moreover, the company's products have relatively low prices, so it is affordable, what makes Cat-Made more attractive to consumers. The owner of the company is currently a student. It is advantageous in better understanding of the customers' needs. That is one of the reasons why Finnish students are one of the major target audiences. Cat-Made considers that as a great opportunity to grow and become more known.

6.3.2 Cooperation with student organizations

As it is said in the previous paragraph, the company's target group is students, what leads to an opportunity for cooperation with several student organizations, which are operating with different student events and planning them. The idea of contacting mentioned organizations has a potential. There are few reasons for that.

First of all, such organizations sell patches, as it is an attribute of the Finnish student life. Cat-Made's products could be interesting for the companies to consider an idea to help and to support the new business.

Secondly, those companies are usually connected with a university. The university, where the owner of Cat-Made was studying, could agree to help and support its student, which would be favorable for Cat-Made to be more known and approved by the university, which is large and strong Finnish organization. The reasons which are listed above might be strong enough for the idea of such partnership to be realized. Moreover, Cat-Made has already contacted a few student organizations with the proposal.

However, the company's target group is not only students. Cat-Made is aimed to cooperate with other businesses and implement its products to different market segments. That can be cafes,

handmade shops, organizations, start-up, design galleries etc. B2B and B2C approaches are applied for market segmentation. So, Cat-Made works with different target groups.

6.3.3 Social Networking

Nowadays social networks are a profitable market. Especially young people are interested in socializing through the Internet. Cat-Made believes that online advertising can be rather useful. It is very convenient for customers to know about the company's news just by scrolling their feed on Instagram or Twitter.

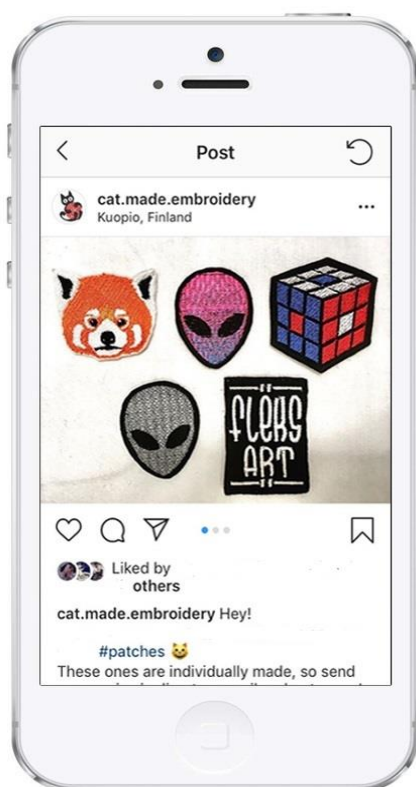


FIGURE 9. The screenshot from the Instagram account of Cat-Made

The fact that Cat-Made is student-oriented gives lots of different opportunities for promoting. With the help of social networks, the maximum of potential customers can be reached in the fastest way. Every well-known popular brand or company has pages on Facebook, Twitter or Instagram (Figure 9). On top of that, it is necessary to register an official website. The Cat-Made's webpage is now in a working process, but the company is looking forward to launching it in the soonest future to be more communicative and reachable for its customers.

6.4 Threats

6.4.1 Customer unawareness

The biggest threat to the company now is customers' unawareness. Potential customers could prefer to work with trusted and for-a-long-time-known companies. The direct and indirect competitors of Cat-Made are such businesses.

However, it is clearly seen, that there are certain opportunities for the company's bright future. If the cooperation with student unions works, it would mean that Cat-Made embroidery services will be promoted and supported by well-known and trusted companies, which could approve the name of Cat-Made.

Also, several social networks give businesses an opportunity to make a business account, where the companies can see statistics and, what is more important, promote their pages on that social network. Cat-Made has an account and soon will be promoting its page to the followers, which also attracts the attention of possible customers and helps to get to know the company and its aims.

6.4.2 Strong and well-known competitors

Earlier it was suggested, that a number of people prefer to use services of the well-known companies. There are not many organizations which specialize in embroidery business, but there are few. These companies are strongly competitive, because of quality, customer awareness and their trustworthiness. To compete with such businesses Cat-Made has to offer something new and different. In fact, there are a few options that Cat-Made embroidery offers to its customers. Something that differs from what the company's competitors are providing for them.

Firstly, it is customer consultation. Cat-Made is not only embroidering a customer's idea but suggest the best way to bring customer's vision into life. Cat-Made consults with the customer before embroidering process. Then the client can get a 3D picture, if requested, of the future patch. That assures customers that they will get what is agreed on.

Secondly, there is an opportunity to make orders starting from one patch. As it is said before, there are strong competitors on the Finnish market for Cat-Made, but the major ones are indirect competitors because they are specializing on B2B services and orders can be made starting from 50 patches minimum. That makes Cat-Made closer to its customers. The orders have no minimum amount of patches and everybody can make an order. Those options allow Cat-Made to be competitive on the Finnish market. The company has a chance to be settled and developed.

7 CONCLUSION

After studying in an institution and attending practical training the student came up with the idea of registering a sole trader embroidery production in Finland. An entrepreneur runs into several problems and understood that this idea is in need of development. While solving business tasks in setting up a start-up production the student used earned knowledge and personal awareness to come to required results. Unfortunately, the student has no experience in implementing business from the very beginning. Only a theoretical knowledge was used. But the hard work in direction of development and increasing product sales leads to profit.

Cat-Made embroidery is now on the first stages of its implementation on the market. It has its own weaknesses. These weaknesses are coming from inside of the company and impact from the out. However, the company is trying to overcome problems and take right decisions. The student believes that all threats are under consideration and all solutions are possible to find. The most frightening intimidation for the company is customers' unawareness. That is why actions in marketing, promoting and advertising are already taking place. A lot of public internet sources already contain information about the firm.

The second main threat is the lack of Finnish interface in company's descriptions. Unfortunately for this time, it is not possible to communicate with customers who cannot speak English even on the basic level. This problem can also be solved in some period of time.

In this thesis the student explained all the stages of embroidery production. It shows analyzes of software and equipment suppliers, assuming the best variants for the small demand and wholesale production. All the future plans were also presented in this thesis. The company is now looking for the further B2B and B2C cooperation. It is open for new struggles and now it is currently fixing existing complication in the way to the further development.

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