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Master in Strategy, Innovation and Sustainability

MASTER'S THESIS

USER ENTREPRENEURSHIP IN THE FINNISH HEALTH AND WELLBEING SECTOR

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ABSTRACT

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The prevalence of user entrepreneurship has been documented in few fields. However, the current research does not cover many user-dense fields that have a potential to be abundant sources of user innovation and entrepreneurship. Therefore, this study focuses on both end user and professional user entrepreneurs in the health and wellbeing sector that has recently been identified as a global megatrend. The purpose of this thesis is to examine, whether or not end user entrepreneurs and professional user entrepreneurs follow similar entrepreneurial processes. Additionally, this study aims to widen the description of user entrepreneurship process by identifying new features from an alternative entrepreneurship framework. The empirical research is conducted as a multiple case study through interviewing three Finnish user entrepreneurs. The findings from the empirical research have indicated that distinctions between end user entrepreneurs' and professional user entrepreneurs' processes exist. Additionally, the study has found that novel attributes could be integrated in the user entrepreneurship model. The study contributes on the existing literature on user entrepreneurship by providing novel information on professional user entrepreneurship process, and as well as by introducing an integrated user entrepreneurship framework.

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Käyttäjälähtöisen yrittäjyyden vallitsevuus on osoitettu muutamalla alalla. Nykyinen tutkimus ei ole kuitenkaan kartoittanut monia käyttäjätiheitä aloja, jotka ovat potentiaalisia käyttäjäinnovaatioiden ja käyttäjälähtöisen yrittäjyyden lähteitä. Tämä tutkimus tutkii sekä loppukäyttäjä- että ammattikäyttäjäyrittäjiä terveys- ja hyvinvointialalla, joka on hiljattain noussut yhdeksi maailman megatrendeistä. Tämän lopputyön tarkoitus on tutkia, eroavatko loppukäyttäjien ja ammattikäyttäjien yrittäjyysprosessit toisistaan. Tämän lisäksi, tämä tutkimus pyrkii laajentamaan käyttäjälähtöisen yrittäjyysprosessin käsitystä tunnistamalla uusia ominaisuuksia vaihtoehtoisesta yrittäjyysteoriasta. Empiirinen tutkimus toteutettiin monitapaustutkimuksena haastattelemalla kolmea suomalaista käyttäjälähtöistä yrittäjää. Tutkimuksen tulokset osoittavat, että loppukäyttäjien ja ammattikäyttäjien yrittäjyysprosessit eroavat toisistaan. Yrittäjyysprosesseja tutkimalla tunnistettiin myös uusia ominaisuuksia, jotka pystyttiin integroimaan olemassa olevaan käyttäjälähtöisen yrittäjyyden malliin. Tämä tutkimus edistää nykyistä käyttäjälähtöisen yrittäjyyden tutkimusta antaen uutta tietoa ammattikäyttäjien yrittäjyysprosessista, sekä esittelemällä uuden integroidun käyttäjälähtöisen yrittäjyyden mallin.

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I feel truly odd, now that this journey has really come to an end. This is the final word. The idea of writing this thesis has been rooting in me this whole year, not to mention my status as a student for five and a half years. Luckily I get to keep my student status until next September, as I have paid the tuition for the whole year. Don't get me wrong, for I'm really happy that I've finally reached the finish line!

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When a door closes, another opens. The new journey may begin, and now I'm more than ready for it.

Helsinki, 10.11.2016
Amanda Ng

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1. INTRODUCTION

1.1. Research background

"The heart and soul of the company is creativity and innovation."
- Robert Allen Iger, CEO of The Walt Disney Company

The phenomenon of entrepreneurship has attracted numerous researchers to delve into the vast subject. Yet, new aspects of the subject emerge to be studied and understood in more depth, challenging the traditional view. Among other perspectives, user entrepreneurship has been acknowledged during recent years. The idea of user entrepreneurship is certainly not novel, as it dates back to 18th century (Adam Smith 1776) – however, researchers have not studied it until recently in the 2000s. Furthermore, since the 2000s, there has been a paradigm shift towards alternative modes of innovations, such as user innovation and open innovation (Baldwin & von Hippel 2011), which also has sparked interest towards user entrepreneurship.

The user entrepreneurship process was first indentified by Shah and Tripsas (2007), who also developed the user entrepreneurship framework based on their findings. Many studies have shown that users are an important source of novel innovations in various fields (e.g. von Hippel 1988; Shah 2005; Lüthje, Herstatt & von Hippel 2005; Baldwin, Hienerth & von Hippel 2006; Shah & Tripsas 2007). However, from the economic and societal point of view, it is meaningful to shed evidence on the extent to which users commercialize their innovations, as well as to discover potential fields where users tend to innovate. So far, the prevalence of user entrepreneurship has been documented in a few different fields (e.g. juvenile products (Shah and Tripsas 2007) and medical device startups (Winston & Shah 2011)). Yet, the current research does not cover many user-dense fields that probably are potential sources of user innovation and entrepreneurship. One of them is health and wellbeing sector. Therefore, this study aims to examine user entrepreneurship in the Finnish health and wellbeing sector. This study offers an

interesting overview both in the Finnish user entrepreneur field that has not been examined before, as well as in the health and wellbeing sector that has undergone major changes during recent years.

Another research area, in which this study strives to bring additional insight, is the actual user entrepreneurship process that has so far leaned on Shah and Tripsas' (2007) user entrepreneurship model. Therefore, this study also aims to discover whether there exist some other features or actions characteristic of user entrepreneurs that could be added in the framework. For these purposes, the case companies' entrepreneurship processes are mirrored against three distinct user entrepreneurship frameworks.

1.2. Research context

There are many routes for new innovation opportunities to be sparked from; those can for example new political rules, new technology, changes in market sentiment or behavior, or an emerging new market (Tidd, Bessant & Pavitt 2005). Occasionally existing matters, like values, may become extremely popular all of a sudden. This happened to health and wellbeing sector.

One can probably agree that health and wellbeing are not novel values for people, instead - they have been around always in some way. During recent years, however, there has been a major shift towards increased awareness on one's own health. Literally, the surging popularity of health and wellbeing matters can be seen all over the developed countries' market supply as well as in consumers' everyday lives. For instance, one can spot on a weekly basis new health and wellbeing "sub-trends" via the press media or wellness blogs. The Huffington Post's (2016) writing *"A Little Is A Lot: Health and Wellness Trends 2016"* is one great example. An actual self-measuring movement, "Quantified Self", has also emerged and gained global supporters (The Economist 2012). Then, how can the health trend be spotted in the market supply? For example, the health megatrend can be noted from the rising popularity of health wearables, such as smartwatches (Statista 2016) as well as from the increased consumption of nutrient dense

“superfoods” of which new product development has globally risen 202% during past five years (Mintel 2016). One can casually spot superfoods in a local convenience store – in turn, smartwatches a part of standard supply of any consumer retailer store.

Not only can health and wellbeing trend be seen in the lives of ordinary people, but also many institutions have acknowledged the blooming trend. In 2015, *the Finnish Innovation Fund Sitra* pointed wellbeing as one of the major global trends (Sitra 2015a). According to Sitra (2016), megatrends are phenomena that forecast major societal changes on a global scale. To add, megatrends are drivers of other trends in financial markets, when sales, growth and innovation are taken into account – in addition, their impact occur a long period of time (Reference 2016).

The megatrend of health and wellbeing can be seen as an extremely influential phenomenon when it is coupled with another megatrend that has continually intensified in recent years – technology. During next years, technology will be integrated in people’s everyday lives to even greater extent (Sitra 2015b). This can be already seen e.g. in retail banking, where most banks have shifted towards mobile banking. Mobile applications for banking have been developed for the ease of use. (The Financial Brand 2016)

Finland has been regarded many times as one of the most innovative countries in the world and year 2016 is not an exception, as The Global Innovation Index (GII) (2016) disclosed this year’s rankings. Finland ranked as the 5th, while Switzerland (1.), Sweden (2.), the UK (3.) and the US (4.) were chosen as the most innovative ones. (The Global Innovation Index 2016) Furthermore, the European commission’s European Innovation Scoreboard for 2016 chose Finland as the 3rd most innovative country in the EU (Cleantech Finland 2016). Thus, for its innovative qualities, Finland can be considered as a well-suited geographical area for entrepreneurship data collection.

Based on the presented facts, the Finnish health and wellbeing sector offers an excellent opportunity to study the user entrepreneurship process further. The

growing megatrend of health and wellbeing combined with technology megatrend create end-users and professionals interesting possibilities for innovating new products, services and processes.

1.3. Research gaps in user entrepreneurship studies

The extant analysis of earlier studies on user entrepreneurship has shown that there exist only few studies on user entrepreneurship. Shah and Tripsas' (2007) article *"The accidental entrepreneur: The emergent and collective process of user entrepreneurship"* is considered to be the first article focusing on solely users as entrepreneurs, and on users' entrepreneurship process. Even though a few studies have been conducted since, it is clear that the interesting phenomenon needs to be examined still further.

User innovation has been researched to a larger extent (e.g. von Hippel 1976; Urban & von Hippel 1988; Franke & Shah 2003). However, distinction must be made between user entrepreneurship and user innovation; whereas user entrepreneurship stems from innovative users, the commercialization process is included solely in the first concept. The actual commercialization of user innovation is of great importance from societal and economical point of view – therefore more knowledge and comprehension concerning the subject should to be gained. Furthermore, there are several research gaps that need to be filled in.

First, there are no studies focusing on Finnish user entrepreneurs, even though Finland has been nominated several times as one of the most innovative countries in the world. The situation calls for more understanding, as novel knowledge on user entrepreneurship would bring new insights for encouragement of potential user entrepreneurs in the future. Successful user entrepreneurship would contribute both on the economic and social sustainability of the affected area. Thus, the user entrepreneurship phenomenon should be viewed as an economically and societally important matter.

Second, user entrepreneurs operating in health and wellbeing sector have not been examined yet. The sector can be regarded as an attractive market field for entrepreneurs, as most people tend to be interested in their own health to some extent. Therefore it is presumable that new opportunities and ideas emerge, and can be created within a sector this vast. Additionally, earlier researchers have not considered prevailing megatrends in their studies, even though they have been regarded as drivers for major societal shifts. Coupled with digitalization, the megatrend of health and wellbeing offers interesting possibilities to study user entrepreneurship and the particular innovations from which the whole entrepreneurship process stems from.

Third, earlier studies on user entrepreneurship are mostly focused on product innovations rather than service innovations. Thus, this study will provide important information regarding service innovations and their commercialization, and possibly shed some light on further research subjects.

Finally, Shah and Tripsas' (2007) user entrepreneur framework has so far been the only model to characterize user entrepreneur process in occidental business environment. The user entrepreneurship process is a description of an end user entrepreneur and has not been validated with professional user entrepreneurship data. Additionally, features of other alternative entrepreneurship have not been considered in user entrepreneurship studies. Thus, there is a possibility to broaden the view of user entrepreneurship process.

1.4. Research problem and objectives of the study

Current megatrend of health and wellbeing coupled with technology megatrend offers user innovators countless new business opportunities to seize on. Shah and Tripsas (2012) find that an early industry phase tends to be more favorable for user entrepreneurs than incumbent companies. The chosen case study companies have been each established during the first half of the 2010's and thus, are positioned in the early industry phase region, when the current megatrend of health

and wellbeing as well as the shift in the market sentiment are being taken into account. This offers a great possibility to examine the user entrepreneurial process. User innovation calls for implicit understanding on users' preferences (Lüthje 2004; Shah & Tripsas 2007). Therefore, studying health and wellness sector, where an increasing interest towards one's own wellbeing and desire to improve health are prevalent, provides an outstanding possibility for conducting a research on user entrepreneurship process that has still many research gaps to fill up.

There is a need to gain further comprehension on the actual user entrepreneurship process – from innovation to commercialization, concerning both end-user and professional user entrepreneurs. Especially, a huge research gap exists in covering professional user entrepreneurship process – is it similar to the end-user based process, or not? Therefore, this study aims to scrutinize the user entrepreneurship process of Finnish user entrepreneurs within health and wellbeing sector, including both professional and end-user entrepreneurs.

Additionally, the case companies are examined through three distinct entrepreneurial process frameworks. The study aims to discover possibilities to integrate features and/or process steps from the different frameworks to gain more in-depth view of user entrepreneurship processes. This way it is possible to obtain wider perception of the underlying processes of user entrepreneurs and thus, exploit novel knowledge to spark user entrepreneurship. Furthermore, the case company data is also studied to discover user entrepreneurial process features that have not been considered in the earlier entrepreneurship frameworks.

This thesis aims to answer the following research problem:

What kind of user entrepreneurship processes are involved in health and wellbeing sector?

The study examines both professional user and end user entrepreneurship processes within the aforementioned context. Thus, the research problem can be broken down into following research questions:

1. Do professional user entrepreneurs follow the same process than end user entrepreneurs? What are the similarities and/or differences?

Additionally, three earlier frameworks on entrepreneurial process are exploited in this study. Following research questions will delve into observing similarities and disparities of the different theoretical perspectives and practical case study data:

2. Which characteristics of the selected frameworks can be found in the case companies' entrepreneurship processes?

3. Based on the findings, is there a possibility to integrate these frameworks to some extent to gain more holistic view of user entrepreneurship process?

1.5. Delimitations

The scope of the thesis includes Finnish user entrepreneurs. Each of the case companies' founders have commercialized their innovation, and thus, have gone through the whole entrepreneurship process. The gathered data is limited to three companies established by user entrepreneurs. However, as the aim of this study is to gain improved comprehension of user entrepreneurship process and additionally to provide novel knowledge on professional user entrepreneurship process, it is convenient to apply qualitative approach. Both *end user* and *professional user* entrepreneurs are studied in this thesis.

Another delimitation stems from the choice of studied industry sector – which is in this study health and wellbeing sector. Health and wellbeing are part of a current global megatrend that offers numerous possibilities for innovative users to make a living. Therefore, it is interesting to focus this study solely on the particular sector.

Finally, the research is conducted in Finland. Nordic countries tend to share similar features and behavioral patterns due to similar fabric of society, so the findings

should be regarded as well in Sweden, Norway, Denmark and Iceland. Still, the results cannot be generalized statistically, as the sample size is small.

1.6. Research strategy and organization of the study

To gain in-depth comprehension and to be able to interpret the user entrepreneurship process in the Finnish health and wellbeing sector, this study's research methodology is based on the qualitative methods. This study is conducted as a multiple case study to capture similarities and differences between the chosen case companies' entrepreneurial processes, as well as to mirror the processes on the three distinctive entrepreneurial frameworks. Multiple case studies also offer better possibilities for analytical generalization of the results.

The main data collection strategy for this study is semi-structured theme interviews. The interviews were held as a face-to-face interview or via a conference call. Additionally, part of the answers was obtained via email. From each case company, one of the company founders was interviewed to capture the entrepreneurship process in its original form.

The structure of the thesis is the following. First, theoretical framework and concept of user innovation and user entrepreneurship, as well as three different entrepreneurship process frameworks are introduced extensively. The chapter delves into the history and presents key numbers of user innovation and user entrepreneurship to gain a coherent view of the subject at hand. In the third chapter, research methodology, including short presentations of the case companies, is presented. The chapter discusses the research design and data collection methods. Fourth chapter includes the analysis, results and findings from the case study. Finally, discussion, theoretical and practical contributions of the research as well as limitations and future research suggestions are given.

2. THEORETICAL FRAMEWORK

Before delving into the user entrepreneurship process, it is crucial to focus first on the concept of user innovation and the history of user innovation. After this, the concept of user entrepreneurship is opened up. Finally, overviews of three distinct entrepreneurship frameworks are introduced. The case companies are later mirrored against these chosen frameworks.

2.1. What is user innovation?

For a long time, the theory of economic development introduced by Schumpeter (1934), where producers develop and supply goods and services to consumers, has been the prevailing mode of innovation. However, especially since the 2000s, there has been a paradigm shift towards other possible modes of innovation, such as user innovation and open innovation (Baldwin & von Hippel 2011). Furthermore, von Hippel (2005) argues that user-centered innovations offer brilliant advantages over manufacturer-centered ones, because innovative users can develop innovations according to their own preferences and not to lean on manufacturers to act.

The early perception of user innovation dates back to the 18th century when Adam Smith (1776) observed: *"The invention of a great number of machines which facilitate and abridge labor, and enable one man to do the work many"* and adding that *"a great part of the machines made of in those manufactures in which labor is most subdivided, were originally the invention of common workmen, who, being each of them employed in some very simple operation, naturally turned their thoughts towards finding out easier and readier methods of performing it."*

The first systematic documentation and development of the concept *user innovation* was conducted by von Hippel, which consisted of a number of articles that formed the publication *"The Sources of Innovation"* (1988). The simplest way to explain user innovation is to start from the concept of user. von Hippel (2005) de-

fines users as firms or individual consumers that expect to gain benefit from using a product or a service. Furthermore, the ones who expect to benefit from selling a product or service are manufacturers (von Hippel 2005). Therefore, user innovation can be regarded as an innovation (e.g. product, service or process) that has been developed by a user of the particular product or service. Any user can be a user innovator. For instance, as a regular user of a sofa – I would be an innovator if I figured out something new to be applied to the concept of a sofa. It could be, for example, a new function or an overwhelmingly comfortable design. von Hippel (2005) states that users have a unique feature as they benefit directly from innovations. Therefore, I as a user of my sofa would benefit directly from its improvements. Additionally, there exists another type of user that will be explained in the following subchapter.

The prevalence of user innovation has been documented widely already several decades ago. Substantial evidence regarding innovative user firms was provided since the 1960s within the oil refining and chemical industry (Enos 1962; Freeman 1968). However, starting from the 1970s, the first research focusing directly on innovative users was conducted by von Hippel. Today users are recognized as an important source of novel innovations both in academia and business (e.g. von Hippel 1988; Shah 2005; Lüthje et al. & von Hippel 2005; Baldwin, Hienerth & von Hippel 2006; Shah & Tripsas 2007). Comprehensive studies shed evidence on the fact that users have developed many of the most important and novel products and processes commercialized in several fields.

Since the significance of user innovation has been documented well – several studies support that following deductions can be drawn:

(1) Users have developed numerous important innovations, as presented in the previous paragraph

(2) High percentage of users innovates. For instance, when printed circuit CAD users are considered, 24% of them innovate for their own use (Urban & von Hippel 1988).

(3) Users innovate within various fields (Shah, Smith & Reedy 2012)

One can undoubtedly admit that users' contribution on novel innovations is evident. Next subchapter dwells on the topic and specifies two different types of user innovators.

2.1.1. Which users innovate?

As described in the previous subchapter, users can be either firms or individual consumers. Therefore, it is necessary to clarify further different user-innovator types, as they are positioned differently in the innovation process. User innovators can be categorized further into intermediate users and consumer users. The categorization discloses the locus of the innovation, answering the question; *from where does the innovation originate (*Bogers, Afuah & Bastian 2010*)?*

Intermediate user innovators

Intermediate users concern e.g. user firms that use other producers' equipment and tools to produce products and services (Bogers et al. 2010). Therefore, they are not end-users of the finished products and services.

An example:

Toyota is a car manufacturer, so it sells cars. Nonetheless, in order to produce those cars, Toyota needs various tools to assemble them. If Toyota developed a new innovation related to cars, the process would be manufacturer-centric. However, if the innovation regarded assembly tools that are used for cars (end-product), Toyota would be considered as a user-innovator.

User firms account for innovations within various sectors; e.g. the chemical industry (Hollander 1965), scientific instruments (von Hippel 1976), industrial machinery (Foxall & Tierney 1984), applications software (Voss 1985), printed circuit CAD software (Urban & von Hippel 1988), residential construction (Slaughter 1993),

convenience stores (Ogawa 1998), library information systems (Morrison, Roberts & von Hippel 2000), and commercial banking (Oliveira & von Hippel 2009). Thus, intermediate user innovations regard novel product, process or service innovations that are linked to work environment. As the earlier literature shows, intermediate user innovators tend to innovate within industrial product and process domains. In contrast, end user innovators predominate in whole different fields.

End user innovators

Consumer users are regarded as end users of consumer goods. Generally, they are individual end customers or a community of end-users (Bogers et al. 2010). Innovative end users have significantly contributed to development of novel products or features, especially in the field of sports-related consumer goods and other recreational activities. This supports Shah and Tripsas' (2007) argument that user entrepreneurship, of which important part user innovation is, tends to be more prevalent in industries where the use of the innovation brings enjoyment, and not mere economic utility. The sofa example from earlier subchapter illustrates well the enjoyment factor in user innovation.

Earlier research shows that end user innovations have been reported in stereo components (Langlois & Robertson 1992), extreme sports (Franke & Shah 2003), outdoor sports (Lüthje 2004), mountain biking (Lüthje et al. 2005), kite surfing (Tietz, Morrison, Lüthje & Herstatt 2005), rodeo kayaking (Baldwin et al. 2006), juvenile products (Shah & Tripsas 2007), sailing (Raasch, Herstatt & Lock 2008), and retail banking (Oliveira & von Hippel 2009). Hence, like the evidence points out, end user innovators and user firms innovate in different fields, which is quite logical as the purpose of the innovation is different for profession-related and personal use related users.

To summarize this subchapter, figure 1 presents categories of user innovation and examples of product domains within they innovate. A clear difference of diverse product domains can be noted from the figure.

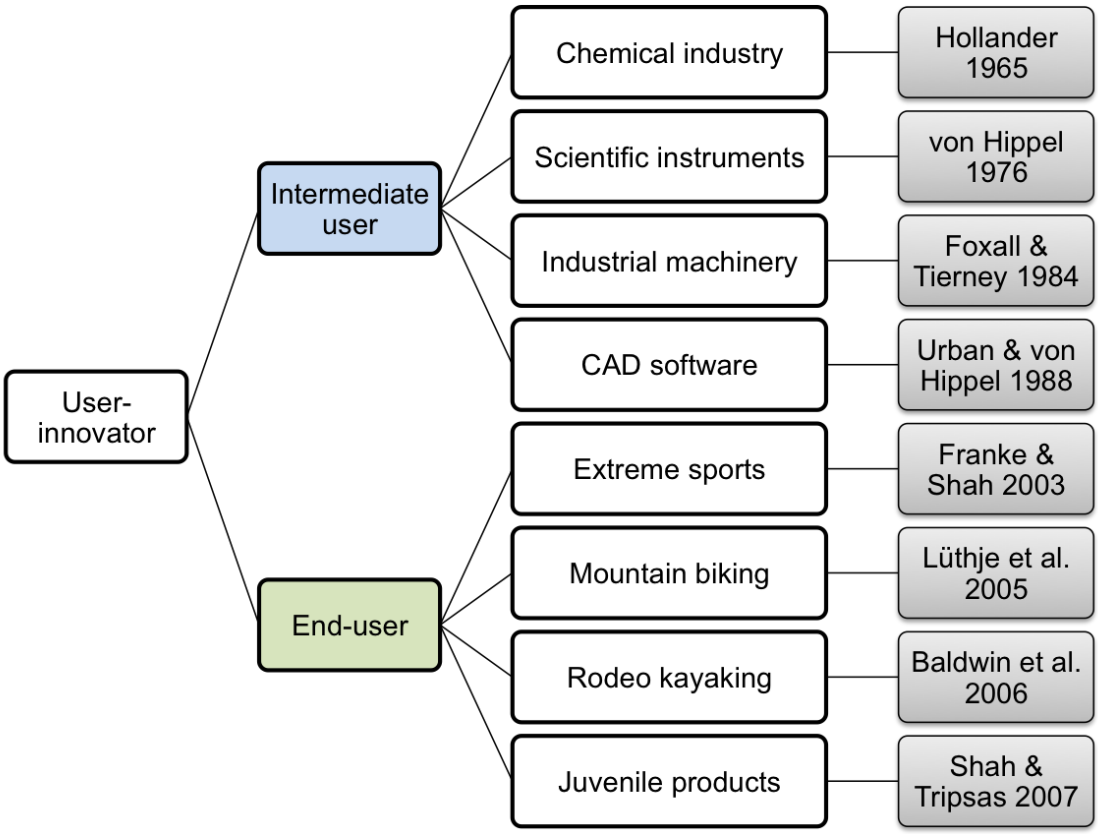


Figure 1. User innovator categories and exemplary domains they operate in

2.1.2. How prevalent is user innovation?

It is well documented that users have developed a variety of innovations within different fields. However, from societal and economic viewpoint it is relevant to be aware of the extent to which they are prevalent and frequent. Social and economic impact from user innovations is dependent on the scope of user innovations.

The prevalence of user innovation has been studied in various industries during the last decades. It is evident that user innovations constitute significant part of major innovations. In some fields, users have actually developed majority of the significant innovations. So to speak, in the field of scientific instruments 76% of the most important innovations are developed by users (von Hippel 1976), concerning semiconductor and electronics subassembly manufacturing equipment the per-

centage is 67 (von Hippel 1977) and within the field of extreme sports equipment 60 percent (Shah 2005).

Furthermore, an interesting aspect of user innovation is the frequency of innovative users. Various studies have documented that many users develop or modify products (table 1). It can be seen clearly that users tend to innovate more often within certain industries – for instance, within extreme sports equipment industry nearly 40% of users innovate. Table 2 summarizes consumer and industrial product innovations developed by users.

These findings support undoubtedly the notion that users contribute to a great extent in developing novel innovations within many fields. An interesting question is, why do users innovate? What are the drivers behind users' motivation to innovate? At least, it is safe to presume that they differ from manufacturer's motives to some extent.

Table 1. Earlier documentation of innovative users (based on Shah & Tripsas 2007 and von Hippel 2005)

Product area	***Innovating for own use***	
	%	n
Industrial products		
Printed circuit CAD software (Urban & von Hippel 1988)	24 %	136
Library information systems (Morrison, Roberts & von Hippel 2000)	26 %	102
Apache OS server software security features (Franke & von Hippel 2003)	19 %	131
Consumer products		
Snowboarding, sailplaning, canyoneering, and handicapped cycling equipment (Franke & Shah 2003)	38 %	197
Mountain biking (Lüthje, Herstatt & von Hippel 2005)	19 %	287

Table 2. User-developed important industrial and consumer product innovations (based on Shah & Tripsas 2007)

Product area	***Source of innovation***			
	User	Mfr.	Other	n
Industrial products				
Petroleum processing (Enos 1962)	43 %	14 %	43 %	7
Computer innovations 1944-1962 (Knight 1963)	26 %	74 %		161
Chemical processes and process equipment (Freeman 1963)	70 %	30 %		810
Scientific instruments (von Hippel 1976)	76 %	24 %		111
Semiconductor and electronics subassembly munufacturing equipment (von Hippel 1977)	67 %	21 %	12 %	49
Consumer products				
Windsurfing, skateboarding, and snowboarding equipment (Shah 2003)	60 %	25 %	15 %	48

2.1.3. Why users innovate?

According to von Hippel (2005), user-centered innovation process differs significantly from the traditional producer-centric model, where producers aim to benefit from selling a product or a service to users. In other words, producers innovate for users in order to profit from the sold products or services that users are buying – and the major driver is economic. Furthermore, the benefit of innovating is indirect and it is realized when the products or services are sold to users. On the contrary, users design, create and build solutions for their own needs. Hence, they benefit directly from innovations as they develop new products or services to fulfill their own needs (von Hippel, 1998, 2005). Thus, users' needs and incentives to innovate differ from producers'. This incentive distinguishes conventional producer innovators from user innovators to a great extent.

Nonetheless, what makes users develop their own products or modify products or processes, if producers already supply them to the market? It seems that the desired product or product feature does not exist in the market on that occasion. Moreover, as users tend to have individual and diverse needs, the situation occurs likely quite often (Franke & Reisinger 2003).

Base on several studies, the main reasons for users to innovate are:

(1) User's recognized need(s) that existing products cannot fulfill (Riggs & von Hippel 1994)
(2) Enjoyment from the innovation process and problem solving (Lüthje 2004; von Hippel 2005)
(3) Expected benefit from the innovation (von Hippel 1988, 2005)
(4) The potential to draw financial benefit from selling their innovations (Foxall & Tierney 1984; Lee 1996)
(5) Costs of innovation-related knowledge transfer, i.e. sticky information (von Hippel 1994)

(6) The agency costs resulting from the misaligned interests between the user and the producer (von Hippel 2005)

Furthermore, when a user experiences a need for a certain product that cannot be attained from the market, one option could be, if a user would be willing to pay, to hire a custom manufacturer to design the needed product. Like von Hippel (2005) points out that these custom manufacturers could possibly design and build the desired products faster, better or cheaper than users themselves, as it is their area of expertise. However, there are several drivers that affect user's innovate-or-buy decisions.

First, von Hippel (2005) states that agency costs have a great effect on user's decision. It is presumable that user would act in its own best interests when developing its own customized product. Thus, user would get exactly what she/he needs. However, the hired manufacturer has its own interests in addition to the customer's; i.e. to lower its development costs by exploiting already possessed solution elements or ones that can be used for future customers' needs. Hence, user's needs might not be served in the best possible way, even she/he would be willing to pay for the custom service.

Second, von Hippel (1994) argues that users are more likely to innovate if the needed information is *sticky*, thus, expensive to transfer. The stickiness of information is defined as *"the incremental expenditure required to transfer that unit of information to a specified locus in a form usable by a given information seeker"* (von Hippel, 1994). For instance, information about general mechanical solutions is non-sticky. Furthermore, Lüthje et al. (2005) work demonstrates that user innovators exploit "local information" that they have in their possession or information that need to yield by themselves.

2.2. From innovation to commercialization – user entrepreneurship

I can accept failure. Everyone fails at something. But I cannot accept not trying.
- Michael Jordan, a professional basketball player

Like von Hippel (2005) points out, *"Products, services, and processes developed by users become more valuable to society if they are somehow diffused to others that can also benefit from them. If user innovations are not diffused, multiple users with very similar needs will have to invest to (re)develop very similar innovations which, as was noted earlier, would be a poor use of resources from the social welfare point of view."* There are several potential routes for user innovator to diffuse their ideas. In this study the focus is on user entrepreneurship – a path from innovation to commercialization.

Earlier research shows clearly that users are an important source of novel innovations within many fields, such as sports equipment, scientific instruments and semiconductors (e.g. von Hippel 1988; Shah 2005; Lüthje et al. 2005; Baldwin et al. 2006; Shah & Tripsas 2007).

Shah and Tripsas (2007) define user entrepreneurs as individuals or groups of individuals who commercialize a new product and/or service whose users they are. They sort user entrepreneurs further into two categories on the basis where they innovate; professional user and end-user entrepreneurs. *Professional user entrepreneurs*, while working in an organization, experience a need to develop an improved product and/or process and decide to establish their own firm in order to develop the innovation further and commercialize it. On the contrary, individuals who use the product and/or service in their daily lives and develop improvements and then commercialize their product or service are defined as *end-user entrepreneurs.*

2.2.1. Who are user entrepreneurs?

Before moving to the entrepreneurship process itself, it is interesting to contemplate the characteristics of user entrepreneurs. There does not exist much data – however, Shah et al. (2012) study examines user entrepreneurs' characteristics comprehensively, including age, education level, work experience, prior entrepreneurial experience, and gender aspects.

Shah et al. (2012) find that the firm founders tend to be in their early-to-mid 40s. 28% of professional user entrepreneurs reported a master's or professional degree as their highest level of education, thus, them being higher educated than end user entrepreneurs and hybrid professional/end user entrepreneurs. Additionally, the study finds that professional user entrepreneurs have two additional years of industry work experience than the average user entrepreneur in the sample. Regarding earlier entrepreneurship experience, professional and hybrid professional/end user entrepreneurs reported the highest percentage (34% for both) When it comes to gender, end user entrepreneurs (48%) are more likely to be women than an average user entrepreneur (32% in the full sample).

2.2.2. How prevalent is user entrepreneurship?

As pointed out in the earlier subchapters, the prevalence of user innovation is documented widely within numerous fields and product regimes. Even though the phenomenon of user entrepreneurship has not been documented to the same extent as user innovation, several recent studies shed evidence of user entrepreneurship in different industries. Prevalence indicates the extent to which users tend to commercialize their innovations in a certain industry and thus, it can be regarded as an important measure both from economical and societal point of view.

According to Winston and Shah (2011), between 1978 and 2007 practicing physicians founded 52% of the medical device startups that received venture capital investment from leading medical device manufacturers. Furthermore, in the juvenile

products industry, users founded even 84% of all the firms established between 1980 and 2007 (Shah & Tripsas 2007). Moody's (2006) study regarding the atomic force microscopy industry found that users established all early firms. The latest study of Shah et al. (2012) reveals that users have founded nearly 11% of all startups in the United States, at the population level. Of the 11%, 4,5% are established by professional user entrepreneurs, 4,1% by end user entrepreneurs, and 2,1% by hybrid professional/end user entrepreneurs.

These findings undoubtedly indicate that user entrepreneurs are significant actors in various industries. Furthermore, as the user entrepreneurship research is still in its early stages, there will plausibly be even more documentation from other industries.

2.2.3. When will user entrepreneurship occur?

As many other phenomena, the scope of user entrepreneurship varies within certain types of industries and markets. Initially, Shah and Tripsas (2007) present several propositions of user entrepreneurship occurrence in their first user entrepreneurship study. Furthermore, Shah and Tripsas (2012) have recently developed a model that predicts when user entrepreneurship will occur; it explains when users will share innovations with manufacturers, license them to manufacturers or commercialize their innovations autonomously. They argue that context, industry, market and opportunity costs affect the occurrence of user entrepreneurship.

Context

Shah and Tripsas (2012) found that a product context is especially favorable for user innovations and thus, for user entrepreneurship. As users can easily experiment with products, open product design and modular product architecture provide for user innovation, and furthermore user entrepreneurship. Additionally, Shah and Tripsas (2007) propose that user entrepreneurship is more likely to occur, when

using the innovation provides more enjoyment, compared to pure economic benefit.

Industry

Industry life cycle can be a user entrepreneur's facilitator or slowing factor; during the early phase of industry development user entrepreneurs will have an advantage over established firms (Shah & Tripsas 2012). However, they note that conditions may possibly favor their occurrence throughout the industry life cycle, e.g. as components suppliers in modular product domains. Shah and Tripsas (2007) find that *industries* with scattered customer preferences and several peripheral niche segments are more likely to attract more user entrepreneurs than other businesses. Furthermore they note that niche segments do not fulfill established businesses' growth need or else are ignored or go undetected. Users are driven by their own needs as they want to solve a specific problem of theirs – profit seeking is not the mail goal for innovating. Hence, users tend to commercialize innovations dismissed or unnoticed by others. (Shah & Tripsas 2007)

Market

As explained in the user entrepreneurship process model by Shah and Tripsas (2007), through their personal usage, users possess unique, sticky information regarding their own needs and the community's preferences. This can be seen both as an advantageous source of asymmetric information and a competitive edge over established businesses. Shah and Tripsas (2007) state that this kind if information is highly worthy especially in nascent markets. Nascent markets are characterized by ambiguous user needs and high levels of uncertainty (Clark 1985; Tushman & Anderson 1986). Screening these kinds of forthcoming markets and user's needs without any current users is relatively difficult for established firms. In contrast, user innovators that have unique information and personal knowledge have far better conception of the actual preferences and need for the particular market. (Shah & Tripsas 2007)

Shah and Tripsas (2012) also state that government regulation may hinder emergence of user innovation and user entrepreneurship if those regulations increase barriers to entry in the market.

Opportunity costs

Earlier studies have found that generally, firms are more likely to be founded by individuals with lower opportunity costs (Amit, Muller & Cockburn 1995). Based on this, Shah and Tripsas (2007) have made a notion that user entrepreneurship is more likely to emerge within industries where users have *lower opportunity costs*. For example, if a potential entrepreneur within juvenile products industry lacks alternative employment and a business could be launched in their home, opportunity costs would be quite low (Shah & Tripsas 2007). However, Chatterji and Fabrizio (2007) state high opportunity costs are faced by, for example, practicing physicians who have developed medical device innovations, as they decide on leaving their current career to found a firm. This notion supports Shah and Tripsas (2007) view on the matter as well.

2.3. Entrepreneurial frameworks

Entrepreneurship process is not a novel area of study – vice versa. Researchers have been interested in understanding the underlying actions, processes, mindsets and personalities behind successful entrepreneurs throughout the years. Thus, the fascination towards the phenomenon of entrepreneurship has yielded various frameworks that strive to describe the entrepreneurial process; *how does one become an entrepreneur?*

The traditional framework of entrepreneurship has rooted firmly in the management and entrepreneurship literature. However, new views have emerged alongside the traditional entrepreneurial process to answer better the challenges of ever changing and dynamic operating environment.

2.3.1. Selection of theoretical frameworks

For years, various theoretical perspectives have occurred to describe the underlying logic behind the entrepreneurial process and to challenge the traditional view of entrepreneurship. These are, for example effectuation (Sarasvathy 2001), entrepreneurial bricolage (Baker & Nelson 2005), the creation theory (Alvarez & Barney 2007), and user entrepreneurship (Shah & Tripsas). The traditional entrepreneurship process has been referred to by many different names, such as; the *"causal approach"* by Sarasvathy (2001), the *"discovery approach"* by Alvarez and Barney (2007) and the *"classic model"* by Shah and Tripsas (2007).

Even though it would be worthy to take all of these approaches into account in this study, the focus of this work is on the traditional perspective and two alternative entrepreneurship theories. The criteria for selection are based on suitability for the nature of the case companies, and impact. Thus, as the focus of this study is on user entrepreneurs, Shah and Tripsas (2007) user entrepreneurship approach is chosen as one perspective. For second selection the criterion of impact is used; Sarasvathy's (2001) paper on effectuation is more cited that than the papers of Baker and Nelson (2005) and Alvarez and Barney (2007).[1]

For referring to the traditional approach of entrepreneurship, the appellation of Shah and Tripsas (2007), which is *"classic model"*, is used. To summarize, classic approach, user entrepreneurship and effectuation are the approaches to be regarded in this study.

2.3.2. The classic model

Shah and Tripsas (2007) use a term classic model to describe a traditional approach to entrepreneurship. In classic model, a future entrepreneur sets a prede-

[1] At the time of working on this study, Sarasvathy (2001) had been cited 2770 times according to Google Scholar; Baker and Nelson (2005) had been cited 1662 times; and Alvarez and Barney (2007) had been cited 1096 times.

termined goal and selects between possible means to meet the goal (Sarasvathy 2001). According to Shane and Venkataraman (2000), the processes of discovery, evaluation and opportunity exploitation are present in entrepreneurship.

The process begins from opportunity identification, followed by an evaluation whether or not this particular opportunity should be exploited to establish a firm (Venkataraman 1997; Shane & Venkataraman 2000). The basic assumption is that markets and opportunities within them already exist and are waiting to be discovered (Casson 1982; Shane & Venkataraman 2000). Fisher (2012) notes that the classic entrepreneurship model considers entrepreneurial opportunities as objective and identifiable a priori. As Kotler (1991) states, the entrepreneur strives to take advantage of the existing markets as possible. Then a good question is, what makes some individuals to discover opportunities more often than others? According to Shah and Tripsas (2007), individuals' asymmetric knowledge bases and unique approaches to problem framing are sources for opportunity discovery. Asymmetries are created by path-dependence, which roots from individual's prior experience (Venkataraman 1997). For example, prior university background can be helpful in the application of emerging technologies (Shah & Tripsas 2007).

Once an opportunity has been identified, the potential entrepreneur evaluates the commercial potential of the venture (Shane & Venkataraman 2000; Shah & Tripsas 2007). For example, the potential entrepreneur's potential to attract resources (Burton, Sorensen & Beckman 2002), his or her prior entrepreneurial experience (Carroll & Mosakowski 1987) and opportunity costs (Amit et al. 1995) affect the final decision – whether or not to start a company. Thus, as the emerging opportunities are evaluated before acting, it can be said that the classic approach to entrepreneurship considers entrepreneurial actions as intentional (Katz & Gartner 1988).

Goal setting and planning follow after the intention to start-up (Katz & Gartner 1988). After setting the goals, the potential entrepreneur assesses different means to reach those goals (Sarasvathy 2001). Shah and Tripsas (2007) note that strategies regarding to business model, partnerships, pricing, and product range are be-

ing considered. Furthermore, the potential entrepreneur usually takes maximization of expected returns into consideration and runs a competitive analysis when selecting the means (Sarasvathy 2001). Next, after the means to achieve the set goals have been chosen, the entrepreneur attracts resources to pursuit the opportunity (Katz & Gartner 1988). After enough resources have been secured, the entrepreneur develops a solution to meet perceived needs (Shah & Tripsas 2007; Fisher 2012) This phase may include also creation of prototypes and market reaction testing (Shah & Tripsas 2007). Then, after solution is developed, an entry into the market place follows and consumers provide feedback to the entrepreneur (Shah & Tripsas 2007; Fisher 2012).

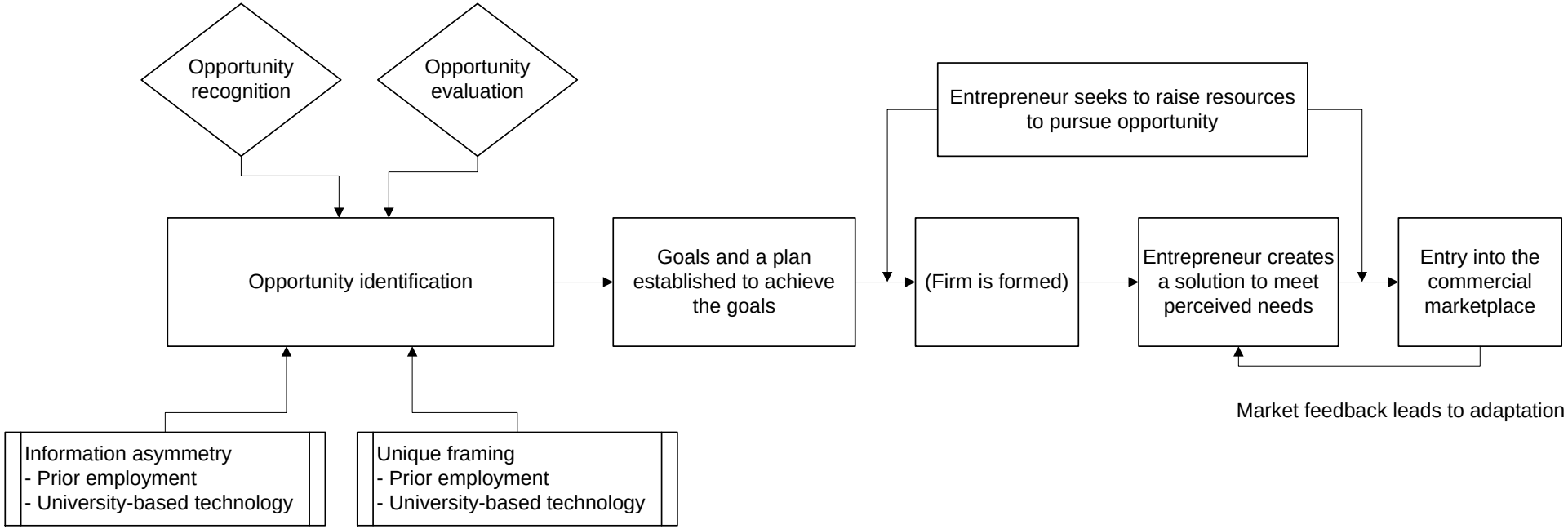
Consumers' feedback guides the entrepreneur to adapt the product according to consumers' preferences and needs (Shah & Tripsas 2007; Fisher 2012). Thus, although plans are made prior the market entry, changes may be incorporated later based on feedback (Eckhardt & Shane 2003). Furthermore, the processes may be refined and adapted, as new feedback is obtained.

The process on which the classic entrepreneurial approach is based on is presented in figure 2. The process chart presents that opportunity identification that is based on opportunity recognition and evaluation leads to goals establishment and a predetermined plan to achieve the goals. Information asymmetry and the entrepreneur's unique framing affect opportunity discovery. Thereafter, the entrepreneur attracts resources to develop a solution to meet perceived needs. When a solution has been created, the entrepreneur strives to enter the marketplace. Hereafter, the entrepreneur collects and receives customer feedback for further adaption of the product or service.

2.3.1. The user entrepreneurship process

Shah and Tripsas (2007) identified a process that is characteristic of user entrepreneurs, more precisely, of end user entrepreneurs. The user entrepreneurship process differs from the traditional entrepreneurship process, as the process

Figure 2. Classic approach to entrepreneurship (adapted from Shah & Tripsas (2007) and Fisher (2012))



towards entrepreneurship starts in a distinct way. However, as it can be seen from figures 2 and 3, there also exist similarities between the classic and the user entrepreneurship processes.

Shah and Tripsas (2007) argue that user entrepreneurship process is distinct from the traditional entrepreneurship process in two ways. First, it is common that user entrepreneurship process evolves and may include numerous steps towards establishing a company – product may be first developed only for personal use, without scouting for any commercial opportunities. Second, user communities can play a significant role in the development and diffusion of the product or service, if user is part of some user community.

The user entrepreneur process takes rise from *a user's unmet needs*. First the user identifies a need, followed by scanning of the market for potential solutions. If the necessary product or service is not found from the market, the user starts to develop a solution to fulfill his or her own need. For instance, the founder of the ToddlerCoddler pillow wanted to protect the head of her children while driving in a car – as an outcome the product that was developed through multiple phases for her own use, became eventually a popular product (Shah & Tripsas 2007). Yadav and Goyal (2015) identified a similar process step in their study regarding user entrepreneurship in rural India; the founder of Bullet Santi (a motorcycle-driven ploughing machine) could not afford a proper ploughing machine and therefore he developed one from his own use from a three-wheeled transport in India.

The next step after developing the initial version of the innovation is to *start using it publicly*. By using the innovation it can be seen by others and thus, it attracts interest among potential users. Shah and Tripsas (2007) made a notion that others provided feedback and also expressed interest in getting the product him- or herself after the innovator started using the product publicly. The same phenomenon was noticed in Yadav and Goyal's (2015) study; the efficient and cost-effective ploughing machine got neighbors' attention in short order. Furthermore, Hienerth's (2006) observations from the early stage of rodeo kayak industry are similar; the innovative users of rodeo kayaks introduced their prototypes in kayaking practices

where other users gave feedback on the kayak. However, in the later stages of the industry development, sub-communities began to form under the overall rodeo kayaking community and the information was no longer shared freely within the whole community but rather within the small sub-communities (Hienerth 2006). Thus, even though these examples represent different industries, the entrepreneurial process is similar. An interesting notion is that, when compared to the rodeo kayaking industry, users within the juvenile products industry did not restrict information sharing even though the industry is on its mature stage. It is possible that industry size affects the competition as well as the fact that the user innovators within the rodeo kayak industry were professional kayakers.

Shah and Tripsas (2007) found that *communities* played an important role in the development and improvement of the innovation. Their findings show that many user entrepreneurs within the juvenile products industry were frequently part of some kind of community, such as a local parenting group. Community members tend to identify themselves with one another – additionally information, resources and ideas are shared within the particular community (Wenger 1998; Brown & Duguid 2001). Shah and Tripsas' (2007) study confirms that user communities function similarly; community members discussed common interests, shared knowledge, tips and their own experiences. Hienerth (2006) made similar observations in the early stage of rodeo kayak industry. And furthermore, Yadav and Goyal (2015) noted the importance of the rural communities, especially in validating efficiency and practicality of prototypes.

Shah and Tripsas (2007) highlight two main benefits of belonging in a user community for user-innovators. First, members of user community get the most recent information concerning the potential adopters' preferences and needs. Additionally, as the information is shared freely, users may introduce their prototypes to the community and receive feedback that can be considered in the improvement of the product (Franke & Shah 2003). Thus, members of a user community can be valuable indicators of functionality and relevance of the prototype – signaling whether there is potential to commercialize the idea.

Second, there underlies a power of collective creativity within user communities. Shared creativity may give rise to novel designs and ideas, especially when members have heterogeneous backgrounds. According to Hargadon and Bechky (2006) there exists four interrelated activities that spark collective creativity; help-seeking, help-giving, reflective reframing, and reinforcing. They find that all of these are present within a user community; problem-solving help is often requested from other members, which refers to help-seeking, and members tend to assist those in need of help, referring to help-giving. Reflective framing can be seen in the continuous interaction among users that have different backgrounds and experiences – the differences make them question each other's and therefor frame problems. Furthermore, as the social norms of user communities support free knowledge sharing, the other three activities are reinforced continuously. However, as Hienerth's (2006) observations reveal; if members start to restrict information flow to certain members, the other activities will not be reinforced either.

Opportunity identification stems from *asymmetric information* possessed by user as well as from user's *unique framing*. Shah and Tripsas (2007) state that user's *information asymmetries* stem from a different source than in the classic model. Referring to figure 2, it can be seen that prior employment and university-based technology act as the sources of information asymmetry in the classic approach. However, users have accumulated important need-related knowledge through using the product or service themselves. Therefore, they have an advantage if they decide to develop a new solution; they understand users' needs and also possess know-how of using it. In contrast, it might be hard for manufacturers to understand the whole using process and experience, as they do not have similar information as users. Additionally, feedback from a user community or attained through public use of the product can be viewed as a good indicator for the innovation's demand. (Shah & Tripsas 2007) Thus, users possess and have access to firsthand "inside" information when compared to manufacturers who may be unfamiliar on the matter.

According to Jeppesen and Lakhani (2007), original problem-solving approaches are generated by individuals from outside the core discipline of a particular field,

as their *unique framing* makes it possible for them to develop innovative solutions. Luthje et al. (2005) brought out a good example on the matter; to develop their mountain biking equipment further, users might not feel like learning useful skills, such as orthopedic surgery, for it. However, if they already happen to be an expert in that field, they could exploit and apply those skills in mountain biking too. Thus, users come from different backgrounds and by bringing those unique approaches into practice the likelihood of finding new opportunities can be increased (Shah & Tripsas 2007). Taylor and Greve (2006) found that variation in the market performance of the comic book industry increased when there was higher diversity in the creative team members' backgrounds. Furthermore, Shah and Tripsas (2007) note that through the variance in the quality of innovations, users are likely to initiate a greater number of breakthrough innovations – as well as a greater number of failed attempts.

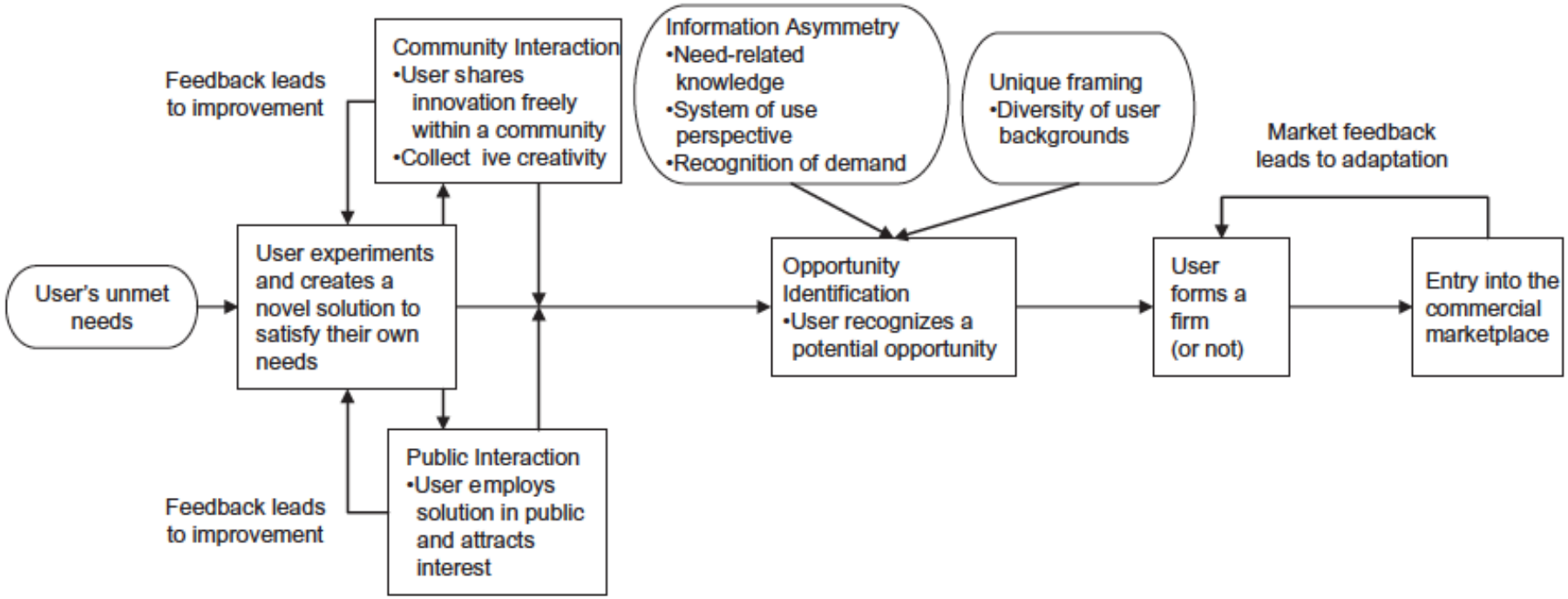
Thus as it can be seen, user entrepreneurship is an evolving process that is influenced by various factors. Figure 3 illustrates user entrepreneurship process model by Shah and Tripsas (2007). They identified this particular entrepreneurship process for user entrepreneurs through examining end user entrepreneurs within the juvenile products industry. Rectangles represent actions taken by users and ovals represent reasons to those actions.

As pointed out, Shah and Tripsas (2007) framework has been derived from end-user entrepreneur data. Thus, the framework may not describe punctually the process of professional user entrepreneurs. Therefore it will be interesting to mirror Shah and Tripsas (2007) model to the professional user entrepreneurs' processes studied in this research.

2.3.1. The effectuation approach

Creation comes before distribution or there will be nothing to distribute.
-Ayn Rand, novelist and philosopher

Figure 3. The end user entrepreneurship process (Shah and Tripsas 2007)



Traditionally, when it comes to economic analyses, markets have mostly been presumed as givens and based on e.g. rational choices at the micro-level that later can be observed as macro-level phenomena. (Sarasvathy & Dew 2005) Managerial theories strive to tackle various situations, where decision-making is involved; e.g. price-setting or hiring a best possible person for a certain job. Furthermore, decision-making in the extant management and strategy literature relies heavily on the assumed existence of artifacts such as, firms, markets, and economies. Interestingly, these managerial decisions do not comprise the creation of firms, markets, and economies. (Sarasvathy 2001)

However, what if the firm does not exist yet? Or, what if the whole industry does not even exist? How can the pricing or hiring decision be made without existence of either? Sarasvathy states (2001, 261): *"Before there are products, there is human imaginations, and before there is a market, there are human aspirations. Successful entrepreneurs have long created firms, industries, and even economies by matching up the offspring of human imagination with human aspiration. They have realized that this matching does not occur spontaneously or "inevitably". Rather, the creation of economic artifacts demands imagination, inspiration, and protracted endeavor – both cooperative and competitive."*

To address this, Sarasvathy (2001, 2009) developed the effectuation framework. The effectual approach presents logic where the ones that come on board determine what the new market looks like - differing from the view where search and selection of new member is driven by predicted visions of the new market (Sarasvathy & Dew 2005). Therefore, the effectual approach can be seen as a rather opposite entrepreneurial approach to the classic model, in which the markets are assumed to pre-exist.

Sarasvathy (2001, 2009) proposed the theory of *effectuation* to address highly dynamic and unpredictable entrepreneurial environments that do not carry enough information for prior opportunity identification and evaluation. Sarasvathy (2009) describes effectuation as *"a logic of entrepreneurial expertise, a dynamic and interactive process of creating new artifacts in the world."* The conceptual approach

of effectuation was first outlined by Sarasvathy (2001) and extended by Sarasvathy and Dew (2005), and by Sarasvathy (2009).

The logic of effectuation differs plenty from the logic of traditional approach to entrepreneurship; *"Effectuation processes take a set of means as given and focus on selecting between the possible effects that can be created with that set of means."* (Sarasvathy 2001, p. 245). As introduced earlier, a specific goal is chosen before the means in the classic approach. Furthermore in the effectuation approach - personal knowledge, skills and social networks are considered as the means at the individual level (Sarasvathy 2001), and physical, human, and organizational resources at the firm level – referring to the resource-based theory of the firm (Barney 1991). Thus, effectual approach highlights the available means to attain possible goals by exploiting those means that are possible for the entrepreneur.

So to say, the effectual entrepreneurship process begins with focusing on the actual means that are available to the entrepreneur and asking him or herself *"Who am I?", "What do I know?" and "Whom do I know?"* to disentangle opportunities. Sarasvathy (2001) notes that effectuation processes are common and omnipresent in human decisions. For example, when most people cook, they first look around in the kitchen, what is available rather than choose first a dish to be cooked. However, effectual process might not be the best approach for throwing a successful dinner party. (Sarasvathy 2001)

By examining the available means, the entrepreneur can contemplate what he or she can do (Sarasvathy & Dew 2005). *Interaction* and networking with people plays a significant role in the effectual approach. Sarasvathy and Dew (2005) note that calling people they know or meet, and furthermore, advancing into negotiations and commitments is the most important part in the effectuation process – rather than running a competitive analysis like in the classic approach to entrepreneurship. In the effectual approach the opportunity does not determine who will join – it is the other way around. Those who join will determine the characteristics of the opportunity, based on the extent they are willing to commit to the company and other contingencies that occur along the path. (Sarasvathy & Dew 2005)

The chains of commitments that are formed trigger two distinct cycles. First of them increases available resources for the venture by increasing joining stakeholders in the effectual network – the second cycle accumulates the venture's constraints that merge into specific goals. Over time, these goals will get embodied into the new market. (Sarasvathy & Dew 2005) In other words, these constraints that are accumulated by the increasing amount of means (through new stakeholders that join the venture) dictate the outcome of the opportunity. These cycles are outlined in figure 3, in which the effectual process is presented. The key in effectuation is to transform the existing realities into new alternatives through series of effectual commitments – not by selecting between alternatives (Sarasvathy & Dew 2005). Effectuation framework is illustrated in figure 4.

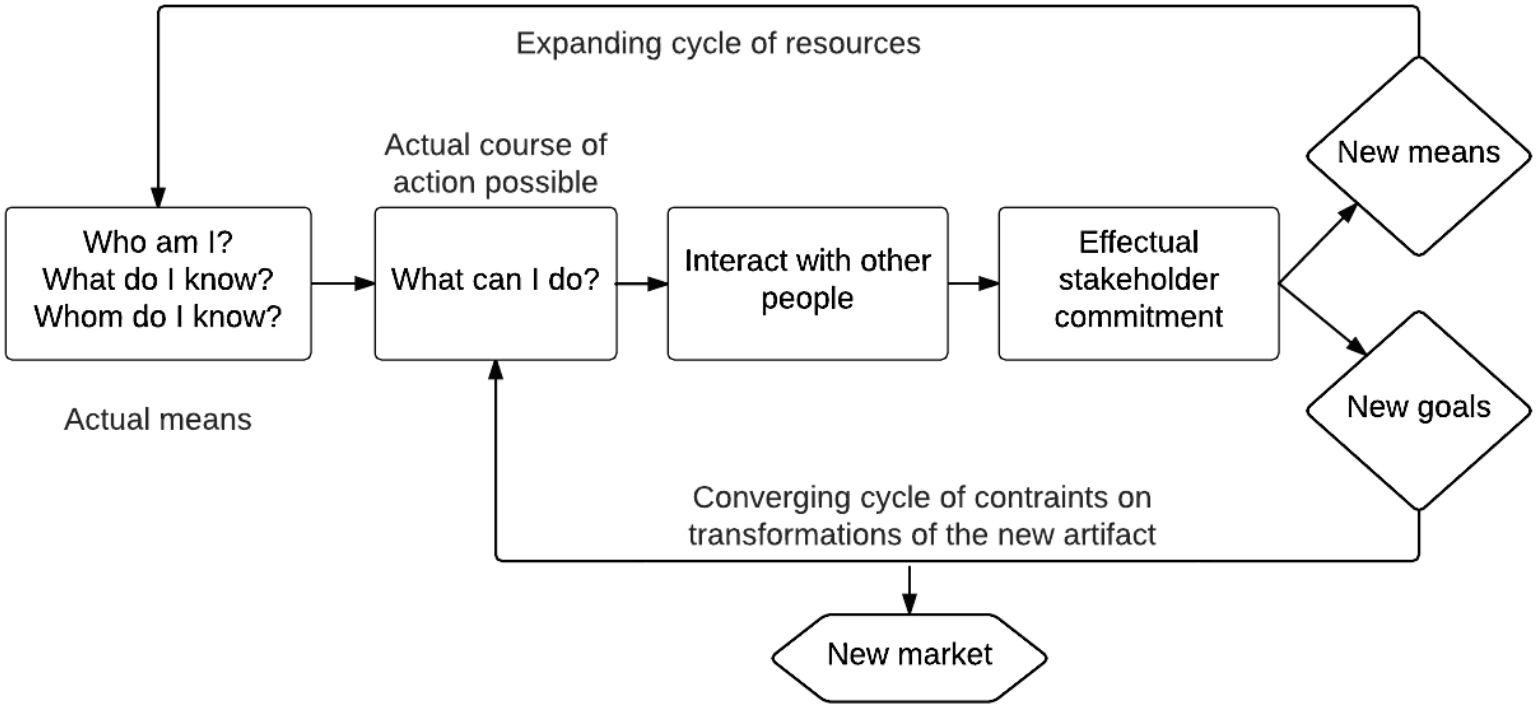
The effectual approach can be summarized in four core principles. These principles strongly highlight the distinctions between classic and effectual approaches.

1. *Focusing on affordable loss rather than on expected returns:* Maximization of expected returns for the opportunity and selecting optimal strategies according to them is in the core of the classic approach to entrepreneurship. In contrast, the effectual model sets a threshold for loss that can be afforded and experiments with possible strategies considering the threshold. (Sarasvathy 2001)

2. *Strategic alliances rather than competitive analyses*: Detailed competitive analyses are emphasized in the traditional explorative approaches, like Porter's five forces (Porter 1980). To reduce uncertainty and to build barriers of entry, the effectual approach highlights strategic alliances and pre-commitments from stakeholders (Sarasvathy 2001).

3. *Contingency exploitation rather than exploitation of pre-existing knowledge:* As the effectual approach draws from dynamic and unpredictable environment, it would be better to exploit contingencies that emerged suddenly

Figure 4. Effectuation framework (based on Fisher 2012)



over time (Sarasvathy 2001; Sarasvathy & Dew 2005). Furthermore, the unexpected events are turned into profitable opportunities (Fisher 2012).

4. *Control over an unpredictable future rather than prediction of an uncertain one:* The logic of effectuation relies on following:"*To the extent that we can control the future we do not need to predict it".* The traditional approach relies on the opposite – there is control as long as the future can be predicted. (Sarasvathy 2001) Thus in the effectual approach, the focus is on matters that can be affected.

Additionally, Sarasvathy (2001) draws three propositions based on the findings. *First*, early-stage firms created through effectual processes, if they fail, will fail at lower levels of investment than firms created through classic entrepreneurship processes. Thus, more ideas at lower costs will be tested in the economy through effectual processes. *Second,* effectual processes rather than classic entrepreneurial processes, are exploited more likely by successful early industry entrants. In contrary, later industry entrants might take advantage of the classic approach rather than the effectual approach. *Third,* early-stage firms that are successful focus more likely on establishing alliances and partnerships than on other competitive strategies. Examples of other strategies include market research, competitive analyses, long-term planning and forecasting, as well as training of employees.

2.3.2. Framework summary

The previous subchapters illustrated the frameworks used in this study. As presented, each framework has its own characteristics and approach to entrepreneurship. *The classic approach* represents a traditional view of entrepreneurship and e.g. assumes that markets pre-exist and are waiting to be discovered by entrepreneurs. *The (end) user entrepreneurship approach* adds to the classic approach by suggesting that the entrepreneurial process is sparked by users' unmet needs, rather than through bare opportunity identification. However, the classic and user entrepreneurship approaches share many similarities in the process.

This can be seen from figures 2 and 3. *The effectual approach* differs to a greater extent from the first two approaches, and strives to answer the question, how different artifacts such as firms, markets, and economies are created when they do not exist yet? Its core principles are quite the opposite of the classic approaches. Table 3 summarizes the typical features of each framework.

Table 3. Typical characteristics of the selected frameworks

Framework	Exemplary actions
Classic model	Opportunity identification and evaluation before innovation development Setting goals and selecting means according to the goals Assessment of long-run opportunitites; maximization of expected returns Writing a business or marketing plan, and/or competitive analysis Implementation according to the written plans Predicting the future
User entrepreneurship	Solution development for own use Public use of the innovation Interaction and feedback requesting from user community Exploitation of need-related knowledge
Effectuation	Focusing on affordable loss rather than on expected returns when developing the solution Exploiting resources at hand Emphasizing strategic alliances and stakeholder pre-commitments Development of multiple variations of the product/service, and/or different ways to sell Exploiting opportunities as they emerge

3. METHODOLOGY AND DATA COLLECTION

The aim of this study is to gain in-depth understanding of Finnish user entrepreneurs' path towards entrepreneurship and commercialization of their innovation. The research context is health and wellbeing sector, which has risen as a global megatrend. The case companies' entrepreneurial processes are mirrored to the selected entrepreneurial frameworks. Several interesting questions are addressed in this study, such as; *what are the similarities and differences between end user and professional user entrepreneurs? Does there exist possibilities for integrating those frameworks to gain broader understanding of user entrepreneurship processes?*

3.1. Methodology

To gain in-depth comprehension and to be able to interpret the user entrepreneurship process within health and wellbeing sector, this thesis' research methodology is based on the qualitative methods. The quantitative methods would not elicit enough detailed information on user entrepreneurs' behavior or underlying motives, as the aim of the study is gain broader view of user entrepreneurial processes. Therefore, the choice of qualitative research methodology is set by the research questions and the aim of the study.

The study is conducted as a case study. Yin (2009) describes a case study as an empirical research that *"investigates a contemporary phenomenon in depth and within its real-life context"*. Thus, a case study method is well suited for the aims of the study. Furthermore this study involves multiple cases - this way it is possible to obtain detailed qualitative information with a wider extract than a single case study would offer. Multiple case studies have also greater possibilities for analytical generalization than a single case study, if at least two cases support the same theory (Yin 2009). This study involves three different entrepreneurship frameworks, and therefore the multiple case method offers an interesting setting to be examined. According to Yin (2009), selection of case studies is not determined by representa-

tiveness or sampling techniques, but rather emphasizing for being e.g. typical, revelatory, or unique in some way. Therefore, three different types of user entrepreneur founded companies were chosen within the Finnish health and wellbeing sector. They include both end user and professional user entrepreneurs from both product and service regimes. These distinct cases offer broader possibilities to examine user entrepreneurship and its underlying processes.

This study incorporates both within-case analysis as well as cross-case analysis. Within-case analysis sheds light to case companies' individual entrepreneurial processes, whereas cross-case analysis strives to find answers for this study's research questions. Like Cruzes, Dybå, Runeson and Höst (2015) phrase, cross-case analysis is helpful when a study calls for comparison of commonalities and differences in the events, activities, and processes, thus, the units of analyses. This study examines user entrepreneurs as the units of analyses. Furthermore, the cases are first examined and described separately and thereafter cross-case analysis is applied to draw similarities and/or differences between the processes, as well as mirror the findings against the three validated entrepreneurship frameworks.

3.1.1. Data collection

The main data collection strategy used for this study is semi-structured interviews where the questions are grouped under themes. Less structured interviews, such as semi-structured interviews, are suitable when a study aims to reveal answers for 'what, 'how' and 'why' questions (Saunders, Lewis & Thornhill 2007). Therefore, by using semi-structured interviews for this study it is possible have both an open conversation to gain more in-depth understanding of the phenomenon and simultaneously obtain answers for the critical questions to fulfill the aims of this study. As this study analytically tests three entrepreneurial frameworks, it is necessary examine, whether or not certain acts such as a writing a business plan, are present in the case companies processes. Thus, the interviewer let the conversation flow at its own pace, and guided the conversation with predetermined questions set for this study, if it was necessary.

The interview questions have been selected through identifying the main characteristics of each framework, covering the whole entrepreneurship process. The study of Fisher (2012) was also used as an example. To gain clearer picture of the interview, the questions are organized under themes. Furthermore, first theme focuses on background information regarding to e.g. educational background and prior occupational experience. Second theme regards the innovation processes and finally, the third theme discloses information about the commercialization processes. The interview questions are presented in appendix 1. The interview questions are written is their basic form and thus, they were modified according to the interview situation. Therefore, for example, a question could have been asked in a different manner if the interviewee had already partly given an answer before the interviewer had requested it.

The interviews were carried out as conference calls or live interviews with the firm founder or one of the founders. Due to situational obstacles and geographical distance, all of the interviews could not be conducted as live interviews. Furthermore, time ran short when Ambronite's founder was interviewed – therefore the rest of the answers were obtained through email. Additionally, due to schedule challenges, the researcher was not able to interview the user entrepreneur founder of PhysioBit, but the co-founder. Therefore, to obtain information regarding to the necessary phases of the entrepreneurial process, part of the interview questions were emailed to the user founder as well. The average interview length was 32 minutes. Each interview was recorded and transcribed. For further data analysis, the entrepreneurial processes were organized chronologically to construct the case companies' entrepreneurship processes. Additionally, the entrepreneurs' actions were extracted separately so that mirroring them against the frameworks features would be convenient (e.g. *'did not write a business plan'*).

Additionally, company websites as well as news articles were exploited as secondary data sources to the extent they were available. However, as the case companies examined in this study are still rather emergent, the public information related to them is still quite limited.

3.1.2. Reliability and validity

Yin (2009) points out four criteria that should be regarded when conducting a case study; *construct validity, internal validity, external validity, and reliability.* These criteria are used to establish the quality of any empirical social research of which case study is one form.

In this study, construct validity was improved by utilizing multiple sources of evidence to the extent it was possible, as public information regarding to the case companies is still rather limited. However, it must be taken into account that interviews as the main data collection form might suffer e.g. from response bias, or reflexivity, where the interviewee could manipulate the answers in accordance of the interviewer's preferences (Yin 2009). The names of the interviewees are also disclosed in this study, which could lead to withholding some information. It should also be taken into account that the researcher was employed in one of the case companies, Lean in Five Weeks Challenge, at the time of conducting this study. In addition, to improve construct validity, the interviewees have been requested to review this study's parts where they are concerned.

As this study does not aim to explain why X leads to Y, but rather to describe the entrepreneurship process of Finnish entrepreneurs in health and wellbeing sector, internal validity is not of concern. As Yin (2009) states, internal validity should be established when causal relationships are being studied. This study's methods, including interview questions are presented clearly in this paper. Therefore, this study could be replicated with the exactly same case companies. However, as interview settings are always unique, the amount and quality of disclosed information could vary depending on the interviewee.

3.2. Brief case descriptions

This subsection introduces shortly each case company interviewed for this study. As the goal of this study is to gain more in-depth and broader understanding of

user entrepreneur processes, the researcher aimed to identify diverse case companies for the study. Therefore, the selected case companies include end user and professional user entrepreneurs as well as product and service innovations. The selection of case companies is based on the researcher's prior knowledge and interest in the Finnish health and wellbeing sector. Two of the companies, Ambronite and Lean in Five Weeks Challenge, were familiar prior conducting this study. PhysioBit was identified through the researcher's attendance in Upgraded Life Festival[2], which is the biggest health startup event in the Nordics, in April 2016.

These introductions help readers to gain understanding of the core idea of each company, the product or service they offer as well as the type of entrepreneur (end user or professional user entrepreneur) is concerned.

3.2.1. Ambronite

Ambronite is a Finnish start-up company founded in 2013 by Simo Suoheimo, Mikko Ikola and Arno Paula, three graduates from Aalto University. Of the three founders, Simo Suoheimo was interviewed for this study. They have brought a novel type of food to the market, which they call a *"drinkable supermeal".* Ambronite can be considered as a food that is optimized for performance, thus, represents a whole new product category. All of the founders had their keen recreational interest on nutrition, which sparked the idea of Ambronite. (Simo Suoheimo 2016) Therefore, Ambronite founders can be regarded as end-user entrepreneurs within physical product regime.

Ambronite states that each serving of this drinkable supermeal keeps hunger away for even 4 to 5 hours and it contains only *"real food"*, thus natural ingredients and zero additives. (Ambronite 2016a). Their mission is *"to help people live life to the fullest",* and they strive to tackle the question *"how can food help people to more?"*

[2] Learn more about Upgraded Life Festival in: http://www.upgradedlifefestival.com/

Therefore, they use the nutrient-densest natural ingredients on the planet and combine them with latest nutritional and medical sciences. (Simo Suoheimo 2016)

Ambronite can be purchased online in a package of 5 (55€), 10 (89€) or as a monthly subscription of 10 one-meal packages (75,65€). (Ambronite 2016b)

3.2.2. PhysioBit

PhysioBit is a Finnish start-up company founded by Hanna Nevala, Mikko Laatikainen and Mikko Mäenpää in 2014. Of the three founders, Mikko Mäenpää was interviewed for this study. Additionally, Hanna was asked some of the interview questions via email. FysiApp is the flagship product of PhysioBit, which is a novel mobile and web-based application for physiotherapists and their customers. This study considers FysiApp's innovation and commercialization processes. The core idea of FysiApp is to work as a link between the healthcare professional and the client. With FysiApp, physiotherapists and their customers can plan training programs as well as communicate safely. Traditionally, the exercises are printed as handouts, but customers tend to skip the printed exercises. (Hanna Nevala 2016) In addition, FysiApp enables an easy way to communicate for the physiotherapist and their customers, as well as it makes possible to follow customers' progress with the exercise program through an application (FysiApp 2016a). Therefore, FysiApp has brought novel and timely features to traditional reception-based physiotherapy.

The initial push for FysiApp stems from a thesis work between Tampere University of Technology and Lappi University of Applied Sciences. A physiotherapist student Hanna Nevala, who is one of the founders, and another physiotherapist student, Suvi Pajunen made their thesis on using digital systems in physiotherapy. Furthermore, Jyri Kärpijoki, who is the original programmer of FysiApp, did his Master's Thesis on FysiApp prototype. (Mikko Mäenpää 2016) Thus, based on Hanna Nevala's occupation, FysiApp can be considered as a professional user innovation.

For physiotherapy customers, FysiApp is free of charge and the application can be downloaded from Apple store, Google Play store and Microsoft store[3]. For physiotherapy professionals, FysiApp can be purchased from 15€ per professional using the application. (FysiApp 2016b)

3.2.3. Lean in Five Weeks Challenge

Lean in Five Weeks Challenge (LIFW challenge) is a five-week lifestyle challenge founded by Tomi Kokko in 2014. Tomi himself was interviewed for the purposes of this thesis. LIFW challenge started to take shape while Tomi was living in Australia. The core idea of LIFW challenge is to put people's lifestyles into healthier direction in five weeks by combining training, nutritional guidance, and social community. The focus of the five weeks' challenge is on a group of people rather than single personal training clients. Furthermore, Tomi wanted create a course that would impact a larger amount of people in need, as personal as it was possible. At the same time, the positive peer pressure that leads to good results could be brought in the training as well. Initially LIFW challenge was a physical challenge, where Tomi trained clients face-to-face. Today the market is biggest for the five-week online challenge, which includes all the other content except for the physical live training sessions. (Tomi Kokko 2016)

Lean in Five Weeks Challenge can be purchased from the LIFW online shop. The face-to-face challenge is sold for 447€ (Lean in Five Weeks Challenge 2016a) and the online challenge for 127€ (Lean in Five Weeks Challenge 2016b).

[3] To see FysiApp downloading sites, see https://itunes.apple.com/fi/app/fysiapptraining/id1019543863?l=fi&mt=8 (Apple), https://play.google.com/store/apps/details?id=com.fysiapp.famobile (Google), and https://www.microsoft.com/en-us/store/p/fysiapp/9nblggh30n4v#system-requirements (Microsoft).

3.2.4. Case company summary

To obtain a quick overview of the case companies, table 4 presents the basic information of each company. In the following chapter, each case company's entrepreneurial processes are described in-depth.

Table 4. Case company summary

Company	Entrepreneur type	Founder(s)	Year founded	Product/service	Price from
Ambronite	End user	Simo Suoheimo, Mikko Ikonen and Arno Paula	2013	Drinkable supermeal	55 €
PhysioBit	Professional user	Hanna Nevala, Mikko Luukkanen and Mikko Mäenpää	2014	FysiApp, a mobile application for physiotherapists and their clients	15 €
Lean in Five Weeks Challenge	Professional user	Tomi Kokko	2014	5-week lifestyle challenge	127 €

4. EMPIRICAL RESULTS AND FINDINGS

Results obtained from the case company data are presented in this chapter. First, within case analyses of each company's entrepreneurial processes are described and illustrated. Thereafter, cross-case analysis is carried out to answer the research questions. Finally, based on the within case and the cross-case analyses, novel frameworks are introduced.

4.1. Ambronite's entrepreneurial process

Ambronite's creators are three young Finnish gentlemen; Simo Suoheimo, Mikko Ikola and Arno Paula, who are graduates from Aalto University. Their mission is to help people to *"live life to the fullest"* with drinkable supermeals – that is, Ambronite. (Simo Suoheimo 2016)

> *"Oftentimes people have trouble finding good options for lunches, for meals that would help them – not only to survive but to thrive though the day. … Basically, how can food help people to be more? And that breaks down into: how people can feel better after meals, how can meal serve us better, and also, how can we envision a new kind of food product?"*
> (Simo Suoheimo 2016)

Before developing Ambronite, each three co-founders had their keen interest in nutrition from different viewpoints. Simo has guided wilderness hikes for several hundreds of people and has background in the scouts, and through his own experience, he has noticed nutrition's positive effect on both cognitive and physical performance as well as overall happiness. Furthermore, Mikko's interest in nutrition stems from quantified self and biohacking[4] point of view, whereas Arno has a triathlete background. The idea of a drinkable supermeal started to form itself when

[4] To read more information about biohacking and quantified self –movement, please see: http://quantifiedself.fi/

Simo did long mountain hikes as well as skiing expeditions in the Alps, during his studying and working period in Switzerland. Furthermore as these trips called for food suitable for extreme conditions, Simo started to create smoothies and drinkable meals that would optimize performance for own use. When Simo returned back to Finland, he and his friends, Mikko and Arno, who were trying to solve the same problem, started to develop solution. A solution for busy and health-aware people was needed. (Simo Suoheimo 2016)

> *"It all started from a need to create something for our own daily lives that was kind of natural, active lifestyle and natural standards. And that kind of product didn't exist so we needed to create our own."*
> (Simo Suoheimo 2016)

The idea of a drinkable supermeal and its execution started to form quickly. Prior any company founding activities, the three guys made their first batch for a public event called the *"Restaurant day"* [5] in May 2013, after which they received positive feedback and inquiries whether their supermeal was available somewhere. The great interest sprouted from the Restaurant day led to following steps. Later that year Ambronite was established, and was also chosen as one of the startups to participate in Startup Sauna, a startup accelerator program in Finland. Additionally, Ambronite had already 200 beta customers by September 2013. (Suoheimo 2016) Ambronite got a lot of visibility and international attention after participating in Slush[6]; for example Business Insider nominated Ambronite as one of the 11 hottest startups in Northern Europe and Wired Magazine wrote a piece of Ambronite (Ambronite 2013).

In the beginning of 2014, Ambronite was launched internationally through crowdfunding platform Indiegogo, and got over 200% of the requested amount –

[5] See http://www.restaurantday.org/fi/ for further information about Restaurant day – a Finnish food carnival.

[6] See http://www.slush.org/ to find more information about Slush, Europe's leading startup event.

over $100,000.00 (Simo Suoheimo 2016; Indiegogo 2014). They reached their campaign goal in less than a week, and additionally broke the Indiegogo all-time record for crowdfunded food products (Indiegogo 2014). With international financing, Ambronite could truly start to develop the drinkable supermeal. Before the first crowdfunding round Simo, Mikko and Arno developed the drinkable supermeal at their own expense. With international financing, Ambronite could involve specialized experts in the product development, including a doctor and food development researchers, who could answer the endless questions the founders of Ambronite had it their mind. (Simo Suoheimo 2016)

> *"Because we have to combine many different fields of science to make this, from medical science to nutrition to the knowledge of the ingredients. So practically this meant picking up the phone and making hell lot of phone calls to people that could answer our questions because we had so many and we didn't know what to ask at some point."*
> (Simo Suoheimo 2016)

Thus, Ambronite has been developed both in the kitchen and in the scientific settings with experts. Today, Arno is mainly responsible of the product development. Customer feedback has been an important source for product development. Simo Suoheimo (2016) states that the Ambronite community has been created through involving customers in the drinkable supermeal's development process. By involving the customers in the process, Ambronite fits on the customers' taste preferences. The founders sent the early customers half-finished products, called and emailed them to get feedback concerning the supermeal. (Simo Suoheimo 2016)

> *"So down the line, we created hundreds of different recipe variations, based on the feedback we got from our customers. That's how we got about developing our product further and how we still do actually.*
> (Simo Suoheimo 2016)

During the development of the drinkable supermeal, the founders identified potential lead users ranging from doctors to triathletes and busy moms that could be in-

terested in their product. The lead users have provided essential feedback, and their opinions have guided strongly Ambronite's development. The lead users form Ambronite's community and thus, they could be regarded as "the company's DNA" (Simo Suoheimo 2016). As it can be seen from Ambronite's website, the lead users' feedback act as strong references for the business (Ambronite 2016b).

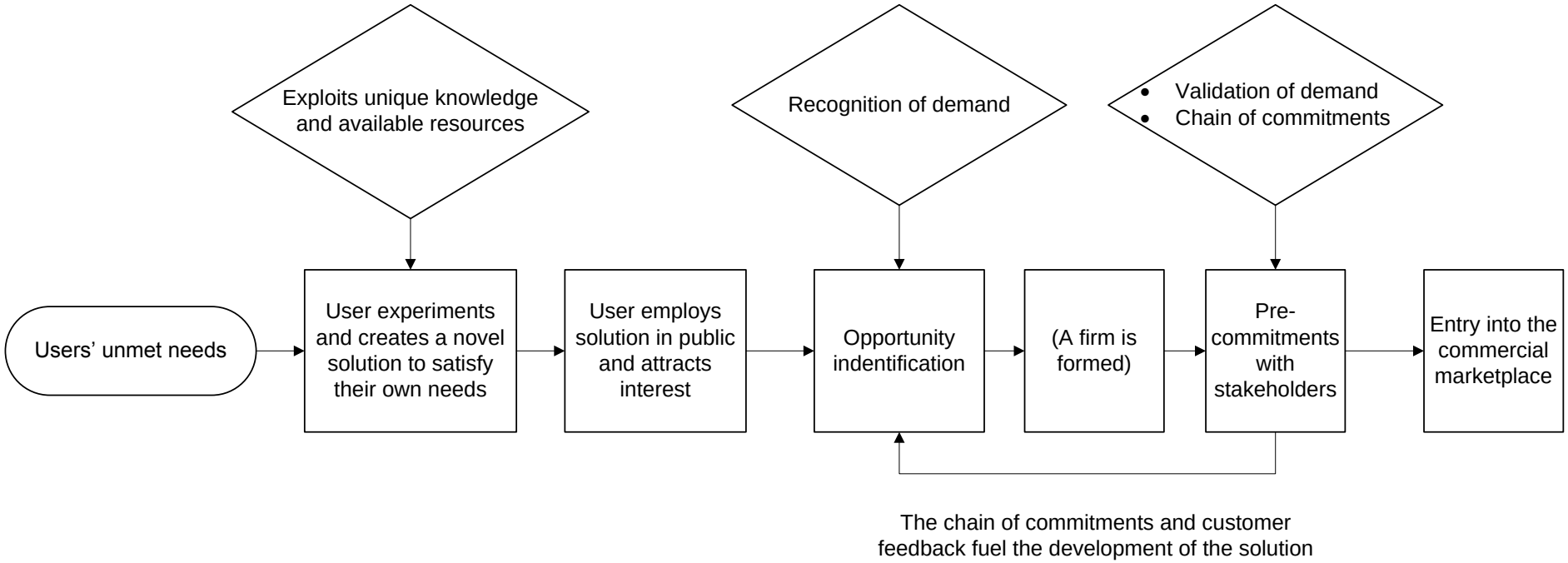
Today Ambronite has customers in over 40 countries. The biggest demand for Ambronite is in the United States, which accounts for approximately 50 percent, following Germany and the United Kingdom in Europe. The most sales are generated from the online store and partners (blogs and retailers). Ambronite can be bought both as a single purchase and as a subscription. (Simo Suoheimo 2016)

To summarize Ambronite's story, there has been a great journey right from the first tasting event in 2013 in the Restaurant day to the present day as a successful, international company. The success surprised the founders as well.

> *"To be honest, I didn't quite envision in the beginning that we could help so many different kinds of people and in so many situations. So big part why I get inspired every day is to see people write emails like finding new ways how to use our product. That's so incredible, there are so many ways that I wouldn't have envisioned myself. It's super exciting to see people's creativity at work!"*
> (Simo Suoheimo 2016)

Figure 5 illustrates the main phases in Ambronite's entrepreneurial process.

Figure 5. Ambronite's entrepreneurship process



4.1. Lean in Five Weeks Challenge's entrepreneurial process

The founder of Lean in Five Weeks Challenge (LIFW challenge) is Tomi Kokko, Finland's leading lifestyle expert and a personal trainer with over 10 years' experience from the field. He is on a quest to help as many people as possible to improve their overall lifestyle – from nutrition to physical and mental training with a 5-week lifestyle challenge.

The idea for LIFW challenge began to form itself while Tomi was living in Australia. Tomi had earlier founded a startup related to personal training services, and it went bankrupt. He needed to visit his parents in Finland but did not have enough money, and therefore, he had to think of some idea that would generate enough profit to buy the flight ticket. As for Tomi, the circumstances made him innovate to solve his own situation. Additionally, Tomi points out that another motivational driver behind developing LIFW challenge was a desire to help people to a larger extent – thus; scaling the business could solve that. Tomi was a fully booked personal trainer working 15 hours a day, so his effort was maxed out. Moreover, he had noticed that group environment created positive pressure, which made the clients work even harder. As well, he himself enjoyed more taking bigger groups than one-on-one clients. (Tomi Kokko 2016)

> *"All ideas come from two places – either severe desperation or severe inspiration. So this one's from severe desperation."*
> (Tomi Kokko 2016)

As soon as Tomi got the idea, it did not take long for him to implement it; not more than three days, maybe even less. He innovated based on his experiences with his one-on-one clients, and used prior knowledge for creation of the challenge. Furthermore, he wanted to create a training design that would work well for a bigger group without losing the personal grip on a client. The first challenges were held as a six-week challenge. Tomi started immediately to call people and sign them up. Back then Tomi had 20 one-on-one personal training clients, who he en-

couraged to join to the challenge – 17 of them joined. Tomi ran the LIFW challenge in total six times in Australia, after which he returned back to Finland. (Tomi Kokko 2016)

> *"When I came back to Finland, I realized it was pretty much easy to set it up and they got really good results and there was a lot of community feel to it."* (Tomi Kokko 2016)

Tomi realized the business potential of LIFW challenge already in Australia, when he came to notice that the business generated positive cash flow from day 1. Therefore, he did not have to seek for external finance, but invest his own time and knowledge. Tomi saw that Finnish market for training and lifestyle services was still growing, and additionally under change, as the supply was concentrated on big gyms and some niche providers. Moreover, he got further validation of the idea's effectiveness and market demand, when he was able to pre-sell 30 spots to LIFW challenge, even though he did not have the actual product yet. In Finland, Tomi founded LIFW challenge in 2014. (Tomi Kokko 2016)

In order to develop LIFW challenge further, Tomi has asked customer feedback right from the start. He made the major adjustments to the challenge during four first rounds, and did some alterations on the length, nutritional guidance and training sessions. Since then, the main features of the challenge have been approximately the same. (Tomi Kokko 2016) Today over 6000 Finnish people have gone through LIFW challenge (Lean in Five Weeks Challenge 2016c), and the company has grown from an "emergency solution" sprouted from a challenging situation to be a successful company that has been developed further. Figure 6 presents a simple illustration of Lean in Five Weeks Challenge's entrepreneurial process. Throughout the development of LIFW challenge, Tomi has striven to seize opportunities, and adapted the business to them:

"'Cause often when we make a business plan, a business plan is for 3 years or 5 years – but by the time you get to your first year, your business has completely changed. You might be in a different market."
(Tomi Kokko 2016)

4.2. PhysioBit's entrepreneurial process

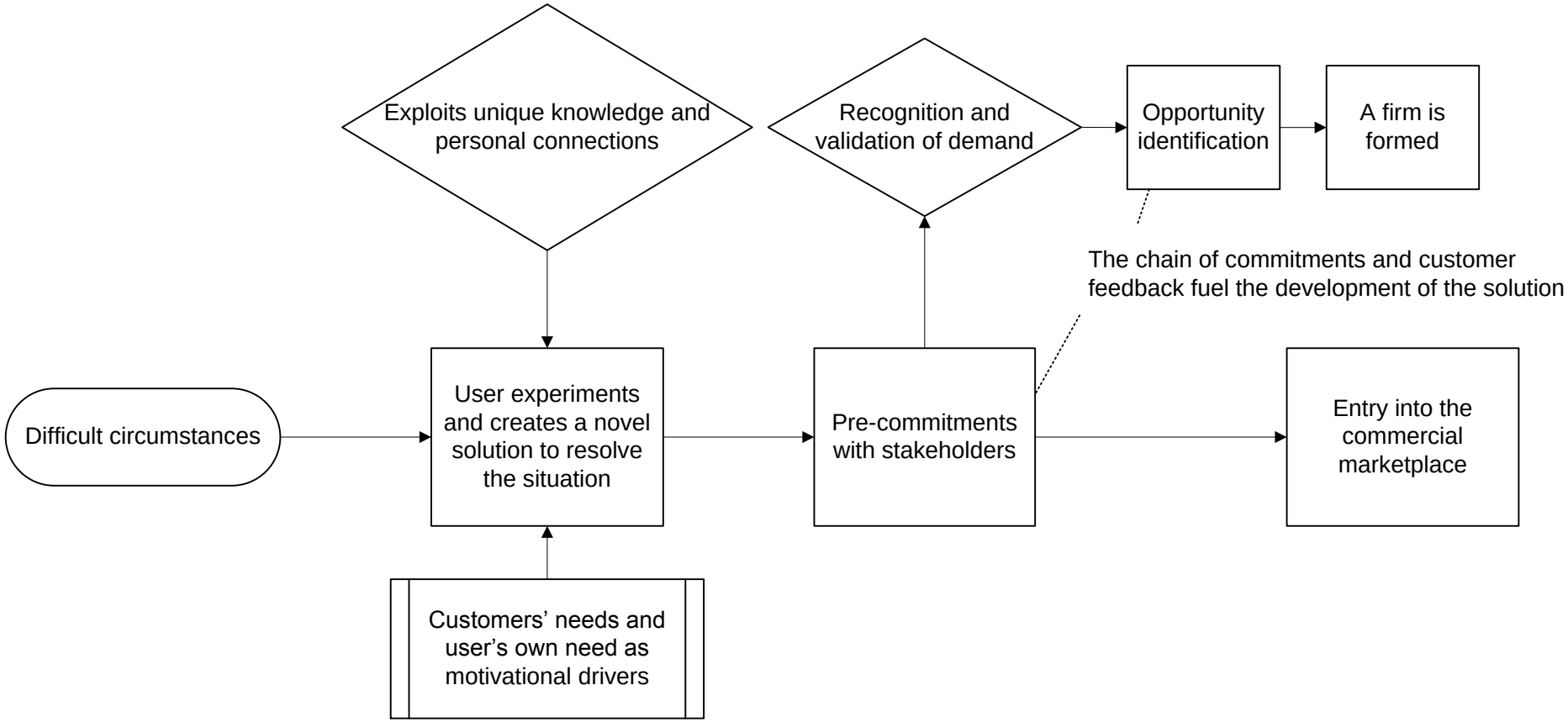
FysiApp is novel application brought by PhysioBit for physiotherapists and their customers for planning training programs, scheduling meetings, contact keeping, and for monitoring customers' progression via mobile connection (FysiApp 2016a).

The founders of PhysioBit are Hanna Nevala, Mikko Luukkanen and Mikko Mäenpää, and the company was founded for the purposes of FysiApp (Mikko Mäenpää 2016). They believe that the key to effective physiotherapy is to combine real human interaction and mobile technology. Thus, in addition to face-to-face consultations, physiotherapy would be available for people whenever they need it. (Hanna Nevala 2016) The founders' educational backgrounds complement each other; Hanna is a physiotherapist and a business student, Mikko L. has his degree from National Defence University, and Mikko L. handles the programming.

Hanna, CEO and the team's physiotherapists identified a need for this kind of application through her occupational background; to make things more convenient for both professionals and their clients. Hanna Nevala (2016) discovered several issues that had an effect on the outcome of the treatment period:

(1) She noticed back then that the current programs supported neither tracking the client's progression with the exercises nor an easy communication between professionals and their clients.
(2) The physiotherapist and the client conventionally meet once a week during a physiotherapy period, so it was difficult to react on a short time span and modify the training program when it would have been necessary.

Figure 6. Lean in Five Weeks Challenge's entrepreneurship process



(3) The printed paper handouts did not engage clients well enough to accomplish fully the exercises. A basic explanation for not carrying out the exercises used to be “I lost the exercise handouts”.
(4) There was a high threshold for clients to contact the physiotherapist if they had occupying questions in their mind. Therefore, clients might have waited for the whole week before asking more precise instructions or giving an update of the symptoms from the given exercises. Thus, it felt that time was misspent without a convenient and low threshold way to communicate, as it is not allowed to use email, WhatsApp, or Facebook Messenger.
(5) The probably the most important reason according to Hanna:

> *“In my opinion, appointment times should be scheduled according to the needs of a client, not routinely once a week. With this application it is possible to schedule the appointments according to the situation. If self-rehabilitation of the client progresses well, it would not be necessary to arrange the appointments just because the referral says so.”*

Co-founder Mikko Mäenpää (2016) adds:

> *“Our motivation for the product was to get the physiotherapy customers to complete the scheduled exercises. Our product aims to motivate customers by mobile activation and hopefully using intelligence triggers in the future.”*

The idea of FysiApp started to form already in 2012, when Hanna and Mikko L. exchanged thoughts about the application (Hanna Nevala 2016; Mikko Mäenpää 2016) In 2013 the prototype of FysiApp was developed when a friend, Jyri Kärpijoki, from Tampere University of Technology did his Master’ Thesis on FysiApp prototype. In 2014 Hanna and her classmate, who were studying physiotherapy in Lapland University of Applied Sciences, did their thesis on FysiApp, based on the developed prototype. Later in 2014, when Hanna and Mikko L. decided to found PhysioBit, Mikko M., the current lead programmer, came on board to deal with programming and database, when the original programmer Jyri did not join the company (Hanna Nevala 2016).

After the prototype of FysiApp was built, the team developed FysiApp further at their own expense for a few months. However, they came to realize that they did not have enough financial resources for further development of FysiApp. Therefore, PhysioBit was established initially for the purposes of applying for funding. Further development of FysiApp was secured when PhysioBit got financial aid from Centre for Economic Development, Transport and the Environment (ELY Centre) and Finnvera. (Mikko Mäenpää 2016) In addition to the lead programmer Mikko L., FysiApp took advantage of programmer students from Savonia University of Applied Sciences through internship and thesis arrangements. Later on the programmers were employed in the company. What comes to the actual content of FysiApp, Hanna shot the exercise videos with her boyfriend little by little through a year. (Hanna Nevala 2016)

> *"Without programming expertise in the company founders, this would have been a rather expensive project."*
> (Hanna Nevala 2016)

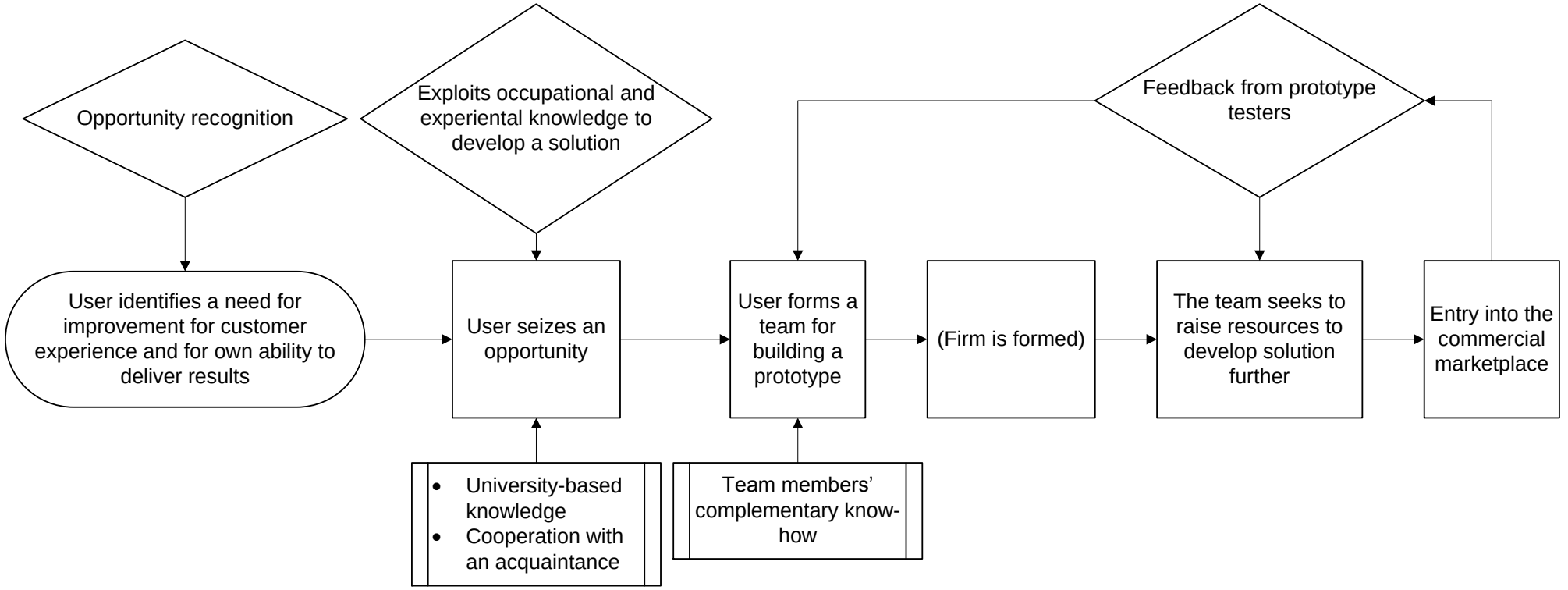
Customer feedback has been in a crucial role for further development of FysiApp. As the application consist both professional and client sides, the founders have requested feedback from both sides. The most long-term tester and partner for FysiApp has been a spa hotel Kunnonpaikka located in Siilinjärvi that has tested the professional side of FysiApp for two years now. Some sports teams, Velhot and Puijo volley, have provided useful feedback from the client side of FysiApp. Additionally, the founders have asked their friends and family for feedback. (Mikko Mäenpää 2016) Through the obtained feedback from customers, the team has created an application that answers the requirements of both sides:

> *"FysiApp is a mobile application that works as a link between the healthcare professional and the client. Through the application the client can perform training programs and wellbeing tasks that are planned for him/her. This way the professional can react more quickly to the client's need through modifying the program. The application also reminds when it's time to train.*

> *With FysiApp's chat function there's a low threshold for the client to ask professionals about concerning matters."*
> (Hanna Nevala 2016)

FysiApp got public attention after being nominated as "the year's physical training product" of 2015 (Vuoden Liikuntatuote 2016). Currently, the team is currently developing FysiApp further and working on with new physical training applications (Mikko Mäenpää 2016). Figure 7 illustrates PhysioBit's entrepreneurship process.

Figure 7. PhysioBit's entrepreneurship process



4.3. Cross-case analysis

In the previous subchapters the entrepreneurial processes of each case company are described and illustrated separately. The aim of cross-case analysis is to discover similarities and differences between case companies' entrepreneurial processes, as well as mirror them against to the chosen entrepreneurial frameworks; *classic, user entrepreneurship, and effectuation framework.* This study's research questions will guide the analysis.

The research problem: What kind of user entrepreneurship processes are involved in health and wellbeing sector?

The previous subchapters describe the case companies' entrepreneurship processes in-depth as well as illustrate them with simplified process charts. The case companies involve both professional user and end user entrepreneurship processes. Some distinctions could be observed from the data – the similarities and differences are being discussed in the next research question in more detail. See figures 5, 6 and 7 for the case companies' individual entrepreneurship processes. Overall, it can be stated that the case companies' processes differed from each other in some way. Thus, their entrepreneurship processes did not follow the same pattern.

RQ1: Do professional user entrepreneurs follow the same process than end user entrepreneurs? What are the similarities and/or differences?

This study held two professional entrepreneur based companies, PhysioBit and Lean in Five Weeks Challenge, and one end user company; Ambronite. The within-case analyses disclose both similarities and differences between professional user entrepreneur and end user entrepreneur processes. In this question, clear similarities concerning all three case companies, as well as clear differences between both professional user entrepreneurs and the end user entrepreneur are regarded. Next question mirrors each case company's processes to the frameworks.

First, major difference can be identified right in the beginning of the innovation process – the initial reason why they innovate? For Ambronite, the main reason was initially to create the product for their own use, to find an easy and nutritious solution for their everyday lives. For both professional user entrepreneur based companies, two shared main reasons can be found. Firstly, they both wanted to add more value to customers', to deliver better results; Hanna by getting her clients to accomplish the scheduled exercises and making the communication more convenient; Tomi by involving community and positive peer pressure in the training. Secondly, both wanted to improve the nature of the work. In Hanna's opinion, physiotherapy should be based on the actual needs of the client, not on referrals. Additionally, with FysiApp it is possible to react and guide the client better. For Tomi, creating LIFW challenge could free up time from his fully booked schedule. This way, Tomi could affect more people, and guide bigger groups of people, as he prefers. Therefore, two distinct reasons for innovating were discovered from professional user entrepreneurs, one regarding to improve customers' experiences and results, and another regarding to their own job. Thus, also professional user entrepreneurs did actually innovate for their own use, like end user entrepreneurs.

All three case companies considered customers' feedback as an important mean to develop the product or service further after developing the initial version. The customers' preferences were taken into account to modify the product or service to represent customers' needs. Additionally, all three companies still develop their innovations continuously based on feedback collected from customers.

Also, based the three cases, it seems that communities did not significantly affect the entrepreneurship process, like e.g. Shah and Tripsas (2007) and Lüthje et al. (2005) have proposed. It must be taken into account that the earlier user innovation and user entrepreneurship studies have been conducted in different settings, e.g. in the US and Germany. The Nordic lifestyle is known to be distinctive from the other occidental ones, so the importance of communities might not be as prominent as it has been in earlier studies. Other possible reason could be the relatively early industry phase of the new health and wellbeing boom.

RQ2: Which characteristics of the frameworks can be found in the case companies entrepreneurship processes?

Ambronite:

As it can be seen from figure 5, Ambronite's entrepreneurial process starts similarly as Shah and Tripsas (2007) end user entrepreneurship process; from user's (Ambronites' founders) unmet needs on which they sought for solution. The solution could not be found, so Simo started to fix drinkable supermeals by himself. This approach is also valid for the effectual approach; Simo exploited the knowledge and the ingredients that were available for him and created drinkable supermeals. After sharing their thoughts among each other, the founders-to-be wanted to test their idea during the Restaurant day in 2013, in which anyone could set up a popup stall and serve customers homemade food. The drinkable supermeal got positive feedback, and their friends were asking where they could buy them. Thus, Ambronite's process seems to follow the end user process this far. However, Ambronite did not consider communities as an impacting factor in their process, even though Mikko is one of the founders of Quantified Self movement's Finnish –division (Simo Suoheimo 2016).

Several similarities from the end user entrepreneurship process' opportunity recognition can be found in Ambronite's process. First, the founders had need-related knowledge, as they were busy, travelling, training, and health-aware persons that were in need for a solution to an easy and nutrition-dense meal. The founders' diverse backgrounds complemented each other and thus, enabled a broader view for the innovation development. Also, they knew exactly how the drinkable meal would be used as its best, for Simo had tested it during his skiing expeditions etc. The demand for the drinkable supermeal was proved in the Restaurant day in 2013. Up to this point of process, Ambronite has mostly followed the user entrepreneurship process illustrated Shah and Tripsas (2007).

However, after the demand was proven, the founders of Ambronite decided that they wanted to attract international customers and sponsors; so later in 2013 they went to Startup Sauna to learn about international launch (Simo Suoheimo 2016). At this point the actual company was also established. The team outlined some plans in Startup Sauna; however they modified the plans continuously. Therefore, their actions hardly follow classic approach's long-term planning viewpoint. Ambronite decided to lean on international backers of Indiegogo, who successfully crowdfunded Ambronite. Thus, Ambronite formed chains of commitment, characteristic to effectuation, which enabled to develop the product further and involve nutritional experts and a doctor in the product development, as well as partnerships with producers were formed (Simo Suoheimo 2016). Today, user feedback is still essential to Ambronite, and the drinkable supermeal is continuously being developed based on it.

Other actions identified in the entrepreneurship process through the interview:

- Ambronite performed analysis with strategic canvas and planned the international launch at Startup Sauna. The plans were modified continuously. *(Writing plans is considered in the classic approach. However, Ambronite used a dynamic approach with planning.)*
- The founders of Ambronite considered that there was a massive potential in their innovation – in contrast the downside loss was relatively small, and decided to take the chance. *(Effectuation)*
- Ambronite has experimented with different ways to sell; events, tastings, Facebook sampling etc. The main channel is through online shop and partners. *(Effectuation)*
- Overall, Ambronite has seized opportunities as they have emerged through the entrepreneurship process *(Effectuation)*:

> *"…the definition of a startup is a problem solving squad, adapting, trying, piloting, solving a problem in a novel, scalable way."*
> (Simo Suoheimo 2016)

Lean in Five Weeks Challenge:

In the beginning, the idea of LIFW challenge was created due to difficult circumstances; a need to figure a way out of it. Additionally, two other motivational drivers were identified for LIFW challenge, a need to improve customers' results and add value to them, as well as improving own job setting. Tomi began to develop LIFW challenge with the resources and personal connections he had in prior; his own knowledge from training his clients, and connections to his clients. Thus, Sarasvathy's (2001) effectual approach can be identified in his actions.

For implementation of his idea of LIFW challenge, Tomi took a straightforward approach, and started to call his earlier clients to sign up for LIFW challenge. So, the actual service did not exist yet – instead he made pre-commitments with his earlier customers to reduce uncertainty, as well as evidence the existing demand for his innovation. Pre-commitments with stakeholders is characteristic for effectual process. At this point Tomi realized the potential of his innovation. Right from the beginning, Tomi has requested customer feedback to modify the challenge in accordance with customers' results and preferences.

When Tomi moved back to Finland, he took similar approach as in Australia; he got confirmation of the demand for LIFW challenge when he managed to get people to sing up for the challenge prior to its existence. Thus, pre-commitments were made again. This way, Tomi has been able to develop LIFW challenge further from a physical training challenge to an online challenge. No external finance has been required in the further development of the company, for the chain of pre-commitments has been enough to fuel the growth and development (Tomi Kokko 2016).

Other actions identified in the entrepreneurship process through the interview:

- Tomi did not assess long-run opportunities or calculate expected returns
- A business plan was not written. Tomi considers dynamic plans for marketing, branding and sales that evolve constantly. *(Writing plans is considered*

in the classic approach. However, Tomi used a dynamic approach with planning.)

- Tomi experimented with different ways to sell LIFW challenge (pre-sell, offers etc.) as well as tested different price points. *(Effectuation)*
- Through the development of LIFW challenge, Tomi has taken his chances on opportunities, and adapted operations according to them. *(Effectuation)*

PhysioBit:

Initially, Hanna identified at work a need for an application to serve the physiotherapist customers better, as well as to improve professional physiotherapists' work with the customers. The same process can be identified in Shah and Tripsas (2007) end user entrepreneurship model, added by recognition of customers' unmet needs. However to identify an opportunity, professional user entrepreneurs exploit their unique skills and occupational experience, which is present in the classic entrepreneurship process. The development of FysiApp was possible through cooperation of two institutions; Tampere University of Technology and Lapland University of Applied Sciences. Hanna and Mikko L. knew the original programmer of FysiApp prototype, who coded FysiApp as his Master's Thesis work. Thus, prior connections were necessary for the development of FysiApp, as otherwise the coding work would have been costly. The effectual approach emphasizes the importance of available connections to disentangle opportunities.

After the FysiApp prototype was built, the team developed FysiApp at their own expense for couple of months, after which external finance was sought to continue the development of FysiApp. At this point, PhysioBit was also established, mainly to be able to apply for funding. Conventional external finance seeking is in connection with the classic entrepreneurship process. In addition to external funding, PhysioBit took advantage of student work for coding FysiApp. External finance seeking activities are related to classical approach for entrepreneurship. However, taking advantage of internship for coding work is an effectual characteristic.

Customer feedback has been of high importance for FysiApp development; the feedback has been collected from both professional, as well as the client side of the application. PhysioBit has long-time testers for FysiApp, who provide first-hand information regarding to the usability. Currently FysiApp is being developed further based on the customers' experiences.

Other actions identified in the entrepreneurship process through the interviews:

- Scanned competitors when started developing the application *(The classic approach)*. However, PhysioBit considers other actors developing solutions for digital health care as beneficial for PhysioBit also. Cooperation with another actor with whom PhysioBit had synergy benefits would be possible. *(Effectuation)*
- Did not assess long-run opportunities; they were aware that the loan should be paid back, and thus have accepted the risk. *(Effectuation)*
- Overall, the founders of PhysioBit did not plan much during the entrepreneurship process. First marketing plan was made 3 months prior the launch. *(Planning is a feature from the classic approach, however it is not dominant in PhysioBit's actions)*
- The founders have experimented with different business models, did not settle for the first one. *(Effectuation)*

RQ3: Based on findings, is there a possibility to integrate these frameworks to some extent?

There are a couple of features that should be considered based on the findings. First, the user entrepreneurship process could include some additional features from the effectual framework, as many effectual activities were identified in all of the case companies' processes. Furthermore, all four effectuation principles were found in the case companies' approaches at least to some extent:

(1) *Affordable loss:* Ambronite and PhysioBit were aware of the loss if something went wrong with the business – however they were willing to take the

risk. For Tomi, no capital investment on product development etc. was involved, so he invested his own time and hoped to make the best out of the attempt.

(2) *Strategic alliances:* All the case companies have exploited partnering and/or stakeholder pre-commitments. Ambronite launched the product through a crowdfunding campaign, and relied that the customers would buy the product before testing it. Since then, the chain of commitments has expanded and they have been able to find suitable producer partners, as well as to attract international investors. Right from the beginning, LIFW Challenge has built pre-commitments with customers to be able to invest back in the operations. PhysioBit did not use pre-sell method, but took advantage of partnering with physiotherapist professionals who have been testing FysiApp, and they still do.

(3) *Contingency exploitation:* All three companies considered that opportunity exploitation and adapting the operations according to them is a part of being an entrepreneur in a dynamic and constantly evolving business environment.

(4) *Control over an unpredictable future:* Characteristic of being realistic was present in all the case companies' actions. For example, Mikko Mäenpää (2016) stated the following:

> *"We have mainly based our actions on the current phase of product development etc. When we knew that the prototype was finished, we would know to start marketing actions and seeking external resources."*

In addition to these four principles of effectuation, other typical effectual actions were identified from the cases:

- *Exploiting resources at hand:* The initial idea of drinkable supermeal started from Simo's own experimentation to create drinkable meals based on the ingredients that were available for him. To come up with

LIFW challenge and get it running, Tomi used his prior knowledge as well as existing contacts. In turn, the creators of FysiApp took advantage of thesis work as well as interns for coding work, in addition exploiting the prior experiential knowledge regarding to physiotherapy.

- *Experimenting with different ways to sell/with different business models:* The founders of Ambronite and LIFW challenge tested different ways to sell their product/service, whereas PhysioBit experimented with distinct business models.

In the light of these findings from these three case studies, it seems that effectual actions are strongly present at least in the processes of Finnish user entrepreneurs. The frameworks of user entrepreneurship by Shah and Tripsas (2007) and effectuation by Sarasvathy (2001, 2009) and Sarasvathy and Dew (2005) regard entrepreneurship from different perspectives; user entrepreneurship from a user's viewpoint, whereas effectuation takes the dynamic and ever changing environment, as well as means to survive in it, into the center of attention. Next subchapter presents refined theoretical frameworks for user entrepreneurship, as well as this study's propositions.

4.4. Towards integrated user entrepreneurship frameworks

The findings of this study indicate an existing possibility to broaden the description of the user entrepreneurship process. First, the researcher proposes distinct entrepreneurial processes for end user entrepreneurs and professional user entrepreneurs. Second, the cross-case analysis shows that effectual characteristics are strongly present in the Finnish user entrepreneurs' processes. Thus, the user entrepreneurship process would be portrayed more comprehensively, when effectual principles would be integrated in the user entrepreneurship framework. Figure 8 and 9 present the proposed frameworks for end user and professional user entrepreneurs, respectively.

Figure 8. Refined end user entrepreneurship framework

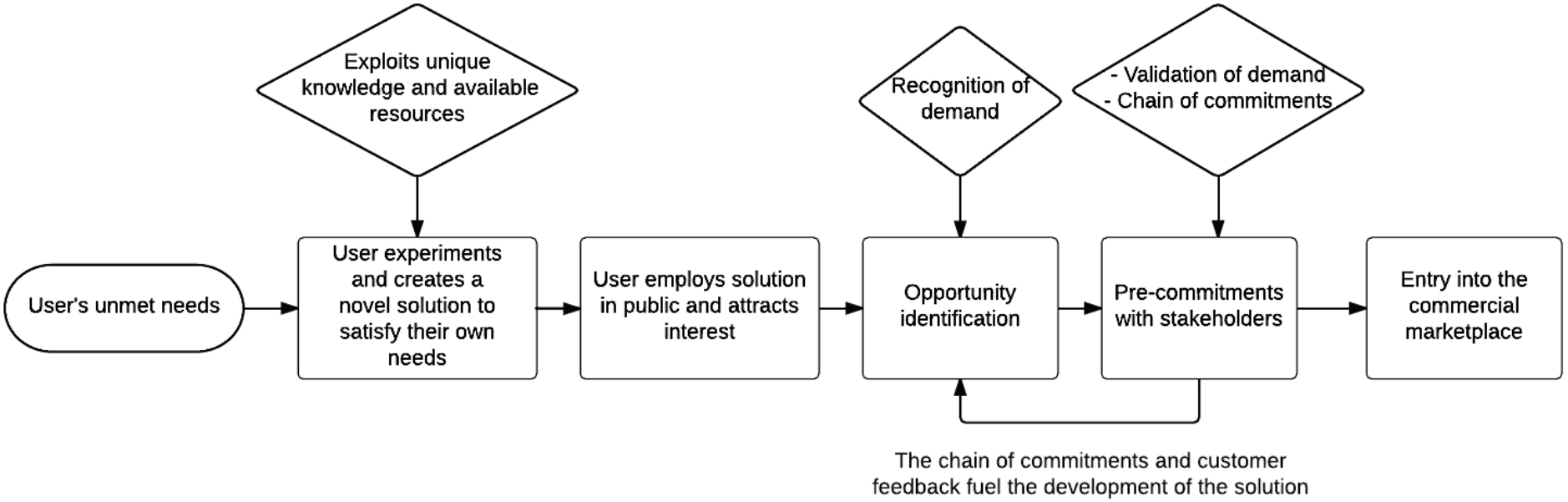
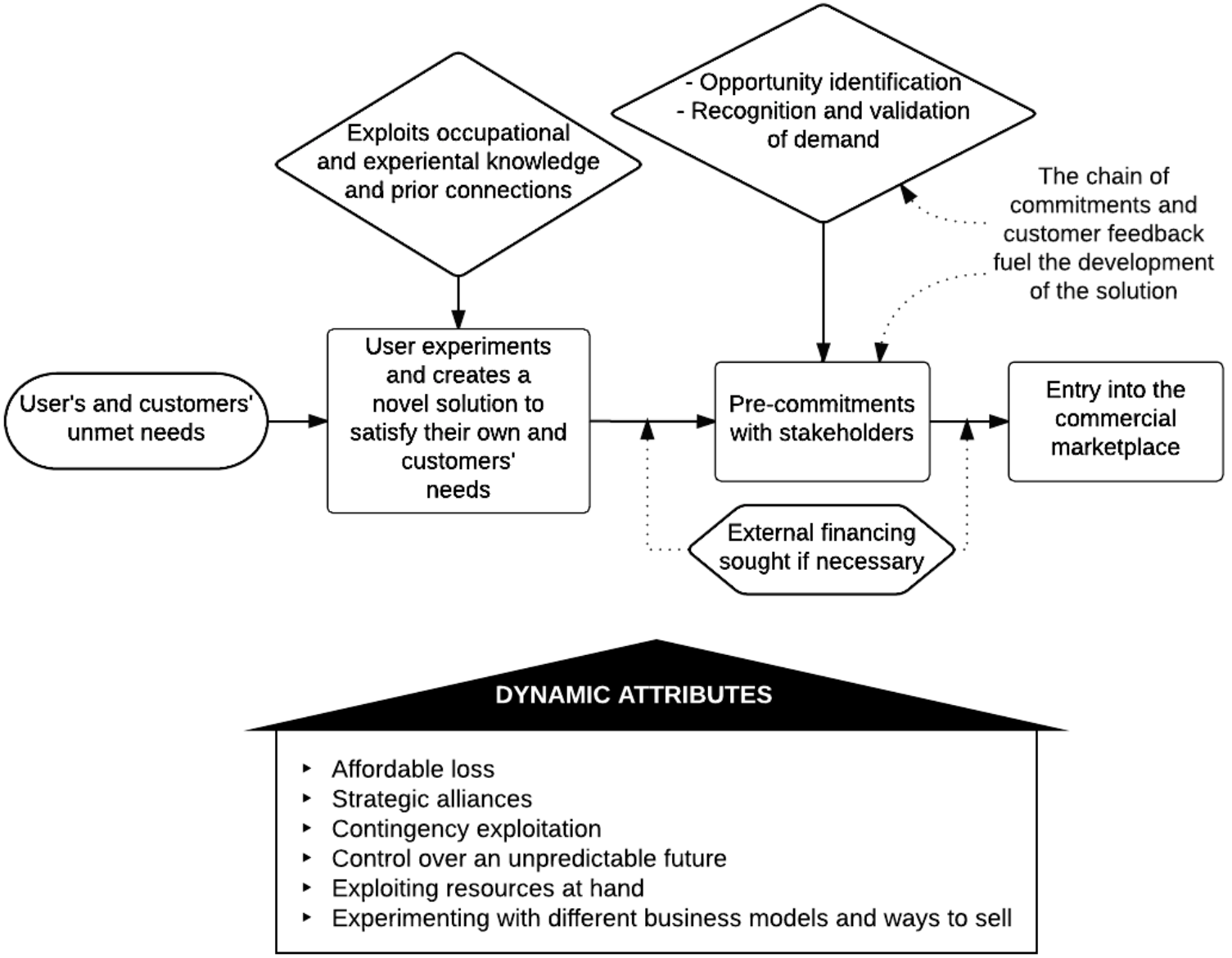


Figure 9. Professional user entrepreneurship framework



4.4.1. Refined end user entrepreneurship framework

The refined end user entrepreneurship framework, illustrated in figure 8, integrates features from the effectuation theory, which is used to describe entrepreneurship in a dynamic environment. Therefore, effectual attributes identified from all the case companies' processes are considered as *"dynamic attributes"* in the framework. The dynamic attributes are regarded as general characteristics of a user entrepreneur that guide actions during the entrepreneurship process. The model does not require that all the attributes are present in every user entrepreneur's process, but they rather describe the dynamic mindset of a user entrepreneur.

A few other alterations are proposed to the initial model of Shah and Tripsas' (2007); first, user's involvement in user communities may not be a prevailing characteristic of the user entrepreneurship process. Ambronite's founders did not consider user communities to be an import factor in their process, like Shah and Tripsas (2007) and Lüthje et al. (2005) considered. However, they find that early users that formed Ambronite's own community are a significant resource to Ambronite's development. Therefore, a user could be part of an existing user community or alternatively, create one by themselves. However, exploitation of existing resources, a characteristic from the effectuation theory, was identified in Ambronite's entrepreneurship process. The characteristic has been found already in Shah and Tripsas' (2007) as well as in Yadav and Goyal's (2015) studies – however it has not been included in the framework yet. Based on earlier and this study's findings, the feature is now integrated in the framework. Additionally, establishing pre-commitments with customers is added to the framework based on findings from this case study, as Shah and Tripsas (2007) study considers only stages prior to firm formation.

4.4.2. Professional user entrepreneurship framework

The framework for professional user entrepreneurs is derived from two case companies' entrepreneurial processes. The process is illustrated in figure 9, and is the first model to describe professional user entrepreneur's processes. Like in the re-

fined framework for end user entrepreneurs, dynamic attributes are included in professional user entrepreneur's model. They describe the overall mindset of a user entrepreneur who operates in a dynamic and continuously changing business environment. However, several distinctions were identified from end user entrepreneur's process. Therefore, it is appropriate to illustrate an own model for professional users.

First, the findings show that user's own needs are not regarded as an only motivation for innovation. Professional users have a different viewpoint for user innovation as their innovations considers their occupation. Therefore, it would be consistent to identify other innovation triggers as well. Findings show that in addition to user's unmet needs, professional users regarded customers' needs and added value for them as an important trigger for innovation. Thus, motivation for professional user entrepreneurs is twofold. Second, findings show that professional users strived to take advantage of resources at hand. This considers occupational and experiential knowledge, as well as the entrepreneur's prior contacts. For instance, PhysioBit's founders had an acquaintance who could develop the initial prototype for FysiApp as a thesis work. Third, unlike end user entrepreneurs, professional user entrepreneurs might not necessarily employ the solution in the public, according to companies examined in this study. Instead, both companies realized the potential of the idea through stakeholder pre-commitments; LIFW challenge by signing up customers before actual existence of the service and PhysioBit through entering into partnerships with professional and client-side customers.

5. DISCUSSION AND CONCLUSIONS

This study examines user entrepreneurship in the Finnish health and wellbeing sector by studying both end user and professional user entrepreneurs. The research context considers the health and wellbeing sector that has recently risen as a global megatrend. Even though the prevalence of user innovation has been documented widely during in recent decades, user entrepreneurship remains still little studied phenomenon. The user entrepreneurship model developed by Shah and Tripsas (2007) focuses solely on end user entrepreneurs, therefore, this study sheds more light on professional user entrepreneurship process, as it has not been examined this closely before. Additionally, this study strived to find features from other validated entrepreneurship frameworks that could be integrated to the user entrepreneurship model by mirroring the case companies' processes against three different entrepreneurship frameworks.

This study finds that the case companies' processes differ from each other to some extent – therefore, no uniform entrepreneurship process could be found. Based on the findings, the researcher developed distinct frameworks for end user and professional user entrepreneurs. Additionally, features from the effectual framework of Sarasvathy (2001, 2009) were integrated in the proposed user entrepreneurship frameworks. On the contrary, this study finds that the characteristics of the classic model are not strongly present in user entrepreneurs' processes, supporting Shah and Tripsas' (2007) view. Overall, the case companies are an indication that health and wellbeing sector is a highly potential field for user entrepreneurs – thus, further research should be conducted to discover the prevalence of user entrepreneurship in the field.

5.1. Theoretical contributions and implications

This study verified several of Shah and Tripsas' (2007) findings on user entrepreneurship. Regarding to end user entrepreneurs, the findings confirm the initial

model to most part – only user community interaction was not identified. The proposed frameworks strive to broaden the conception of user entrepreneurship process illustrated originally by Shah and Tripsas (2007) by integrating dynamic attributes from the effectual model of Sarasvathy (2001, 2009). Shah and Tripsas' (2007) model considers user entrepreneurship as a collective process, where sharing ideas is a central attribute. However, they have little considered other overall characteristics that direct user entrepreneur's actions in modern business environment that requires dynamic actions. Therefore, this study brings a novel perspective regarding to user entrepreneurship. Also, the findings show that participation in user communities might not be central for all user entrepreneurs' processes, like Shah and Tripsas (2007) have stated. Two of the examined case companies have created user communities around their innovations by themselves that act as an important factors in the further development of the innovation.

Furthermore, this study contributes the user entrepreneurship study field by introducing a novel framework for professional end users. First, the findings indicate that professional user entrepreneurs may have distinct drivers for innovation than end user entrepreneurs. Findings show that both user's and customers' unmet needs were considered as important drivers for solution development. Additionally, professional user entrepreneurs may not employ the created solution publicly like end user entrepreneurs. This study considered service regime innovations created by professional user entrepreneurs – thus, the product regime might affect whether the solution is employed publicly or not.

Finally, the findings support the researchers' that have developed alternative entrepreneurial frameworks (e.g. Sarasvathy 2001,2009; Baker & Nelson 2005; Shah & Tripsas 2007). Thus, even though the classic model for entrepreneurship would apply to some cases, it may not a suitable description of every entrepreneur's process, like user entrepreneurs'. Some slight characteristics from the classic model were identified in the case companies' processes – such as planning marketing actions. However, the founders noted that the plans are continuously adapted according to current situation, because the operating environment is dynamic. There-

fore, dynamic attributes were emphasized in the founders' actions throughout the process.

5.2. Limitations and directions for further research

This study has several limitations, which point the way for further research. The findings from this research show that the health and wellbeing sector is highly potential field for novel user innovations and user entrepreneurship. Therefore, a broader documentation of user entrepreneurship in the health and wellbeing sector would shed some light to the prevalence of it, as the results of this study cannot be generalized statistically. It would also be interesting to examine the proposed frameworks further and obtain broader documentation regarding to them. Additionally, it must be considered that the frameworks are derived from user entrepreneurship data from the Finnish health and wellbeing sector. Thus, the frameworks might not be applicable to all countries and contexts. Still, the other Nordic countries share societal similarities with Finland, so the results should be considered in them also.

Additionally, this study focused on both end user entrepreneurs and professional user entrepreneurs. Therefore, a study focused on merely professional user entrepreneurs would be welcome to obtain more fundamental knowledge of their process and similarly, test the proposed model for professional user entrepreneurs. The prevalence of digital products is growing rapidly as physical processes are transformed into digital ones. Therefore, further research regarding user entrepreneurship in the digital products regime would be relevant.

Finally, further examination whether it is possible to broaden the description of the user entrepreneurship processes more would be of a great interest. This study is the first one to integrate perspectives from another study to the user entrepreneurship process and thus, there might be more potential features to be identified and integrated.

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APPENDICES

Appendix 1. Interview questions

Background questions

- Introduce yourself shortly (name, age, where you are from, the name of your firm, position in the firm)
- Describe shortly your educational background
- Describe shortly your occupational background
- Was the wellness/nutrition sector familiar to you prior founding your company? In what way?
- Describe shortly the idea of your company (founding year as well) and the product/service you're offering
- What year the company was founded?
- Describe the team behind the company
- What was the pre-founding context with respect to the industry and market? (maturity of the market, amount of competitors)

Innovation

- Did you first identify a business opportunity before developing anything? Or did you first innovate for your own use?
- What was the motive/drivers behind for developing the product/service you're offering?
- From where did the opportunity emerge?
- How did you develop the first version of the product or service?
- Did you share your idea with others? If yes, how?
- Were you part of a wellness or other community related to the product/service you're offering?

- Did you ask feedback while developing your product/service? From whom?
- From where did the resources come for the development of the initial version? Did you use resources available for you or did you seek external resources?

Commercialization

- At what point did you consider founding a firm? Which factors affected your decision?
- Did you identify and assess long-run opportunities (returns etc.) before founding the firm?
- Did you write a business and marketing plans for the product/service?
- Did you develop multiple variations of the product/service and business model?
- Did you experiment with different ways to sell your product/service?
- Did you base your actions (development, marketing etc.) on the resources on hand? Or did you use external resources?
- Did you modify the product/service as the venture developed? Why?
- Overall, have you seized opportunities as they have emerged and adapted your actions according to them?