

Business model for Memory Bites, an innovative solution to memory disorders

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ABSTRACT

This study aims to build a business model for Memory Bites, a game created by SuperApp Oy. The game is intended to help seniors in delaying memory related problems. The thesis discusses the following questions 1) What value Memory Bites provides for end users and the society and 2) how to generate revenues for Memory Bites.

In the process of building a business model for Memory Bites, the focus was on Finnish users and Finnish market. Nonetheless, because SuperApp has an intention to make Memory Bites become international, the survey and interviews were completed by multinational respondents. Throughout this study, the CEO of SuperApp, Mr Risto Lappi, provided assistance, gave suggestions and had discussions with the author.

At the time this study was undertaken, Memory Bites was still in the developing phase. Therefore, there are some aspects that this thesis does not cover such as a detailed description of the game and features that can be commercialized.

The outcome of this study is a business model proposal for Memory Bites. However, more detailed studies and market research should be conducted before applying this business model, especially before launching the game.

Key words: Business model, memory issues, improve memory games, SuperApp, Memory Bites.

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1 INTRODUCTION

In Finland, the retirement age is flexible ranging from 63 to 68 (Tuominen, 2013, p.11); nevertheless, according to the Alzheimer Society of Finland (2014, p.5), there are approximately 10,000 people of under 65 years of age in Finland who suffer from memory diseases. Not all of them are incapable of working, but because of the symptoms caused by the diseases, they often feel unable to progress in life. This not only affects the Finnish workforce but also results in increases in social welfare and health care services.

The increase in social public expenditure due to the aging population and relating issues is now one of key concerns in European Union (EU) countries. In 2012, the expenditure on pensions of EU-28 was around 12.8% of the total GDP (Eurostat, 2013). This figure for Finland in 2013 was 13%, and it had increased steadily since 2011 (Eurostat, 2013).

During the recent years, software companies have started to focus on the problem of memory diseases by creating applications that may help delay memory disease symptoms and even improve memory.

The aim of this study is to discuss one such game called Memory Bites. Memory Bites is a game that aims to help its players improve their memory and delaying memory related issues for at least one year for people who are from 45 years old. The game is going to be developed by SuperApp, and the need for this study arose during a discussion with the CEO of the company, Mr. Risto Lappi. Namely, the Memory Bites project does not have a business model. Consequently, the study aims to create an effective business model that the company can use 1) to improve its business and strategies and 2) to attract capital. Finally, the created business model clarifies the value Memory Bites provides for its end users and the society as a whole.

The project has been in planning for one year and will enter the developing stage after defining game concepts and building prototypes.

The target platform for the game has not been defined and by the time this study was undertaken, the game was still in the developing-prototype phase. Thus, there are some shortages and difficulties in building the business model for the game, especially regarding the game's features which can be commercialized.

1.1 SuperApp

SuperApp is an IT startup company located in Lahti, Finland. SuperApp creates prototypes, mobile and web applications, and websites. SuperApp also offers outsourcing services and develops applications based on clients' requirements. SuperApp's strategy is to find substantive proficiency and experience from outside the IT industry and combine these to SuperApp's business and expertise. SuperApp also desires to establish a network with experts and firms in the EU and become international.

Because the Finnish population is aging, this is likely to result in the increase of memory related diseases. Therefore, SuperApp's Memory Bites project aims to create a game that could improve the working memory of seniors, and thereby lighten the financial burden for the society.

1.2 Objective of the study

The objective of this study is to build a business model proposal for Memory Bites that can clarify 1) what value Memory Bites brings to end users and the Finnish society and 2) revenue streams for Memory Bites. The value Memory Bites provides is based on three key elements: defining customer segmentation, understanding end users' problems and needs, and solutions offered to customers. Regarding revenue streams, the researcher has conferred strategies and ideas with the CEO of SuperApp, Mr. Risto Lappi throughout the research process.

- **What will not be focused on or covered in this study**

Marketing plan: The Memory Bites project was not in need of a marketing

plan by the time this study started. The marketing plan of Memory Bites will be prepared after the raising capital stage.

Detailed description of the game: By the time this study started, the project was in the developing prototypes phase. Consequently, a detailed description of the game was not available.

Medical information: This study will review literature on the effects of brain training games on cognitive functions, especially working memory, of users. However, deeper medical information, applied measurements, which features, and how the game can improve its users memory will not be covered in this study.

- **What will be focused on or covered in this study**

User needs and behaviors: Customer behaviors and needs are essential elements that should be clarified before designing a business model. Through the survey and in depth interviews, the study is enabled to adequately understand users' needs and behaviors.

The value propositions: After understanding and defining customer needs, solutions and value propositions to end users will be defined.

Revenue stream: The game is free; nevertheless, there are other ways and methods to generate revenues for the game. Different revenue streams for Memory Bites are created in cooperation and agreement with Mr. Risto Lappi, the CEO of SuperApp.

1.3 Research question

Since the aim is to commercialize Memory Bites, this study will focus on understanding customer needs and behavior. Moreover, the aim is to understand what value the game provides to its end users and how to gain revenue streams from Memory Bites. As a result, the thesis aims to answer the following research question:

What value does Memory Bites provide for its end users and the Finnish society, and how could this create revenue streams?

To simplify, the research questions can be restated as follows: **What is a suitable business model for Memory Bites?**

1.4 Structure of the study

This study is divided into six main chapters as follows:

Chapter 1 introduces general information about the study, defines its objectives and scopes, and addresses the research questions.

Chapter 2 clarifies the research methods and applied approaches and depicts the research design. The data collection approach is also justified in this chapter.

Chapter 3 undertakes the literature review pertaining to business model with different definitions and practices. The chosen conceptual framework for the study is discussed in this chapter.

Chapter 4 discusses background information related to the Memory Bites project. More specifically, the chapter discusses the following topics: 1) studies related to the effectiveness of brain training games in improving cognitive functions, especially working memory; 2) seniors in Finland; 3) the status and plan for Memory Bites; 4) a general description of the game.

Chapter 5 analyzes qualitative data obtained through interviews and quantitative data gathered from the survey and presents findings and solutions derived from the collected data. The business model proposal for Memory Bites is also presented in this chapter. Finally, this chapter also cites legal issues relating to the proposed solutions.

Chapter 6 concludes the study with an assessment of the reliability and validity of the study. Limitations are also discussed. Finally, some suggestions for further study are provided.

2 RESEARCH METHODS

This section presents the applied research approach, the flowchart of the project, and the methods to collect data.

2.1 Methods

In this study, both qualitative method and quantitative method were applied. Each method had its key roles and served specific purposes.

Quantitative method: The purpose of applying this method was to 1) understand customer needs and behaviors and 2) to get an overview of potential customers' ideas on what Memory Bites is going to do. The data was collected through a survey. Those surveyed were Finnish, Vietnamese, Korean, and American seniors.

Qualitative method: Qualitative data was collected through interviews with the CEO of SuperApp, Mr. Risto Lappi, six interviews with Vietnamese, American, and Finnish seniors, and an interview with Mr. Tran Hoang Phuong, the Project Manager of NUS Technology, Vietnam.

2.2 Approach

The outcome of the study is to create an effective and commercial business model for Memory Bites. The research question is explorative and constructive in nature. To tackle such a question, the inductive research approach is a good option.

Inductive reasoning commences with specific observations and real examples and closes with broader generalizations and theories. By applying this method, the researcher can advance theories or conclusions after identifying patterns and trends in the collected data.

In order to build a proper business model for Memory Bites, the researcher gathered recommendations and ideas from key individuals in charge of the project and examined related research.

2.3 Research plan

There are six stages in this study which are research objective, literature review, conceptual framework, analysis, the business model version 1, and feedback and the final business model. The flowchart below depicts the progress of the study.

Stage	Content	Output	Data
Research Objective	- Build a business model for Memory Bites	Research Question / Research Objective	
Literature Review	- Obtain knowledge and concepts of business models with different practices. - Find a conceptual framework for the study	- Business model definitions and practices - Conceptual framework	
Conceptual Framework	- Customer needs, behaviors, and overviews - Collaborate and discuss with SuperApp to build a business model - Generate ideas and discuss them with SuperApp - Define values of Memory Bites	Business models version 1: Ideas & Initial model framework	Quantitative Data: 1) Respondents from the survey (n=49) and 2) Finnish seniors in figures Qualitative Data: Interviews with 1) SUPER APP CEO, 2) Seniors in Finland, Vietnam, and America (n = 6), and 3) Project manager of NUS technology
Analysis	- Analyze the collected data to 1) identify customer needs and 2) find effective solutions	- Differences between values offered and customer needs	
Business Model V1	- Build a business model version 1 based on the conceptual framework and analysis	- Business model version 1 - SWOT analysis	
Business Model	- Feedback from the CEO of SuperApp - Final version	- Final version	

Figure 1. Research design

The first stage of the study was to define the research objective. The next stage to review related literature. The goal of this stage was to 1) to acquire an understanding of the concept business model with different definitions and practices and 2) to choose the conceptual framework for this study. Based on the conceptual framework, the researcher defined and gathered necessary data from the survey and interviews. In the analysis phase, the focus was on analyzing the collected data to identify customer needs and behaviors and point out effective solutions. In addition, the researcher had discussions with SuperApp's representatives on the generated ideas. Later, the business model version one was developed. In the last stage, the researcher received feedback from the CEO of SuperApp, made necessary adjustments, and proposed the final version of Memory Bites's business model.

2.4 Data collection

At the starting phase of this study, the expected outcomes were clearly determined, and then the researcher decided methods to collect the data and which data needed collecting on the way to produce those expected outcomes. Both qualitative data and quantitative data collection methods were applied. While qualitative data was gathered through in-depth interviews, quantitative data was collected through a survey.

2.4.1 Quantitative data

Quantitative data was used to obtain an overview of how potential customers see the Memory Bites project. Quantitative data was obtained through questionnaires completed by Finnish, Korean, American, and Vietnamese seniors ranging from 45 years old to 65 years of age and possess smartphones.

Although Memory Bites will focus on the Finnish market first, SuperApp intends to make the project international. Therefore, the CEO of SuperApp suggested that the respondents of the survey should be from different countries.

The questionnaire consisted of seven multiple choice questions pertaining to regular smartphone activities and personal perspectives. There were three versions of the questionnaire, one in Vietnamese, one in Finnish, and one in English. The survey is summarized in the table below. The questionnaire is available in English in Appendix 1.

Nationality	Population	Content
Finnish	n = 10	- Regular smartphone activities

Vietnamese	n = 35	- Personal views on relevant aspects of the project
Korean	n = 1	
American	n = 3	

Figure 2. Quantitative data overview

2.4.2 Qualitative data

There were six interviews conducted. Each interview was specifically structured with a list of questions and things to be conferred. In addition to the questions, there was time for interviewees to share their opinions and give advice regarding the Memory Bites project. All the interviews were conducted in English except the interviews with Vietnamese seniors and with the Project Manager of NUS Technology which were held in Vietnamese. The questionnaire of the interviews with seniors is available in English in Appendix 2.

The qualitative data collected was divided into three sections. The first section was data obtained from interviews with the CEO of SuperApp. In this section, the researcher conferred with the CEO of SuperApp about the proposed business model and ideas for Memory Bites.

The second section was the data collected from the interviews with Finnish, Vietnamese, and American seniors, and all of them participated in the survey. Based on their answers from the survey, the researcher selected three Finnish seniors, one Vietnamese senior, and two American seniors willing to try the game. All the interviewees were asked the same questions.

The data obtained from the interview with the Project Manager of NUS Technology was in the third section. The goal of the interview was to 1) to get an overview of the mobile application market, 2) to understand how

free applications make money, and 3) to get advice on building the business model for Memory Bites.

Details regarding the interviews is summarized in the table below.

Position / Informant	Method	Date	Content
CEO of SuperApp	- Virtual interview	2016/09/09 2016/10/28 2016/11/03	- Discussion on the proposed business model and ideas - Discussion on the progress of the project - Feedback - Relating issues
Vietnamese (n=1), American (n=2), and Finnish (n=3) seniors	- Face to face interviews - Virtual interviews	2016/10/15 2016/10/17 2016/10/20 2016/10/26	- General information about users' condition - Users' needs and wants - Viewpoint on what Memory Bites offers
Project Manager of NUS Technology	- Face to face interview	2016/10/16	- Discussion on how free applications monetize - Advice and suggestion from the interviewee - How free applications can satisfy users' needs

Figure 3. Qualitative data overview

3 LITERATURE REVIEW

The term 'business model' is nothing new; however, not until the dot.com era in the mid-1990s did the term 'business model' start emerging (Amit, Massa & Zott, 2010, p.2). Thanks to novel and advanced technologies, the global trading has become more and more open, prevalent, and convenient. This trend enables customers to have more choices and ways to obtain products and certain types of service without being charged (Teece, 2010, p.178). Therefore, it raises a challenging question for firms about rethinking how to run their businesses, and since the evolution of technology is perfectly capable of providing firms with lower costs of information and solutions for customers, there are requirements for firms to 1) evaluate again value propositions they offer to customers and 2) be more customer-centric (Teece, 2010, p.172).

Moreover, in addition to customer needs, in the new environment, there are more essential aspects that make firms heavily focus on revenue streams, methods to capture value, and value propositions. Indeed, at the early stage of the dot.com era, many firms floundered and struggled for a feasible and appropriate business model. Notwithstanding, also new advances greatly assist firms in reorganizing and interacting with partners and customers (Mendelson, 2000, pp.513-529; Brynjolfsson & Hitt, 2004, pp.27-48).

3.1 Business model definition

Even though every firm has a business model (Casadesus–Masanell & Ricart, 2010, p.200), there is no a consensus of definition of a business model. The outcome of the review procedure conducted by Amit, Massa and Zott in 2010 also comes to a similar conclusion. They stated that according to their observation, other researchers use different definitions to serve the specific purposes of their research (2010, p.3). Teece explains that a business model is not a financial model but a conceptual model which makes a connection between customer needs and product

developments (2010, p.173). Consequently, there is no apparent succession of works relating to the concept of business model.

3.1.1 Business model definition

Magretta (2002) describes a business model as a process of how a firm works, and Drucker (2008) defined a business model by answering to the following questions: Who is your customer, what is your mission, what is the customer value proposition, and in which way do you offer value at a reasonable cost. Zott and Amit (2008) described a business model as an enterprise's procedure of creating and delivering values to its customers and how to formulate a profit formula based on payments received. Zott and Amit (2008) also stated that a profitable firm not only needs to innovate services or products but also needs to design a good business model. Christensen, Johnson and Kagerman (2008) defined that a business model needs to comprise four elements which are 1) a customer value proposition, 2) key resources, 3) key processes, and 4) a profit formula.

Teece (2010, p.74) pointed out that a business model needs to address the following three aspects: 1) customers and changes in customer needs, 2) revenue streams and a profit formula, and 3) the responses of competitors (p.174). Teece notes the following:

A good business model yields value propositions that are compelling to customers, achieves advantageous cost and risk structures, and enables significant value capture by the business that generates and delivers products and services (Teece, 2010, p.174).

Keeping a business model feasible as a repetitive task is recommended because other factors such as good governance, good products or services, and high quality human resources cannot lead to success for a firm if its business model cannot adapt according to a highly competitive environment.

Other definitions of the concept of the business model are summarized in the table below.

Source	Definitions	Key Elements
Timmers, 1998	A business model is 'An architecture for the product, service and information flows, including a description of the various business actors and their roles; and a description of the potential benefits for the various business actors; and a description of the sources of revenues'	
Zott & Amit, 2001	A business model describes 'the content, structure, and governance of transactions designed so as to create value through the exploitation of business opportunities'	<ul style="list-style-type: none"> - Transactions' structure, content, and governance. - Value created
Chesbrough & Rosenbloom, 2002	A business model is a 'logic that connects technical potential with the realization of economic value'	<ul style="list-style-type: none"> - Connection between technical potential and realization of economic value
Chesbrough, 2007	'The business model performs two important functions: value creation and value capture. First, it defines a series of activities, from procuring raw materials to satisfying the final consumer, which will yield a new product or	<ul style="list-style-type: none"> - Value proposition - Target market - Revenue stream - Strategy

	service in such as way that there is net value created throughout the various activities. Second, a business model captures value from a portion of the activities for the firm developing and operation it'	
Casadesus-Masanell & Ricart, 2010	"A business model is a reflection of the firm realized strategy"	

Figure 4. Different popular definitions of Business Model (Source: Timmers,1998, p.2; Chesbrough & Rosenbloom, 2002, p.529; Nenonen & Storbacka, 2009, pp.3 - 4; Casadesus-Masanell & Ricart, 2010, p.195; Amit, Massa & Zott, 2010, p.6)

3.1.2 Business model and business strategy

Many recent studies try to point out the difference between a business model and a strategy. Casadesus-Mansanell and Ricart (2011) stated that many poor decisions stem from the synonymous usage of those terms and emphasized that all enterprises possess their own business model, but not all enterprises possess their own strategy.

The difference between a business model and a strategy is that while a business model acts as the 'logic' of an enterprise which specifically defines how to formulate a profit formula, operate, and capture and create values for stakeholders and customers, a strategy acts as a set of 'contingent plans' for the usage of business models (Casadesus-Mansanell & Ricart, 2010, pp.195-200). A business model clarifies which activities a firm should undertake with an aim of making strategies feasible and implementing them (Richardson, 2008, p.134). Furthermore, a

business model is also a competitive advantage for a firm, and it should be customer-centric oriented (Amit, Massa & Zott, 2010, pp.172-194).

3.2 Business model in the Internet Age

According to the literature review conducted by Amit, Massa and Zott (2010), the term business model indicated in both academic journals and non-academic journals has only become prevalent since the mid-1990s, the beginning period of the Internet age. Amit, Massa and Zott (2010, p.7) had also noticed a prevailing trend in e-business and an application of new technologies in firms.

3.2.1 Business model in the Internet Age

E-business (electronic business) is a term that describes the use of electronic network technology, electronic data interchange, and the Internet in the process of conducting online business (Bartels, 2000). E-business covers both external procedures such as 1) interacting and understanding stakeholders, partners, and customers 2) sales activities, 3) marketing activities, 4) customer service, and 5) purchasing and supplying of materials and internal procedures such as 1) research and development, 2) risk management, 3) financial management, 4) human resource management, and 5) knowledge management (Bartels, 2000). Briefly, e-business signifies “doing business electronically” (Zott, Amit & Massa, 2010, p.7). The table below summarizes the key elements of e-business from various sources.

Source	Elements
Stewart & Zhao, 2000	<ul style="list-style-type: none"> - Revenue stream - Cost structure - Customer selection - Value capture - Strategic control - Scope
Alt & Zimmerman, 2001	<ul style="list-style-type: none"> - Mission (goals, vision, value proposition) - Structure (governance, focus)

	<ul style="list-style-type: none"> - Processes (Customer orientation, coordination mechanism) - Revenue (revenue stream, business logic)
Rappa, 2001	<ul style="list-style-type: none"> - Revenue stream - Sustainability - Cost structure - Value chain positioning
Osterwalder, 2004	<ul style="list-style-type: none"> - Relationship - Value configuration - Capability - Cost structure
Brousseau & Penard, 2006	<ul style="list-style-type: none"> - Pricing strategies - Relationship (supply and demand) - Network externalities

Figure 5. Components of e-business from various viewpoints of researchers (Zott, Amit & Massa, 2010, p.11)

The dramatic growth of information technology and communication in the past two decades has enabled the advancement of new services, products, and ways to create values and approach customers. Changes in technology also provide firms with new ways to understand and satisfy customer needs, and the costs to equip an information technology infrastructure tend to decline. Moreover, in this Information Age, customers have more information and choices than before and have become more demanding. Thus, firms are required to reorganize and build new business models that fit the new and competitive environment.

There are two unique phenomena while conducting conducting Internet business. Since it is difficult for firms to price products, information, and services, and customers are capable of accessing and possessing certain types of products or information without paying, the first phenomenon is that there is a common expectation from customers that provided services and products should be free (Teece, 2010, p.181). The second phenomenon is the pricing strategy that firms use in the new environment which is freemium (free and premium). The term is described as:

Give your service away for free, possibly ad supported but maybe not, acquire a lot of customers very efficiently through word of mouth, referral networks, organic search

marketing, etc., then offer premium priced value added services or an enhanced version of your service to your customer base (Wilson, 2006; according to Schenck, 2011).

The freemium business model is now being widely applied by companies, from startup companies to large companies. The purpose of providing products and services for free is to build a brand, promote value-added services of those products or services, and build a customer base. Teece (2010, p.179) stated that multiple-revenue-stream strategy is common among startup companies if they totally or partly provide free services or products for customers. Affordable investment and low-cost marketing activities and online distributions relate to 'revenue from multiple streams, including value-added premium services and customer acquisition' (Shuen, 2008, p.2).

Almost all services or applications that end users nowadays use are free of charge. For example, Flickr, a photo hosting service and also a social networking service, is an excellent example of a freemium business model. Flickr provides users with all the necessary services such as one terabyte of online storage, a simple tool to retouch images, and sharing photos without charging, and Flickr generates revenues by 1) by collecting fees from users who upgrade to premium accounts, 2) by charging advertisers, and 3) by receiving revenue shares from partners.

The term 'freemium' is also defined as 'fee and free' (Pauwels & Weiss, 2008, pp.14-31), and it means that a part of a product or service is free, and the rest will be charged. There are some popular ways that a free version of a product or service are restricted such as feature limited (Unblock Me), capacity limited (Microsoft SQL Server Express), effort limited (Temple Run), and storage limited (Dropbox) (Wikipedia, 2016).

3.2.2 Business model innovation

In addition to the development of products or services, innovation in business model also plays a key role for not only a firm but also for the society (Teece, 2010, p.186). A technological innovation requires a

suitable business model to success, and there are many cases that a product is well developed with advanced technologies but results in failures such as HTC phones. A minor development in a product or manufacturing process is not really in need of an innovation in business model; however, the more radical development is, the greater innovation in business model is required (Teece, 2010, p.186).

Furthermore, the cost of research and development tends to raise, and life cycles of products become shorter. Therefore, a firm cannot only rely on technological developments to enjoy success, but an appropriate and sustainable business model is also required. A better business model would outperform a new technology or idea (Chesbrough, 2007, pp.12-17). Furthermore, in the Information Age, products and services are not only things that can be commercialized. Technologies or innovative ideas can be commercialized by a firm through business models (Zott, Amit & Massa, 2010, p.18).

3.3 The necessity of a business model

A business model helps a product or service define when and how can enter the market and capture values (Teece, 2010, p.174). Developments of products or services cannot bring a firm to success by itself, and managers sometimes pay too much attention on developing products or services and neglect the importance of developing a business model which can transform success of technology into success of commerce (Teece, 2010, p.184). In addition to understanding customer needs and wants more shrewdly, capturing values from product or service development is also an essential factor in designing a business model (Teece, 2010, p.172).

To compete in a competitive market, a business model helps a firm understand customer needs and wants, perceive customer choices, find a cost structure, and fight off competition from other firms (Teece, 2010, p.176). An interview conducted by consultants of IBM reveals that firms which outperform others in financial aspect emphasize business model

developments two times more than others do (Zott, Amit & Massa, 2010, p.16).

A business model that is well-developed will greatly assist executives or innovators in delivering and capturing values. In contrast, a business model with a poor design will lead to failures in delivering and capturing values. This is particularly accurate for firms which are conducting e-business, in which a complex and multiple-revenue-stream strategy is applied (Teece, 2010, p.172).

3.4 Different practices of business model

In the literature review process, there were many different practices of business model found. Each researcher has his or her own standpoints on designing a business model, hence a diversity of practices of business model. There are three practices of business model chosen to be discussed which are either popular practices or suitable for the context of the Memory Bites project. Those three practices are 1) Business Model Canvas of Alexander Osterwalder, 2) Provisional Business Model of David Teece, and 3) Reinventing Business Model of Mark Johnson, Henning Kagermann and Clayton M. Christensen.

3.4.1 Business Model Canvas

Business Model Canvas is a way of expressing information about the input factors that create a value chain of a business in the form of images, widely used in processes of construction or processes of starting a business. In addition, it can also be used to analyze the current business situation of a company (Wikipedia, 2016). While large companies use the Business Model Canvas for managerial activities and strategic planning, startups use the Business Model Canvas to search and build an appropriate business model (Osterwalder, 2013).

The Business Model Canvas was developed by a business theorist, Osterwalder. He used nine factors to form the Business Model Canvas,

which he implied that they are the nine key elements that create the structure of a company, including: Key Partners, Key Activities, Key Resources, Value Propositions, Customer Relationships, Channels, Customer Segments, Cost Structure, and Revenue Stream (Osterwalder, 2013).

In the Business Model Canvas, all key aspects of a business are clearly presented by a visual simulation. By looking at the development of each element, an enterprise can refine the value it provides to customers and improve its strategies scientifically. Meanwhile, in procedures of starting a business, a business owner can plan from the beginning a series of important and strategic decisions by using the Business Model Canvas (Nguyen, 2016). It is apparent that the Business Model Canvas is customer-centric oriented. Approximately half of the elements associate to customers.










<p>Key Partners </p> <ul style="list-style-type: none"> - Who are our Key Partners? - Who are our key suppliers? - Which Key Resources are we acquiring from partners? - Which Key Activities do partners perform? <p>MOTIVATIONS FOR PARTNERSHIPS <i>Optimization and economy Reduction of risk and uncertainty Acquisition of particular resources and activities</i></p>	<p>Key Activities </p> <ul style="list-style-type: none"> - What Key Activities do our Value Propositions require? - Our Distribution Channels? - Customer Relationships? - Revenue streams? <p>CATEGORIES <i>Production Problem Solving Platform / Network</i></p> <hr/> <p>Key Resources </p> <ul style="list-style-type: none"> - What Key Resources do our Value Propositions require? - Our Distribution Channels? Customer Relationships? - Revenue Streams? <p>TYPES OF RESOURCES <i>Physical Intellectual (brand patents, copyrights, data) Human Financial</i></p>	<p>Value Propositions </p> <ul style="list-style-type: none"> - What value do we deliver to the customer? - Which one of our customer's problems are we helping to solve? - What bundles of products and services are we offering to each Customer Segment? - Which customer needs are we satisfying? <p>CHARACTERISTICS <i>Newness Performance Customization "Getting the Job Done" Design Brand/Status Price Cost Reduction Risk Reduction Accessibility Convenience/usability</i></p>	<p>Customer Relationships </p> <ul style="list-style-type: none"> - What type of relationship does each of our Customer Segments expect us to establish and maintain with them? - Which ones have we established? - How are they integrated with the rest of our business model? - How costly are they? <p>EXAMPLES <i>Personal assistance, Dedicated Personal, Assistance, Self-Service, Automated Services, Communities, Co-creation</i></p> <hr/> <p>Channels </p> <ul style="list-style-type: none"> - Through which Channels do our Customer Segments want to be reached? - How are we reaching them now? - How are our Channels integrated? - Which ones work best? - Which ones are most cost-efficient? - How are we integrating them with customer routines? <p>CHANNEL PHASES <ol style="list-style-type: none"> 1. Awareness How do we raise awareness about our company's products and services? 2. Evaluation How do we help customers evaluate our organization's Value Propositions? 3. purchase How do we allow customers to purchase specific products and services? 4. Delivery How do we deliver a value Proposition to customers? 5. After sales How do we provide post-purchase customer support? </p>	<p>Customer Segments </p> <ul style="list-style-type: none"> - For whom are we creating value? - Who are our most important customers? <p><i>Mass Market Niche Market Segmented Diversified Multi-sided Platform</i></p>
<p>Cost Structure </p> <ul style="list-style-type: none"> - What are the most important costs inherent in our business model? - Which Key Resources are most expensive? - Which Key Activities are most expensive? <p>IS YOUR BUSINESS MORE <i>Cost Driven (leanest cost structure, low price value proposition, maximum automation, extensive outsourcing) Value Driven (focused on value creation, premium value proposition)</i></p> <p>SAMPLE CHARACTERISTICS <i>Fixed Costs (salaries, rents, utilities), Variable costs, Economies of scale, Economies of scope</i></p>		<p>Revenue Streams </p> <ul style="list-style-type: none"> - For what value are our customers really willing to pay? - For what do they currently pay? - How are they currently paying? - How would they prefer to pay? - How much does each Revenue Stream contribute to overall revenues? <p>TYPES <i>Asset sale, Usage fee, Subscription Fees, Lending/Renting/Leasing, Licensing, Brokerage fees, Advertising</i></p> <p>FIXED PRICING <i>List Price, Product Feature Dependent, Customer Dependent, Volume Dependent</i></p> <p>DYNAMIC PRICING <i>Negotiation (bargaining), Yield Management, Real-time Market</i></p>		

Figure 6. Business Model Canvas (Osterwalder & Pigneur, 2010) (Source: Wikipedia)

All members of the managerial team are subject to the contribution to the process of building the Business Model Canvas. By outlining the pattern onto the large sheet of paper, members can brainstorm together, think about the elements of the Business Model Canvas and give their opinions. This will create an overview of the business within the board of directors. Therefore, new ideas can be discussed and given immediately (Nguyen, 2016).

3.4.2 Provisional Business Model

The Provisional Business Model was proposed by Teece in 2010. The Provisional Business Model “must be evaluated against the current state of the business ecosystem, and against how it might evolve” (Teece, 2010, p.189). The Provisional Business Model is constituted by questions.

According to Teece, in the procedure of designing a business model, it is required to clarify 1) which activities that have to be evaluated and performed, 2) who will perform those activities, 3) marginal costs, and 4) revenue streams (2010, p.189). At the early stage, it is difficult to predict whether a business model will succeed; nonetheless, the success rate will increase if executives have business acumen and capability to finely adjust (Teece, 2010, p.189).

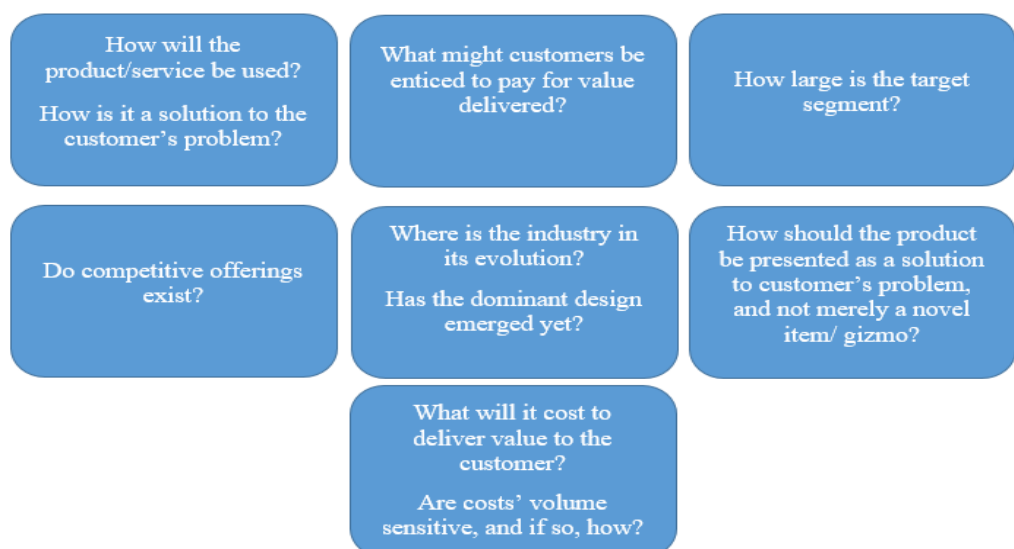


Figure 7. Provisional Business Model (Source: Teece, 2010, p.190)

3.4.3 Reinventing Business Model

From the perspective of Christensen, Johnson and Kagermann (2008), a business model comprises four elements which are customer value proposition, profit formula, key resources, and key processes that both create and deliver values. These four elements are interdependent, and if one element is adjusted, an adjustment for three other factors is required. They emphasized that designing a business model starts by thinking up a new customer value proposition.

At the beginning, key stakeholders do not have a clear view on a new business model, and Christensen, Johnson and Kagermann (2008, pp.50-59) suggested a three-step roadmap to make stakeholders have a proper understanding about it. Identifying customer segments and opportunities to meet customer needs is the first step. The second step is to create a strategic plan on how to satisfy customer needs and generate profit. The third step is to underline on differences between the new business model and the existing business model and define what things should be changed to seize the opportunity.

This practice is selected to be the conceptual framework of this study because it fits the context and scopes of Memory Bites.

In conclusion, each enterprise has a unique business model (Baden-Fuller & Morgan 2010, p.159), and, therefore, selection for business models depends on the circumstances and environment of each company. There are imitations among firms; nonetheless, there are no identical business models.

3.5 Elements of a business model

In this subsection, elements of a business model from the perspective of Christensen, Johnson and Kagermann (2008) are going to be presented. This perspective fits the context and scopes of Memory Bites, and, thus, it was selected. Notwithstanding, the conceptual framework also comprises suitable aspects from other standpoints.

3.5.1 Customer value proposition

Customer value proposition describes products or services of a firm that have been creating values for targeted customer segments. In other words, this is the reason why customers choose your company instead of your competitors.

The value proposition is not about a product or service that is being offered but it should demonstrate the values customers expect and appreciate. In today's business environment, customers have plenty of choices. It means that the competition among enterprises is increasingly fierce, and businesses have to be more customer-centric oriented. In fact, a company which can grow fast and dominate the market is a company that demonstrates a worth and charismatic idea in the minds of customers that they cannot find in products or services of other brands (Massogroup, 2013).

A successful company is a company that can find a way to create and deliver values for customers. Creating and delivering values here is how to provide customers with solutions to their problems or products or services that satisfy their needs and wants. When customer needs or problems and all relating aspects are fully understood, a firm can start planning and finding ways to meet customer needs. If customers are highly demanded, and the current solutions or products cannot satisfy them, a better solution with a competitive price provided from your firm will make your firm enjoy success (Massogroup, 2013). The purpose of the customer value proposition is to have answers to requirements or solutions of a specific customer segment (Osterwalder & Pigneur, 2010).

The role of the customer value proposition in designing a business model is essential, and not until the customer value proposition is clarified can a firm start building a business model (Christensen, Johnson & Kagermann, 2008, pp.50-59).

According to Dawson (2013), a firm should consider the following six factors when building the value proposition for the brand: 1) the target

audience, 2) the customer needs or problems, 3) value of provided solution, 4) products and services, 5) the reason to believe, and 6) what makes this product or service different.

3.5.2 Profit formula

According to Teece (2010, p.174), commercial risks and cost and revenue structures are key elements of a good business model, and a profit formula is the element that investors pay attention the most.

At the most basic level, a profit formula of a company consists of two parts: revenues and expenses. Selling an item with the price which is higher than the aggregate cost makes a company earn profits. A change in a profit formula always leads to a change in a customer value proposition.

A profit formula is associated with the marginal cost. A change of a certain level of activities of an enterprise always leads to a change in variable costs and even fixed costs. This change is called the marginal cost. Foreseeing the marginal cost for each level of production with a given structure allows a firm to optimize production capacity, determine the selling price, and maximize profits. Through the marginal cost, an enterprise can determine the minimum selling price for each region and certain customers for many orders without affecting the current trade policies (Trinh, 2004).

3.5.3 Key processes

Key processes describe the most important actions that a business needs to keep everything flowing smoothly. Key processes use key resources to be able to create value propositions and thereby profits (Cuong, 2015). Successful companies have operational and managerial processes that allow them to deliver values in ways that they can repeat the success and increase scales. These processes can include tasks such as periodic training, development, production, budgeting, planning, sales, and service

(Christensen, Johnson & Kagermann, 2008, pp.50-59). The processes also include the rules, laws, rules and regulations of the company (Christensen, Johnson & Kagermann, 2008, p.50-59).

3.5.4 Key resources

Key resources are assets such as people, technology, product, infrastructure, equipment, distribution channel, and brand that are required to create values for target customers (Christensen, Johnson & Kagermann, 2008). Key resources are the most important resources of a business to operate. Key resources may be physical resources (natural resources), knowledge resources (patents), human resources, and financial resources (Cuong, 2015).

Key resources are considered an investment of a firm. For example, if a firm employs only high level staff, it costs more than hiring ordinary staff (Frei, 2008, pp.70-80). When a firm invests in key resources, that firm also tends to change costs, value propositions, and profit formulas. If not, it would lead to a lower margin.

In the modern business environment, partnership is also considered a key resource. In many firms, especially large firms such as Apple or LG, their production lines rely heavily on their partners from materials to human resources. In services companies, especially internet companies, their relationship with partners is more important than the relationship with suppliers because these companies rarely produce physical products.

3.6 Conceptual framework

After the review process, the conceptual framework for this study is presented in this subsection. The foundation of the conceptual framework is the perspective of Christensen, Johnson and Kagermann (2008) that a business model comprises four elements which are a customer value proposition, a profit formula, key resources, and key processes.

Nonetheless, there are adjustments in the conceptual framework to fit the context of the Memory Bites project.

In addition to the conceptual framework, there were the survey and interviews used as tools to collect data. Qualitative data was gathered through interviews with 1) the CEO of SuperApp, 2) seniors in Finland, Vietnam, and America, and 3) the Project Manager of NUS Technology.

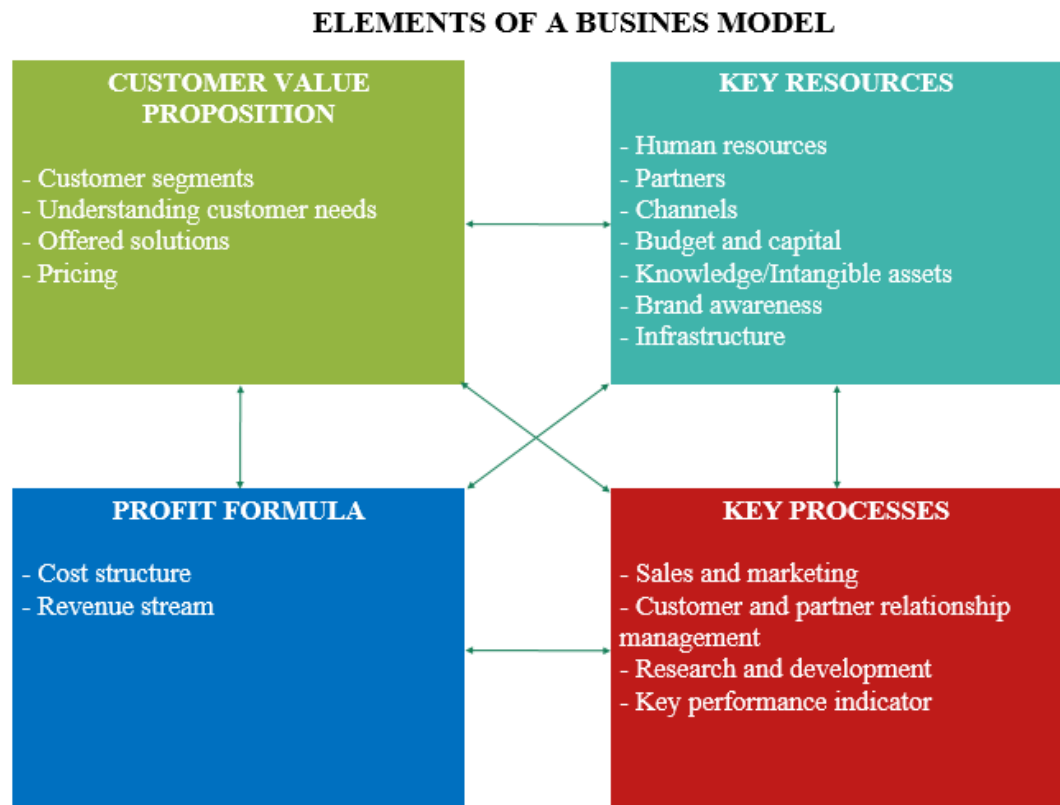


Figure 8. Conceptual framework

4 MEMORY BITES PROJECT

This section will provide essential aspects and general information relating the Memory Bites project including 1) games and improvements on memory, 2) the current situation of Finnish seniors, and 3) the status and plan of the project. Information and knowledge found are foundations for further progress in the Memory Bites project.

4.1 Games and improvements on memory

In this section, researches regarding the effectiveness of brain training games in improving cognitive functions, and especially, working memory are going to be reviewed. Recent studies showed that playing games could result in improvements in cognitive functions in both young adults and seniors (Basak et al., 2008; Boot, Blakely & Simons, 2011; Akitsuki et al., 2012; Hashizume et al., 2013). These results have made video game companies have an attraction of brain training games, and more and more brain training games have been published such as Big Brain Academy and Brain Age. In 2008, Nintendo, the publisher of Big Brain Academy advertised that this game would train a user's brain in five areas which are identify, analyze, think, compute, and memorize (Nintendo, 2008).

Within the scope of this review, the focus is on two studies of brain training games and improvements in executive functions, processing speed, and working memory in both young adult and elderly groups (improvements in working memory were not measured in the senior groups) conducted by Nouchi Rui, Taki Yasuyuki, Takeuchi Hikaru, Hashizume Hiroshi, Nozawa Takayuki et al. in 2012 and 2013. Both studies are randomized control trials.

There are two reasons why these researches are chosen. The first one is that these researches are relatively recent, and the second one is that the games applied to conduct these studies were Brain Age and Tetris which were 1) specifically designed to keep the brain active, (2) handheld

games, and (3) simple to play. The game that the Memory Bites project team is going to develop is also a handheld game with simple gameplay.

In these two researches, the mean age of the senior group was 68.86 while that of the young adult group was 20.5. The number of participants for each group was 32, and all participants were divided equally into two groups which were the Brain Age group and the Tetris group. All the participants were right handed, native Japanese speakers, and non-gamers with no particular disease. They were asked to play either Brain Age or Tetris for four weeks with at least five training days a week.

Each participant took several behavioral and neurophysiological tests on the first day of training. All participants were re-examined on similar tests after four weeks. In the Brain Age group, each participant listed all achievements of titles and scores of each trained game while those of the Tetris group reported the highest total score and total lines in every training day. The researchers used game performances to confirm that playing these games can lead to an improvement in performance. The researchers calculated the difference in score by taking the score recorded after training period minus the score recorded before the training period and conducted an analysis of covariance (ANCOVA) for the young adult group and a multivariate analysis of covariance (MANCOVA) for the senior group for the scores changed in each cognitive test.

In both groups, participants showed significant improvements of game performance achieved during the last time playing in comparison with the first time playing. Working memory showed significant improvement in the young adult group who played Brain Age. Furthermore, the effectiveness of playing brain training games in improvement in processing speed and cognitive functions has been observed and proven in both young adults and seniors. As being mentioned, improvement on working memory within the senior group was not measured. Therefore, within the scope of these two studies, there was not any definitive answers to whether seniors can improve working memory by playing Brain Age. Notwithstanding, in other studies, the beneficial effects of games including action games on working

memory of seniors have been convincingly demonstrated (Basak et al., 2008), (Al-Hashmi et al., 2013), (José et al., 2016). In the research of Basak et al., improvements in working memory of seniors by playing action game were observed.

In conclusion, the beneficial effects of games with particular designs and features on not only working memory but also executive functions and processing speed have been scientifically proven. Thus, games, especially brain training games can be considered a simple, entertaining, and effective solution to memory related issues.

4.2 Current situation of seniors in Finland

This subsection will provide a brief overview of seniors in Finland regarding memory disorders and smartphone and social network activities.

4.2.1 Seniors in Finland and memory disorders

In 2015, the number of Finnish citizens who were older than 65 accounted for 20.5% of the total population, 2% more than the corresponding figure recorded in 2012 (Statistics Finland, 2016, p.30). Also in 2015, the percentage of Finnish population who aged 60 and over was 27.2. This figure was only behind that of Japan (33.1%), Italy (28.6%), and Germany (27.6%) (United Nation, 2015). Finland also recorded the fourth-highest figure which was equal to 7.3% for an increase in the proportion of the population aged 60 years and over in the period from 2000 to 2015 among 201 countries and territories (United Nation, 2015).

As the Finnish population ages, more Finnish citizens suffer from memory. In 2010, there were 95,000 Finnish citizens suffered from at least moderate dementia, and around 30,000-35,000 citizens suffered from a mild memory disorder (Finnish Ministry of Social Affairs and Health, 2013, p.7). This becomes a growing trend in Finland that roughly 13,000 Finnish citizens suffer from a memory disease annually, and by 2020, 130,000 Finnish citizens are expected to have at least moderate dementia (Finnish

Ministry of Social Affairs and Health, 2013, p.7). Moreover, in 2014, the proportion of deaths due to dementia and Alzheimer's disease was 15% of the total deaths (Statistics Finland, 2016, p.17). This figure ranked third behind diseases of the circulatory system and neoplasms.

Nonetheless, not only citizens who are over working age have memory diseases, an estimation of the number of working-age citizens who have progressive memory diseases is approximately 5,000-7,000 (Finnish Ministry of Social Affairs and Health, 2013, p.7). This situation imposes a burden on the society because not only there is a reduction in a workforce but also an increase in social expenditure. Not all who suffer from a memory disorder are incapable of continuing working; nevertheless, even mild symptoms might prove a hindrance.

75% of patients who receive 24-care are diagnosed with a memory disorder, and in 2010, an average expense for that each patient was EUR 46,000 while home care services costed only EUR 19,000 a year (Finnish Ministry of Social Affairs and Health, 2013). EUR 23,600 is the average cost of providing a person who suffers from dementia with social welfare and health care services a year (Finnish Ministry of Social Affairs and Health, 2013, p.7).

Dr. Tapani Frantsi from Susino Oy, a member of the Memory Bites project core team, made an approximate calculation on the cost saved in one year for an individual if he or she can delay memory related issues and continue working for at least one year.

Lahti (Päijät-Häme) region population	200,000	Finland population	5,500,000
Found cases between 45 and 65 years old: (in working-age residents and suffer	(100~500) 300 (The mean value)		(7000~10,000) 8250 (The mean value)

from a memory disorder)			
Cost savings related to health care per one year per person	EUR 5,000		EUR 5,000
Cost savings related to maintain working capability per person in one year	EUR 20,000		EUR 20,000
Total cost saving for one year per person	EUR 25,000		EUR 25,000
Total sum in Lahti region	EUR 7,500,000	Total sum in Finland	EUR 206,250,000

Figure 9. A rough calculation on amount saved if individuals can delay memory related issues and continue working for at least one year

Apparently, by delaying memory related issues and maintaining the working ability of workforce for one year, the financial burden on the society is lightened significantly.

4.2.2 Finnish seniors and social networks and smartphone activities

By 2015, the figure for smartphone users in Finland was 69% of the total population (Statistics Finland, 2016). In 2014, while 58% of the Finnish respondents in the 45-54 age group possessed smartphones, that figure for the 55 and over age group was 49% (Deloitte, 2014, p.4), and there was a remarkable increase in the number of smartphone owners in both groups since 2013.

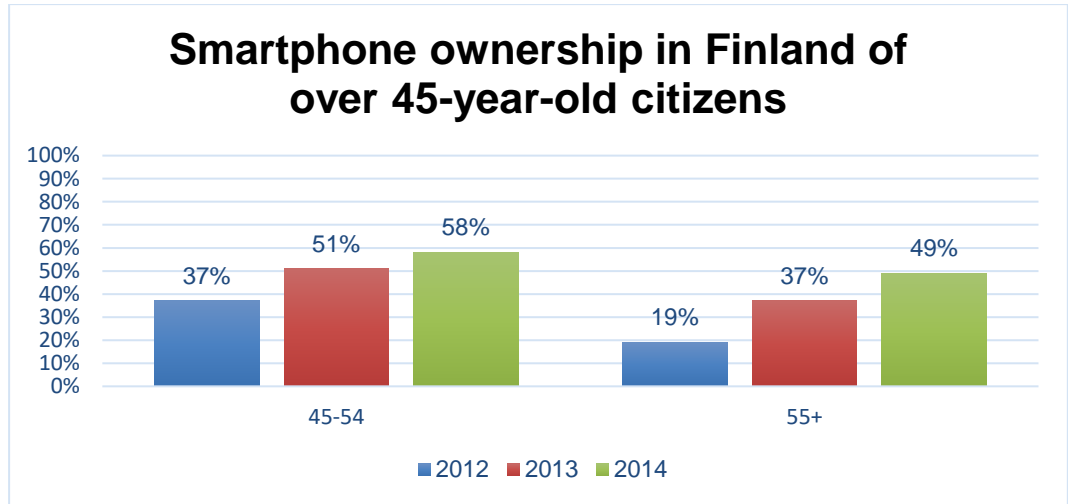


Figure 10. Smartphone ownership in Finland of over 45-year-old citizens (Source: Deloitte Global Mobile Consumer Survey, FIN edition, 2014, p.4) (Base: All Finnish respondents (2012) 1,127, (2013) 1,000, (2014) 1,000)

Finnish seniors also preferred traditional means of communication such as voice call and SMS that most of them made voice calls and used SMS services weekly.

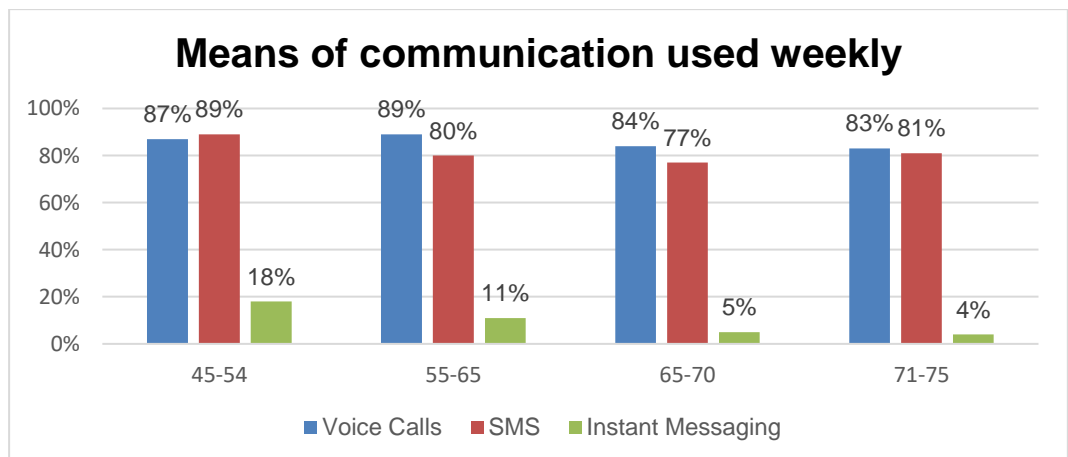


Figure 11. Means of communication used weekly (Source: Deloitte Global Mobile Consumer Survey, FIN edition, 2014, p.6) (Base: All Finnish respondents from 18-75 who had either a smartphone or phone (954))

However, regarding playing games on smartphones, the number of over 45-year-old users who played games on their smartphones was not high. Furthermore, Finnish seniors almost did not spend money on games.

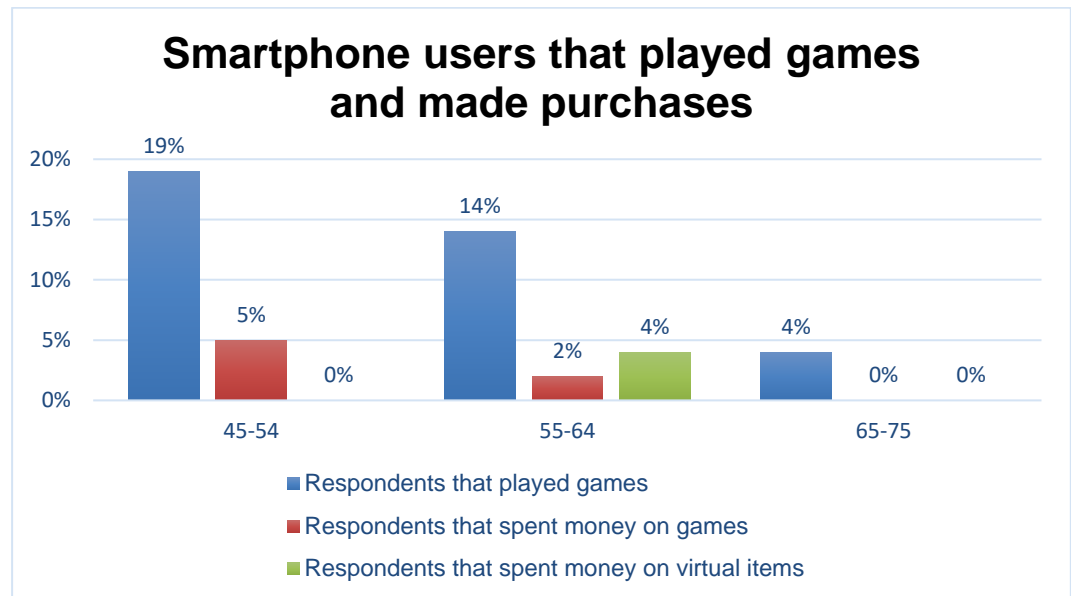


Figure 12. Finnish smartphone users that played games and made purchases (Source: Deloitte Global Mobile Consumer Survey, FIN edition, 2014, p.14) (Base: Finnish respondents who connected to the Internet via smartphone (580))

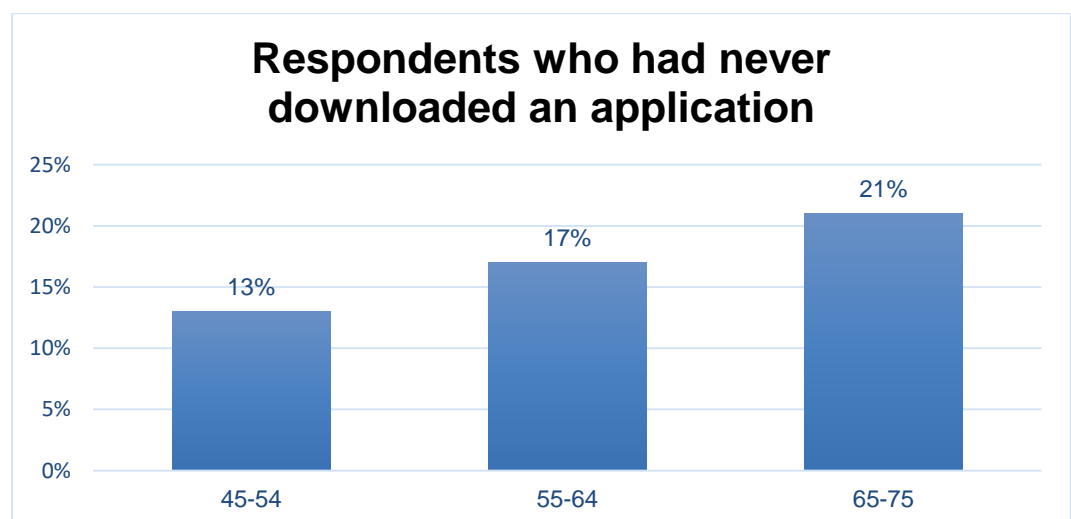


Figure 13. Respondents who had never downloaded an application (Source: Deloitte Global Mobile Consumer Survey, FIN edition, 2014, p.12) (Base: Finnish respondents who connected to the Internet via smartphones (580))

According to the survey carried out by Deloitte in 2014, the number of respondents who were from 45 and had never downloaded an application was relatively high. As the users aged, they did not have a propensity to download an application due to a lack of demand or competence.

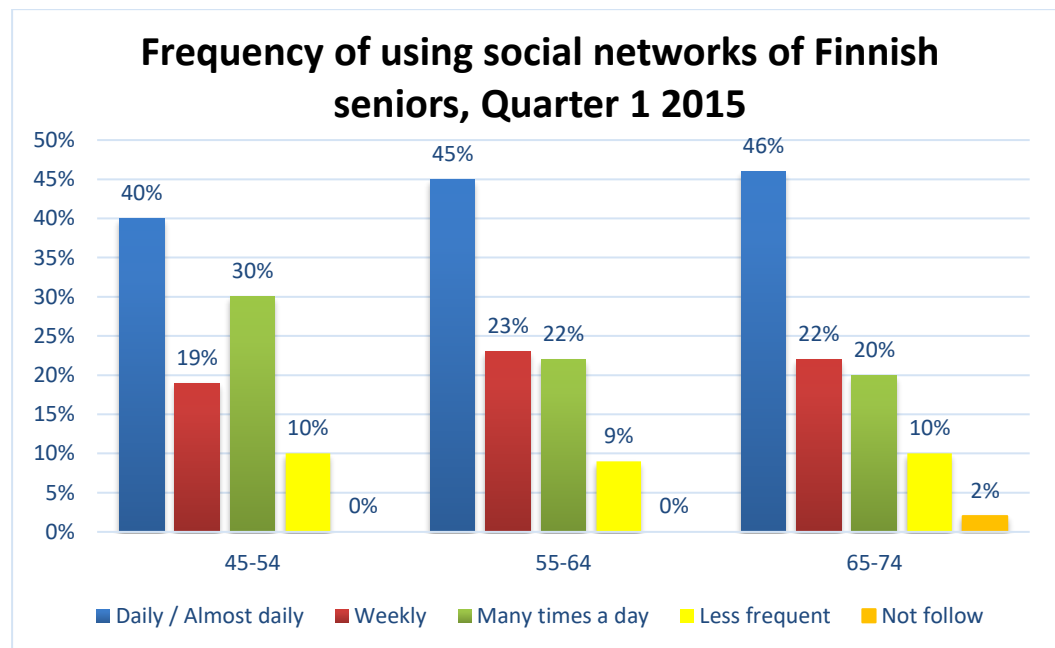


Figure 14. Frequency of using social networks of Finnish seniors, Q1, 2015 (Source: Statista, 2016) (Base: 4,850 respondents from 16 to 89 years old)

The chart illustrates that almost all the respondents aged from 45 to 74 used social networks in the first quarter of 2015, and approximately 45% of them used social networks daily.

4.3 Status and plan of the project

The Memory Bites project was initiated by Dr. Tapani Frantsi from Susino Oy and SuperApp in 2015 with the vision to delay memory related issues for the target audience for at least one year. The outcome of the project is to develop a game with specific features and aims to improve users' memory. The target audience is who are from 45 years old.

The project has one year of planning, and now, the project team is now defining game concepts, building prototypes, and raising capital. The project team has acquired 20,000 Euros from MAKERA (Finnish Municipal Development Fund) to develop the game and cover necessary trips to form a consortium.

Along with SuperApp which occupies a role in commercial side and technical knowledge, the core project team comprises Lahti University of Applied Sciences (researches on different areas), Susinno Oy (commercial side and innovation approach), Päijät-Hämeen Muistiyhdistys (Memory Association in Lahti Region), and several doctors who are geriatric experts.

In addition to the core team, there are proposals to form a consortium with many international partners. Information about proposed partners of the Memory Bites project is summarized in the table below.

Name	Contact	Competence / Role
University of Szeged, Hungary	Tibor Török tiber.torok@@info-ll.hu	Testbed
University of Valencia, Spain	jordi.garces@uv.es	An group specialized in R&D
Fondazione Ugo Bordoni (Cultural and Research Institution)	Bartolomeo Sapio bsapio@fub.it	Big data
Cankaya Univeristy, Ankara, Turkey	Gul Tokdemir gtokdemir@cankaya.edu.tr	Brain training and IT (mobile application development for mental games / diary for Alzheimer patients)
Joanneum University of	Mag. Dr. Monica Christova	Expertise in innovative IT solutions, product, services,

Applied Sciences, Gratz, Austria	Monica.Christova@ fh-joanneum.at	and coaching programs within the context of Healthy Ageing Active and Assisted living
University of Santiago de Compostela, Spain	David Facal	Experience in projects regarding Horizon 2020 and FP7
University of Zaragoza, Spain	Eduardo Lleida Solano lleida@unizar.es	Experience in cooperation in intensive courses
Alzheimer Europe	sirpa.pietikainen@europarl.europa.eu Alzheimer Europe	Expertise in memory disorders

Figure 15. Proposed partners of the Memory Bites project

In the short term, the project team has to concentrate on what the project is still lacking, and they are 1) target device(s), 2) actual game concepts, and 3) game prototypes. The result of the prototype development is to have at least one relevant game concept that gets along with the platform. The project team is going to apply funds from many programs. In addition, there are other valuable resources for the project such as students' projects and theses.

4.4 Features of the game

The project has not defined the target platform (iOS and/or Android) and game concepts. However, the basic framework of the game with several fixed components and features has been established.

The game would comprise three main elements which are front-end (games), database, and platform. The role of the game is to perform a channel to gather data from users for the platform, and the purpose of the

platform is to analyze and diagnose users' conditions. The database is the place to store data and the base for analysis and diagnosis. The database also acts as user-generated content for the game. The diagnostic procedure will be implemented automatically followed geriatric professionals' advice. There would be many game concepts, and they are based on the content. The diagram will depict the entire process below.

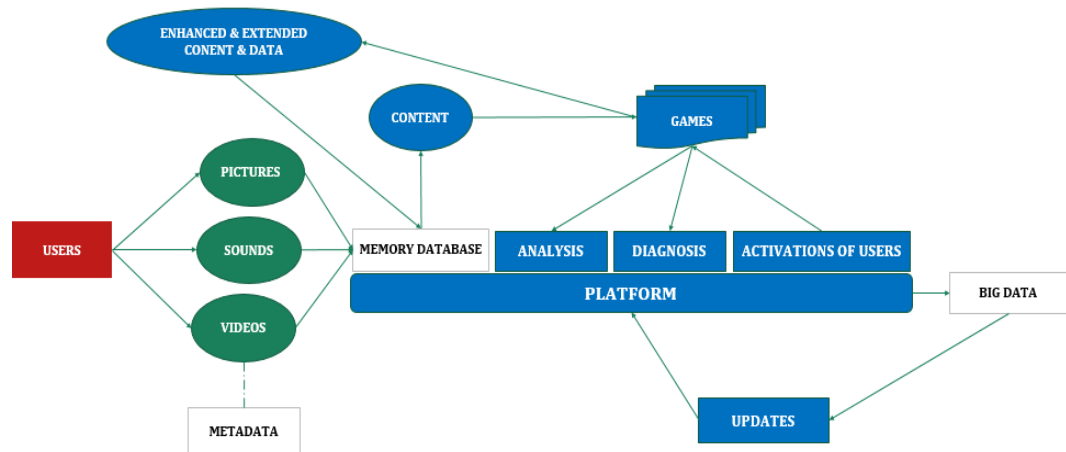


Figure 16. The process of the platform

5 BUSINESS MODEL FOR MEMORY BITES

The proposed business model proposal for Memory Bites will be presented in this section based on 1) the conceptual framework presented in the subsection 3.6, 2) the data gathered through the survey and interviews, and 3) the three-step roadmap of Christensen, Johnson and Kagermann (2008, pp.50-59) presented in the subsection 3.4.3. The SWOT analysis of Memory Bites and relating legal issues will also be mentioned.

5.1 Data analysis

In this subsection, the data collected through the survey and interviews will be carefully analyzed. This section also uses figures and information found in the previous section regarding social networking and smartphone activities of Finnish seniors.

5.1.1 Survey data analysis

The outcome of the Memory Bites project is a new game developed to improve working memory of the elderly. Although there are several similar products available in the market that aim to improve cognitive functions of the elderly such as Brain Age, grasping customer behaviors and needs is an essential task because (1) it is compulsory in the process of designing a new business model, (2) the game is new in the market, and (3) similar games with similar purposes such as Brain Age are mainly available in handheld game consoles while the outcome of the Memory Bites project is a game for smartphones. The survey conducted by the researcher only served for the scopes of the study, and, therefore, the more careful and detailed survey with a larger scale should be carried out by SuperApp before launching the product into the market.

All the respondents are from 45 years old, have smartphones, and come from Korea, Vietnam, Finland, and America. The shortage in this survey is that although Memory Bites focuses on the Finnish market first, there were

only ten Finnish informants out of forty night informants. The figures found in the previous section would partially compensate for this shortage. Furthermore, SuperApp has an intention of making this project become international in the long term, and, therefore, the researcher tried to approach potential users from different countries in addition to Finland.

There was a total of 49 respondents including 35 Vietnamese seniors, 3 American seniors, 1 Korean senior, and 10 Finnish seniors. The survey examined smartphone activities, game activities, download activities, awareness of memory decline, and perspectives of potential users on what Memory Bites project is going to do. An English version of the questionnaire will be presented in Appendix 1.

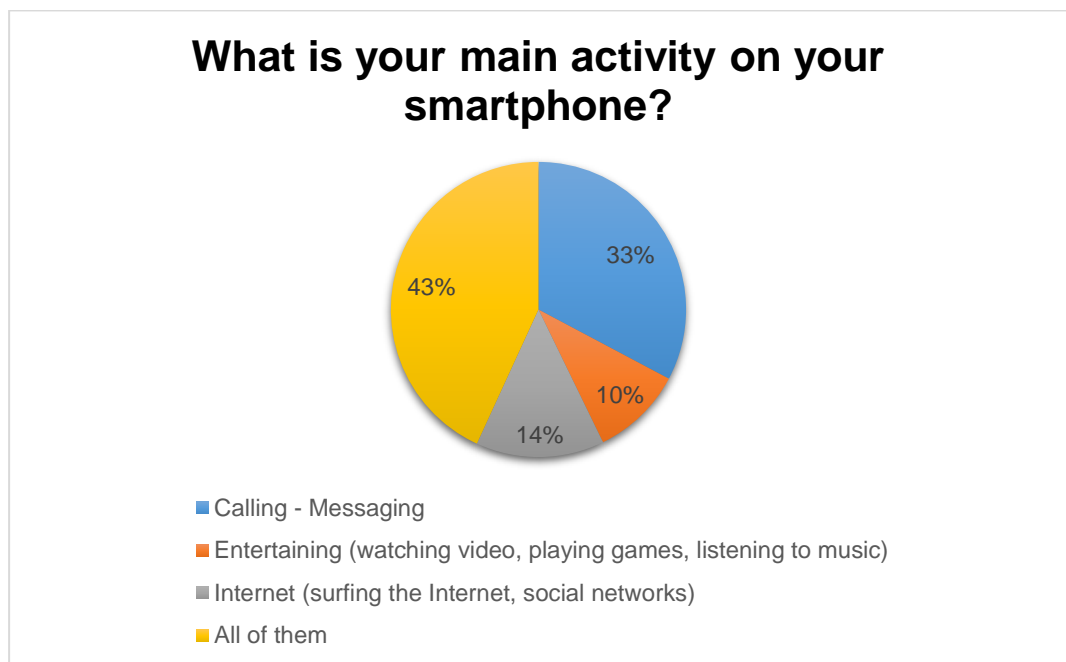


Figure 17. Smartphone activities of respondents

The pie chart illustrates that while 43% of the respondents make use of their smartphones, 33% use their smartphones mainly for calling and texting. All the respondents use either Android phones or iPhones, and one Finnish senior uses a Windows phone.

Notwithstanding, 70% of the Finnish respondents use smartphone mainly for calling and texting, and the difference between the Finnish group and

other groups is apparently. There are three common reasons reported that they 1) prefer traditional entertainment such as watching televisions or reading books, 2) lack competence, and 3) feel confused with new technology.

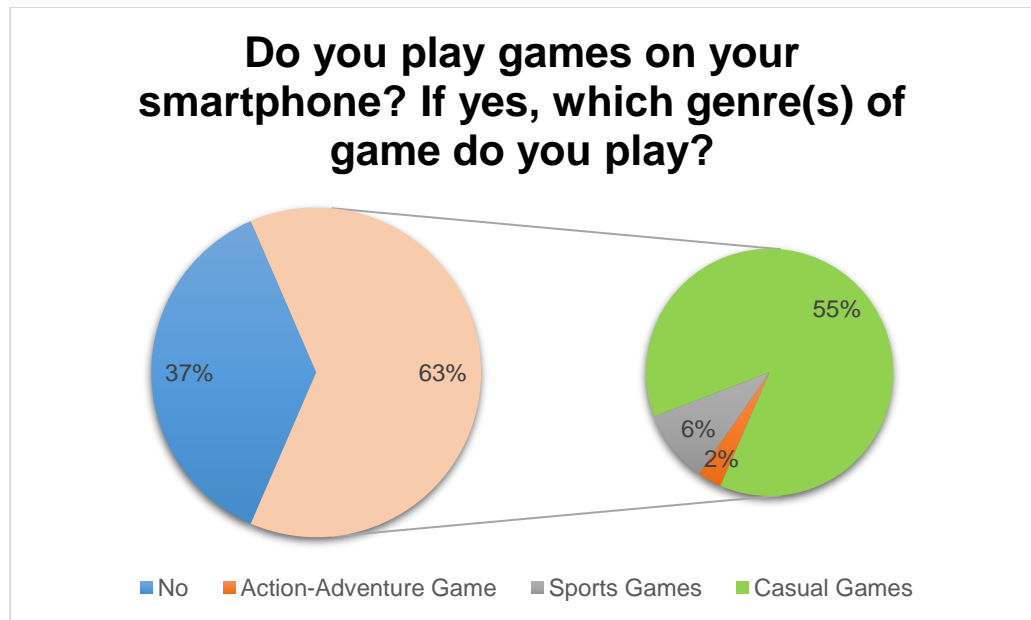


Figure 18. Game activities and genres of game

Regarding playing games on smartphones, four out of ten of Finnish informants reported that they play games on smartphones, and the corresponding figures for the 45-54 group and the 55-64 group in the survey of Deloitte (2014) are 19% and 14% respectively.

In contrast, seniors from the other countries tend to play games on smartphones, especially seniors from America that three out of three respondents informed that they usually play games on smartphones, and that figure for the Vietnamese group is approximately 65%.

Not surprisingly, casual game (cards, puzzle, strategy, endless-runner) is the genre of game that is played the most among all the informants. There was a common answer from the informants that they choose to play this genre because it is simple to play and does not take much time. The game that is going to be developed by the Memory Bites project team also meets those criteria.

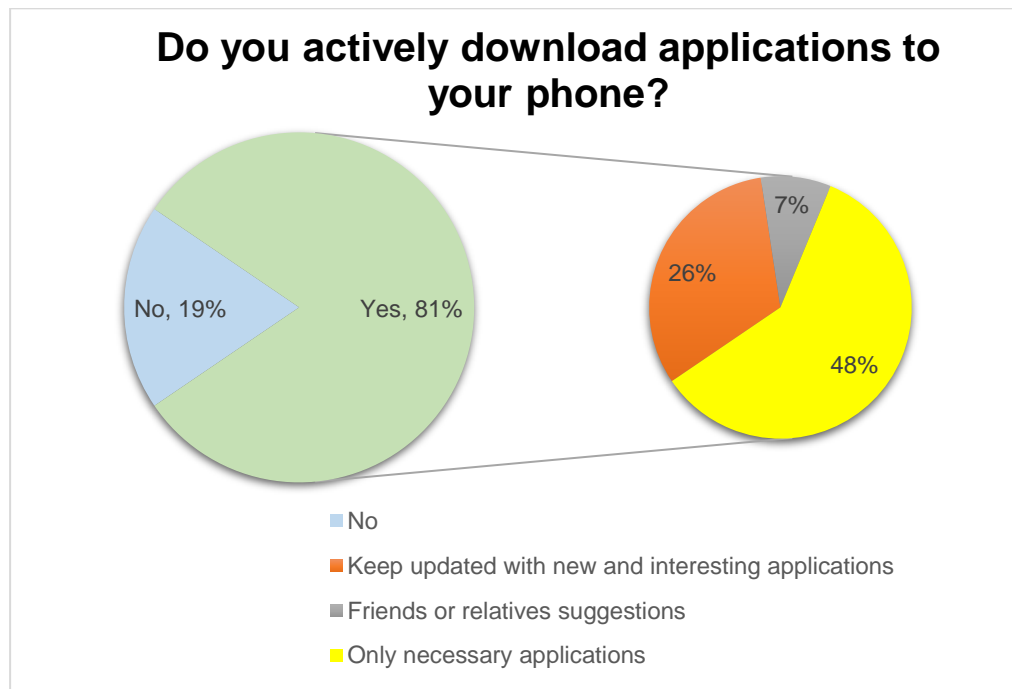


Figure 19. Application download activities

The survey demonstrates that a fifth of respondents do not actively download an application. The corresponding figures from the survey of Deloitte for Finnish citizens are similar to this one.

Within this question, there is no considerable difference among all the groups of respondents. In the Finnish group, there are two informants reported that they had never downloaded an application, and seven informants briefed that they only download necessary applications while the other one downloads applications based on suggestions of other people.

The reason that keeps the respondents from downloading an application is that 1) pre-installed applications can meet their demand, 2) they lack competence, or 3) smartphone sellers or their relatives download necessary applications for them. Furthermore, many websites now have a responsive web design, and, thus, users do not need to download a specific application, especially users who do not have many demands.

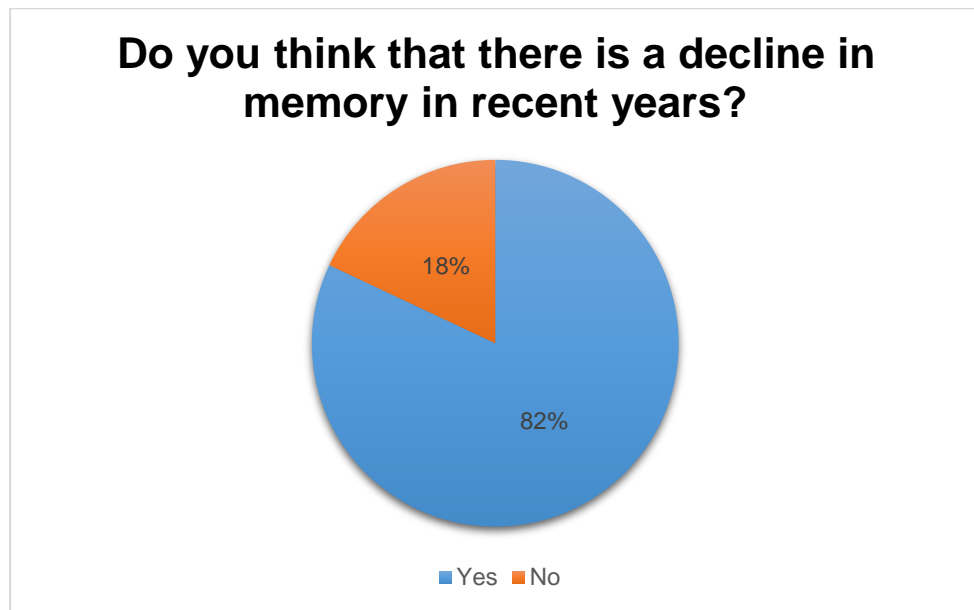


Figure 20. Awareness of memory issues

Respondents of this survey are from 45 years old to 65 years old, and all of them are working. Some occupations require good working memory such as accountant and teacher. Nevertheless, 82% of the respondents reported that they feel a decline in their memory in recent years. In the Finnish group, 70% of the respondents were recorded that there is a decline in their memory in recent years.

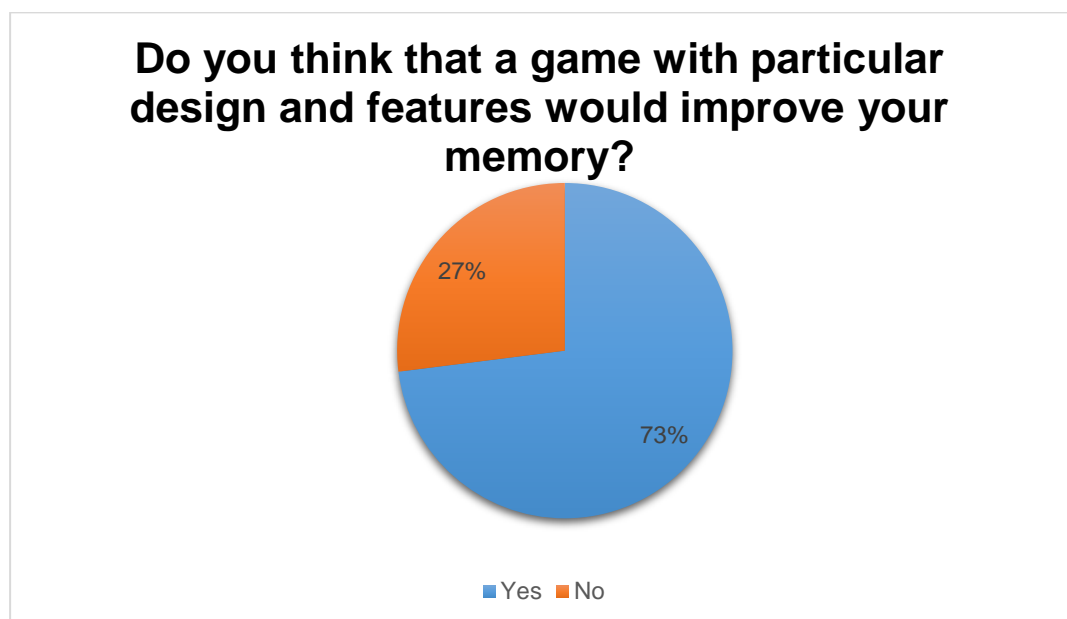


Figure 21. Views on the relationship of games and improvements on memory

Regarding the relationship of games and improvements on memory, 73% of the informants think that playing games with particular designs and features would help them improve memory, and all the Finnish informants believe that they can improve their memory by playing games. The majority of those replied no do not play games.

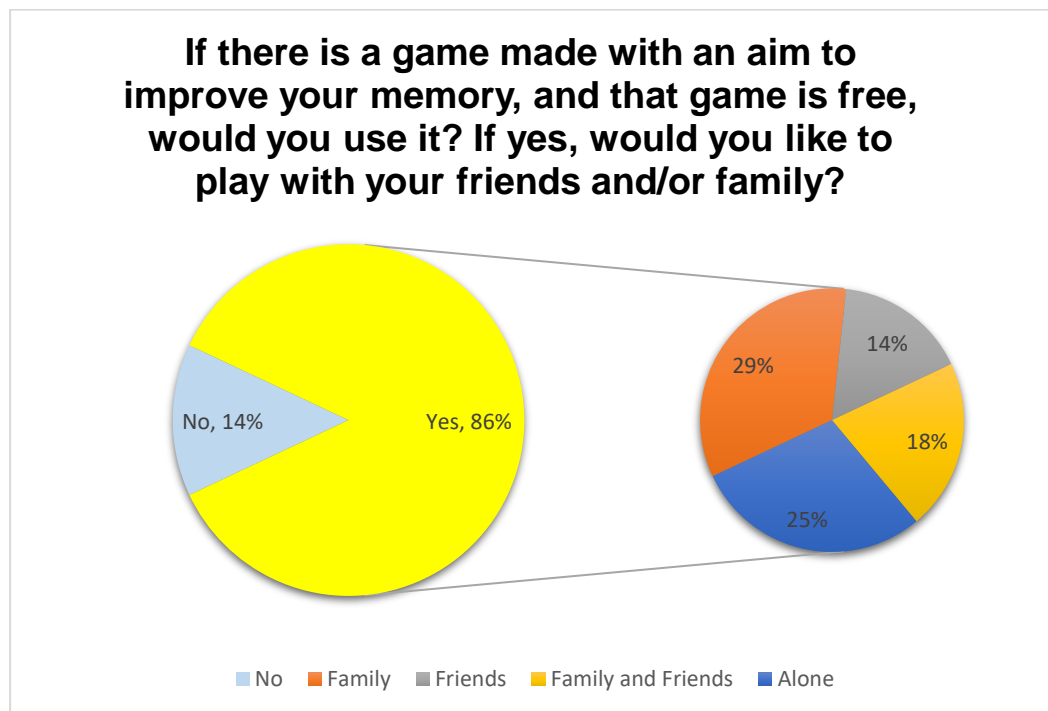


Figure 22. The willingness to play the game and whom to play with

While 27% of the respondents do not think that playing games would improve their memory, only 14% of the respondents are not willing to try the game. There are several informants who do not think that playing games would improve their memory; nevertheless, they want to try the game when it is available.

This result follows the similar pattern of the previous question that those who are not willing to try the game do not play games. There are only two Finnish respondents do not want to try the game. While a third of respondents want to experience the game with their relatives, a fourth want to try it themselves.

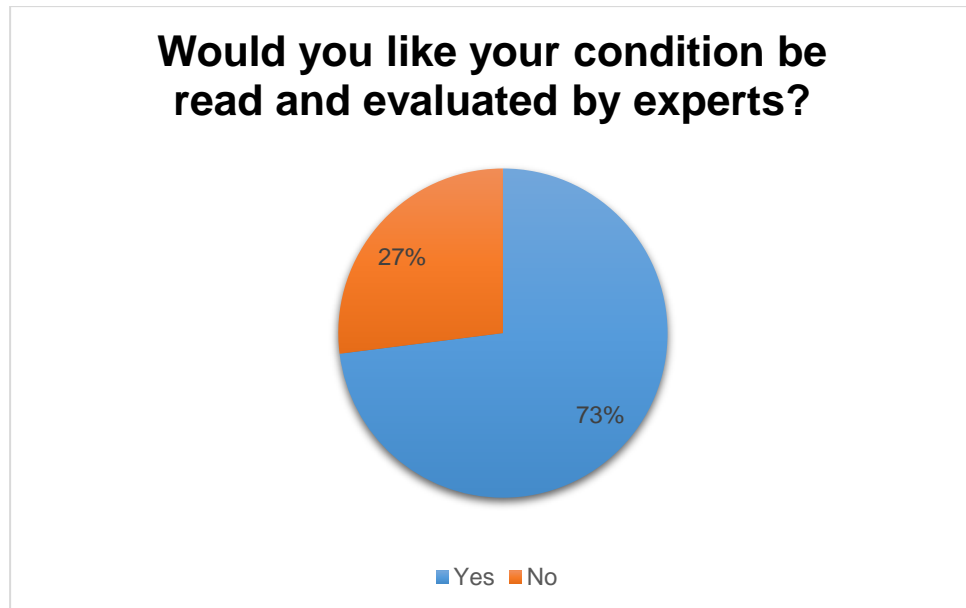


Figure 23. The willingness of respondents to let experts approach their conditions

In this question, the informants who refused to let experts access their conditions told that this information should be confidential. Six out of ten Finnish informants chose to keep their conditions private. Almost all respondents from America, Finland, and Korea do not want to let experts approach their conditions.

5.1.2 Interview data analysis

All the interviews were categorized into three sections that were 1) interviews with the CEO of SuperApp, 2) an interview with the Project Manager of NUS Technology, and 3) interviews with potential customers.

Interviews with the CEO of SuperApp

There were three interviews with the CEO of SuperApp conducted and they revolved around 1) information, status, strategy, and progress of the Memory Bites project, 2) suggestions on the business model for Memory Bites, and 3) feedback on the proposed business model.

Regarding the business model for Memory Bites, the focus was on value propositions and revenue streams. The CEO of SuperApp decided to

provide the game freely, and, thus, SuperApp cannot generate revenues by selling the game. However, there are some features and game concepts that have not been defined, and SuperApp could charge end users by using the 'free and fee' strategy.

There are several suggestions and advice from the CEO of SuperApp regarding revenue streams and customer value propositions.

- **Revenue stream**

Selling the data: Through the game, SuperApp can collect users' memory conditions, and this data would be commercialized by being provided for medical centers or professionals.

Licensing the platform: If there are offers, SuperApp will licensing the platform of the game for another technology company or developers.

- **Customer value proposition**

Effective and entertaining exercise: The game would be an effective and entertaining exercise for users to delay memory related issues.

An interview with the Project Manager of NUS Technology

NUS Technology is an IT company located in Ho Chi Minh City, Vietnam that offers outsourcing services such as developing websites and mobile applications. The company also has expertise in project management and product management. NUS Technology has served both domestic and international from small businesses to large firms.

The interview with the Project Manager of NUS Technology discussed 1) how free applications generate revenues and 2) suggestions and advice. The Project Manager of NUS revealed that more than 70% of applications that his company had developed (based on clients' requirements) were free applications, and he listed several methods to monetize free applications.

- **Advertising:** He confirmed that advertising is the most common way that clients of NUS Technology apply to generate revenues with free applications. Banner advertisement and video advertisement are two types of advertisement that usually appear in applications developed by NUS Technology.
- **Two versions of an application:** There are two versions of an application, free version and paid version. A free version application lets the users try that application with limited features, and when they want the complete experience, they make purchases. MyID and My ID Plus are applications developed by NUS technology using this method. Furthermore, there are some applications that users only have to make purchases and have a complete experience without downloading another version.
- **In-app purchases:** The Project Manager of NUS Technology revealed that this method is popular in games.

Regarding advice and suggestions for Memory Bites, because the game was not finished, this was a difficult question for the interviewee. However, he suggested that because the target audience is seniors that they do not usually keep updated with new applications, there should be a strategy for making the target audience knows about the game and downloads. The Project Manager of NUS Technology stated:

“If nobody knows and downloads your applications, you cannot make money from it.”

Interviews with potential users

There were six interviews held, one with Vietnamese senior, two with American seniors, and three with Finnish seniors. Their answers will be summarized in the tables below.

Question	Informant	Answer
How is your memory condition within a year? Do you have training or exercises to keep your brain working well?	Finnish	<ul style="list-style-type: none"> - A decline in memory but no problems or difficulty - No training or exercises for brain
	Finnish	<ul style="list-style-type: none"> - A decline in memory but no problems or difficulty - No training or exercises for brain
	Finnish	<ul style="list-style-type: none"> - A decline in memory with problems and difficulty in life - No training or exercises for brain
	American	<ul style="list-style-type: none"> - No decline in memory in recent years - No training or exercises for brain
	American	<ul style="list-style-type: none"> - A decline in memory - No training or exercises for brain
	Vietnamese	<ul style="list-style-type: none"> - A decline in memory with problems and difficulty in life - Reading books

Figure 24. Memory condition and brain training of interviewees

Question	Informant	Answer
What do you expect from the game?	Finnish	<ul style="list-style-type: none"> - Easy to play
	Finnish	<ul style="list-style-type: none"> - Easy to download and do not take so much memory from the device. - Can keep in mind for example numbers or visual views.
	Finnish	<ul style="list-style-type: none"> - Easy to play and interesting

	American	<ul style="list-style-type: none"> - Fun and easy to play - Flexible to set up - Having multiple levels from easy to difficult - Having ways to evaluate player's memory improvement
	American	<ul style="list-style-type: none"> - Easy to play and interesting
	Vietnamese	<ul style="list-style-type: none"> - Easy to play and not takes too much time

Figure 25. Expectation from interviewees for the game

Question	Informant	Answer
Do you think that you would stick to the game for at least six months? Why not?	Finnish	<ul style="list-style-type: none"> - May not have time to stick to the game for such a long period
	Finnish	<ul style="list-style-type: none"> - Six months are quite long - Not have time to play everyday but once or a few times a week
	Finnish	<ul style="list-style-type: none"> - No, six months are quite long
	American	<ul style="list-style-type: none"> - If the game is interesting, the respondent will stick to the game
	American	<ul style="list-style-type: none"> - Not sure, depending on the content of the game
	Vietnamese	<ul style="list-style-type: none"> - No, six months are quite long

Figure 26. Interviewees and commitments to the game

Question	Informant	Answer
Are you willing to interact with other people?	Finnish	- Yes, if necessary
	Finnish	- No. Want to play alone
	Finnish	- Yes
	American	- Yes, it is better to play with friends or relatives
	American	- No. Want to play alone
	Vietnamese	- Yes

Figure 27. Interviewees and the willingness to interact with others

Question	Informant	Answer
The game will provide preliminary diagnosis of your memory condition. Do you want experts from medical centers approach it? Why not?	Finnish	- No. Prefer to talk with the family physician
	Finnish	- No. Do not want to get consulting services
	Finnish	- No. Do not want to get consulting services
	American	- No. Not interested in medical research or consulting services
	American	- No. Do not want to get consulting services
	Vietnamese	- Yes

Figure 28. The willingness of interviewees to let experts approach their conditions and reasons

Through the six interviews, these are important findings: 1) almost all the interviewees have a decline in memory, but they do not have any training or exercises for their brains, 2) all the interviewees expect that the game should be easy to play and interesting and not take too much time, 3) most of the interviewees are not willing to stick with the game for a long period because they are all working and have other important things to do, 4) they want to interact with other people, and 5) a majority of the interviewees want to keep their conditions confidential.

5.2 Business model for Memory Bites

A customer-centric business model should be formed outside-in, and according to the roadmap of Christensen, Johnson and Kagermann (2008), the process of designing a business model starts by defining customer segments. Therefore, the process of building a business model for Memory Bites starts from the customer value proposition.

5.2.1 Customer value proposition

Customer segments: Memory Bites does not focus on a mass market but a niche one, namely people aged from 45 and possess smartphones. The game will be available in Finland first, and the project team has a plan to make the game become international. An increase in the smartphone ownership of over 45-year-old citizens in Finland (Deloitte, 2014, p.4) is a great advantage for Memory Bites.

With an aging population and the number of citizens who suffer from memory disorders is high, Finland is a potential market for Memory Bites to build a customer base and brand and develop.

Understanding customer needs: through the survey and interviews, there are two key findings that are 1) the majority of the respondents have problems with their memory and some encounter difficulty in life and 2) the majority of the interviewees do not have any training or exercises for their

brains. Therefore, brain training activities are things that they demand. Furthermore, the simplicity and relaxation have to be prioritized.

Offered solutions: As the beneficial effects of games on improving memory have been scientifically proven, games can be considered an economical, entertaining, and effective solution to prevent memory disorders. In addition, playing games can be good exercise with the aim of keeping the brain stay sharp. After defining the customer segment and understanding customer needs, these are solutions and value that Memory Bites offers to end users:

- **An economical, entertaining, and effective solution to prevent memory disorders:** Memory Bites will be a simple and relaxing game that aims to help its players improve their memory and delay memory related issues. The game can also be used for the treatment plan or procedure. Memory Bites will yield memory condition of users, thereby having timely solutions and treatments. Memory Bites will be provided for free.
- **Mental exercise for the brain:** Similar to the body, the mind also needs exercise. By playing Memory Bites, users will have mental exercise for their brains in order to keep them sharp.
- **Promoting social communication and reminiscence of own life:** The game will require users to interact with other people, especially friends and relatives. Furthermore, there are several game concepts that will be based on contents provided from users, particularly contents related to the past such as pictures.

In addition to value offered to end users, Memory Bites also brings value to the society. By delaying memory related issues and maintaining the working ability of workforce for one year, the financial burden on the society is lightened significantly.

Pricing: Memory Bites will be provided for free.

5.2.2 Profit formula

The profit formula comprises the cost structure and revenue streams.

Cost structure

The cost structure for Memory Bites includes four key elements:

- **Infrastructure:** In the process of developing the game, investment in IT infrastructure such as devices, accessories, and a data center (if necessary) is mandatory. Investment in infrastructure is considered fixed cost.
- **Research and development:** Memory Bites is not a game with only gameplay and graphics. It requires in-depth researches, specifically in medical knowledge and how the game can improve its user memory. Furthermore, designing simple and interesting gameplay and interface also requires a lot of effort. In addition, the cost of market research before launching the product is also required.
- **Marketing and sales:** Marketing and sales play a vital role in the success of Memory Bites. Marketing costs can include costs for marketing campaigns or promoting the product.
- **General and administrative:** This element includes costs such as office rental, salary, software licenses, and revenue sharing.

Revenue stream

Memory Bites will be provided for free, and the multiple-revenue-stream strategy is applied. Because the game is not finished, this part does not cover some features of the game that can be commercialized. These are revenue stream proposals for Memory Bites:

- **Selling the data for medical centers / medical professionals:**
The game can gather the memory condition of users, and this data will be commercialized by providing for medical centers and/or experts. However, through the survey and interviews, some

respondents, especially Finnish and American respondents, want to keep this information confidential. Therefore, to apply this method, the consent of users is required.

- **Selling / Licensing the game to medical centers or nursing homes with development and maintenance services:** There would be a particular version of Memory Bites sold to a medical center or nursing, and that medical center or nursing home will use the game for the treatment plan or procedure.
- **Licensing the game platform:** SuperApp will licensing the platform of the game for another technology company or developers if there is an offer.
- **Partnership with mobile network operators or phone manufacturers:** Phones today are coming with many preinstalled applications (bloatware) from mobile network operators and third parties. For instance, in South Korea, a new Android phone is sold with an anti-virus application, and LG Uplus (LG U+), a cellular carrier, chooses an application called ALYac. Or Samsung exclusively offers Galaxy users premium apps of third parties through Galaxy Gifts. This trend is not prevailing in Finland. However, if this method is applied, it can be an effective method because Memory Bites will be available when a user buys a new smartphone. The survey reveals that the number of respondents who have not actively downloaded an application is relatively high, and only 26% of the respondents keep updated with new applications in the market. Obviously, this method is applied only for customers aged from 45.
- **Providing advisory service:** In the core team of the Memory Bites project, there are geriatric experts and doctors. Therefore, Memory Bites can provide users with the advisory service on their condition. There is a notification about this service to users when they download and play the game, and users will contact when they need this service.

- **Advertising:** This way is still the most common way to monetize free applications. A well-designed advertisement not only makes users engage with the game but also monetizes. According to case studies of Unity, video advertisements seem to be highly effective.

5.2.3 Key processes

This subsection discusses indispensable activities involved in the process of developing and commercializing Memory Bites.

- **Customer relationship management:** Because this business model is customer-centric oriented. Consequently, customer relationship management activities are essential. Memory Bites is a new product, and, thus, understanding, satisfying, and supporting customers are vital activities to build a customer base and customer engagement. After having a customer base, the customer data should be systematically analyzed and utilized, thereby understanding trends, behaviors, and preferences and giving better solutions. In addition to satisfying customers, it is imperative to identify dissatisfied users, thereby offering apologies and appropriate solutions.
- **Partner relationship management:** Partners perform a crucial role of the Memory Bites project, especially medical knowledge. A long-term commitment from partners enables the Memory Bites project to have long-term plans and strategies and develop further.
- **Sales and marketing:** There are some restrictions and difficulty when the target audience is people aged from 45. Sales and marketing activities occupy a fundamental role in approaching customers and persuading them to download the game. As being mentioned, the target audience usually does not keep updated with new applications in the market, and some have never downloaded an application. Therefore, an effective and impressive marketing campaign needs to meet these criteria which are 1) making the target audience know about Memory Bites as well as values that

Memory offers and 2) persuading the target audience to download the game. As the number of Finnish seniors use social networks is relatively high (as being mentioned in the subsection 4.2.2), there are more ways to approach the target audience such as marketing campaigns on social media in addition to traditional ways.

- **Research and development:** Memory Bites requires not only technological researches but also medical researches. What the suitable game concepts are, what measurements to use, and how the game can improve users' memory are things that the project team are researching about. Market research is compulsory before launching the product. Furthermore, after Memory Bites is fully developed, activities to manage and improve the platform are also important.
- **Key performance indicator:** By defining, applying, and evaluating key performance indicators, the project team can easily track the progress of Memory Bites and have timely solutions.

5.2.4 Key resources

Key resources are essential resources needed to deliver the customer value proposition. Key resources include both physical assets and intangible assets. These are key resources of the Memory Bites project:

- **Human resources:** The project requires experienced and skillful individuals in many areas such as technological, medical, managerial, and sales and marketing.
- **Partners:** The core project team has been established, and partnership proposals to other firms have been put forward. While SupperApp occupies a role in commercial side and technical knowledge, other important roles and contributions of the project such as medical are taken by partners. Partners from the core team make a two-year commitment at a minimum to the project. Information about the core project team and partnership proposals were mentioned in the subsection 4.3

- **Budget and capital:** The project is expected to cost approximately 3,000,000 Euros, and the budget of SuperApp for this project is around 10% of that figure. The Memory Bites project team has acquired 20,000 Euros from MAKERA (Finnish Municipal Development Fund). In the short term, the project team will apply for funds from other organizations.
- **Infrastructure:** This includes physical assets such as devices and data centers.
- **Knowledge / Intangible asset:** This includes knowledge and experience in relating areas, patents, copyrights, software, and ideas.
- **Channels:** Channels can comprise distribution channels and customer support channels. Channels are used as a tool to deliver the customer value proposition.
- **Brand awareness:** The brand awareness needs to be created. Brand awareness is the first stage in the purchasing processes and is an important criterion to measure the strength of the brand. The higher recognizable brand is, the higher chance the brand is selected. When customers think about solutions for memory issues, they think about Memory Bites.

Through the survey and interviews, there are two notable points that are 1) almost all the Finnish respondents want to keep their memory conditions confidential and 2) the number of interviewees who do not want to stick to the game is relatively high. These factors would affect the business model and the effectiveness of the game. They revealed that the excitement and the simplicity of the game are the reasons for choosing and sticking with the game.

In conclusion, this business model proposal acts as a framework or suggestions for Memory Bites. To successfully apply this model, the project team has to conduct in-depth market and consumer behavior researches. Furthermore, changes in the feature of the game would lead to adjustments of this model or even a completely new business model.

Business model proposal for Memory Bites

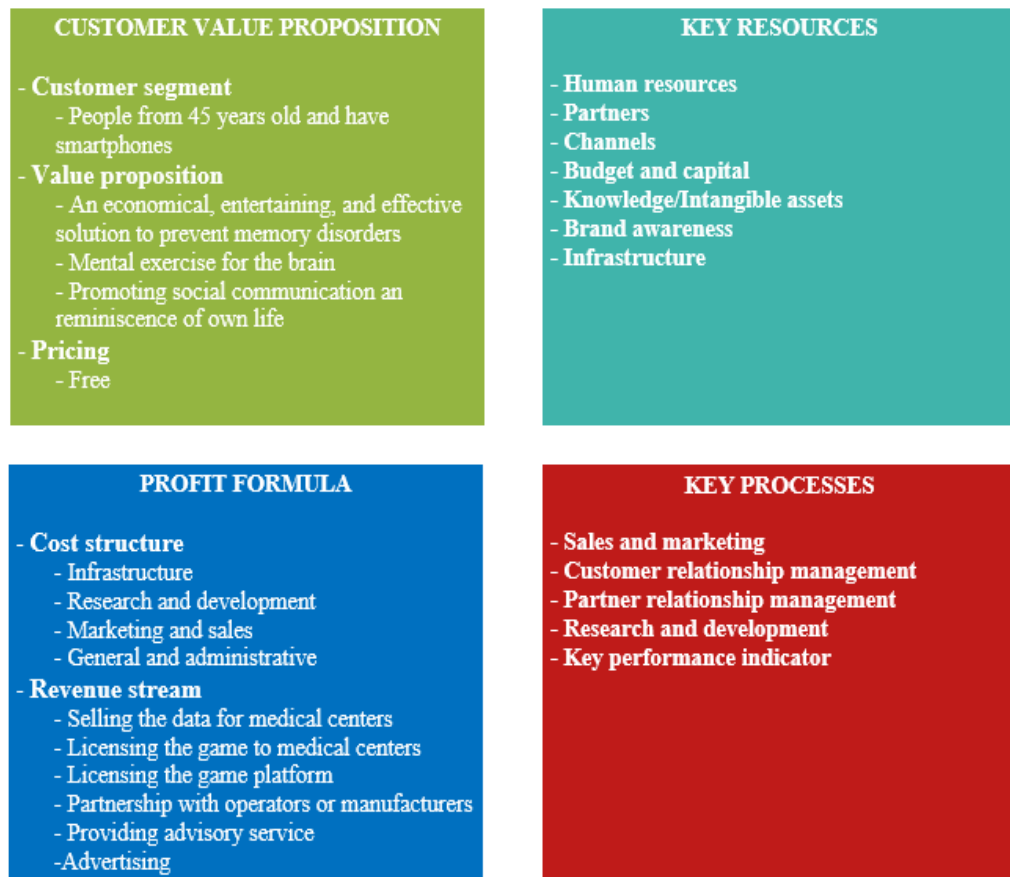


Figure 29. Business model proposal for Memory Bites

5.3 Legal issues

On 27 April 2016, The European Union (EU) imposed the General Data Protection Regulation (Regulation (EU) 2016/679) with the intention of reinforcing data protection for the EU citizens. The regulation will take effect from 25 May 2018 for all member states of the EU (Wikipedia, 2016).

The regulation emphasizes that the data controller must make the consent of the data collected and the purposes data used explicit, and data subjects can withdraw their consent anytime (Article 7). Briefly, the consent to collecting and processing the data from the data object is compulsory. If the data controller supplies the data collected to others such as partners or customers, they also have to conform to the enhanced requirements of the new regulation. Furthermore, according to the Article

25, the data controller shall apply the data protection by design and default to ensure that only necessary data are processed.

The Memory Bites project team needs to update and comply with the new regulations during the developing as well as the planning process. The focus should be on data protection of business processes and the consent of users to collecting and processing their medical conditions.

5.4 SWOT analysis

This subsection presents a brief analysis of strengths, weaknesses, threats, and opportunities (SWOT) for Memory Bites.

SWOT ANALYSIS

<p style="text-align: center;">STRENGTHS</p> <ul style="list-style-type: none"> - Experienced and talented staff - Professional experts - Detailed plans and paths - Many partners with various areas and expertise 	<p style="text-align: center;">WEAKNESSES</p> <ul style="list-style-type: none"> - Lack of capital and budget - Lack of human resources and infrastructure - Has not defined game concepts and conducted in-depth market researches
<p style="text-align: center;">OPPORTUNITIES</p> <ul style="list-style-type: none"> - An increase in the number of smartphone ownership of seniors in Finland - A large portion of the Finnish population with memory related issues - Beneficial effects of games on improving memory have been proven 	<p style="text-align: center;">THREATS</p> <ul style="list-style-type: none"> - Strict regulations - The willingness of users to stick with the game for a long time - Users' consent to medical conditions

Figure 30. SWOT analysis of Memory Bites

6 DISCUSSION AND CONCLUSIONS

This section summarizes the thesis, discusses its limitations, the reliability, and the validity, and gives suggestions for future study.

6.1 Summary

The goal of the thesis was to create a business model proposal for Memory Bites. The aim was also to clarify 1) what value Memory Bites offers to users and the society and 2) to define revenue streams for Memory Bites. The study also provides brief information about the current situation and smartphone and social network activities of Finnish seniors.

The conceptual framework for the business model for Memory Bites is based on popular and fitting practices of business model. The framework of the business model proposal comprises four elements which are the following 1) a customer value proposition, 2) a profit formula, 3) key processes, and 4) key resources. The research data was collected through the survey and interviews.

The business model for Memory Bites was built based on the analysis from the data collected and the conceptual framework. Firstly, the customer segment, users' needs and wants, the values offered, and pricing were defined. In the profit formula element, the cost structure and revenue streams for Memory Bites were clarified and suggested. Next, some essential processes and resources for Memory Bites were defined. SWOT analysis and legal relating issues were briefly mentioned.

The business model proposal was submitted to the CEO of SuperApp for feedback. After several necessary adjustments were made, the outcome of this study which is the business model proposal for Memory Bites was formed.

In conclusion, four essential elements of the business model for Memory Bites have been defined, and this business model proposal can act as a framework or suggestions when the project team starts writing a business

plan and launching Memory Bites. Notwithstanding, a larger scale and more detailed research on market and consumer behaviors is needed.

6.2 Objective versus outcome

The objective of the study was to build a business model for Memory Bites, and the outcome of this study is the business model proposal for Memory Bites after receiving feedback from the CEO of SuperApp. The business model proposal also provides answers to the research questions. Consequently, it can be concluded that the outcome of the study meets its objective. Nonetheless, the effectiveness of the outcome can only be verified in a real business environment. Furthermore, changes in the feature of the game would lead to adjustments of this business model or may even require a completely new one.

6.3 Limitations

Although there was a high number of respondents for the survey, only ten of them were Finnish. Since Memory Bites is targeted first at the Finnish market, this shortage of Finnish respondents affected the process of building the business model. As a solution, the researcher tried to find relating information from other surveys and studies. Moreover, through discussions with the CEO of SuperApp suggested that the respondents should not be limited to only Finnish seniors but there should also be seniors from other countries because the project team has a plan to make Memory Bites international.

By the time this study was conducted, the Memory Bites project was still in the developing phase. Consequently, the business model proposal cannot cover several aspects that relate to the feature of the game.

6.4 Reliability and validity

The reliability and validity of this study are confirmed because key stakeholders were involved throughout the study, especially in the data

collection stage and the analysis stage. The questionnaire for the survey was created in collaboration with the CEO of SuperApp.

The survey was completed by either paper forms or online forms, and the researcher had to check that all each respondent completed the questionnaire correctly following the instructions. Regarding the interviews, several seniors did not allow to record the interviews. Consequently, the researcher collected the data from the interviews by taking notes. All things which had been noted were confirmed by the end of each interview. Each interview was specifically structured with a list of questions and things to be conferred to ensure that data was collected sufficiently.

The conceptual framework of the study was built based on a popular practice of business model, and the project team can use this study's findings as a framework or suggestions when starting a business campaign for Memory Bites.

6.5 Suggestions for further study

A business model is an essential element for any firm wants to run its business; notwithstanding, there are no identical business models because each company has its own strengths, weaknesses, scopes, strategies, and conditions. Therefore, in the process of creating a business model, unique characteristics should be noted. Furthermore, when running a business in the information age, a business model should be customer-centric oriented.

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APPENDICES

Appendix 1. Survey questionnaire

1. What do you usually use smartphone for?
 - a. Calling – Messaging
 - b. Entertaining (watching videos, playing games, chatting, listening to music)
 - c. Internet (surfing the internet, social networks)
 - d. All
2. Do you play games on your smartphone? If yes, which type(s) of games do you play?
 - a. Yes
 - i. Action-adventure games
 - ii. Sports games
 - iii. Casual games (cards, puzzle, strategy)
 - b. No
3. Do you actively download applications to your phone?
 - a. Yes, I keep updated with new and interesting applications and download them
 - b. Yes, my friends or relatives suggest me good applications and I download them
 - c. Yes, but I do not know much about new applications in the market. I just download necessary applications
 - d. No, default applications are enough
 - e. No, my friends or relatives download applications for me
4. Do you think that there is a decline in memory in recent years?
 - a. Yes
 - b. No
5. Do you think that playing games with particular design and features would improve your memory?
 - a. Yes
 - b. No
6. If there is a game made with an aim to improve your memory, and that game is free, would you use it? If yes, would you like to play with your friends and/or family?
 - a. Yes
 - i. Family only
 - ii. Friends only
 - iii. Family and friends
 - b. No
7. Would you like your condition be read and evaluated by experts?
 - a. Yes
 - b. No

Appendix 2. Questionnaire for the interviews with seniors

1. How is your memory condition within a year? Do you have particular trainings or exercises to keep your brain working well?
2. Which features do you expect from this game?
What do you wish you could do with this game in order to improve your memory?
3. The game requires a long engagement to have an effect (at least from 6 months to one year, with regular frequency of use). Do you think that you would stick to the game for at least 6 months, and why you do / do not?
4. The game highly recommends interactions with others, especially relatives and friends. Are you willing to interact with other people?
Why / Why not?
5. The game will provide preliminary diagnosis of your memory condition. Do you want experts from medical centers approach it?
Why / Why not?
6. Do you have any advice / suggestion or want to share anything?