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Global Market Investigation for a New Product in Video Post-Production
Case Company: Loupedeck Ltd

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Abstract

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This study is a research-orientated thesis which is focused on creating a knowledge basis of the video post-production industry for the company Loupedeck and its new product development project. The company offers an innovative and advanced control panel to improve and facilitate the professional photo editing workflow in Adobe Lightroom. Loupedeck is growing and opening new market opportunities, therefore, they are aiming to design and manufacture more hardware devices for post processing solutions in the future. The objective of the thesis is to conduct a market study and customer needs investigation for the start of the new product development process. The research questions are designed to investigate the current market of video editing hardware and software, industry trends, target audience and their needs and preferences for the new product.

The literature review consists of the product development concept and detailed description of its stages, market study and its elements, such as market segmentation, target audience, competition analysis and market trends. Additionally, several strategies of customer interaction in the development process are reviewed and the process of customer needs data collecting and analyzing is investigated.

The study includes primary and secondary data. The selected methodology for the primary data collection is qualitative research through in-depth semi-structured interviews. The secondary data is gathered through the desk research approach.

The findings chapter presents the summary of the video post-production industry and the most commonly used video editing software on the market. It was defined that Adobe Premiere Pro and Final Cut Pro have the largest share of the video post processing software market. The chapter shows the estimated number of business users of these two applications and gives statistical data of the video editors amount in US and UK markets. It was defined that the first five leading markets of both software are: US, UK, Canada, Australia and France. I determined that the UK video post-production industry annual growth increased by 4.3% and the US market increased by 2.7%. On the global level, market analysists predicted that the post-production market will grow at a Compound Annual Growth Rate of almost 6% by 2021.The study findings also include the overview of the existing hardware products. I defined seven potential competitors on the global market. Moreover, the research provides the description of potential customers profiles and analysis of the customer needs regarding the video post-production workflow.

In conclusion, I discuss the study results and the research in terms of validity, reliability and limitations, answers research questions and provide recommendations for future research. The personal learning outcomes are precisely described in the last chapter of the thesis.

Keywords
New product development, idea generation, market study, customer needs, video post-production

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1   Introduction

Nowadays, careful planning and a good product development strategy are essential for organisations to succeed on the market. Businesses everywhere are competing more than ever to develop superior and unique products or services and obtain a higher position on the industry arena.

This study is made in cooperation with a finish start-up company Loupedeck, the creators and manufacturer of the Loupedeck™ photo editing console for professional image processing. Due to the success of the console dedicated to Lightroom, one of the next major projects of Loupedeck Ltd. will focus on designing, developing and manufacturing an advanced console device dedicated to improving the workflow and efficiency of video post-production professionals.

The chapter presents the structure of the whole thesis, describes the company overview and the project. Moreover, it demonstrates the detailed plan and timeline for the research. My thesis problem is to form a knowledge groundwork of the video post-production industry and assist Loupedeck with the start of new product development. It consequently leads to my research questions and the purpose of the study that is also presented in the chapter. Furthermore, the reader is introduced to the significance of the research and its contribution to the commissioning company and to the researcher.

1.1 Thesis structure

1. Introduction – in this chapter, I introduce the case company, describe the project and outline the main research problem and its sub-questions. Moreover, I present the key objective of the thesis and describe the significance of the study.

2. Theoretical framework - in the following chapter, relevant theories are determined related to the research area. The chapter starts with a brief summary of the different parts in the theoretical background.

3. Empirical part - in this chapter, the reader is introduced to the choice of methods that have been applied in the thesis and to the description of the data collection process. Additionally, I discuss the research criteria of validity and reliability and present my empirical findings.

4. Discussion – in the last chapter, I have a discussion on the subject, the results and make suggestions for potential future research. I introduce my recommendations for the company and answers to my research questions. I evaluate the thesis process and results in terms of validity, reliability and limitations and present my personal learning outcomes.

1.2 Presentation of the case company

The commissioner for this project is Loupedeck Ltd. Loupedeck Ltd. is a start-up company based in Helsinki, Finland and founded in 2016. The CEO and the founder of Loupedeck, Mikko Kesti, together with comprising senior ex-Nokia / Microsoft smartphone specialists, a professional photographer and a designer created a unique product in the photography industry.

Loupedeck is a photo editing console specifically designed to expertly control the photo editing software Adobe Lightroom. The idea of the console is to speed up the editing process and to improve its ergonomics. It helps users to increase their creativity, to focus more on the picture and to enjoy the photo editing process.

The concept was tested on the IndieGoGo Crowdfunding platform in November 2016. The company's goal was to raise 75.000€. The project achieved incredible results and collected more than 366.000€. in four weeks. Loupedeck consoles were presold to 61 countries.

The company operates with both types of sales relationships, B2B and B2C. Currently, Loupedeck is increasing brand awareness all over the globe, building distribution chains and searching for new sales channels. In the future Loupedeck's team is planning to develop other hardware products and grow on the international arena as a company.

1.3 Project description

One of the most significant projects for Loupedeck Ltd is new product development. The new project has been given a working name 'Videodeck'. A new product is going to be a hardware console for post processing in the video production industry. I have been asked to conduct a study of the global market and build a strong basis of knowledge for the start of 'Videodeck' development. The study has a strict deadline and has be completed by 12th of December. The thesis process timeframe in total consists of three and half months:

Table 1 Thesis weekly plan

Time	Task
Week 36	Thesis plan and structure, company and project description, questions and objective of the study
Week 37	Theoretical background selection, writing process
Week 38	Writing process of the theoretical framework
Week 39	Finalization of the theoretical part, methodology selection, design of the interview plan and questions
Week 40-41	Interviews, industry overview research
Week 42-43	Interviews
Week 44-45	Interviews, interview analysis: competitor analysis, software identification. Target audience and market size
Week 46-47	Interview analysis: customer profiles, customer needs identification
Week 48	Discussions, recommendations and conclusion. Reliability and validity of the research
Week 49	Finalizations of the report

Based on this research the research and development (R&D) process will start in the beginning of 2018.

1.4   Research problem and objective

Producing 'Videodeck' is a hard and complicated process that involves several simultaneous development mechanisms to be investigated and handled prior to the existence of the actual physical product. Facing these facts of complication, the commissioning company has decided to conduct a thorough research that will give them an understanding of what is required to know and must have to move forward with their project. This need has created a demand for my topic and consequently shaped the main research. The research questions were formed based on the discussions with the commissioning party. The main research problem of this study is building the knowledge base for NPD (New Product Development).

The knowledge base requires two main topics to be investigated:
- Market study

  What is the most popular software for video post processing?

  What hardware devices for video post-production already exist on the market?

  What are the market trends in the video post-production industry?

- Customer profile

  What is the target audience for the new product?

  What video editing hardware will suit customers' needs?

The main objective of this research is to conduct the market study and customer needs investigation for the start of the new product development in video post-production field.

1.5 Significance of the study

This study contributes to both the theoretical and practical sides:
Academically, the research defines theoretical concepts related to the new product development, market study and ways of customer interaction in the development process. The study has a significant impact on my personal theoretical acknowledge of the subjects and replenishes the commissioning company's academic background with relevant standpoints of the concepts.

Practically, this study provides valuable information for Loupedeck company and its project 'Videodeck'. The thesis demonstrates the knowledge creation for the new product development project in video post-production. The study will help to design the competitive product that will suit customer's needs. The significance of the study is tremendous as the research is the inalienable part of the new product development. It creates a strong foundation for the beginning of 'Videodeck' development. The topic of the thesis includes new perspectives and it offers benefits to the commissioning party, work community and to my professional development. The thesis subject has lots of current relevance to the commissioner and to the business industry.

2 Theoretical Framework

In this chapter, I present the most applicable theoretical concepts for this project. First, the definition of product development was discovered, the new product development concept and its stages were defined. I made connections between the theoretical subjects and the practical task. Secondly, the theoretical base of this thesis includes the definition of market study and its key topics, such as market segmentation, target audience and competitor analysis. I determined the importance of the market study and its contribution to the NPD, described three dimensions for the market segmentation and defined the competitive strategies for the new product. Moreover, I outlined the definition of a market trend and discovered the influence of trends on the market situation. At last, I identified what is customer interaction in the product development and what stages can include voice of the customer. The definition of customer needs concept is researched, and the principles of understanding customer needs were determined.

2.1 Product development

What is the product development process? What steps does it include? How to create a successful product? These questions were answered in this sub-chapter.

The product development is a set of different and coherent activities aimed to create a new product that offer new or extra benefits to the consumer. Product development may also include modification of an existing product or its presentation. The goal of the product development is to originate, support and increase a company's market involvement by fulfilling a consumer demand. The product development actions have a starting point in analysing the market opportunities and capabilities and finish point in sales and delivery of the product to the customers. (Ulrich & Eppinger, 2012, p. 2; Kahn, 2011, pp. 23-24) There are five key characteristic dimensions of the successful product development:

Table 2 Five dimensions for the product development (Mital, Desai, Subramanian, & Mital, 2008, p. 18; Ulrich & Eppinger, 2012, pp. 2-3)

Product quality	Does your product satisfy customers' needs? Is your product reliable? What is the durability of the product? The product quality has one of the most significant influence on the company's market share and the price of the product.
Product cost	What is the cost of the product manufacturing? This cost will determine how much profit the company is able to make from a sales volume and a particular sales price.

Development time	This index shows how quickly was the product developed. This time determines the responsive rate of the team to competitive forces and to rapid technological changes and developments.
Development cost	How much the company spent for the product development process? This cost is an essential fraction of the investments required to reach the willing profits.
Development capabilities	This characteristic demonstrates how the company is able to advance their product development process based on the previous projects and gained experience.

The company can use these characteristic dimensions in its R&D process and decide which dimension or dimensions they prefer to follow. The product development includes several steps such as, the conceptualization, design, development and marketing of the new created product or newly rebranded products (Rouse, 2016). I believe that its essential to understand the whole concept of the product development in order to research or implement particular stages of the process. My research part of the developing process can be referred to the first step – conceptualizing.

In the following sub-chapters, I described different factors that characterize a new product and identified the development process of a new product. Currently, Loupedeck Ltd has only one line of the production in their operation. I disclosed why the new 'Videodeck' project is defining as the new product development.

2.1.1 New product development

A new product can be defined by two factors: the first factor - the developed product is new on the market, the second factor - the developed product is new in the company's product line (Trott, 2012, p. 429). Both factors characterize a product as a new product. Additionally, there is a specific categorization for different types of a new product:

- New-to-the-world products
- New-to-the-firm products or new product lines
- Additions to existing product lines
- Improvements and revisions to existing products
- Repositioning
- Cost reductions

Therefore, a new product can be defined by various modification factors. (Al-Shalabi, Omar, & Rundquist, 2008)

As we can see from the above-mentioned factors, there are many diverse options of how the company can design a new product. Loupedeck's new project is going to be a new product for the company. At the same time, it will create a new production line since the

'Videodeck' will be designed for serving other purposes than the existing product. Moreover, the company is very innovative and considers an idea of 'Videodeck' to be a new product on the global market.

New product development is one of the strategies to increase company's success, to strengthen the market position and to rise the profit (Trott, 2012, p. 419). Developing a new product is a sophisticated organisational process requiring the ability to collect, analyse, and expound a vast amount of information to develop product ideas and evaluate their technical limits, manufacturing potential and financial capabilities (Ortega, García, & Santos, 2017). All the information collected from my research was analysed and expound, furthermore the company's product development team will go through the materials and gathered data to make an additional expert analysis.

2.1.2 Stages of the new product development

The early steps of the new product development process are usually determined as idea generation, ides screening, concept developing and concept testing (Trott, 2012, p. 433). These stages represent the development of the idea before actual physical actions. My research questions are related to the first steps of the NPD process since I don't need to create any physical actions. In this sub-chapter, I described each step of the process and identified my contribution to the new product development.

The whole NPD process can be presented as commonly used scheme of seven-step linear model. (See the Figure 1 below)
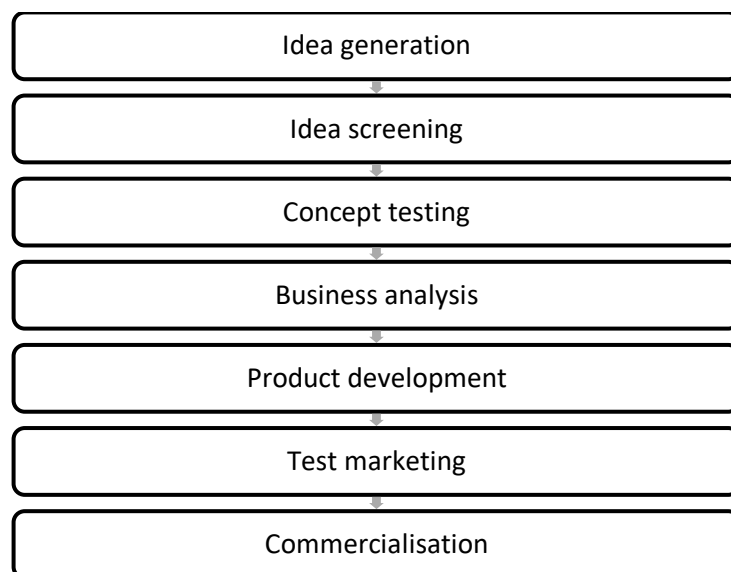
Figure 1 Commonly presented linear NPD model (Trott, 2012, p. 433; Salminen, 2012)

The first stage of the new product development is idea generation. It is a constant, systematic exploration for new product opportunities. It involves examination of sources of new ideas and methods for generating them (Ulrich & Eppinger, 2012, p. 118). There are four methods for generating ideas:

Table 3 Idea generation analyses (Cooper, 2001, pp. 154-177)

Dimensional analysis	This method helps to analyse physical characteristics of the product such as size, weight, material and design.
Problem analysis	This method is one the most important for the idea generation process and include the analysation of the customers' problems and needs in a particular category of goods. This method helps to create the product that will satisfy customers' demand.
Benefit structure analysis	This analysis helps to understand detailed information of what exact benefits, features and characteristics are desired by customers among a particular product class.
Scenario analysis	The last method for the idea generation involves identification of the market opportunities, particular industry's future prognosis and associated consumers' needs.

The new product development is a complicated time-consuming process that requires a lot of effort and resources. In my empirical research, I provide the possibility to use all four methods of analysis in order to assist in generation of the product idea. The market study includes determination of the industry trends and a prognosis of the business field which are parts of the scenario analysis. Competitor and customer needs analysis indicate problems, benefits and appropriate dimensions for the new product.

Pahwa (2016) defines the main sources of the ideas for the concept generation:
- Internal sources – the concept is discussed among internal members of the company.
- SWOT analysis – the organisation identifies its strengths, weaknesses, opportunities and threats in order to generate a good realizable idea for the product development.
- Market research – the firm conducts a market study about market opportunities, segments, trends and capabilities for the particular product category.
- Customers – identifying the target audience and customers' needs has a significant role in the concept generation.
- Competition – the company analyses the competitive products on the market, their straights and weaknesses.

The next stage of the NPD process is product screening. During this phase, the company determines the potential product and removes unacceptable, unsuitable, poor product ideas (Trott, 2012, pp. 434-435). The following step, concept testing, presents the final

product idea to the customer, it is an early level of the ready-made product after idea generation (Cooper, 2001, pp. 137-138). Not many organisations are ready to present the product to the public on this early level of the product development and prefer to form a group of potential customers/independent experts and demonstrate the concept among this particular group (Mital, Desai, Subramanian, & Mital, 2008, pp. 19-20). The idea of the concept testing is to get relevant feedback before practical phase of prototyping (Ulrich & Eppinger, 2012, p. 165). The concept presentation can be as a picture of the future product, presentation or description of the product, its functions and features.

Furthermore, the fourth stage of the new product development process is business analysis and financial analysis. During this stage, the final assessments are taking place before actual decision to produce the product or not (Barrios & Kenntoft, 2008). The figure 2 below demonstrates the main elements of the business analysis stage.
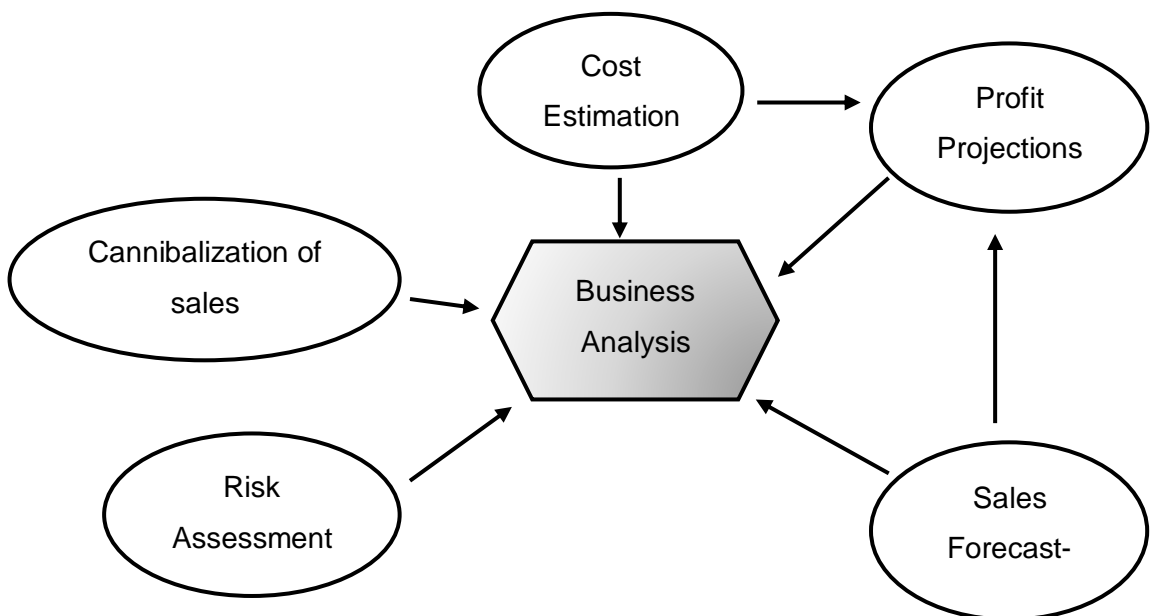
Figure 2 Including concepts in the business analysis stage (Barrios & Kenntoft, 2008)

In essence, during the business analysis stage, the company must identify developing and manufacturing costs, required investments and make demand projections. Sales forecasting concept includes estimation of the demand and enforceable market share. Evidently, cost estimation and sales forecast have a great impact of the profit projections. Moreover, the profit projection concept includes the calculation of how many units of the product should be produced and sold in order to make a profit. (Barrios & Kenntoft, 2008; Cooper, 2001, p. 211) Not least, the risk assessment analysis must be conducted during the business analysis phase of the NPD. Internal and external risks have to be identified (Barrios & Kenntoft, 2008). Cannibalism of sales or market cannibalism is the final element of the

business analysis stage. It is determination of the negative impact of the NPD on the existing products of the company and their sales performance (Market Cannibalization, 2017).

The next stage of the NDP process is product development. It is a beginning of the physical actions in the whole process of the new product development where the product becomes tangible. It includes prototyping, product constructing, packaging, product positioning, branding and usage testing. The prototyping is the process of the developing an approximate model of the product idea. Moreover, it can be done for different purposes such as, industrial design, engineering and software development. In order to create a final complete prototype of the product, it needs to go through each step of prototyping. First, the design and materials of the product must be identified. Secondly, the technological aspects of the hardware have to be determined and the first version of the software has to be implemented. These three factors together form a completed prototype of the new product. (Ulrich & Eppinger, 2012, pp. 291-292) Product construction and packaging phase take a place straight after the determination of the final prototype (Ulrich & Eppinger, 2012, pp. 14-15). The usage testing step is aimed on finding possible limitations, flaws or defects and after the usage testing process, the new product can be modified one or several times before achieving the desirable final product (Ulrich & Eppinger, 2012, pp. 14-15).

When the usage testing is succeeded, the NPD moves to the next stage – test marketing. The test marketing is a phase when the new product and the marketing plan are tested on the market in more realistic conditions. The product can be placed for sales in one or more selected market segments with the certain marketing strategy and be observed for a specific period of time. The test marketing allows the company to observe and analyse behaviour of actual customers and reaction of the competitors. (Salminen, 2012; Cooper, 2001, pp. 265-273)

Lastly, the seventh stage of the new product development is commercialization. This stage of the whole developing process requires the greatest amount of investment and resources. It involves implementing of the finalized marketing strategy and starting the mass production of the product. Commercialization will start when the timing and location of the launch are determined, and the target audience is successfully identified. (Salminen, 2012; Davis, 2015)

Based on the theoretical framework of the NPD process, I distinguished all the steps of the process and identified significance and role of my study. My research effects only the

first stage of the new product development – idea generation. However, it was important to explore every phase and check any other possible connections between the study and other steps of the development. The commissioner may find the theoretical background useful for future actions of the 'Videodeck' project. In the next sub-chapters, I demonstrate detailed theoretical concepts of the idea generation stage, such as market study and customer interaction.

2.2 Market study

The role of the market research in the new product development is significantly great. It can take part in every step of the development process starting from the idea generation stage and concept testing till the monitoring performance of the product after the commercialization step.

Market research or market analysis help to reduce risks of failure and help to identify the product's flaws. It can provide useful knowledge of the market size, trends, competition and target audience. (Hague, Cupman, Harrisom, & Truman, 2016, pp. 306-312) It is important to obtain market intelligence and to make market and technology analyses in a particular category of the product or in a specific industry (Kurkkio, 2011).

The research goal of the thesis requires to analyse the existing products on the market and industry trends. The empirical study also includes the overview of the video production business industry, measurements of the market size and identification of the target audience. Next in this sub-chapter, I discovered market study concepts such as market segmentation, target audience, competition and market trends.

2.2.1 Target audience

Target group or target audience is a term used in marketing or advertising to refer to a group of people united by common characteristics. Common characteristics are identified by the company and its requirements (for example, working married women from 25 to 35 years old wearing glasses). The main property of the target audience in terms of advertising is that exactly these people are more likely will be willing to buy the product. Therefore, the company builds the marketing strategy based on the target audience and focuses advertisement messages or any other promotional activities on this group of people. (Lake, 2017)

Identifying the target audience is one of the main marketing issues. Marketing process from the product development to its distribution is not possible without identification of the

target audience. Focusing on the core audience helps companies to build better marketing strategy and be more cost-effective. Furthermore, in the product developing process it is important to define your target audience who most likely will purchase and use the product. The product should be based on the customer needs and requirements that is why the first step of the product design is identification of the end user of the product. (Lake, 2017; Hallissey, 2017)

To start defining the target audience market researchers need to answer a few simple questions:

- Is our target customer male or female?
- What age is our target customer?
- Where does he or she live?
- What are his or her interests?

When these elementary questions are responded, the company should focus on deeper understanding the target group of people who might be potential customers of the product. First, marketing specialists have to identify the customer profile of the existing products, learn the competitor products and their consumers, then analyze own product and its potential users in terms of demographics and personal characteristics. (Hallissey, 2017)

2.2.2 Market segmentation

The definition of the market segmentation is clearly formed by McDonald and Dunbar (2004): "Market segmentation is the process of splitting customers, or potential customers, in a market into different groups, or segments".

Market segmentation is the best and effective way for companies to segment their customers into different groups according various similarities. The factors, which can be considered in the segmentation process, are age, gender, place of accommodation, lifestyle or brand loyalty. For long time, many businesses had been using mass marketing, which means that they were selling and advertising their products and services to all possible customers. However, the companies have noticed that customers have different needs according distinct factors. Since progress of marketing and digitalization, organizations have improved their strategies and defined the market segmentation approach. (Pesonen, 2013) There are three main dimensions for the market segmentation:

Table 4 Segmentation dimensions (Kahn, 2011, p. 56; McDonald & Dunbar, 2004, pp. 35-37)

Demographical dimension	This type of the market segmentation includes different kind of attributes such as age, sex, status, while business-to-business demographics include age of the company, size and type of business.
Geographical dimension	It is a part of demographical dimension and most commonly has a separate consideration in the market segmentation. The main factor of this segmentation approach is geographical location and its characteristics.
Psychological or behavioural dimension	Psychographic insights of the customer represent his or her life-style and personality and, in the case of b2b, it indicates customer orientation and organisational culture. Moreover, behavioural segmentation demonstrates in what way the product is used and for what purposes by different types of customers.

According to the Pesonen's research (2013), the company gains a lot of benefits from the successful market segmentation, such as:

- Creating relationships with the most suitable customers
- Building barriers for competitors
- Delivering product and service propositions
- Being different from competitors' propositions
- Increasing revenue from target audience
- Examining not suitable for your business clients
- Economy of resources and its intelligent allocation

There are three basic forms of the market demand that can be identifed through the market segmentation: diffused demand, clustered demand and homogeneuse demand. The first one defines the situation where there is no one common factors for analysing the customer behaviour on the whole market. Generally speaking, in this case, all customers have different reasons and motivators to make a purchase of the product. The second demand form can be clissified in two or more identifiable clusters. The homogeneuse demand is uniform, that means that everyone would need the product for the same reason. (Kahn, 2011, pp. 54-55)

There are three main market targeting strategies in respons to each of the market demand situations: undifferentiated strategy, differentiated strategy and concentrated strategy. The first strategy is undifferentiated strategy. It means that a company uses unified marketing mix for the whole market. In this case, an organisation doesn't work with market segmentation. There can be not very strong differences in consumers' characteristics and similar customer needs. Moreover, the organisation reduces marketing costs and expense

of resources. However, this strategy is vulnerable to competitors. (Lewison & Hawes, 2007)

The next type is differentiated or multi-segment market targeting strategy. When a company uses this sort of targeting, they identify the most attractive segments and create suitable marketing mix for each segment. Each selected segment may have own pricing policy, distributing arrangements and promotion. In this case, the company economizes manufacturing and marketing costs but management, produc-tion, promotion and research expenses are getting higher. (Kahn, 2011, p. 55; Wright & Esslemont, 1994)

The last market strategy is concentrated approach or niche marketing. In this strategy companies develop one specific marketing mix and apply it to only one specific segment. The marketing mix meets all customers' needs and understands their motivational factors of the purchase. The advantage of focus strategy is effective use of resources and suitability for companies with limited resources. However, there are also some disadvantages such as meeting competition on the same market segment, the risk of segment profitability decrease and the difficulty of changing target segments. (Kahn, 2011, p. 55)

Market segmentation is a research part that follows after the target audience identification. In my research, I focus on the customer profiles investigation and thier analysis. It helps to differentiate the target audience and understand factors affected the segmentation. Referring to the practical task of the research, the market size was explored based on the geographical dimension – identification of the biggest markets for the new product on the global level.

2.2.3 Competitor analysis

It is important for companies to identify competitors and their market strategies in order to remain competitive organisation and produce competitive products. Competitor analysis is a strategic approach used to evaluate competitors' behaviour, market position and busi-ness tactics. The analysis focuses to determine competitors' possible weaknesses and straights and use gained information for improving company's performance and effort. The company can increase its competitiveness in the market through better quality of the prod-uct, faster and cheaper delivery service, more reasonable prices and quicker production of products. (Guo, Sharma, Yin, Lu, & Rong, 2015) Based on different ways of accelerating the competitiveness of the company, there are several competitive strategies:

Table 5 Competitive strategies (Ulrich & Eppinger, 2012, p. 58; Guo, Sharma, Yin, Lu, & Rong, 2015)

Technology leadership	In this case the company aims all its effort into research and development of the technology and wants to design a unique product or implement new features.
Cost leadership	This strategy requires the organisation to compete on production efficiency either through better management of the production process, use of low-cost labour, decrease of design time or savings on the materials.
Customer focus	To follow this strategic approach, the company focuses on potential and existing customers, listens carefully to their changing needs and preferences. Product platforms designed based on "the voice of the customer" will facilitate the rapid development of new products which are beneficial for the customers and meet their interests.
Imitative	The core of this strategy is discovering market trends and following them. It allows companies to determine which new products are successful and popular for each market segment. The company lunches new product very fast to imitate the successful competitors. In essence, the prompt developing process is inherency of effective imitative strategy implementation.

Furthermore, there are three main domains to identify the source and type of the competitor: the areas of influence, the contiguous area and the areas of interest. The first one is the market or territory where the company is directly competing with other businesses and tries to solve the same customers' needs and demand using the same resources. This kind of organisations called direct competitors. For example, it is the area of influence in where automobile manufacturing organisations, such as Skoda, Toyota or Mitsubishi are competing. (Bergen & Peteraf, 2002)

In the second domain, immediately contiguous areas, the competition has indirect nature. The firms serve the same customers' needs but with diverse resources. As an example of this situation, it can be food industry, especially snacks such as chips, peanuts, sweets, popcorn etc. These type of the competition is indirect. The last filed of competition is the areas of interest. It includes organisations that do not currently satisfy the same consumer base but have the same resources or have the ability to serve resembling customer needs. Many organisations with large variety of products, such as consumer electronics can be an example for this type of competition. These contain company's potential competitors. (Peteraf & Bergen, 2003)

Therefore, one of the most effective techniques to make a competitor analysis is bench-marking of competitive products. It includes deep investigation of the competitive products, theirs features, functions, benefits, pricing policy and design. As a result, the company uses gathered data to develop and improve products. Taken together, exploration and understanding of competitive products is essential for successful design and positioning of the new product in the market and can provide useful information for future ideas for the product production. (Ulrich & Eppinger, 2012, p. 17)

In our case, the competitor analysis helps to understand features and functionality of the existing products and key characteristic of the competitor organisations. That has an impact on the idea and concept creation of the new product and will have a part in the following development actions.

2.2.4 Market trends

Market or industry trends play the significant role of the market study. They help to analyse the present situation on the market, "hot" topics among the target audience and make a potential forecast for the industry. That is why it is necessary to understand what is a market trend and how it effects on the business environment. "A trend is the general direction of a market or of the price of an asset, trends can vary in length from short to intermediate, and to long term" (What is trend, 2017).

Trends are representative of the ongoing market happenings and the window to the future for companies. Companies are able to make future prognoses for the operating industry based on the trend analysis. It shows changes and developments in buying and selling activities in the market and other fields like technologies, lifestyle, social side, business intelligence, politics, and economics. (Viana, 2013)

According to the Nokia internal reports (Olanterä, 2010), there are four types of trends based on the timeframe:
- Megatrends (10-50 years)
- Social-cultural trends (5-10 years)
- Customer trends (2-5 years)
- Practices trends (month-1 year)

Megatrends are the most powerful and effect on the formulation of other trends. This kind of trends can be a part of social, political, economic, religious and technological changes. The second type, social-cultural trends, has an impact on individuals' behaviour, morality, mentality, generation of social communities and ways of thinking. These trends are the way how people adapt to the megatrends. Consumer trends represent changes in the customer's buying behaviour due to the social or cultural development. It includes different

buying factors that effect on the purchase decision, the buying process itself and consumer preferences in a certain category of goods. These trends may also have influence on the customer values and way of the product usage. Practices trends are very close to the consumer trends by its nature and characteristics. However, it has a shorter time frame and can last for less than a month. For example, people may buy the specific material for the clothing because it is efficient for the raining period of time or people might prefer to go shipping to the outside market square instead of a shopping mall during the summer time.

The awareness of such market drivers has the great assistance for the company's success (Feigenbaum, n.d.). Additionally, it plays an important role for the company's brand and image. For example, press media may ask various questions about what is the company's opinion regarding certain trends and modern industrial changes. The conversance of the contemporary events and market trends way help to strengthen and improve the brand image of the company. (Loupedeck, 2017)

In the next sub-chapter, I discovered the process of customer interaction and determined methods of the customer needs identification. This theory helps me to understand how to involve potential customers into my research and what insights can be obtained from this interaction.

2.3   Customer interaction in the product development

It is essential, to involve customers at starting stages of the development and to integrate them into the process in order to entirely capture ideas. Presently, modern world and technological opportunities allow companies to use different innovative ways of involving and integrating customers to the product development process. (Elvers & Song, 2016; Chang & Taylor, 2016)

There are three main roles of the customer in the NPD: customer as resource, customer as co-creation and customer as user. Each role refers to a particular stage of the NPD process and has key issues or challenges. The first role, customer as resource, refers to the early phase of the product development – idea generation or ideation. The key challenges that may appear during this stage are finding an appropriate source of information or relevant customers, selection process, capturing customers' knowledge and understanding the diverse roles of the existing and potential customers. (Trott, 2012, p. 436)

The second role of the customer in the NPD is customer as co-creation. This role is related to product development stage, particularly, to product design and product testing.

The main worries of this customer interaction are involvement in a broad range of design and development tasks, finding diverse potential and existing consumers, time management. At last, the third role, customer as user, is outlined for the product support phase or after product launch activities. The most challenging part at this stage is supporting customer-customer interactions and following them. (Trott, 2012, p. 436; Elvers & Song, 2016)

Notably, one of the new technologies is in the form of "toolkits", it offers considerable scope for improving relations and connections between consumers and producers of goods. These so-called toolkits allow customers to design their own product which is produced by a manufacturer. An example of a toolkit can be an elementary form of the development of personalised goods through transferring digital photographs via e-channels and having them printed on T-shirt, cups etc. Thereby, the customer is able to make his or her own design of the willing product. (Trott, 2012, p. 436; Granquist & Grönesjö, 2014)

Therefore, the customer interaction in the NPD is a significant component of the successful product development project and brings the important knowledge of customers' needs and solution related inputs (Chang & Taylor, 2016). Based on my study goal and research questions, the main role of the potential customers in my research is customer as a resource. Moreover, it is important to build a trustworthy connection between the company and my study participants, thereby, Loupedeck company can use the same people for future development stages.

2.3.1 Customer needs identification

The core of the customer interaction in the NPD process is identifying customer needs. There is a five-step method of how to understand customer needs in regards of the new product development.

1. Collecting raw data from consumers.
2. Convert the raw materials into the relevant information in terms of customer needs.
3. Structuring needs by the priority: primary, secondary and tertiary needs.
4. Forming the relative significance of the needs.
5. Reflecting on the results and the process.

These five simple steps are a good starting point of the idea generation and of the whole product development process. (Ulrich & Eppinger, 2012, p. 75)

The first step is gathering data, it involves direct contact with potential customers and experience with the usage environment of the product. There are three main commonly used methods for data gaining. The first one is interviews. Somebody of the company's team

members organises an interview with a customer and carefully listens to his or her opinions, preferences and concerns. The interview usually takes place in the customer's environment. The second one is focus groups. A moderator or a market researcher organizes a discussion in the group of 8-12 potential customers and product users. This kind of sessions is usually accompanied with video or audio recording and careful observed by organizers and other members of the developing team. The last method for data collection is observation of the product in use. One of the methods to indicate customers' needs is observing how customers are using the existing products and what steps they are following. This approach helps developers to understand what customers like about the existing products and what they are lacking. (Ulrich & Eppinger, 2012, p. 76; Granquist & Grönesjö, 2014)

It is important to understand what type of customers should be involved in the product development process, what are the key reasons for that and how many participants the company needs to involve in the NPD process. Moreover, there are different tactics of how to combine several options of gathering raw data from the customers. According to previous researchers, the most effective amount of the participants can vary depending on the company's goals, type of the product, and data collection options. (Ulrich & Eppinger, 2012, p. 78; Granquist & Grönesjö, 2014)

In one study, it was estimated that 90 percent of the customer needs were detected after 30 interviews. In another study, the most customers' needs were revealed after 25 hours of data collection in both focus groups and interviews. As a practical guideline for most products, conducting less than 10 interviews is insufficient and 50 interviews are probably too many. (Ulrich & Eppinger, 2012, p. 78)

There are a several types of customers who should be considered as participants for interviews or for the focus group. The first type of customers is lead users. Lead user is diverse from regular users or consumers due to two main factors: they can identify needs which will become the general needs in the market months or years later; and they can develop significant solutions to solve their issues and satisfy their needs. (Nguyen, 2014)

The second type is extreme users. These users can be identified by a unique way of using the product, they may have different needs and that is why it is important to take into consideration his or her opinion and preferences (Ulrich & Eppinger, 2012, p. 78). One more type of the customers is ordinary or typical users. In a slow-moving market, the typical users might be more appropriate, however, the most effective and efficient approach to

gather relevant data is to include all types of customers in the research process (Granquist & Grönesjö, 2014).

The second step of understanding the customers' needs is interpretation of the raw data into customer needs statements. Ulrich and Eppinger (2012, pp. 82-83) formed five primary guidelines to interpret raw data in terms of customer needs.

- Indicate the need in terms of what the product has to do, not in terms of how it might do it
- Express the need on every level of the discussion
- Use positive phrasing for building the need statement
- Signify the need as an attribute or feature of the product
- Avoid the words must and should in the construction of the need statements

The third step of customer need understanding is structuring the needs into a hierarchy. The main idea of this stage is organising the needs into separate groups. The needs can have similarities or differences, according to the common characteristics they might be grouped under one name or label. This method will help do not look over certain needs and identify the most predominant. (Ulrich & Eppinger, 2012, pp. 84-85)

Furthermore, the next step of the customer needs identifying is establishing the relative significance of the needs. There are two ways how to proceed with this level: to trust the consensus of the team members based on their previous experience with product development and customer interactions; to conduct a survey. The survey technique is more time-consuming but has more reliability. The questionnaire may include maximum 50 need statements and customers will have to organize needs from the most important to the least. (Ulrich & Eppinger, 2012, pp. 86-87; Granquist & Grönesjö, 2014)

Lastly, the final step of the customer needs determination is how to reflect of the results and the process. Basically, during the fifth stage it is important for companies to analyse the process. The following questions need to be answered during the last step:

> *Have we communicated with all important types of customers in our target audience?*
> *Can we identify the customer needs beyond needs related to the existing products?*
> *Which of the participants would be the most suitable candidates for involving into the next steps of the NPD process?*
> *Have we been surprised by any customer needs?*
> *How we can improve the process in the future projects?* (Nguyen, 2014)

Therefore, the key benefits of this five-step method are ensuring that the product is focused on the customer needs, creating the clear understanding among company's team

members of the customers' needs in the target audience and collecting significant and relevant records of the needs investigating phase of the developing process. (Ulrich & Eppinger, 2012, p. 88; Elvers & Song, 2016)

3 Empirical Part

In this chapter, I present the selected research methods and study approaches for this thesis and describe the alternative options of the data collection. Moreover, I demonstrate the process of data collection, validity and reliability criteria for the research. The interview process is precisely described in the methodology section.

The collected data was carefully analysed, and research outcomes were defined. In the chapter, I present my key findings. The goal of the empirical part is to find answers to every research question and make conclusions. The reader will be introduced to a brief summary of the video production industry and the video post-production field. I outlined the main parts of video post processing and described the structure of the editing working process. Additionally, I defined the most commonly used video post processing software, determined their features and functionality. Furthermore, I identified existing hardware products for video post-production on the market. The key functions, benefits, advantages and disadvantages of the hardware devices were also reviewed.

Moreover, I made customer profiles based on the interviews and identified the main target audience for the new product. I interpreted the raw data gathered from the interviews and other sources with regards to the customer needs and made an analysis of it. The closing part of the empirical research is the industry trends. I discovered the video production global market drivers and innovation trends.

3.1 Methodology of data collection

The main approach applied to my study is qualitative research. Compared to the quantitative research methods, this approach gives a deeper understanding of the problem insights and aims at understanding the underlying reasons, opinions, and motivations. Quantitative research is used to evaluate the problem by way of designing numerical data or data that can be converted into usable statistics. Its role is to quantify attitudes, opinions, behaviours, and other determined variables and collect results from a larger sample population. (Hague, Cupman, Harrisom, & Truman, 2016, p. 46; Wyse, 2011)

One of the research problems of this thesis is identifying and understanding customer needs. I used the in-depth interview qualitative research method to execute this problem. The interviews are based on the narrative research. The aim of the analysis of the narrative research is to gain insights into a person's professional opinions and beliefs (Hague, Cupman, Harrisom, & Truman, 2016, p. 46).

Study participants were asked in long interviews to give a detailed account of themselves and their story rather than to answer a predetermined list of questions. The form of interviews is semi-structured, meaning that it includes open questions and has a possibility to deviate from the actual conversation plan. The interview questions, as well as selected participants for the interviews, are based on the theoretical framework of the thesis. The list of the participants and interview questions can be found in the thesis appendix part. According to the commissioner's guidelines and the theoretical background, I decided to conduct 20 in-depth interviews that includes approximately 20 hours of data collection.

The secondary data was collected through the desk research qualitative approach. Desk research is the study of secondary sources of information that is available in public sources or in the internal sources of the organisation. One of the important aspects of the desk research is analysing the company's customer base. How many customers do we have? Where are they located? What are their key characteristics? (Hague, Cupman, Harrisom, & Truman, 2016, pp. 53-60).

There are many sources that can be used for gathering the secondary data, such as internet encyclopaedias, online market reports, the press, company data, government statistics, trade and industries bodies, directories and lists (Hague, Cupman, Harrisom, & Truman, 2016, pp. 55-60). Most of these sources were used for the fulfilling my research questions. The desk research was extremely useful for exploring the industry and collecting the statistical data of the market size, for describing hardware and software features and functionality, for the competitor analysis and for finding market trends.

3.1.1 Validity and reliability research criteria

In this section, I present the theoretical criteria of validity and reliability for the research. According to this knowledge, the research process and results are discussed in the discussion chapter of the thesis. Validity is a significant key to an effective research, it is thus a requirement for both quantitative and qualitative/naturalistic research, and if a piece of research is invalid, then it is worthless (Cohen, Manion, & Morrison, 2011, pp. 133-134).

In qualitative data collection, the intense personal involvement and in-depth answers of researched individuals secure a sufficient level of validity. The qualitative research method can address internal and external validity. Internal validity seeks to demonstrate the provided study's research topic is actually sustained by the data. In ethnographic, there are several key points which are included in internal data:
- Confidence in the data
- The ability of the study to report a situation from the respondents' side

- The dependability of the data
- The credibility of the data
- The soundness of the research design

The findings of the study must describe accurately the subject that has being researched. On the internal level, the research should fulfil its research questions and demonstrate the cogency of the data and peer examination of data. (Cohen, Manion, & Morrison, 2011, pp. 135-136) "External validity refers to the degree to which the results can be generalized to the wider population, cases or situations" (Cohen, Manion, & Morrison, 2011, p. 136).

Reliability is substantially a synonym for dependability, consistency and possibility to duplicate over time, over resources and over group of research participants. For a research to be reliable, it hast to demonstrate that if it were to be conducted on a similar group of in a similar context and conditions, then similar results would be obtained. (Cohen, Manion, & Morrison, 2011, pp. 148-150)

3.1.2 Interview process

The interview process started in the end of September 2017 from creating the interview plan and questions. The whole process was lasting approximately one and half month finding participants and gathering data. First, I was searching for video production companies in Finland via desk research and was sending interview requests by emails. However, the email approach was not very efficient, and I started to call potential interview candidates.

The second way that I used to find and reach the interviewees was LinkedIn search. This method was the most helpful and I was able to find different kind of professionals, such as freelancers, enthusiasts or high-experienced editors. Most of my participants were from Finland and were able to meet me personally or some of them answered the interview questions by email. I interviewed three candidates outside Finland: one Skype interview was with a video blogger and one email interview was with a video professional from Germany; another Skype call was with a Russian freelance video producer and editor.

I tried to involve different types of customers such as hobbyists or enthusiasts, freelancers and full-time professionals in my research. The candidates were given different options to participate in the interview: personal meeting, video record, email or Skype. Most of the interviews were conducted by personal meeting in the customer's working environment. I chose to make audio records, write notes from each interview. One of the main reasons to conduct the interview in the customer's working environment was to observe his or her

working place and existing products in use. However, not every participant of the interviews was able to demonstrate their working processes and not all of them use existing hardware devices for video editing. However, I had a chance to capture a few hardware products in use with my photo camera.

During the interview process, the interview questions were slightly modified several times in order to obtain more relevant information from the sessions. Average time per personal meeting interview was approximately 40-60 min, and for the Skype meeting it was around 30 min. Based on my research experience, the most efficient interview method is personal meeting. First of all, personal contact helps to break the ice in the beginning of the conversation. Secondly, it provides you an opportunity to observe the interviewee's actions and workflow. And, lastly, it gives you an ability to easily control the flow of the dialogue and to modify the questions during the process. The Skype call can give you the same ability to change the questions but doesn't give you a chance to see the working space or working process of the interview candidate. However, it allows you to communicate with your interviewees on distance. The last method that I tried in my research, email interview, is the most structured version of the interview. The questions cannot be modified during the session and the working environment can't be watched. Nevertheless, this interview approach gives participants a possibility to think the questions through and reply whenever they have time. In some cases, I was able to get very good insights from the email interview.

3.2   Research findings

In this sub-chapter, the reader is introduced to the findings of this research. I described the industry and its key characteristics and presented interview research outcomes such as video post-production workflow and the most popular video editing software among the participants. Moreover, I defined the target audience of the new product and estimated the market size. I made the competitor analysis based on the benchmarking method through the desk research. Additionally, I defined customer profiles and their needs in video post processing. Lastly, in the chapter, industry drivers and technology trends were determined.

3.2.1   Video production industry overview

Definitions

The definition of video production is: creating a video by capturing different actions and making combinations and reductions of diverse parts of this video in live or real-time production and post-production. The process of video creation includes several steps such as generalising an idea, writing a script, finding characters, objects, places, shooting, and

post-production. All these steps form three main stages of video production: pre-produc-
tion, actual production and post-production. (Deforce, 2012)

There are several types of the video production:
1. Educational videos
2. Promotional videos
3. Informational videos
4. Documentary films (and Videos)
5. Entertainment videos

The first type, educational videos, is very popular among online video production. It can be an online classroom session, lessons and courses, physical trainings and webinars. Promotional videos include a various number of categories such as corporate videos, commercials, presentations, product reviews and other types of videos. Promotional vid-eos are the most common projects for the video production companies and video free-lancers. Informational video production consists of television newscasts, interview videos, Public Service Announcements (PSAs) etc. (Ruffell, 2017)

Documentary films and videos are typically a mix of entertainment and information dis-pensing. The definition of a documentary film is "nonfictional motion picture intended to document some aspect of reality, primarily for the purposes of instruction, education, or maintaining a historical record" (Documentary film, 2017).

The last type of the video production is entertainment videos. It is one of the biggest cate-gories of the video production industry and contains diverse styles and purposes of the video, for example, movies, music videos, wedding and event videography, social media and TV shows. (Ruffell, 2017)

Video production crew

Furthermore, the video production can be based on two different occasions: an independent production and customer-based production. An independent production is one in which the producer is responsible for the video production process and the final results of the project and do not have to report to any other companies or privates. On the contrary, the second type of the occasion, client-based production, is the one in which the producer has been hired to implement a customer's idea and needs to follow his or her preferences and fulfil needs. (Compesi, 2016)

Team members participating in video production processes are commonly referred to as the production crew. Most production firms have their own teams for managing the process. However, the freelance work is also considered as a widespread practice on as-needed basis. In most cases, every member from the production crew is responsible for only one particular task or set of tasks. This ensures that the person can fully focus on his or her role and decrease the risk amount of the failure and technical mistakes. (Millerson & Owens, 2009, pp. 39-41)

The figure below represents the basic video production crew and its positions.
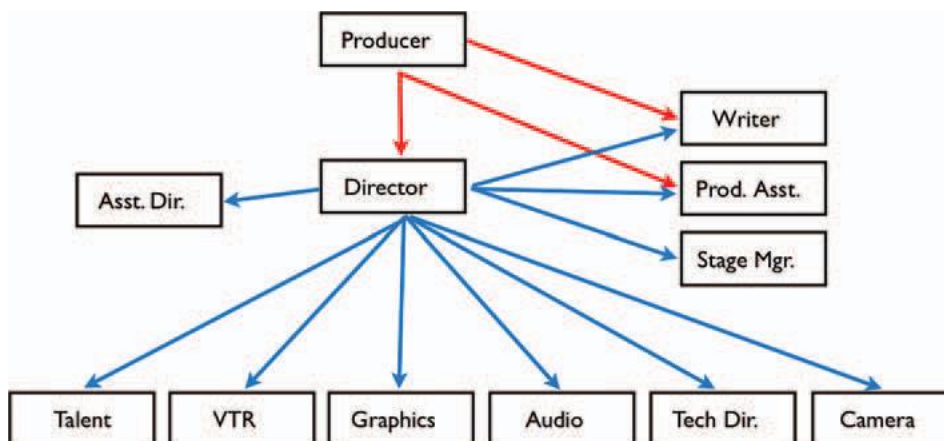
Figure 3 A common video production crew setup. (Millerson & Owens, 2009, p. 40)

The size of the production crew depends on the size of the organisation and on the video project itself. It is important to understand the structure of the team and each operating position's responsibilities.

3.2.2 Video post-production

Video post-production is the last stage of the whole video production process. It includes different steps that can vary based on the video project. Post-production is the phase

where all filmed materials are reviewed, combined and edited together in order to design a desired combination of video clips that will fulfil customer's needs and expectations. The video post-production stage can be done by one or several video professionals depending on the size of the company and work amount. (Nachtigall, 2017)

Post-production process

Based on my interviews I identified the basic parts of post processing in video creation. (Figure 4)

| Editing | → | Effects | → | Audio/Sound | → | Color Grading |
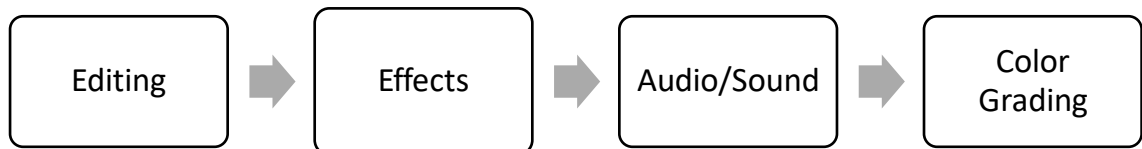
Figure 4 Post-production workflow

The first step of the post-production workflow is the editing part. Firstly, it includes adding all filmed materials to the video editing software and sorting the clips. During this step the editor is reviewing all clips, cutting, removing unwanted clips, deciding on the order and duration of each shot, fast or slow motion and making the main picture edits such as rotating, zooming and positioning. The next step consists of designing transitions between clips, creating motion graphics, 3D graphics and other visual effects. This part may include working with text and subtitling. The third step is audio and sound design that contains sound effects, recording and sound mixing and making audio adjustments in the editing programme. When the final video cut is ready, the editing process is done, and the visual effects are completed, the editors are moving to the last step of the video post-production – color grading. This step includes managing colors, exposure, saturation, blacks and whites, white balance and other grading adjustments.

As mentioned before, the post-production process can be implemented by several video professionals responsible for each specific post processing section. However, according to my interviews, the amount of people involved in a post-production task depends on the video project scale.

Software

I determined the most commonly used video editing software based on the completed interviews. There are several programs that video professionals utilize in their working process: Adobe editing programs, Final Cut Pro and DaVinci Resolve.

1. Adobe Family

One of the most popular video editing software for the whole post-production process is Adobe Premiere Pro. 85 percent of the interview participants are users of the Adobe Premiere on the constant basis. As a part of Adobe Creative Cloud, Adobe Premiere easily integrates with other creative applications. The full package subscription costs 50$ per month. Adobe Premiere can be also purchased as an individual software subscription for 20$ per month. It is powerful and customizable video editing tool. Adobe Creative Cloud has approximately 12 million subscribers worldwide (Creative Cloud subscriptions of Adobe 2013-2017 and 2024, n.d.).
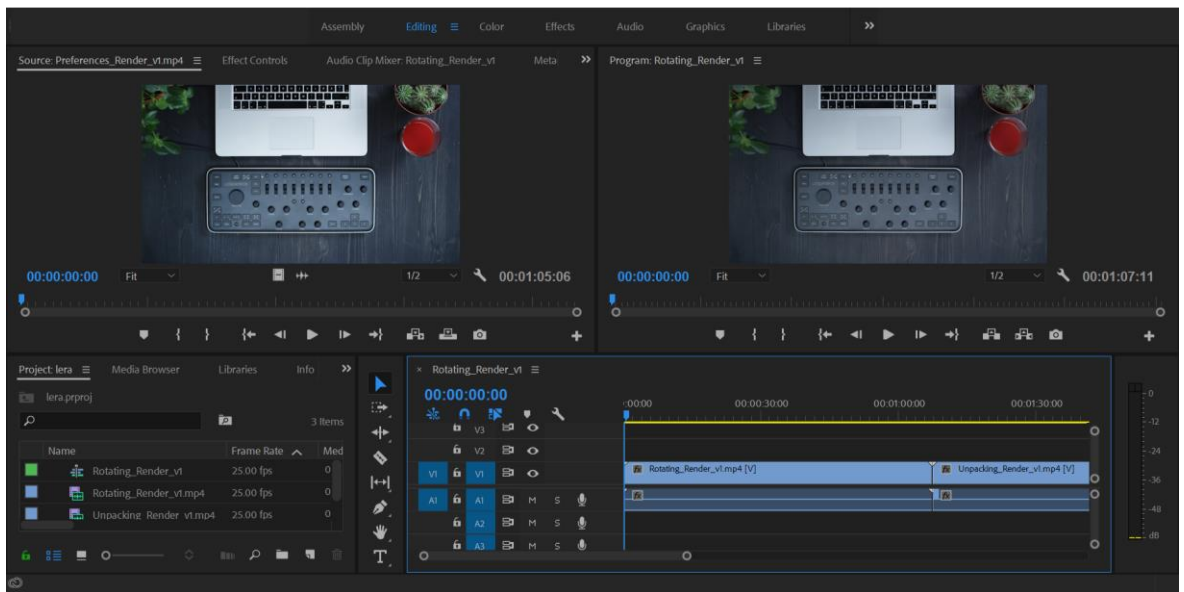
Picture 1 Adobe Premiere Pro CC Interface

The second component of the Adobe Family is Adobe After Effects software. Most of the professionals use the program to create visual effects, motion graphics and compositing application. Additionally, in order to create more complicated images, video editors may involve Adobe Photoshop and Illustrator into their editing process.

Furthermore, the last element of the Adobe kit is Adobe Audition. It is a digital audio and sound workstation. The program includes diverse features such as a multitrack, non-destructive mix/edit environment and a non-destructive wave form editor (Adobe Audition, n.d.).
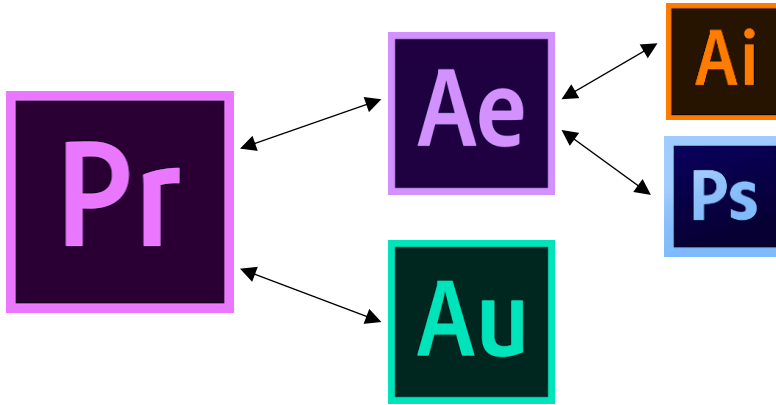
Figure 5 Adobe Systems in Video Production Workflow

The figure above represents the basic editing workflow with the Adobe Cloud CC package. However, it is not necessary that every editing program is utilized by an editor. It depends on the complexity of the video project and preferences of the post-production professional. Every part of the post-production can be done in only one software – Adobe Premiere.

2. Final Cut Pro

Final Cut Pro is another professional software for video editing developed by Apple Inc. This year apple announced that the video editing software – Final Cut Pro X – has reached the amount of 2 million users. Based on the apple's announcement speech it had taken much less time to increase number of users from 1 million to 2 million than it had taken to grow that first million. Hence, the market is growing rapidly and faster each year. (Lovejoy, 2017)

Sidebar: Organize libraries and access photos, audio, titles, and generators.

Browser: Skim and select clips to use in your projects.

Viewer: Play back clips and projects.

Magnetic Timeline: Edit your movie in this area.

Picture 2 Final Cut Pro interface overview (Final Cut Pro X, 2017)

Based on the conducted interviews, 15 percent of interviewees use Final Cut Pro video editing program. Mostly, video enthusiasts, hobbyist and freelancers prefer to use this software since the price of the application is 299$ and it requires only one time pay. However, Final Cut Pro is available only for mac users.

3. DaVinci Resolve

DaVinci Resolve is a professional video editing software created by Blackmagic Design. There are two options of the program: DaVinci Resolve and DaVinci Resolve studio. The first option is an absolutely free product that can be downloaded from the official website. It includes all basic functions and features of the application and is suitable for most video production companies and freelancers. The second option costs 299$ and requires only one-time pay. (DaVinci Resolve, n.d.)

DaVinci Resolve Studio is a complex editing program, additionally to the free version's functionality, it has unique features such as collaborative team work, High Dynamic Range Grading, Noise Reduction & Motion Blur Effects and Stereoscopic 3D Grading. (Brown, 2017)

30 percent of the participants are using DaVinci Resolve. According to the interviewees' answers, the program is used only for color correction purposes since it has the most advanced features for color grading compare to other video editing applications. In most cases, professional colorists, who focus specifically on the color grading part of the post-production, prefer to work with DaVinci Resolve. Furthermore, the application is mostly used for color editing of more complicated video projects such as movies, TV shows and long commercials.

Picture 3 DaVinci Resolve interface (Grading mit DaVinci Resolve 9 im Test: Lite oder Normal?, 2012)

In conclusion, I identified the most commonly used video editing programs and determined their purposes. Adobe Premiere Pro is the most popular application among the interview candidates. In the next section, I present determined target audience of the new product and the average market size.

Target audience

Target audience of the new 'Videodeck' project is video post-production professionals and enthusiasts. "A video editor is a technically inclined individual that is involved with making creative video editing decisions in the post-production of film making and video production" (Video editor, 2017).

Since the new product is aimed to be a hardware for post-production purposes, the target group of this product is referred to the video post-production business field. However, the

discussion regarding the most relevant target audience for the new product is done in the fourth chapter after customer needs and customer profiles investigation.

Market size

To measure the market size on the global level is a complex issue and requires considerable resources. However, I have been able to analyse the data found and make preliminary estimations on the certain markets. Based on the company's internal statistics, currently, the leading markets of Loupedeck company are based in the US and UK. My focus, therefore, is on these two areas and my findings provide estimated numbers of how many companies and people are involved in the video post-production industry.

Based on the UK government annual business survey (2017), in 2016 there were 2,964 enterprises in motion picture, video and television post-production activities. Starting from 2008, the number of companies increased by 648 firms, which means almost 22 percent growth for 8 years in total. Between 2015 and 2016, the video post-production market growth increased by 4.3%. However, the statistics represent only estimated numbers of companies involved in the video post processing field and do not show the number of people working for the industry. It needs to be taken into consideration that there is a large part of the population that forms a 'freelance' workforce of the country.

The UK's freelance market has just under 2 million people (1.65 million freelancing as their main source of income, with 255,000 freelancing as a second job). Of these, 338,000 freelancers fall into the artistic, literary and media categories (Kitching, 2016). This category includes people with creative occupation such as photographers, video editors and graphic designers. Moreover, according to the LinkedIn professional search there are 185,000 profiles referred as video editors in the UK. In 2016 there were over 20 million registered users in LinkedIn from UK (LinkedIn: registered members worldwide as of 1st quarter 2016, by country (in millions), 2016). According to the National Statistics (Overview of the UK population: July 2017, 2017), there are around 41 million people, in the age category 16-64, living in the UK. Hence, approximately half of the potential working population are registered in LinkedIn.

There are around 37,150 registered employees in video post-production services occupation and 12,428 video post-production businesses. I determined that the US video post-production market annual growth is by 2.7%. (Video Postproduction Services in the US: Market Research Report, 2017)

Furthermore, there are 55 million people who are doing freelance work in the US – 34 percent of the national workforce (Pofeldt, 2016). It means the massive fraction of the US working market is "owned" by self-employed people. Additionally, LinkedIn has over 1 million registered users naming themselves as video editors in the US region. Overall,128 million people registered in LinkedIn are from the US (Smith, 2017). Out of the whole population number of potential working people in United States in the 15-69 years old age category (218.6 million), around 60 percent are members of the LinkedIn network (Demography of the United States, 2017).

In addition, I have focused on two of the most popular software products for video post processing, Adobe Premiere and Final Cut Pro, and have analysed the size of their user base. Based on Apple's official announcement mentioned previously in the chapter, Final Cut Pro X has reached 2 million users in 2017. However, there remains a relatively small percentage of video editors who still use the previous software versions of Final Cut Pro (1-7). In 2011, there was the latest published number of Final Cut Pro 7 user base that had 2 million seats (Bieberkopf, 2014). Nevertheless, this year Apple has revealed that Final Cut Pro 7 will not be supported anymore with the latest Mac software – High Sierra (Bongso-Seldrup, 2017). Therefore, during 2018, most of the Final Cut Pro 7 users will switch to the newest version of the video editing software.

Based on the iDatalabs statistics (Apple Final Cut Pro, n.d.), around 20,350 companies worldwide use Apple Final Cut Pro. Of all the companies that are using Apple Final Cut Pro, 45% are small (<50 employees), 32% are medium-sized and 19% are large (>1000 employees).

Table 6 Companies that use Apple Final Cut Pro, by country (Apple Final Cut Pro, n.d.)

Country	Number of companies
United States	12051
United Kingdom	1581
Canada	611
Australia	328
France	324
India	177
Netherlands	151
Spain	151
Italy	90
Germany	81

There is no currently published data of the number of Adobe Premiere users. However, it is known that the Adobe Creative Cloud has around 12 million users (Creative Cloud subscriptions of Adobe 2013-2017 and 2024, n.d.). Adobe Premiere Pro is a part of the Creative Cloud. In spite of this, Creative Cloud includes many other editing applications and not every subscriber uses Premiere Pro.

There is an estimate number of companies that use Adobe Premiere – around 16,900. All these enterprises can be categorized by the number of employees, 42% are small (<50 employees), 34% are medium-sized and 21% are large (>1000 employees). (Adobe Premiere, n.d.)

Table 7 Companies that use Adobe Premiere, by country (Adobe Premiere, n.d.)

Country	Number of companies
United States	9489
United Kingdom	1454
Canada	686
Australia	331
France	302
India	293
Spain	238
Brazil	183
Netherlands	178
Italy	174

In summary, Adobe Premier and Final Cut Pro editing applications have similar key markets among their business customers. The first five leading market of both software are: US, UK, Canada, Australia and France.

3.2.3 Competition

One of the thesis research questions is what hardware products already exist on the market. The competitor analysis was implemented in this section of the empirical part of the thesis. However, it is not necessary that all described companies and hardware products are going to be direct competitors of the new 'Videodeck'.

Based on my interviews, 30 percent of the participants use or have ever used any hardware products for their editing workflow. The main source of finding potential competitors was the desk research. I used the benchmarking method in order to analyse video editing

hardware existing on the market. I described features, functions, benefits, pricing policy and design of different products and characterised their company's profiles.

1. Wacom

Company profile:

Wacom is a Japanese company founded in 1983 that specializes in graphics tablets and related products (About Wacom, n.d.). According to the Wacom's report (Wacom Company Introduction 2017, 2017), I defined annual revenue, markets of operation and size of the company.

- Annual Revenue: $625.2 million (FY 03/2017)
- Employees: 1262
- Core values: Making the world a more creative place; serving creative professionals; innovation and imagination (About Wacom, n.d.).
- Markets of operation: Globally

Sales by Region
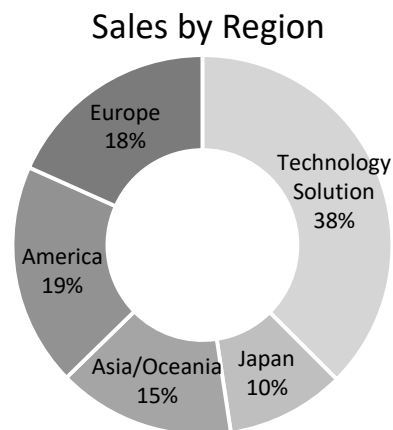
Figure 6 FY 03/2017 - Wacom sales results (Wacom Company Introduction 2017, 2017)
Note: there are no regional segments in Technology Solution Business.

Product:

According to my interviews, 10% of candidates use Wacom Tablet for video post processing. Wacom Intuos Pro creative pen tablets and Cintiq creative pen displays are suitable for video editing and motion graphics creation. I characterized one of the products - Wacom Intuos Pro.

Picture 4 Wacom Intuos Pro (About Wacom, n.d.)

Table 8 Wacom Intuos Pro overview (About Wacom, n.d.)

Technology	Wacom tablets use electromagnetic resonance technology; the tablet provides power to the pen, as a result, no batteries are required for the pen (or the accompanying puck), making them lighter and slimmer
Ergonomics	Availability of multiple sizes; Pressure sensitivity; Multi-touch; Wireless system; Absolute positioning; Customizable express keys (6-8 keys), touch ring and two pen buttons
Compatibility	Windows, Mac; almost all editing software
Design	Aluminium body, slim, modern and minimalistic design
Price	250$ - 700$

Based on the review professional video blogs (Tutvid, 2015; photoshopCAFE, 2017; Wacom, 2010), Wacom Intuos Pro has a very nice touch feeling and gives an editor a full control of the editing program. The biggest advantages of the device are: wireless system, customization possibilities, very slim design and high quality of details. There is one issue with a small percent of devices - a design flaw in the USB port that stops connecting after a short time.

2. Contour Design

Company profile:

The company was founded in 1995, it has an input in research and development ergo-nomic computer devices such as RollerMouse and Contour Mouse (Contour Design, n.d.). Based on the GovTribe's company profiles data (Contour Design, Inc. Windham NH, n.d.), I identified Contour Design's key characteristics:

- Annual Revenue: $17.2 million
- Employees: 30
- Core values: Offer the highest degree of ergonomics while also increasing produc-tivity and performance.
- Markets of operation: North America, Asia, Australia, and New Zealand, Europe.

Product:

Only one person out of 22 candidates mentioned about one of the Contour Design's products – Shuttle Pro controller. He has been using the product a few years ago while the beginning of his editing profession carrier. Most of the interview participants have never heard about the company's products at all. There are two kind of controllers that might be used for video post-production.

Picture 5 ShuttlePRO and ShuttleXpress (Contour Design Products, n.d.)

Table 9 ShuttlePRO and ShuttleXpress overview (Contour Design Products, n.d.)

Technology	Programmable buttons are specifically designed for multimedia content creation – editing video, audio, and images
Ergonomics	Availability of 2 sizes; Customizable express keys (5-15 keys), two wheels
Compatibility	Windows, Mac; almost all editing software
Design	Plastic body, light, the possibility to put labels on the buttons (Shuttle Pro)
Price	50$ - 100$

The controllers help to improve and speed up the editing workflow and the form of the Shuttle Pro fits nicely in a hand. The devices are portable and very light. The set-up process can be challenging for specific editing software and the quality of the products is not high. (EposVox, 2016)

3. Tangent Wave Ltd.

Company profile:

The company was founded in 2009 in UK. Tangent produces and distributes control surfaces for video editing and color grading. According to UK Companies House uploaded reports (TANGENT WAVE LIMITED Filing History, n.d.), I found out the company's net worth, values and the size:

- Net Worth: $2.2M
- Employees: 6
- Core values: Affordability and quality to control surfaces
- Markets of operation: Globally

Product:

Based on my interviews, two candidates constantly use The Tangent Element Panels and one person uses The Tangent Ripple in their workflow. The Tangent's products are designed and used for the last phase of post-production – color grading.

Picture 6 The Tangent Element Panels and Tangent The Ripple Color Correction Panel (Products, 2017)

Table 10 Tangent panels overview (Products, 2017)

Technology	Customizable advanced panels for video editing and color grading
Ergonomics	Availability of multiple sizes; The Element is made up of four separate panels that can be used independently or can be magnetized to each other; programmable buttons and dials, label screens
Compatibility	Windows, Mac; almost all editing software
Design	Aluminium and high-quality body, plastic buttons
Price	350$ - 3500$

The panels are increasing editing performance, have a lot of customizable options and multi-application compatibility, however, the high prices of the consoles do not make it affordable for everybody. The smallest panel – Tangent Ripple – has a plasticky body and not very high-quality touch feeling. The process of the set-up and programming the buttons of the Tangent Element Kit is very time consuming and can be complicated. (Richardson, 2017)

4. Blackmagic Design

Company profile:

Founded in 1984 in Australia, Blackmagic Design Ltd. produces video products for feature film, post production, and television broadcast industries. They have video editing products, professional digital film cameras, color grading controllers, video converters, video monitoring products etc. (About Company, 2017) According to the Owler's business statistics data (Blackmagic Design Company Profile, n.d.), I found annual revenue and company size of Blackmagic Design.

- Annual Revenue: $190M
- Employees: 372
- Core values: "Blackmagic has grown rapidly to become one of the world's leading innovators and manufacturers of creative video technology. And that's because our philosophy is refreshing and simple - to help true creativity blossom" (About Company, 2017).
- Markets of operation: Globally, 8 offices Worldwide

Product:

According to the interview outcomes, one person from the participants have tried the Blackmagic hardware - DaVinci Resolve Panel. However, based on the answers two companies have this product in their constant use. Both organisations are ones of the biggest film and TV production companies in Finland, Yellow Film and James Post Production.

Picture 7 DaVinci Resolve Micro Panel; DaVinci Resolve Mini Panel and DaVinci Resolve Advanced Panel (Davinci Resolve 14 Control, 2017)

Table 11 DaVinci Resolve panels overview (Davinci Resolve 14 Control, 2017)

Technology	Professional hardware control panels for video color editing
Ergonomics	Availability of multiple sizes; 3-4 x High-Resolution Track Balls, Correction-Control Knobs; Control Keys
Compatibility	Windows, Mac; Da Vinci Resolve software
Design	Aluminium and high-quality body
Price	995$ - 28 500$

The hardware is very good quality, has smooth operation and accelerates the workflow. The disadvantage here is high prices for the controller, that makes the console to be affordable not for everyone. However, based on feedback received from the interviewees the product is worth the price.

5. Avid Technology

Company profile:

The company was founded in 1987 in United States. Avid Technology, Inc. develops, markets, sells, and supports software and hardware for digital media content production, management, and distribution worldwide. (Avid Company Profile, 2017)

Based on the Owler's companies' statistics data (Avid Company Profile, 2017), I identified Avid's annual revenue and company size.

- Annual Revenue: $459.6M
- Employees: 1,591
- Core values: Storytelling, The Avid Customer Association, Innovation, Research and Development (Avid Technology, Inc. Company Overview, 2016).
- Markets of operation: Globally
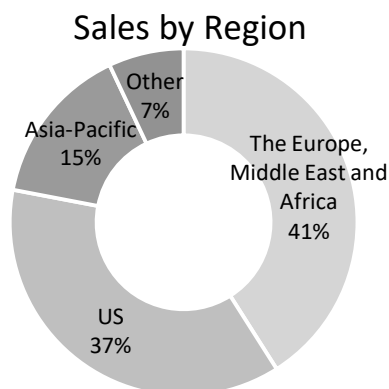
Figure 7 Avid's revenue shares (Avid Technology, Inc. Company Overview, 2016)

Product:

None of the Avid hardware products were mentioned during the interview sessions, however, based on my desk research, there are a few hardware devices that can be used for video editing.

Picture 8 Avid Technologies Artist Mix and Artist Color Control Surface (Products, 2017)

The first hardware – Artist mix – is designed to control mix music projects and video sound. The product is compatible with both systems, Mac and PC. Supported software are Avid programs, Apple Final Cut Pro and other audio editing software (note: the console is not compatible with Adobe Systems editing programs)

Table 12 Avid Technologies Artist Color Control Surface overview (Products, 2017)

Technology	A compact color correction panel
Ergonomics	The control's three trackballs and three trackwheels, are high-resolution and optically encoded; there are nine customizable soft buttons which can be assigned two functions each; the integrated screen automatically updates with the selected software, displaying parameter names and values
Compatibility	Mac, Windows; Apple Color, Avid software, DaVinci Resolve
Design	Solid and good quality build
Price	995$

The product is easy to use, it speeds up the workflow, helps to navigate in the software, however, the ethernet connection seems to be a bit complicated to set up for some users and it's a fairly old controller on the market. (Products, 2017)

6. Palette Gear

Company profile:

The company was founded in 2013 in Canada. The company develops and produces modular hardware interface that gives users the ability to create their own controllers for specific software. (Palette Gear Team , n.d.) Based on the Owler's companies' statistics data (Palette Company Profile, 2017), I was able to define Palette Gear's annual revenue and company size.

- Annual Revenue: less than 1M$
- Employees: 14
- Core values: "Our goal is to solve the problems of human computer interaction" (Palette Gear Team , n.d.).
- Markets of operation: Globally

Product:

Based on my interviews, none of the participants have ever used Palette Gear controllers for the editing. However, most of the interviews have heard about the product before and have an interest to try it.
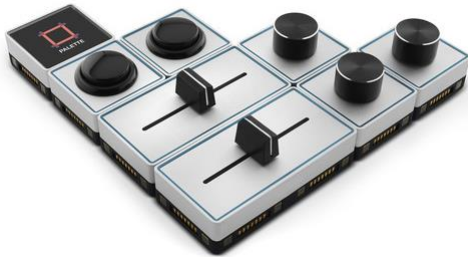
Picture 9 Palette Aluminium Expert Control Surface Kit (Palette Gear Store, n.d.)

Table 13 Palette Gear Kits overview (Palette Gear Store, n.d.)

Technology	The control modules can be assembled around the core module by magnetically enclosing them
Ergonomics	Users can create their own surface; available in multiple sizes; possibility to buy separate modules; three types of customizable modules: button, dial and slider
Compatibility	Mac and PC; Adobe Applications
Design	High-quality build, luminated surface, adjustable design
Price	199$ - 499$

The product's biggest advantage is a self-build magnetic design and compatibility with most popular editing software. Nevertheless, the price of Palette Gear is quite expensive, for example, the Expert Kit includes only two buttons, three dials and two sliders and costs

almost 300$. Furthermore, according to interviewees' feedback, the size of each module is completely big and more advanced panel will require more room on the desk.

7. Shortcut Keyboard

All of the interview participants use diverse shortcuts for the editing. Different editing applications have various hot keys that assist to access most of the software functions faster hence accelerate the workflow. Users can choose the best solution for them of the shortcut usage. For example, most of the interviewed editors do not use any specific keyboard and used to work by memorizing all hot keys; one candidate prefers to use a specialized shortcut keyboard.

There are a few companies that produce shortcut keyboards and keyboard covers: Editors Keys and Logickeyboard. The price of the keyboard shortcut cover is between 20$ and 60$; the price of the shortcut keyboard varies from 60$ to 150$. The shortcut keyboard is useful for editors who work only with one application. The surface of the keyboard has shortcut labels on every key which are compatible with one specific editing software.

To conclude, analysed competitors may have the contiguous area and the areas of interest characteristics. The new project 'Videodeck' doesn't have an exact idea of the functionality of the future device. That is why the competition analysis was done among indirect and potential competitors or industry field "players" which means companies that produce products for the same target group and serve similar customer needs.

3.2.4 Customer profiles

Based on my interviews, I was able to identify several customer profiles and their key characteristics. Customer profiles will help to segregate the target audience and define the most attractive potential customer segments for the new product. I categorised the target audience in three groups based on their workflow and editing purposes: specialized professionals, general professionals and enthusiast/hobbyists.

1. Specialized professionals

The first category represents all professional video editors who focus only on one specific stage of the post-production process. This type of professionals, in most cases, has a lot of experience in the editing industry but after some working time recognised their passion for a particular part of post processing and decided to concentrate only on this specific section. Specialized professionals can work as a full-time employee for a big video production company or as a freelancer. According to my interviews, it is very common for

video production organisations to outsource a freelance work for their large video projects. Furthermore, I had a chance to interview two types of specialised professionals: color grading professionals and editors.

What kind of video projects specialised video professionals normally do? It can be TV commercials, business commercials, TV shows, musical videos and movies. Every specialized professional has a focus on the specific editing software. For example, colorists work with DaVinci Resolve, editors with Adobe Premier or Final Cut Pro, and sound designers with Adobe Audition and other audio editing applications.

2. General professionals

The next customer profile that I determined during my research process is general professionals. This group of video editors is involved in all stages of the video editing. In other words, the video editor is responsible for the whole post-production process. This type of professional can be freelancers, employees of start-up video production or post-production companies, small and medium video production firms or different marketing and communication agencies. Their workflow may include several or one video editing software. However, it depends on the preferences of the video editor and on his/her willingness to try new editing applications. Usually, they work with Adobe Family either with Apple software. Examples of general professionals' video projects can be commercial and social media videos, promo clips, music concerts, event video and educational videos.

3. Enthusiasts/hobbyists

The last customer segment includes people who are passionate about video editing and are developing their video editing skills. This type of customers can do video blogging, social media videos, travel and event videos. It is more likely that they prefer to stick to only one video editing software and always start with a free version of the editing program. They like to experiment and to obtain new editing skills.

Customer segmentation by profiles includes factors from demographical and psychological/behavioural dimensions, such as purpose of editing, type of occupation and type of workflow. Additionally, segmentation can be done after analysing the customer needs of different types of video editors. All three customer profiles have their differences and similarities and it is related not only to their characteristics and workflow but also to their customer needs. In the next chapter, I identified the key customer needs of my interview candidates.

3.2.5 Analysis of the customer needs

Based on my interviews, I was able to identify many of the customer needs. The interviewees were asked to describe their workflow and to think about the most frustrating and time-consuming parts of their post-production process. Moreover, some of the interview candidates described their working experience with existing hardware products, its features and disadvantages. Most of the participants shared their opinion of what hardware functions might help their editing workflow. Referring to the gathered data, I was able to formulate different needs of the potential customers. Video professionals may have diverse and similar issues and preferences related to their video post-production workflow. In the tables below, I combined the key need highlights of each customer profile.

Table 14 Specialized professionals' need statements

Specialized Professionals	
Total number of interviewees: 5	
Color Grading Professionals	**Editors**
I need to be able to do some basic functions of the editing part in DaVinci Resolve.	*I don't see any use of the controller for the editing part.*
I need to change formats (size) of the video fast and easily.	*I need to use a lot of shortcuts (short keys) to make the editing faster.*
I need to adapt to new software/workflow changes faster.	*I need to have a control of time frames.*
You can always do one thing in different ways, I need to be able to do in the fastest way.	*I need to have a better control of titling tool.*
I need to be able to export (render) videos fast.	*I need to have a control of masking tool.*
I need the system and the software work fast and without bugs.	*I need to have some additional controllers for audio edit.*
I need to be able to work with both hands.	*I need to have a better access and control for some effects (zoom in, zoom out, compositing).*
I need to use my hand memory to work faster.	*I need to have noiseless hardware.*
I need to use as limited number of tools as possible.	*I need to have as much customization options as possible.*
I need to work fast and fluent because the client is observing the work very often.	*I need to have a better control of the speed motion.*
I need to be able to customize the controllers.	*I need to have a chance to try the hardware before the purchase.*
I need to have a nice touch feeling of the console.	

I need to be able to move consoles around my desk.	
I need hardware with a full support of the software.	
I need to have less hidden functions on the control panel.	
I need an intuitive hardware.	

Table 15 General Professionals' need statements

General Professionals	
Total number of interviewees: 14	
Needs	**Frequency**
I need to use presets for small projects.	*1*
I need to have a better control of subtitles, titles.	*4*
I need to create new presets faster.	*1*
I need to have a good logical access to my short keys.	*3*
I need to be able to switch active windows of the editing software faster.	*1*
I need to have a better access to the crop and rotate tools.	*2*
I need to optimize the whole process of the post-production.	*2*
I need high resolution video playback fluently.	*1*
I need to change a mouse cursor in the editing software faster.	*1*
I need to have a control of the timeline.	*1*
I need to be able to do multiple things at the same time.	*1*
I need to have a better control of time frames.	*1*
I need a high-quality hardware.	*3*
I need a better control of color grading part.	*3*
I need to have some extra knobs, sliders or buttons for my workflow.	*5*
I need hardware that will save my editing time.	*1*
I need to optimize the process of jumping from one editing program to another.	*1*
I need to have a better access to different windows of the software.	*1*
I need to have a hardware for all Adobe applications.	*1*
I need to have a not very heavy device.	*2*
I need to make the feeling of the editing process more natural.	*1*
The hardware needs to be small and to fit in my backpack.	*2*
I need a multifunctional and customizable device.	*1*
I need to focus on the picture.	*2*
I need to be able to learn and remember things fast.	*1*
I want to be able to build my console and combine different parts.	*1*

Table 16 Hobbyists/Enthusiasts' need statements

Hobbyists/Enthusiasts	
Total number of interviewees: 3	
Needs	**Frequency**
I need an affordable hardware.	1
I need a multifunctional device.	1
I need to have a nice, modern, minimalistic design of the hardware.	2
I need to have a better audio control.	1
I need to have a better color grading control.	2
I need to have a not complicated device that will be easy to set up.	2
I need to use my hand memory to work faster.	1
I need to focus on the picture.	2
I need to have a natural feeling of the editing workflow.	1
I need to have a portable device.	3
I need a device that will help me to develop my skills.	1
I need a device that will help me to organise my workflow.	1

In total, I was able to define approximately 50 customer needs. To sum it up, some of the different professionals' needs are common for two or all customer profiles. However, there are a few statements that are unique for a certain customer type. Most of the customer needs are similar to the customer needs of the existing Loupedeck photo editing console. According to the interviews, the least interest for the hardware devices was shown by specialized professionals of the editing phase of post-production. Additionally, a few general professionals and enthusiasts are also demonstrated less need of the hardware for the editing stage compare to other stages of the post-production. However, some of the professionals believe that the logically placed customizable buttons may help to improve and speed up their workflow. The biggest interest for the hardware was captured from general professionals and enthusiasts. First ones want to accelerate the post-production process and make it more enjoyable and the others want to learn fast and develop their skills. This clearly demonstrates the differentiation by behavioural factors.

In addition to the customer needs formulations, I also want to report some mentioned requests or comments of the interview candidates. One color grading professional said that it would be nice to implement a new AR (Augmented Reality) or VR (Virtual Reality) technology for the video editing and another colorist noticed that DaVinci Resolve application is developing with every software update and turning more into the tool for the whole post-production process. The most time-consuming part of the editing process for the most interviewees is reviewing materials and selecting the right clips. Also, it was mentioned ones, that it would be nice to have a specialized hardware tool for the effect editing in

Adobe After Effects. Furthermore, the candidates were asked to give an estimated amount of how much they would be willing to pay for the hardware If it solves the editing issues and helps to improve the workflow. In the table below, I summarized the answers.

Table 17 Estimated price preferences for the new product.

Price in Euro	Frequency
100-200	2
200-500	9
More than 500	6
More than 1000	1
Doesn't matter	2

According to the interview participants, specialized or general professionals from big companies are ready to pay a lot for good hardware. Enthusiasts and freelancers are searching for more affordable options and reasonable prices. Moreover, it highly depends on the functions of the software. If the console will be designed for professional use and will benefit the video editing workflow, the customer will consider the purchase of it. Nevertheless, it needs to remember that enthusiasts and hobbyists often cannot afford an expensive hardware.

Based on the need statements the Loupedeck developer team will be able to understand what hardware device will suit customer needs and what features it should have. In the fourth chapter, I discuss recommendations for the hardware features and for the following research of the customer needs and preferences understanding.

3.2.6 Video post-production trends

Industry drivers

"Research analysis on the global post-production market identifies the growth of digital technology as one of the major factors that will have a positive impact on the market's growth in the coming years" (Global Post-production Market 2017-2021, 2017). Technavio's market study analysts predict that the global post-production market will grow at a CAGR (Compound Annual Growth Rate) of almost 6% by 2021 (Global Post-production Market 2017-2021, 2017).

KEY MARKET HIGHLIGHTS

OTHER SERVICES
In 2016, the other services segment of the global post-production market was valued at **$8.24 billion**.

TV SEGMENT
The TV segment of the global post-production market is expected to reach **$6.13 billion** by 2021.

ADVENTURE SEGMENT
The adventure segment of the global post-production market is growing at a **CAGR of 6.64%**.

GLOBAL MARKET GROWTH

2016 VALUE — $15.01 billion

2021 VALUE — $19.75 billion

$4.74 BILLION
INCREMENTAL GROWTH

Picture 10 Global post-production market: key drivers and figures (Post-production Market - Trends and Forecasts by Technavio, n.d.)

The superior three emerging trends driving the global post-production industry according to Technavio's market research experts (Global Post-production Market 2017-2021, 2017) are:

- Businesses being outsourced

Video production business more and more often prefer to outsource labour from foreign markets in order to save resources and use cheaper workforce.

- Growth of AR and VR market

The Augmented Reality (AR) and Virtual Reality (VR) will spread among the animation and VFX (Visual Effects) fields, and post-production companies will obtain a higher number of projects in line with the newest technologies. Since 2014, video producers and marketers have been designing a 360-degree VR video, demonstrating diverse sets and effects. The user base of the global VR market has reached 11 million, growing at a rate of 20% since 2015. The number of utilizers will increase significantly in the future. The key factor for that is the grow of organisation adopting virtual reality in the movies and TV section.

- Less interference from artists

Nowadays, artists are often less technically intelligent about the complex technologies and tools used in post-production. Video post-production requires specialized skills. Therefore, the artists let the post-production professionals to work freely and creatively.

Technology trends

Every year, there are many changes in digital world that can affect the business side from the positive or negative point of view. What video editing technological trends are out there on the market? I investigated the most popular trending topics of video post-production technology.

1. Professional Video Editing Software Will Go Mobile

It has been a few years since professional photo editing application such as Adobe Photoshop and Adobe Lightroom integrated professional mobile versions for mobile photo editing. In 2018, we can expect to find high-quality video editing programs release versions of their mobile applications. Mobile editing facilitates the editing process and saves time. However, it doesn't have the full functionality compare to the full software version and isn't designed for editing large video projects. (Top 5 Video Editing Trends in 2017, n.d.)

2. Live Video Editing

Nowadays, we are experiencing the massive popularity of live videos. Almost every social media platform has been involved into this modern trend. The live videos have become a big thing since the last year and this new feature is going to develop fast in the following years. We can expect live video editing coming in the nearest future. We are entering the time when recording and editing can be done simultaneously. (Top 5 Video Editing Trends in 2017, n.d.)

3. An artificial intelligence (AI) in video editing

"Adobe researchers have developed an artificial intelligence (AI) program that partially automates the editing process, while still giving the user creative control over the final result" (Grigonis, 2017). Currently, the system is designed only for dialogue-based videos and future research and development need to be done to make the program useful for other types of videos, such as action shots. The work principle of the programs is very logical and allows editors to control the editing style of the video. The AI helps to organise the footage and uses facial recognition, then by different style commands, researchers call them idioms, editors can apply various styles on the shot. (Grigonis, 2017)

Based on the above-mentioned industry trends, I can see the rapid development of the video industry itself and the development of the video post-production section in regards of technology and editing approach. The application of the video editing is changing with the need of video use in various spheres. Furthermore, video is becoming an important source of information. Every year we can observe the growth of video messaging around us. It is important for companies to follow the technological progress in order to create a successful product that will be relevant for the modern society.

4   Discussions

In order to answer my research questions, in this chapter, I present my conclusions based on the research findings and have a discussion on the topic. I did recommendations for further research and outlined my personal learning outcomes from this project. The research goal of the thesis was to conduct a market study and to investigate customer needs for the new product development in video post-production. According to my theoretical framework, my research target is a part of idea generation stage of the new product development process. During this stage the company is understanding the need of the product and designing the idea of the product. The market study of the new Videodeck product was discovered by use of the desk research and personal in-depth interviews. Researched topics cover the overall description of the industry and industry roles.

One of the most significant findings was the determination of the video post-production workflow. The information was gathered from the research interviews and the workflow figure was built based on the common line in the interview candidates' answers. The sequence of the workflow plays an important role of understanding the customers and their needs. Moreover, it will assist in product design development since the physical video post-production console must be logically integrated with the actual post-production workflow.

In order to evaluate the study and give further recommendations for the company, I need to answer my research question and meet the research aim. My research problem consists of the five research questions:

> *What is the most popular software for video post processing?*
> *What hardware devices for video post-production already exist on the market?*
> *What are the market trends in the video post-production industry?*
> *What is the target audience for the new product?*
> *What video editing hardware will suit customers' needs?*

The first question was successfully defined by the interview analysis. There are three main software players of the post-production industry: Adobe Systems, Apple Final Cut Pro and DaVinci Resolve. The first software is Adobe Premiere Pro, it is used by the most interview participants and, in most cases, used in the combination with other Adobe editing applications of the Adobe Creative Cloud, such as Adobe After Effects, Illustrator, Photoshop and Audition. The second software, FCP, has the same role as the Adobe

Premiere and similar functionalities. The last program, DaVinci Resolve, is specifically designed for the color grading stage of post-production and used only by professional colorists or as an addition advanced color management tool to the main video editing software.

The second question is related to the competitor analysis of the market study. I determined most of the video editing hardware products that exist on the market, described their functionalities and made a brief overview of the companies. The nature of the competition depends on the new product functionality and its purposes. Existing products on the market serve different post-production needs. Wacom Tablet gives editors more touchable control of the mouse cursor and a fast access to some short keys, Contour Design's Shuttle controller gives a quick access to the selected shortcuts, Tangent, DaVinci and Avid Artist Color panels provide better control of the video color grading stage, Avid Mix is designed for the audio editing stage, Palette Gear has customizable buttons for shortcuts and customizable sliders for audio or color editing. Concluded, there are not many companies that produce hardware products for video post processing. There are three producers of the video editing consoles which are designed only for color grading part, Tangent panels, DaVinci Resolve panels and Avid consoles. Wacom Tablets, Shuttle controllers and Pallet Gear have diverse customizable functionality and can be used in video and photo editing, illustration creation and graphic design. Shortcut keyboards don't have any additional features or functions compare to the normal keyboard, the core difference is labelled keys with all shortcuts of the particular editing software.

Hardware panels that are designed for color grading have direct competition on the market, all other mentioned products have indirect or potential competition types of nature. Based on the competitor analysis, Loupedeck can select the most suitable method(s) for accelerating the new product's competitiveness, such as technology leadership, cost leadership, customer focus and imitative approaches. The first method is powered by implementing the new technology or new hardware functionalities. The second competitive strategy includes focus on hardware pricing and production costs. Based on the competitor analysis, most of hardware devices are expensive and not affordable for everybody and performing a good cost leadership strategy can help to obtain a competitive advantage. The customer focus method requires deeper understanding of customer needs and can be also implemented based on my customer needs analysis. The last competitive strategy approach, imitative, can be applied after profound research of industry trends. I believe that this method needs to have specific focus on this research subject and my study doesn't provide enough information for implementing it.

I identified the main driving trends of the post-production industry and technology innovation trends. Most of the trends are formed by the force of digitalization era and technological changes. Furthermore, based on the theoretical concept, most of consumer trends are consist of the buying behaviour and factors that effect on the purchase decision making. This type of trends I was able to find out from the customer need analysis. Customers care the most about the high quality of products and minimalist 'Apple style' design. The factors that have an impact on their buying decision are possibility to try the product, nice touch feeling of the hardware, personalization and functionality.

The fourth research question of this study is what is the target audience of the new product. In the industry overview part, I described the characteristics of the potential target audience – video post-production professionals, or video editors. Additionally, I investigated estimated market size by using the governmental statistics and uncovered industry reports' highlights of US and UK markets and LinkedIn search of professionals. I determined that the UK video post-production industry annual growth increased by 4.3% and the US market increased by 2.7%. Also, I was able to find business-customer base of the Adobe Premiere and Final Cut Pro software. It was defined that the first five leading markets of both software are: US, UK, Canada, Australia and France.

However, target audience segmentation, potential customers' interest and consumer needs analysis helped to identify the most attractive audience for the new Videodeck. Based on the findings, I can conclude that the target audience for the new product is general video post-production professionals and hobbyists/enthusiasts. As it was discussed previously, specialised professionals are divided by stages of the post-production: editors, motion graphic and effects professionals, colorist and audio specialists. Editors didn't show much interest for the hardware use in their workflow and they are fully satisfied with the existing shortcuts options. Colorist and audio professionals have a variety of hardware to choose that are existing on the market, such as consoles for color grading and audio mixers.

The last question of the thesis is the core of the whole new product development project – what hardware will suit customer needs. The final answer on this question will give a clear understanding of the future product and will help to picture the final idea and design of the 'Videodeck'. However, based on my research, I believe that in order to create a successful product, further research needs to be done. According to the customer needs analysis, my assumptions of the hardware features and characteristics are:
- High-quality
- Medium size, weight (in the editing hardware category)

- Customizable keys for shortcuts
- Logically placed keys according to the post-production workflow
- Customizable dials and sliders for the color grading
- Customizable sliders for audio editing
- Timeline control surface
- Affordable and compatible price

The device should have a full compatibility with the video editing program and a simple process of the product's software set up.

Based on the theoretical concepts of idea generation, the customer needs analysis presented in this thesis, can be applied mostly to the benefit structure analysis. I identified most of the desired by potential customers features and characteristics of the new product. Moreover, competitor analysis together with interviewees' preferences can help to analyse physical characteristics of the product such as size, weight, material and design. Additionally, I was able to determine some of the customers' problems, such as color grading and titling control, slow rendering process, pressure from the client side to work fast and fluent, and other needs. It is a part of problem analysis and can assist to create the hardware console that will satisfy customers' demand.

4.1 Validity, reliability and limitations of the study

In this sub-chapter, I discuss the thesis is terms of validity and reliability. The validity of the research can be measured from two perspectives: internal and external. First, internal validity, must show that the research actually measures what it was supposed to measure, and the research findings are able to help to answer research questions. The appropriate methodology and the most suitable sample method were chosen for this study, considering the characteristics of the research and theoretical background.

My interview questions were constructed based on the theoretical framework and reviewed several times before implementation. The scope of the interview participants is big enough to be able to obtain needed and valid data. According to the theoretical concept of the customer interaction in the product development process, the number of interviewing people should be between 10 and 50. However, the total time of interview data collection was a bit less than it is stated in the theory. The use of different types of interview candidates provided variety of answers, and I was able to compare and analyse results from different perspectives. The respondents were not pressured in any ways to select specific choices among the possibility of answers.

The use of diverse public sources assisted to present a lot of market insights. Moreover, all sources form the desk research were carefully selected and compared, publishing

dates of used sources were checked. I tried to use mostly only relevant sources which are not older than two years, especially, for market size estimations, competitor and trends analysis. Internally, the gathered data is valid, and the study answers all research questions. Externally, the research's validity can be measured by the possibility of use of the same research for other businesses or industries. The study could be used by other companies in the same video post-production industry. It demonstrates valuable data of the video post-production market research and customers' insights. The same research method and structure can be used by organisations from different industries. The study represents a market research template for the idea generation stage of the new product development process.

In terms of reliability, it is possible to repeat the study and obtain the same results. However, the timeline needs to be taken into the consideration as the study is relevant only for the present time. I believe, that after a few years the reliability and relevance of this market research would need recent market information and trends. However, if I think about the methodology and research structure of this study, it is entirely reliable and can be replicated the same way year by year.

Research limitations in this thesis can relate to four areas: the formulation of the research questions and aims, to the choice of data collection methods, scope of the research and scope of time. I formulated research questions and the objective precisely enough. The research problem was narrowed by clear and accurate questions, so the level of focus of the study was increased. Regarding the second limitations area, for the primary data collection, the research method of focus groups can also be used in addition to the interview method to get a fuller picture about customer needs. Moreover, according to the theoretical framework of customer needs data collection, one of the methods of structuring and prioritizing customer needs is a short survey. This additional research tool would be beneficial for the deeper customer needs understanding.

The massive part of the report was done through the secondary data collection method – desk research. For this study, I used only sources that are available for free and for the public use. However, I found a lot of statistical data on the video post-production industry including market size, trends and market forecast available for the purchase. Industry reports cost money and can provide additional useful and relevant data. Regarding the scope of time, I had a limited timeline for this study and was not able to research all aspects of the market. For example, I chose to focus on the US and UK markets to measure the market size due to the limited study time. It is possible to find statistical data of employment types of occupation of other countries and define estimated number of video

post-production businesses/people on more global level. Additional research approach, questionnaire, that is aimed to structure the customer needs, also requires more time and sources.

4.2 Recommendations for future research

According to my findings and research limitations, I made suggestions for future research for the company Loupedeck. As it was identified earlier, the study is a part of the first stage of the new product development process. The next step of the idea generation stage can be further analysis of the customer needs. The best way of the following needs investigation is to use focus groups data collection approach. Discussions should focus more on their editing workflow, and to have deeper understanding of their needs and preferences. The questions for the focus group sessions should be related only to the editing workflow and the most time-consuming parts.

I believe that we need focus more on general professionals and hobbyists/enthusiasts. Since these customer profiles demonstrated the most interest in trying out and using the hardware console for video post-production. Moreover, it is important to find more enthusiasts/video bloggers as in my research I was able to interview only three people of this type of potential customers. Additionally, we can research motion graphic and effects creators because among my interview participants, there are no specialized professionals from this category. The workflow and needs of this type of customers are not investigated and has be considered as an essential part of the further investigation.

Most of my interview candidates are very interested to participate in the further research stages. We can use these contact to form focus groups, but we need to be very selective and choose the right type of customers. I believe, that it is necessary to find more post-production professionals for the further analysis. After focus group sessions analysis, we will be able to make product idea screening, first prototyping and concept testing. For the concept testing phase, we can apply customer interaction approach and use the same contacts of the professionals that showed the most interest and willingness to take a part in the further development process steps.

4.3 Conclusion and own learning outcomes

In conclusion, the study has a great contribution to the new product development and meets all research questions. The objective was to get to know the industry, to learn about existing products and companies, to identify the market size, to understand potential customers, their differences and similarities, their needs and preferences. Moreover, it was

necessary to investigate the current "hot" topics on the market, to see where and how the post-production industry is developing. I believe that my thesis will help Loupedeck company to start and implement successful product development process and, therefore, to discover new market opportunities. I will continue to assist with the following R&D stages for the Videodeck project.

My personal learning outcomes from this study are incredibly immense. First of all, I learned how to organise my work and time management. I was following my own deadlines and was able to combine the writing process with my full-time position at Loupedeck company. Secondly, the thesis topic, which was selected by the commissioner, was a very wide and unknown for me since I didn't have much theoretical background about the product development from my university lectures. This created some challenges for me to choose the right theoretical concepts for the study which will support the practical part and guide my research. However, most of the concepts that are included to the product development, such as market study, competitor analysis, market segmentation and customer needs investigation I was familiar with before and I learned a fresh look, different point of view and more knowledgeable insights of the same concepts.

Furthermore, it was my first time when I interviewed this large amount of people and planned the whole interview process with creating interview questions on my own, independently. The hardest part was to find and reach potential interview participants, and the whole interview process was the most time-consuming part of my thesis. However, during my qualitative research, I learned how to communicate professionally, how to be flexible and how to follow speaker's each thought and catch needed answers. The interview analysis helped to fulfil some of the market study research questions but, most importantly, I learned how to create customer profiles based on the interview answers and how to gain customer needs data. The analysis of customer needs was also a challenging task for me. I was carefully listening to each interview record, writing down interviewee's sentences and making need statements out of it.

Next, I learned the power of the desk research and how useful it is. The internet is an unlimited encyclopaedia and statistics base. I spent around 50 hours browsing, searching and selecting the relevant information for my study. I learned how and where to find needed data. I discovered the unknown for me before industry and its characteristics. Moreover, I learned the significance of the voice of the customer in the product development process and its roles in the different development stages. Lastly, I improved my academic and professional language skills, both from the written and spoken perspective.

With all the knowledge obtained from this study, I will be able to help with future research in the company and have a motivation to learn more about the topic. I am extremely happy with the thesis process, results and gained professional learning outcomes.

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5.1   Appendix

5.1.1   Interview questions

1.   Where do you work?

2.   Since when have you been doing video production? What kind of pro-
          jects do you have?

3.   What program(s) / software do you use for video editing?

4.   How do you manage your video editing on a day-to-day basis? Could you please describe your working process from the starting point, to the end result? What steps do you follow?

5.   Are you fully satisfied with your workflow? If not, why not?

6.   What's the most frustrating thing about the video editing process?

7.   In your opinion, what Is the most time-consuming part of the post-production process?

8.   Have you ever tried any hardware products for video post processing purposes (control panels, consoles)? If yes, have you used any hardware devices constantly?

9.   If you have used hardware devices, how have these products helped you manage your video editing work?

10.   What, in your opinion, are the existing hardware products on the market lacking?

11.   What, in your opinion, are the existing hardware products on the market excellent at?

12.   What hardware product features, in your opinion, might help you to improve your workflow? For example, what kind of functions would you like to have on the console as a button, knob or dial?

13.   Are you interested to try any new hardware devices?

14.   If it solves your editing issues, how much would you be approximately willing to pay for a video editing hardware product?

5.1.2   Interview participants

See next page

Table 18 Interview participants

Name	Company	Customer profile/position	Contact	Used software	Used hardware	Interview option	Meeting Place
Joni Lindroos	Veli Creative	General professional/executive producer	Facebook	Adobe Premiere Pro, After Effects, DaVinci Resolve	Shortcut Keyboard for Adobe Premiere	Personal meeting	Café
Jussi Myllyniemi	Whitepoint	Specialized professional/Colorist	Email jussi.myllyniemi@white-point.fi	DaVinci Resolve, Adobe Premiere	Tangent Element Panels Kit, Wacom Pen	Personal meeting	Office
Evgeny Kamardin	Freelancer	General professional	Facebook	Final Cut Pro		Personal meeting	Café
Pyry Lepistö	Miltton Creative	General professional/DoP & post-production	Facebook	Adobe Premiere Pro, After Effects, Photoshop, Illustrator, Audition	Apple Magic mouse	Personal meeting	Office
ANTTI KEKÄLÄINEN / SAMI SUPPOLA	Ansa Production	General professionals/Founders	Phone call/Facebook 040 8418 514	Adobe Premiere Pro, After Effects, DaVinci Resolve		Personal meeting	Office
Iikka Hesse	James Post	Specialized professional/Film editor	Email iikka@jamespost.fi	Adobe Premiere Pro	Wacom Pen/ DaVinci panel for color grading	Personal meeting	Office
Janne Asikainen	Marketing Communications	General professional/Video Production	Facebook	Adobe Premiere Pro, After Effects, Photoshop, Illustrator		Personal meeting	Office
Aleksi Alku/ Mikko ...	Yellow films	General professional/Head of Post Production Specialized professional/ Editor	Facebook	Adobe Premiere Pro, After Effects, DaVinci Resolve	Used Shuttle controller before	Personal meeting	Office
Mikko Parttimaa	Yellow films	Specialized professional/Colorist	No contact/found at the company location	DaVinci Resolve, Adobe Premiere	Tangent Element Panels Kit	Personal meeting	Office
Petteri Salovalta	Freelancer	General professional	Facebook	Adobe Premiere Pro, After Effects, Photoshop, Illustrator, Audition		Personal meeting	Café
Juuso Viitanen	Freelancer	General professional	Facebook	Final Cut Pro		Personal meeting	Café
Elizabeth Morozova	YouTube Blogger	Hobbyist/enthusiast	Instagram	Final Cut Pro		Personal meeting	Café

Tuukka Laitinen	TBWA\Helsinki	General professional	Facebook	Adobe Premiere Pro, After Effects, Photoshop, Illustrator, Audition		Personal meeting	Office
TUOMAS TUPPU-RAINEN	Iron Sky Universe	General professional/Post-Pro-duction Assistant	Email tuomas@ironsky.net	Adobe Premiere Pro and After Ef-fects		Email	
Chris Lassig	MediaMarket	General professional	Email chris.laessig@live.de	Adobe Premiere Pro		Email	
Arkady	Freelancer	General professional	Instagram	Adobe Premiere Pro, After Effects, Photoshop, Illustrator, Audition		Skype	
Luke Bland	YouTube Blog-ger/ Cocomms OY	General professional/Digital Producer	Facebook	Adobe Premiere Pro		Personal meeting	Café
Aleksi Leskinen	YouTube Blogger	Hobbyist/enthusiast	Instagram	Adobe Premiere Pro		Skype	
Angelina Ilmast	Freelancer	Hobbyist/enthusiast	Friend Ilmast.ange-lina@gmail.com	Adobe Premiere Pro		Personal meeting	Café
Erkka Varvio	Banijay Finland	General professional/Head of Post Production	Facebook	Adobe Premiere Pro, After Effects, Photoshop, Illustrator, Audition, DaVinci	Tangent Ripple	Email	