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Where is value created within the global value chain? Case: Whitevector Ltd.

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Mikko Rummukainen

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Aalto University
School of Economics

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Mikko Rummukainen
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ABSTRACT

The purpose of this thesis is to analyze the impact of innovation ownership both in terms of company-specific value capture and national economic growth. The thesis is based on a case study, where a Finnish online service provider Whitevector Ltd. was taken into inspection through value chain analysis.

As an end result, the case study showed that companies that create innovative products and services, especially if they are online services that do not require an extensive physical infrastructure for upkeep, can be a strong source of value added, while the key providers within the same value chain are left with a very small margin of value added.

The findings go to show, that at least in the case of Whitevector – and perhaps similar companies as well – innovation ownership can have a very positive impact on both the company's growth as well as that of the national economy, where such companies are headquartered. Vice versa, the other primary activities needed for producing the service Whitevector offers were left with a significantly smaller share of value added, and thus production ownership in a similar value chain does not seem to be as an essential growth driver as innovation ownership can be.

TIIVISTELMÄ

Tämän pro gradu-tutkielman tarkoituksena on tutkia, miten vahva vaikutus innovaatio-omistajuudella voi olla sekä yrityskohtaiseen että kansantaloudelliseen kasvuun. Tutkielma on toteutettu tapaustutkimuksena, jossa suomalainen Internet-pohjaista palvelua tuottava Whitevector Oy otettiin lähempään tarkasteluun arvoketjuanalyysin kautta.

Tapaustutkimus osoitti, että erityisesti Internet-palveluja tuottavat yritykset, jotka luovat innovaatioita ja joiden toiminta ei vaadi kattavaa fyysistä infrastruktuuria, voivat olla hyvin merkittävä lisäarvon lähde. Samassa arvoketjussa toimivat toimittajat sen sijaan onnistuvat irrottamaan luodusta lisäarvosta vain pienen osuuden.

Tutkielman tulokset osoittavat, että Whitevectorin – ja kenties muiden samantapaisten yritysten kohdalla – innovaatio-omistajuudella voi olla erittäin positiivinen vaikutus sekä yrityskohtaiseen että kansantaloudelliseen kasvuun siellä, missä kyseiset yritykset pitävät pääkonttoriaan. Sitä vastoin, vastaavissa arvoketjuissa toimivat keskeisimmät osanottajat eivät vaikuta saavan arvoketjujäsenyydestään muuta kuin hyvin pienen osan luodusta arvonlisästä. Näin ollen, tuotanto-omistajuus ei näytä olevan yhtä merkittävä talouskasvun lähde, kuin innovaatio-omistajuus.

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1 INTRODUCTION

Perhaps one of the most pressing matters for businesses throughout the world, even in the beginning of 2011, is to find out what kind of an impact the different activities within their value chains (Porter, 1985) for each product or service has both in terms of value capture per firm as well as national economic growth (Linden et al., 2009; Ali-Yrkkö, 2010a).

Even though it might seem like a good idea to outsource the activities that are not within the realm of each company's *core competence* (Prahalad & Hamel, 1990), in order to focus on core business as well as to cut costs, one should think about the implications this particular approach to globalization actually has in terms of value distribution.

Current research seems to underline the importance of *innovation ownership* (e.g. Tyson, 1991 or Linden et al., 2009) as the main source of value added to be gained from vending products or services (e.g. Hasan & Tucci, 2010; Johannessen & Olsen, 2010). The problem is that so far, most of the research conducted on the subject is still quite theoretical or based on macro-economic data, while case-by-case analysis on a plethora of different companies and industries is still missing.

Luckily, research institutes such as ETLA (The Research Institute of Finnish Economy) are currently conducting various case analyses to find out *where value is born* through researching different global value chains. This thesis will present one such case study, based on an online service provider called Whitevector Ltd., which is based in Helsinki, Finland. The end result of this thesis is to calculate, how much is the innovation owned by Whitevector actually worth both in terms of company value capture and the Finnish Economy.

1.1 BACKGROUND

The purpose of this thesis is to investigate *where value is born within a global value chain* through a case study of a Finnish firm – Whitevector Ltd. – operating in an international setting. The end result provided by the case study will be an overview into how much of the value created by the case company in question belongs to the company itself and how much of the overall value is created by the other value chain members. Finally, this thesis will show where the created value is distributed geographically – how much of the value actually remains in Finland, and how much of it spreads throughout the world through value chain providers and the participants of their value chains.

The reason why this sort of research is relevant to conduct, is that while companies build more and more internationalized value chains, knowing *where* exactly the created value goes becomes all the more important. This knowledge can at best prove the impacts of globalization in terms of national GDP (Gross Domestic Product) figures (see Ali-Yrkkö, 2010a and Linden et al. 2009). On a smaller scale, suitable for a case study, this sort of research will show how many Euros from each sale Whitevector Ltd. makes is earned because of what the case company has done, and among whom are the remaining Euros distributed along the value chain? A very similar question was posed by Jyrki Ali-Yrkkö (2010a), in his study on Nokia's N95 mobile phone, and this thesis will contribute to that continuum of case studies on value chain analysis. All in all, acquiring this information will show what the marginal impact of internationalizing has been in terms of creating value domestically.

The research questions posed by this thesis will be answered by initially constructing a model of the case company's value chain, and then carefully investigating the financial information of each value-adding party in order to find out the marginal amount of value created by each participant in the scope of the

service – Chat Reports – that the case company provides to its customers in order to build its revenue.

This particular approach into researching the structure of value chains, and their overall effect on the value created by a particular product or service can be considered as being novel, since this method can show the impacts that belonging to global value chains have actually had in terms of growing the GDP of each case company's country of origin. Because of its fresh approach into researching value distribution globally, this case study will prove to be an important component of the research project it will eventually be attached to, and perhaps can assist with researching value creation at such a detailed level later on.

Even though researching value chains (e.g. Porter, 1985 pp. 36-60; Bruhn & Georgi, 2006 pp. 5-30 and Rothberg & Erickson, 2005 pp. 129-131) and calculating value added (e.g. Shank & Govindarajan, 1992; Kaplinsky, 2000; Dekker, 2003 and Humphrey & Schmitz, 2002) cannot be considered as new research themes as such, it is the combination of studying both simultaneously with a well-rounded research methodology, which enable this sort of targeted, case-by-case added-value research that can fill an existing research gap in the field of value creation theory.

This case research thesis will provide one case study to a set of approximately 10 other company examples, and as such will assist in solving the main research problem of determining product or service-level value distribution on a larger scale as one part of a larger research project. The end-product of the research project will be a book on the subject of '*where value is born in the global value chain?*' The research project was designed and lead by ETLA, the *Research Institute of the Finnish Economy,* which also provided this thesis topic as a commissioned research assignment.

Such an approach to researching *value added per product or service* in terms of a *company-specific value chain* has been carried out before by ETLA's Jyrki Ali-Yrkkö, who studied the division of value added for one of Nokia's top-tier phone models, the N95 (Ali-Yrkkö, 2010a) as the pilot case study for the overall project. Ali-Yrkkö is currently in charge of the research project this thesis will be a part of, and due to his role, has provided guidance and direction as well as the tools needed for analyzing the empirical research outcomes.

The main research problem and the research gap this thesis will help to bridge will be explained in further detail in the following sub-chapter (1.2), as well as in the literature review segment of the thesis (chapter 2).

1.1.1 About the case company Whitevector Ltd.

This case study examines the data gathered from a Finnish IT-service company called Whitevector Ltd., which is based in Helsinki, founded in 2006 and employed 13 people at the time of writing (winter 2010-11).

The company is privately-owned, and its managing director is also one of the company's founders. Further financing for the company had been secured initially from the Finnish Funding Agency for Technology and Innovation (Tekes) and on consequent financing rounds from venture capital companies such as Inventure. Considering the company's size, age, industry and financing structure, it could be described as a *typical startup company*[1].

[1] As described by Chang (2004, pp. 724-25), *a startup company* is typically a young and small firm operating in the IT-industry and with strong growth expectations. Startups are typically funded and supported by venture capital firms especially in the early phases of the startup's history.

Whitevector's main source of revenue is a web-based service called Chat Reports, which is designed to provide detailed data from *social media*[2] sources (i.e. blogs, discussion forums and social networks such as Facebook, YouTube and Twitter), and to be used for social media monitoring and analysis[3].

Whitevector currently offers the Chat Reports service mainly for European companies, and especially professionals dealing with advertising, public relations and communications. At the time of writing, Whitevector had over 100 clients, mainly from the Nordic countries and United Kingdom, with plans to expand into further European markets.

The main area of focus of this thesis is the value added that Chat Reports brings to Whitevector, and thus special attention is given to the Product Development and Administration function of the company. This function is what created and upkeeps the online service, and is responsible for generating the costs directed at Chat Reports, while other functions are focused more on sales, administration and customer service. For a simplified organization chart, please refer to Figure 1.

[2] *Social media* is a collection of internet-based communications platforms, which consumers use in order to discuss with each other, share ideas, opinions and content. This provides for a new field of communications for advertising, public relations and communications professionals to embrace, as stated by Mangold & Faulds (2009, pp. 356-60).

[3] *Social media monitoring and analysis* refers to the act of gathering content from social media outlets (i.e. consumer-generated discussions) and processing that content into a quantifiable format (Murdough, 2009, pp. 95-96), which then enables users of services such as Chat Reports to research what has been said about their brand, product, service or industry and compare the results with competitors or other relevant topics.

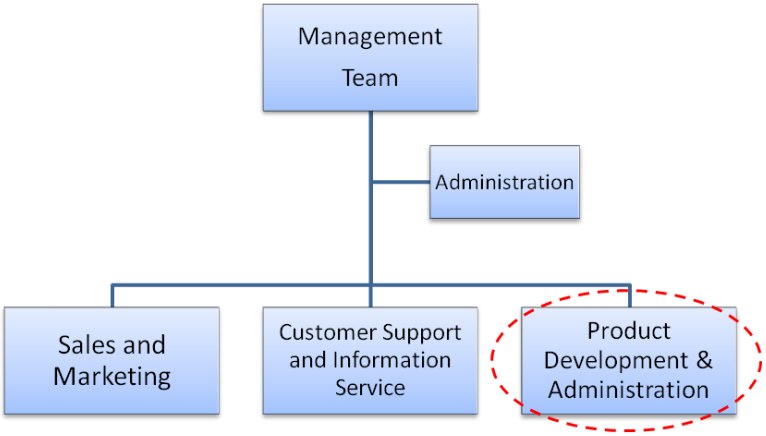

Figure 1. *Whitevector Ltd.'s organization chart*

In this figure, the Product Development and Administration function has been highlighted in order to underline the fact that this function is the integral part of the company without which there would not be a service to examine in terms of value added in the first place. In this regard, the other functions of the company – while also important – could be seen to be in a supportive role, while the Product Development and Administration team is in charge of having Whitevector's main source of revenue online and available to its customer base.

At this juncture it should be noted, that the author of this case study (Mikko Rummukainen) has worked at Whitevector Ltd. as an Information Specialist (Customer Support and Information Service) and a Marketing Planner (Sales and Marketing) for over three years at the time of writing.

This means that the author had unlimited access to data regarding Whitevector Ltd.'s value chain structure and financial performance history, which in turn should provide for a relatively detailed set of data to derive end results from.

1.1.2 Focus on Chat Reports as the main source of value added

Understanding what Chat Reports is and how the service works is an integral part of this case study, since ultimately it is the *service* taken into analysis, in order to derive where and how much of the value added gained from vending the service is distributed. For a more elaborate description of how Chat Reports works, please refer to Figure 2.

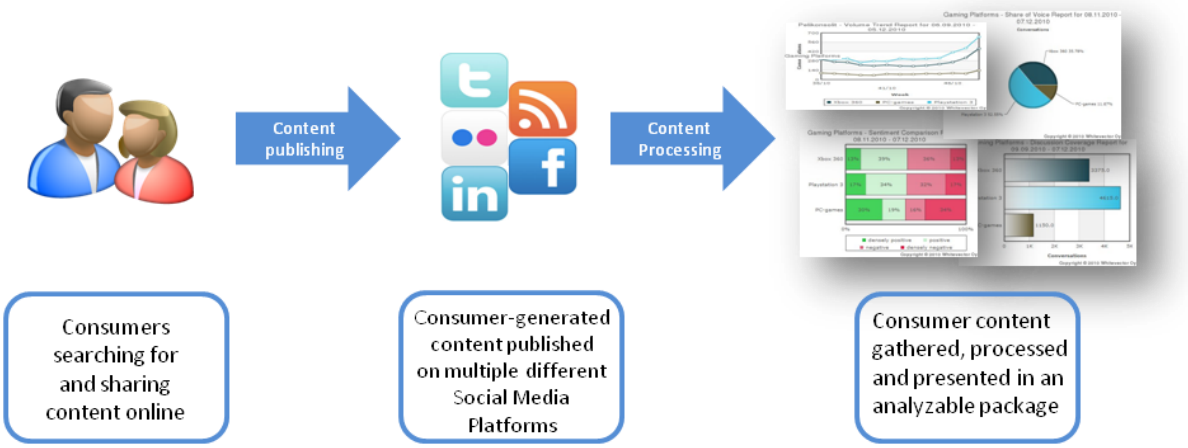

Figure 2. *The Chat Reports Social Media data gathering process*

In short, Chat Reports is an online tool that enables marketing and communications specialists to track and analyze whichever *discussion topics* (e.g. brand names, companies, product attributes, topical themes, etc.) are relevant. The content relevant to these discussion topics, which is posted in social media outlets such as Facebook, Twitter, Youtube, blogs, discussion forums and so forth is gathered by Chat Reports and shown in an easily approachable format (there are multiple different chart options available for reporting purposes).

The main output gained from Chat Reports is a clear and cost-efficient overview into company-specific discussion topics that can be compared to similar data regarding competitors or overall product/service category. With this data, users of Chat Reports become more aware of their social media surroundings, and are able

to react more efficiently to discussion trends with whichever approach they have chosen for their social media strategy.

In essence, Chat Reports is a service, and not a tangible product. This is a relevant point to make before delving into the details of Whitevector's value chain and how that relates to the distribution of value added gained from vending Chat Reports.

Since Chat Reports is an online *service*, the value chain structure is quite different from physical products. As Bruhn & Georgi (2006) put it, what customers get from buying services are at the core *service products,* and "… many service products involve a process dimension" (in the case of Chat Reports, the core service product would be 'providing online discussion data') – and it is this process for each service product, like the one shown in Figure 2, which "… strongly determines other elements of the Service Value Chain" (Bruhn & Georgi 2006, p. 147).

As mentioned before, this thesis constitutes one part of a larger research project consisting of multiple case studies. How this particular study may differ from the other case examples is that the studied value chain pertains to a service, instead of a physical product (like Nokia's N95 mobile phone), and thus can show a different type of result than studying other physical products might. Furthermore, Chat Reports is a modern type of service in that it is not geographically limited in any way, as the service can be accessed from anywhere in the world via the Internet. This fact will also make for an interesting point when studying value creation in a global context.

1.1.3 Importance of studying value creation within the global value chain

During the 21st century, there has been a large amount of attention given to the global outsourcing of activities that are not considered as a certain company's *core competence,* or *core business* (Prahalad & Hamel, 1990 pp. 81-82). Anyone who has

followed the news and media during this time of globalization has inevitably noticed that these outsourcing activities across borders have been expected to have a negative impact on national growth in terms of GDP distribution (e.g. Reich, 1990). Once certain activities have been commissioned from foreign countries, the value created from those activities is often seen to be moved from each company's domestic country to another one, thus decreasing the amount of value created domestically.

However, it has not been entirely clear *how much created value* these 'exported jobs' or activities have actually been responsible of ultimately. This thesis will attempt to show exactly how much value a Finnish company is responsible for creating by concentrating on its core business – an innovative online service – and how much of the overall value gained from their service stays in Finland, and how much of it gets distributed to other countries. In short, this case study will attempt to show the significance of being either an innovation owner or a production function owner within a value chain.

In previous studies it has been shown, specifically in two cases regarding consumer electronics (see Ali-Yrkkö, 2010a and Linden et al., 2009) that domestic firms are indeed able to capture the majority of value created by their outputs even if their value chains are global – even if the actual products themselves are produced and assembled by foreign value chain participants.

Linden et al. (2009) were able to show that for each iPod Apple Inc. sells, the company is able to capture from 36% to 50% of the value created (depending on whether Apple's retailers sold the products or if Apple sold them directly), even though the portable music players are not even produced in the USA.

Jyrki Ali-Yrkkö (2010a) showed that when Nokia sells one of its N95 mobile phones, the amount of captured value added was 39% if a phone was sold outside of Finland, and as much as 55% if a phone was sold within Finland.

This proof goes to show, that if companies procure low-cost and labor-intensive activities from foreign countries, most of the value created lies in the innovation within the sold product itself. By lowering manufacturing costs in this manner, these innovative products can be sold at more competitive prices, which increases sales volumes, as well as profits. These profits then contribute to national economic growth, even if the physical labor was done somewhere else (Linden et al., 2009; Pajarinen et al., 2010; Ali-Yrkkö, 2010a).

In essence, the aforementioned studies have shown where the value added is distributed geographically, and these results help to explain and understand the impact that global value chains have on capturing value added.

The purpose of this thesis is then twofold: first, to show how much a certain company with an innovative product or service can create value by itself within the value chain it operates in and second, to provide more evidence into what belonging into a global value chain actually means in terms of geographical distribution of created value.

Further research into this research problem provides new insight into how well at least Finnish firms can capture and bring home the value added their outputs create, even if they might have certain value chain activities provided by foreign value chain participants. More insight into the research problem and research gap will be presented in the following sub-chapter.

1.2 RESEARCH PROBLEM AND GAP

In my thesis, the main research problem is found in the question *where is value created within the global value chain?* In essence, the shortage of knowledge related to the actual relations of value distribution throughout different kinds of value chains is seen to be the overall research problem, and this problem will be approached by studying the case company more closely.

As chapter 2 of this thesis – *literature review* – shows, such a methodology of answering the posed research question has still been used in a very limited fashion. To date, there have only been two substantial case studies published on the subject so far (Linden et al., 2009 and Ali-Yrkkö, 2010a).

Furthermore, the case studies that have been published so far have two things in common: first, both are concerned with analyzing the value chains of tangible products, and second, both cases are based on consumer electronics products. Key words here would be *product* and *consumer*.

My case study differs from the ones published to date looking at an *online service*, which is sold on a business-to-business basis. Thus the approach of my thesis should provide new data regarding how the chosen value chain analysis methodology works with analyzing services on the one hand, and the business-to-business approach as opposed to business-to-customer on the other.

In short, there are two ways how this particular case study can offer new insight into an important research topic. First, this case study offers a much needed addition to the case studies published so far. Second, my thesis has, at the same time, a slight yet profound difference in the features of the case company in question, since the study is based on a service-provider's value chain, and not a traditional production value chain, as well as the service itself is not being sold to consumers, but other businesses.

Finally, as will be presented in the literature review chapter, this particular approach offers a new way of figuring out the impact innovation ownership has on national economic growth – albeit through case studies.

1.3 RESEARCH OBJECTIVES AND QUESTIONS

The main question behind my thesis is '*where is value created?*' This question might seem quite simple, but is in fact answered in order to offer at least one kind of answer to a very complex phenomenon. To be more elaborate, the aim of this thesis is to answer, *where is value distributed to in an innovative value chain?* If key production is outsourced, are those subcontractors the main recipients of value-added? Or is it the case company itself that captures most of the value through innovation ownership and by outsourcing low-value functions?

Furthermore, in order to examine the presented research problem thoroughly, the research topic of determining the sources of value added for the service provided by Whitevector can be divided into another set of detailed sub-questions, which are as follows:

1) Which value networks does the case company belong to?
2) How have the value networks and business logic changed within the past 10 years, and how are they changing at the moment?
3) How have the company's value-adding activities been formed?
4) How does the value added of the value chain get distributed within Finland and other countries?

(This set of questions was provided by ETLA, see Appendix 1)

Through this approach, it will become possible to derive a detailed yet easily approachable overview of the division of Whitevector's value-adding activities. Not only will these questions provide a clear description of what Whitevector's value

chain looks like, and how the value added created by the company is distributed across the value chain, they will also help to describe how the value added created by a company within a similar value network and industry can be distributed given that the circumstances are close to those Whitevector was in at the time of analysis.

1.4 DEFINITIONS AND LIMITATIONS

Definitions of key terms and concepts

There are a few key terms or concepts that are essential to be familiar with whilst reading through the case study. Here is a short listing of definitions for these:

Innovation ownership is assumed by the company (or other entity) that owns the concept of or idea behind an innovative product or service – for example in the form of a copyright or Intellectual Property (IP). Innovation ownership is, in the scope of this thesis, assumed gained through e.g. a company's own Research & Development process which produces new product or service concepts that are considered to be innovative. The term has been referred to by, for example, Tyson (1991) and Linden et al. (2009).

Production ownership belongs to the company that owns any part of the physical functions needed to either partly or fully produce products or services from a selection of inputs into value adding outputs – or *end products*. Production ownership therefore would belong to, for example, component providers, manufacturers, internet service providers or any other parties related to offering a product or service needed to create the aforementioned innovative products. Reich (1990) and Tyson (1991) visited this idea in their papers, which will be discussed further in chapter 2.

Value chain is, according to Porter (1985), a visualization of the "… collection of activities that are performed to design, produce, market, deliver and support its product" (Porter, 1985, 36). In other words, value chains represent the production process of a product or a service from raw materials to manufacturing, assembly, the main company or brand in question, retailers and distributors and finally, the end customers. Value chains show an outline of the *primary* and *secondary* activities taken upon by a company in charge of selling a certain product or service to their end customers (Porter, 1985, 38).

Value added, in the scope of this thesis, is referred to as being the difference between the sale price and the value of all intermediate or raw-material inputs. Moreover, the retail price of a product represents its *total value*. This definition has been gathered from other similar case studies written by Linden et al. (2009) and Ali-Yrkkö (2010a) in order to maintain comparability between the case studies overall.

Value capture (or gross profit) is not equal to the amount of value added by a product or a service, but as Linden et al. (2009) put it, "… it measures the value that the company (excluding its direct workers) captures from its role in the value chain, which it then can use to reward shareholders (dividends), invest in future growth (R&D), cover the cost of capital depreciation, and pay its overhead expenses (marketing and administration)" (Linden et al., 2009). In other words, *value capture* refers to the *amount of value added* that remains with the case company in the focus of each value chain analysis.

In the next section, there will be a short description regarding the limitations of this study, in order to emphasize how far the results of this thesis can be generalized, and what kinds of aspects will not be covered by this thesis in particular.

Limitations of the study

There are quite a few clear limitations to this thesis, which are useful to acknowledge before moving on towards the theoretical background of the study as well as the actual empirical results.

First, the research focus of this case study is quite limited. The case company is a small Finnish online service provider, which is operating mainly within Europe, while nearly all of its functions are based within one office, in Helsinki. Even though a fair share of their customers are based all over Western Europe, this particular company is not a truly global company as it is operating mainly within one continent.

Second, also regarding the previous limitation, this thesis is only concerned with researching the value distribution of a Finnish company's value chain, and what that value distribution tells us about *Finland* as a recipient of value added. Thus, the geographical focus of this thesis is limited to the Finnish economy, and does not go further to explore the possible comparisons to be made between similar companies in other economies.

Third, as this is a case study, the one company being analyzed is the only one given special focus to, and no other comparable cases will be taken into account, and as such, there will be no comparisons to results gathered from multiple similar companies.

The reasons behind this are yet again three-fold: first, it is quite time-consuming to produce even one such case study given the methodology, as multiple other companies within a given value chain need to be researched.

Second, given the service provided by Whitevector, there would be no other Finnish companies to research, as the closest direct competitor of Whitevector's is

based in Norway. Thus, the service provided by Whitevector is still quite unique, and similar companies are quite scarce within Europe.

Third, as this is a commissioned case study, the aim was to provide answers pertaining to only one case company, and no others. This is due to the reason that ETLA, the thesis commissioner is simultaneously conducting a variety of other similar case studies, which will later on be combined into providing results for a much wider research project.

Ruddin (2006) also noted that when studying economic development, combining similar case studies can indeed provide an *empirical pattern* as long as the variables used and assumptions made within each study are close enough or irrelevant regarding the end result of the case studies as a whole (Ruddin, 2006, p. 805-807).

What will follow in the next chapters, are first the literature review in chapter 2, followed by the research methodology used, and limitations thereof can be found in chapter 3. The actual empirical findings found by researching the case company and service in question will be presented during chapter 4, and these results will be analyzed further in the last two chapters, *Discussion and Analysis* (chapter 5) and *Conclusions* (chapter 6).

Now that the research topic has been introduced in detail, it is time to start building the theoretical backdrop which this thesis is based on, and to show where exactly this sort of case study would fit within relevant academic literature.

2. LITERATURE REVIEW

This chapter of my thesis will provide an extensive review of the relevant academic literature to the previously outlined research problem – *where is value created in the global value chain?*

The aim of this literature review is to both present my understanding of the key concepts related to my research topic as well as to provide a synthesis of the wide spectrum of academic literature needed to consider when trying to find answers to the main research problem at hand.

Furthermore, this chapter should provide a clear outline of the field of research in which this particular thesis fits, as well as to show the reader the exact position of it within the group of relevant academic discussion.

This chapter is divided into four main sections, which are finally followed by a short summary of the main concepts presented in these sections. The four main themes to be covered are:

1) Innovation as a key driver of economic growth

2) Value chain analysis as means to find sources of value creation globally

3) Results from previous empirical studies on value creation in a global setting

4) Current direction of value creation research

The literature review shows the direction from which this particular thesis is coming from, and this allows for a better understanding of the assumptions made when methodology for and results of this thesis are taken into closer inspection.

2.1 Innovation as a key driver of economic growth

The main objective related to the research problem presented in this thesis is to ultimately show the impact of innovation ownership on national economic growth. Once we know the answer to the question '*where is value created?*' in the case of an innovative company, we are simultaneously able to see at least one empirical result to the significance of this impact (as seen in Ali-Yrkkö, 2010a and Linden et al., 2009).

When analyzing the value chains of companies that have created their own innovations, but dependent on others for providing key value-creating inputs – one example being Whitevector with their social media analysis tool Chat Reports – we are trying to find out how much this innovation itself is actually worth. This *value*, created by ownership of this innovation, is ultimately expected to translate into national economic growth (e.g. Tyson, 1991; Stokey, 1995; Cameron, 1998; Grossman & Helpman, 1994; Linden et al., 2009; Ali-Yrkkö, 2010a).

Or is it? What if a company has indeed created an innovative service or product, but by depending on other – possibly cross-border – suppliers for manufacturing or distributing this product or service they are ultimately driving the growth of other economies by making payments out to these distributors (Reich, 1990 and Reich, 1991)? What if the country of origin for the innovation itself benefits less than the countries of key distributors in the innovating company's value chain (similar question asked in Linden et al., 2009 and Ali-Yrkkö, 2010a)?

The approach of my thesis is one way to begin answering these questions through empirical proof gathered from a case company, although it is still relevant to see the beginning of as well as the present level of discussion regarding the subject of innovation as an economic growth driver, before getting into finding answers.

Start of debate – Reich vs. Tyson: Who Is Us – Who Is Them?

For the purpose of this thesis, let us start by looking at this discussion from 1990 and onwards, when Harvard Business School scholar Robert B. Reich wrote his article '*Who Is Us?*' on the subject of gaining and maintaining national competitiveness in an increasingly globalizing business environment (Reich, 1990). His main objective in this paper was to understand, whether nations ultimately compete against each other in terms of corporate ownership (i.e. where the corporation is headquartered) or in terms of output factors (i.e. where the corporation is buying its manufacturing, R&D and other functions from). In his own words, Reich was concerned about "which [of the previous options] is more important to the economic future of the United States?" (Reich, 1990, 1).

Reich argued that it is indeed more important for nations to remain attractive for foreign companies in order to have the nation's workforce generating growth for the local economy, and conversely, that moving labor-intensive tasks outside of the domestic borders distributes value created from products and services to foreign economies so that national competitiveness suffers as a result (Ibid, 12). Furthermore, Reich supported the side of debate of seeing ownership as a secondary source of value-added, while the actual labor was exactly what made economies grow sustainably (Ibid, 11-12).

Even though Reich approached the problem of ownership or labor as the more important performance indicator for national competitiveness from a thoroughly American point of view, the same basic idea can be transferred to any other nation. In the end, it is a question of whether a nation is able to grow in an economical sense by either having well-performing domestic companies (regardless of where their production inputs are being executed), or by attracting foreign companies to invest in a way that creates jobs domestically.

In his examples, Reich used companies A and B (Ibid, 1-12). Company A was an American company which had its headquarters in the USA, but most of the workforce was foreign since the manufacturing, R&D and other functions were being managed overseas. Company B on the other hand was a foreign company headquartered outside of the USA, but most of its employees were in fact American[4]. By comparing a set of examples fitting either companies A or B, Reich went on to answer the question '*Who Is Us?*' by determining whether the US economy has more to gain from either domestic companies exporting jobs overseas, or foreign companies that depend on the American workforce. In his conclusion, Reich established that in order to improve on their international competitiveness, nations (or in the case of Reich's article, America) should increase government spending on infrastructure, education and commercial R&D in order to attract foreign direct investment (FDI). In essence, the answer to the question *'Who Is Us?*' in Reich's opinion was that a foreign company employing a domestic workforce is *more us* than a domestic company operating mainly in foreign countries, which is in turn considered to be *more them, than us* (Ibid, 9-10).

While all of these previously mentioned suggestions can be thought of as being perfectly fine as such, and Reich does present a good case through examples, one has to wonder whether the ownership of product or service innovation as such is in fact of less value than the labor input of creating these products or services?

This is one of the questions that my thesis attempts to answer by looking at a case company that produces an innovative online service, and the way of answering is by finding where exactly value gets created, is value created through the company's ownership of the original idea for a product or service, or is it built by the other value chain members who take care of manufacturing, R&D or other crucial tasks in production?

[4] While the summarization of Reich's article is the thesis author's original, it should be pointed out that a very similar description of Reich's case can also be found in Tyson, 1991, page 38.

One academic who immediately attempted to refute Reich's assumption, and thus created a lively debate on the subject of which parts of a global value chain actually create value and drive the growth of economies was Linda D. Tyson. In her reply to Reich titled '*They Are Not Us',* Tyson saw the first implications of globalization seen in the early 1990s quite differently, by stating:

"Who is us? American companies still are. And while foreign firms represent bigger shares of the domestic economy (…), they are still not as important as American firms." (Tyson, 1991, 47)

Again, while Tyson's article was centered on the implications of globalization on the US economy, the same basic question at hand concerns any other nation that is in a similar situation (i.e. having domestic firms investing heavily cross-borders, as well as getting foreign investments from non-domestic companies).

Tyson's main argument in her paper was essentially that the ownership of a company still matters, since the US companies operating mainly overseas were basically attempting to lower costs by handling labor-intensive tasks where the costs were lower, as this would enable these companies to be more effective in competition, as production input costs would not keep their prices above other companies (Tyson, 1991, 39-40).

Essentially, the more process-oriented tasks were outsourced in order to reduce costs, while the US companies had more resources to actually innovate and create new products and services that could eventually turn into economic growth, which would in turn be attributed to where the innovating company was headquartered – or as Tyson put it, "outside of their home environments, global companies mainly produce goods and services, not innovations." (Ibid, 40). In essence, this behavior would imply that firms hold on to their innovation creating capabilities as their main source of created value, while the transferable and multipliable tasks would

get outsourced into those countries where labor costs were less than would have been in the domestic environment.

Furthermore, Tyson was able to point out that even though the foreign companies that had established operations within the United States were initially good for the US economy through "traditional indicators as wages per worker, value-added per worker, R&D per worker, or trade per worker" (Ibid, 43), they would eventually have a reverse affect. This is due to foreign companies capturing value through their own innovations, and then setting up production facilities globally so that they would end up saturating the domestic distribution networks. As a result, the value created through foreign innovation would be distributed outside of the USA, and simultaneously the US companies might also have to rely more on the foreign companies for distribution or manufacturing even in their home markets.

The conclusion of Tyson's reasoning was that even though there are short-term implications on economic growth when jobs are either moved out or moved in to an economy, "ownership still matters" (Ibid, 48), because innovation ownership indeed is a key driver for economic growth in the long-run sense of the concept.

Finally, while Reich implied that 'us' is both the domestic *and* foreign companies that are creating jobs within the domestic economy, Tyson argued that 'us' is the group of domestic companies who are able to innovate, create value from innovation, and eventually capture and repatriate that value back to the domestic economy. The aim of this thesis is to provide one answer to which one seems to be true, when looking at the distribution of created value within a global value chain.

After the Reich vs. Tyson discussion – value of innovation in the 1990s

Seeing as how this previously described initial discussion regarding the *correct perspective* of how globalization works in terms of domestic economic growth – conducted quite precisely 20 years ago between Reich and Tyson – might be a bit outdated, it is only sensible to take a look at more recent additions to this debate.

However, before getting into the most recent studies following this debate, I would still like to explore the advancement of this discussion right after the debate between Reich and Tyson, as the early 1990s was also quite an important era in understanding the effects of globalization. Understanding some of the main theories presented on the subject of the positive relation between innovation and economic growth in the 1990s is essential before approaching the most recent research, as the following theories can be thought of being seminal in their ability to direct the most recent academic literature towards a better understanding of the ability of innovations to drive economic growth.

This should provide a better feel for where the discussion is currently, and whether the basic idea of innovation as a key driver for economic growth follows the thinking of either Reich's or Tyson's logic – whether growth-inducing value added stems from where products and services are produced, or from where the innovation behind these products and services was created in the first place.

In other words, and conceptually closer to the research problem in this thesis, I would like to explore the current schools of thought on *where exactly value is created?* Is it 'us' or is it 'them' who capture the larger share of value created within a given value chain? Is it more important – or valuable – to own an innovation, or to own the production process of that innovation?

Continuing from this discussion of innovation as a more important element of ownership regarding sustained long-term economic growth – as opposed to the production ownership – there is a clear weight towards emphasizing innovation over the more traditional production-view (e.g. Vernon, 1966) going onwards from the early 1990s debate between Reich and Tyson.

The reason behind this weight towards looking at innovation over production can be found from 1991, when Jay Barney introduced the wildly popular Resource-Based View (RBV) framework of what enables companies to gain and uphold their

competitive advantage even on the long run (Barney, 1991). In the RBV framework Barney noted, that there are four key attributes of a resource that can have an essential impact on a company's sustained competitive advantage over time. In order to identify key resources, companies should find those resources that are *valuable, rare, in-imitable* and *non-substitutable* (Ibid, 105-112). Just by looking at different definitions of innovation (e.g. Schumpeter, 1934, p. *liv*; Luecke & Katz, 2003, p. 2) one will notice, that any company resource that presents all of the four attributes required by Barney, could fulfill the description of innovation as well.

As a shorter synthesis of the concepts of the resource-based view and innovations, if the RBV-model can be used to define sources of sustainable competitive advantage, and innovations fulfill the description of such strategic resources, then this would imply that innovation itself, in the RBV sense, is a source of sustainable competitive advantage.

More related to the case at hand, which is the value-creation capability of an online service Chat Reports, Barney did happen to mention a distinct difference in what makes technology a key source of sustained competitive advantage and what doesn't. According to Barney, "information processing systems" such as computers do not necessarily by themselves present a key strategic resource for a company, as implementing a computerized process is not rare, can be imitated and so forth (Ibid, 114). What *could* be considered a key resource in the case of an information processing system is one that can fulfill the characteristics described by Barney, and as will be proven in chapter 4, the patented Chat Reports service provided by Whitevector can indeed be considered an innovative source of value added in this sense.

Moving on towards the end of the 20th century, there have been multiple noticeably important inputs into the discussion regarding the significance of innovation as a key economic growth driver (Grossman & Helpman, 1994; Stokey, 1995; Cameron, 1998).

Grossman and Helpman (1994) noted that while the ratio between overall investments and GDP growth of nations over time helped some nations, but kept others disparate (Ibid, 30), the nations that had considerable emphasis on R&D investments experienced a strong positive correlation with R&D expenditure and economic growth.

Their "innovation-based growth"-model (Ibid, 32) was the key output of their study, which went on to show that nations (such as Japan, Israel and Finland) concentrating in building an environment welcoming innovative activity would gain the highest investment to GDP growth ratios, while the nations focused on the more traditional production investments were not as sustainably competitive in the long run as their more technology-driven counterparts (Ibid, 30). Through what was perhaps better known as the *Grossman-Helpman's (Endogenous Growth) Model* (in e.g. Nyssen, 1994; Hasan & Tucci, 2010), the two scholars were able to show how R&D investments within a nation helped to primarily drive the economic growth of that particular economy at a much earlier stage than of those nations that followed suit by adapting later on (Ibid, 36-38).

Furthermore, Grossman and Helpman were able to show, given the strong trend of globalization taking its place during the early 1990s, that even when the strongly performing countries had *knowledge-intensive* industries embedded in global value chains, making them dependent on these foreign economies, the fact that the innovation ownership belonged to these countries was driving economic growth, as opposed to losing out other nations by outsourcing production functions over the borders (Ibid, 38-40). The two scholars referred to this as *Dynamic Comparative Advantage* (Ibid, 38), and in short they meant that focusing on the future of each sector or industry in question, these nations were able to keep growing at a faster pace than those countries that were merely focused on providing manufacturing or production services for other nations.

As another example of proof behind the claim that innovation can be thought of as being a key driver of economic growth is Stokey's (1995) idea of *the equilibrium rate of R&D (*Stokey, 474, 1995), which was an econometric model of R&D investments turning into economic growth even though it was assumed that some R&D investments fail to produce any value, and as such can produce losses. Stokey was able to calculate, however, that as long as nations attempt to innovate, i.e. invest in R&D, the costs and probability of failure go hand in hand with R&D investments that eventually do turn out to be lucrative on a national scale (Ibid, 487-488).

This idea yet again nods at the notion that investments made to create innovative environments are at the same time investments that help an economy to achieve a sustainable competitive advantage over time. This is due to the fact that innovative economies tend to be at the forefront of their preferred industries, and through this advantage are able to shape their markets or at least follow them in a more agile fashion, than economies that are more concerned with attracting basic production investments.

Another test on the subject, following Tyson's idea of innovation ownership as a key economic growth driver, occurred when Gavin Cameron (1998) produced an empirical study towards the end of the 1990s, where he compared the economic growth figures compared to productivity growth among the United Kingdom, France, Germany, Japan and USA between 1870 throughout 1984 – a timeline of over a century's worth of growth data.

What Cameron found out through his research, was that whether the measure used was amount of R&D investment, number of new patents or innovation counts, the ability to innovate was indeed one of the most significant drivers of productivity on a firm-, industry- or even country-level (Cameron, 1998, 21). Furthermore, he was able to point out, that countries that invest in creating an innovative environment produce *R&D spillovers*, which refer to the spread of new

ideas or technology across industries or sectors, and eventually even nations. This means that even if a country is exceedingly good in producing new ideas within one industry, those ideas tend to get adapted in other industries where applicable, yet within that nation, and thus help to create even more return on R&D investment (Ibid, 19-20).

These examples sound out a relatively uniform message from academia, and at the time of writing were able to lay the foundations of the school of thought representing innovation as a key source of economic growth. What remains to be seen within this chapter is the even more current level of discussion regarding the role of innovation in today's national economies.

However, before moving on towards the level of this discussion in the 21st century, let us not forget Reich's notion of owning production could be a more important driver of economic growth. Surely, gaining FDI in the form of foreign companies localizing their production within the domestic borders can indeed act as an important driver of economic growth, as well as a source of global competitive advantage (Dunning, 1988; Porter, 1985; Reich, 1990 and 1991). The key distinction here to make is that in a longer scope of time, a more *sustainable source* of economic growth is in this review seen to come from innovation ownership, which can offer *a stronger rate of growth over time* than mere production ownership could (Tyson, 1991; Stokey, 1995; Cameron, 1998; Brown et al., 2009; Hasan & Tucci, 2010).

Even looking at the most influential proponents of the time regarding production ownership as a key economic driver (Dunning, 1988 and Porter 1985), both Dunning's OLI paradigm (1988) and Porter's cluster theory (1985) did not explicitly overrule the effects of innovation when receiving FDI in order to build competitive advantage. Quite conversely, one could argue that both Porter's clusters and Dunning's *internalization* capability of firms could indeed be closely

linked to the ability to innovate and thus create value (Madhok & Phene, 2001 p. 244; Johannessen& Olsen, 2010 p. 508).

As a short summary, the evolution of academic discussion throughout the 1990s regarding innovation as a key driver of economic growth moved on quite strongly through the research based on economic modeling (Grossman & Helpman; 1994; Stokey, 1995), resource-based frameworks (Barney, 1991) and empirical evidence based on decades of economic growth statistics (Cameron 1998). This body of key literature was adapted as a school of thought of its own in the early 21st century in further theoretical and empirical research on innovation's role in driving economic growth, and this theme will be covered in the remaining half of this sub-chapter, before moving on to the other themes to consider within the literature review.

Innovation and economic growth in the 21st century research literature

While in the previous section I presented the main direction of research taken regarding the value of innovation for a macro-economical level, now would be a good time to concentrate more on the present or relatively recent findings on the subject, covering some of the most substantial proof and theorizations published during the 2000s.

In a sense, the main sentiment regarding innovation as a key economic driver has not changed much from the 1990s, and if anything, has possibly intensified towards the positive as the effects of globalization have become clearer (Brown et al., 2009; Berry & Grayeff, 2009; Jaruzelski & Dehoff, 2006).

According to some of the most recent research, both the *activity* and *quality* of innovative action (measured by R&D investments and patent amounts), have indeed provided considerable attributions to economic growth in cross-country comparisons (Hasan & Tucci, 2010, p. 1273). Also the amount of collaboration within *competence clusters* has been seen as a driver of innovation activity as well

as quality, and thus these clusters have been seen to provide one of the strongest trends in innovative activity as of late (Johannessen & Olsen, 2010, p. 510).

In the UK and Israel, more specific empirical evidence based on certain sectors of these economies (ICT in Israel and production in the UK) has shown, that investments made into R&D and building intellectual property (IP) have greatly driven the growth of these sectors in question and improved their strategic significance to the national economy (UK: Greenhalgh & Rogers, 2006, p. 577 and Israel: Berry & Grayeff, 2009, p. 25-26).

Even looking at the effects of innovation through returns on investments made through financing decisions during the "1990s R&D Boom" (Brown et al., 2009, p. 151), the evidence of the positive correlation between innovation and growth is quite strong. Brown et al. (2009) were able to show that while non-high tech investments and investments made into mature companies produced growth of approximately 10% and R&D assets grew 25% on average over time from 1980 until 2004, the same values for high-tech companies and especially for young firms (less than 15 years of business after an initial public offering (IPO)) during the same 24 year period were approximately 300% and 50% respectively. Furthermore, the scholars mentioned that even though the R&D investments addressed to young high-technology companies was considerably larger than for mature firms, to achieve the optimal amount of investments to capture the best gains through *social spill-over effects of R&D* (Brown et al., 2009; Cameron, 1998) indicated that the R&D investments could have been *even higher* between 1980 and 2004 (Ibid, 172).

Finally, making a distinction between R&D *investments* and the actual capability of *innovation* to drive economic growth, a study into the world's "1,000 largest corporate R&D budgets" (Jaruzelski & Dehoff, 2006, p. 3) conducted by Booz Allen Hamilton's researchers Jaruzelski and Dehoff (2006) presented the idea of "high-leverage innovators", which were companies that were driving firm-level growth

mainly through innovation, not *only* by investing heavily into R&D, but by being able to innovate more efficiently than others in their industries. In other words, this analysis of the 1000 companies that are expected to 'innovate the most' showed that it was not directly the amount of R&D investments that provided growth to these companies, but instead it was the outcome of innovative activities. Thus, the *best innovators* were experiencing stronger growth than those companies that merely *invested most* on R&D activities (Ibid, 16).

Summary: Innovation's role as a growth driver in value chain analysis

Now that some of the most cited works behind innovation's role as a key economic growth driver have been presented, from theoretical econometric models and growth frameworks alongside empirical studies, we have set the stage for the main research question behind this thesis – *where is value created in the global value chain?*

By looking at the body of research from the 1990s until very recently, we are left with a relatively good sense of innovation's importance for national economic growth. However, even though the methods of research present in the research conducted to date are various and versatile, one of the main limitations shared by the research conducted so far, is that both in the 1990s and 2000s the results of research have been based mainly on statistics of large groups of companies, and what this research literature is missing at the moment is a deeper understanding of value distribution between an innovation owner and production providers. Even though the research so far has been quite extensive so far, there is a significant shortage of firm-level analysis of the actual *capability of innovative firms to capture value.*

In essence, while it is valuable as such to construct economic models (Stokey, 1995; Cameron, 1998) and theoretical frameworks (Barney, 1991; Grossman & Helpman, 1994) and test them on a macro-level (Jaruzelski & Dehoff, 2006; Brown

et al., 2009; Berry & Grayeff, 2009), what still remains to be seen is the micro-level analysis on *how valuable innovation actually is*. This is essentially what the case studies such as this thesis are attempting to provide, and by doing so, fill an existing research gap on the subject. While case studies themselves are not able to explain such wide economic phenomena, it does help to understand how certain types of innovative firms behave when capturing value through their own inventions and creations – and with what Flyvbjerg (2006) called *critical cases*, one might even be able to formulate credible generalizations for even a large-scale issue such as the value of innovation in an economy (Flyvbjerg, 2006, p. 226).

Thus, in order to find out *where value is created*, I will attempt to prove the notion of innovation as a key economic growth driver through a very practical approach, which is to look at an innovative company, and all of the key participants of its value chain. After carefully analyzing the value-adding capability of each participant to this value chain, I should be able to show that it is indeed the innovation-owning case company that is able to capture most of the value within its value chain, while the other participants are not able to capture very significant margins of value-added through their ownership of some of the needed and perhaps even strategically important production components. The result of this attempt will be presented in detail in chapter 4 (*empirical findings)*, and reflected upon in chapter 5 (*discussion and analysis)* of this thesis.

Meanwhile, there are still a few themes to cover within the literature review-chapter of this paper. The next one of these themes is the concept of value chains themselves, followed by a closer look into similar case studies on the thesis' subject, and finally, there will be a closer look at the current literature of value creation in global value network settings.

2.2 Value chain analysis as means to find sources of value creation globally

This sub-chapter will shed light on the research based on value chain analysis. By doing so, this part of the literature review should provide an explanation as to why exactly a company's value chain structure is such a useful vessel for finding results regarding value distribution of any case company studied using a similar methodology as has been used in this thesis.

As an initial note, however, the aim of this sub-chapter is not exactly to approach value chain analysis in the sense in which it has been presented in the fields of supply chain management or logistics (e.g. Simchi-Levi et. al, 2003) thus far. In this case study, there is no need to analyze the case company's value chain in an attempt to re-invent a better one (as might be suggested by Simchi-Levi et al., 2003; Rothberg & Erickson, 2005; Zokaei & Simons, 2006 or Wong & Wong, 2010).

Instead, we are merely looking at a particular value chain as it is at the time of analysis, in order to find out which companies are responsible for providing strategically important production-related inputs in to the case company's process of producing a value-adding product or service (Porter, 1985, p. 36-38; Bruhn & Georgi, 2006, p. 68-69). Once these key participants of the value chain are known, the calculation of value distribution within the value chain can be executed with certainty of having noted all of the necessary value-adding inputs (as presented in Ali-Yrkkö, 2010a and Linden et al., 2009).

In essence, this sub-chapter will look into previous research on value chains and the analysis of them, to justify why this approach holds the answers this thesis is seeking, and where this thesis would fit in the field of literature on value chain theory.

The concept of a value chain

As Porter (1985), who famously first coined the term 'value chain' described the concept, "every firm is a collection of activities that are performed to design, produce, market, deliver and support its product. All of these activities can be represented using a value chain." (Ibid, 36). Furthermore, "the value chain displays total value, and consists of *value activities* and *margin*" (Ibid, 38). In essence, the value chain concept by Porter shows the process components needed for capturing value from products and services. This process chain starts from raw materials to subcontractors and providers, the company in question itself and its distributors and resellers, ending at the end customer level, which is the component of the value chain where profit margins are generated from.

What happens in the value chain before this margin is achieved, is that all value chain participants provide their inputs into the production process, and at the same time build the value of said product or service and receive their own share of the generated margin – or *value* (Porter, 1985, p. 36-39). Porter noted also, that value chains can be divided into two types of activities: *primary* and *support* activities (Ibid, 37). The main point of focus in this thesis, when analyzing the distribution of created value across a value chain, is the parties involved in providing *primary value chain activities*. Without these participants, each product or service would be missing "… activities that are technologically and strategically distinct" (Ibid, 39) and as such the value-adding capability of these products and services would not be fulfilled to their fullest extent.

Support activities however are the activities within a value chain that help to uphold the primary activities in the value-creation process, but are not directly attributable to the costs related to acquiring raw material, paying for manufacturing or distribution and so forth (Ibid, 38). Thus these activities are disregarded in this particular case study's value chain analysis, as they do not directly affect the value-added gained from a product or service. For further

reference, a generic version of Porter's value chain model can be found in Appendix 2.

Another and more recent view into value chains, and how they are different from *value shops* or the more popular concept *value networks*, Stabell and Fjeldstad (1998) described value chains as being the long-linked and sequential flow of transforming inputs into products (or services). The distinction here is, that Stabell and Fjeldstad (1998) saw value networks as a venue for *linking customers* and value shops as a tool for *(re)solving customer problems*. In other words, value chains can therefore be viewed as the distinct process within a firm, where value-adding components, or inputs, are combined into a product or service that creates value (Stabell & Fjeldstad, 1998, p. 415). This view of the value chain as a concept is also shared within this thesis.

Furthermore, there is one clear distinction to make when looking at the value chain for Whitevector's Chat Reports online service. The key word here being 'service', which is exactly what Chat Reports is. Quite often however, value chains are conceptualized through the logic of producing products, while the aspect of looking at value chains from a service production viewpoint might a bit overlooked (as in Stabell & Fjeldstad, 1998; Rothberg & Erickson, 2005; Porter, 1985 and especially Simchi-Levi et al., 2003). In fact, this is one distinct limitation in research conducted on value chain analysis, at least in terms of the approach taken in this thesis. Especially because the results presented in this case study are based on a service value chain, and thus some of the assumptions made based on the results gathered may be different from what they would have been in the case of a product value chain of an otherwise similar company. While these results will be taken into inspection later on, this limitation in research should be noted early on.

To this date only some focus has been given to researching the workings of *service value chains* separate from those dedicated to producing tangible products. One such publication can be found from Bruhn and Georgi (2006), titled *Services*

Marketing – Managing The Service Value Chain, which is a book dedicated entirely for constructing a wide framework on the inner workings of service value chains as opposed to product value chains. In their book, Bruhn and Georgi also noted a lack of research based on *service* value chains themselves, while the overall trend in academia in the 2000s had taken a turn towards researching *service value* at least (Ibid, 10-12).

The two scholars argued that even though creating value in service production is a quite a bit different than in product production (Ibid, 13), as products are described as being *intangible, perishable, non-transportable, produced and consumed simultaneously, heterogeneous* and *co-produced with customers* (Ibid, 15). However, despite these features of services, Bruhn and Georgi see service production as a similar process as one would have when making products. Thus, the fundamental idea of a value chain being a place where value-adding inputs are turned into valuable outputs follows the logic of Porter (1985) and Stabell & Fjeldstad (1998), as well as the logic followed in this paper.

As a further distinction to the definition given by Porter (1985), Stabell and Fjeldstad refined the idea by stating that "The Service Value Chain structures value creating processes of service firms." and that "based on the value chain concept, process-oriented services marketing manages value creating activities of a service firm" (Ibid, 25). These additions to Porter's (1985) description are important to note, in order to better understand the logic behind the value chain and value creating process of the online service Chat Reports.

Value Chain Analysis as means to understand value distribution

After defining the definition of value chains – at least in the scope of this thesis – it is time to move on towards the benefits that *value chain analysis* can offer when trying to determine the global value distribution of a certain product or, in this case, service.

The first conceptualization of the process of value chain analysis (VCA) was published by Shank and Govindarajan (1992). According to their paper, "the value chain framework is a method for breaking down the chain of activities that runs from basic raw materials to end-use customers into strategically relevant segments in order to understand the behavior of costs and the sources of differentiation" (Shank & Govindarajan, 1992, 180; quote also referred to in Dekker, 2003, 2). In other words, while value chains themselves describe how inputs are turned into valuable outputs, value chain analysis is able to describe the most strategically important segments of each value chain. However, their paper on the subject was more directed for the use of management accounting, and did not exactly delve on the matter of value distribution within global value chains, and the meaning of these distribution margins for economic growth.

In his seminal piece on value chain analysis on the level of global economies, Kaplinsky (2000) approached this method of determining value distribution while being concerned with the gains attained from the process of globalization. He was especially interested in the amounts of growth offered to developing countries where foreign firms had off-shored their production tasks through FDI. The main point was to find out, through a few case studies, how foreign firms operating partly in developing countries were driving the growth of these countries by buying input factors from them. The end result was to learn about the "… positive and negative attributes of globalization (…) experienced at a number of different levels – the individual, the household, the firm, the town, the region, the sector and the nation." (Kaplinsky, 2000, 117).

Through his work on value chain analysis, Kaplinsky (2000) was able to point out that value chain analysis of firms is a powerful method of determining the rents a foreign firm is paying to their sites of FDI, and can help in developing local policies regarding FDI in case it seems that these rents paid are distinctly disparate in comparison to the value-added provided into the value chain by – for example – a

developing country. The aim here was to provide a tool for developing countries to better manage the optimal amounts of rents charged from foreign firms operating in these countries through FDI, and thus would enable a higher pace of economic growth – instead of being left with little rent for a large amount of value-added (Ibid, 141-142).

While this approach to why value chain analysis is a powerful tool is perhaps not entirely in tune with the end results this case study is expected to offer, it is still a very good first indication of the valuable information that this method is able to provide when determining the amounts of value distribution globally.

Continuing from Kaplinsky's work, Humphrey and Schmitz (2002) studied the governance of value chains, and established that while *industry clusters* are more controlled through local governance and cooperation between the cluster firms, *value chains* are distinguished through strong internal control – usually by the company in the center of the value chain (Humphrey & Schmitz, 2002, 1019), which in this case study would be Whitevector. Based on this difference of control, seeing as how foreign firms can widely control the dynamics of their value chain by managing or changing the participants in other parts of the chain, Humphrey and Schmitz (2002) established that value chain analysis is quite important when, yet again, trying to understand the global distribution of value. This is because the control of a value chain is seen to belong to a certain company, which can affect the gains received from belonging to that value chain by their own decision-making regarding who are the providers to and distributors of the product or service offered by that one company (Ibid, 1021-1023).

Thus, through value chain analysis, external parties are able to see more clearly how the decision-making regarding a value chain done by one company either domestically or internationally can change the amount of value captured from that value chain in the case of a certain economy. As a general example, a key distributor for Nokia would probably be very interested in knowing exactly how

much value they are putting into Nokia's value chain used for producing a mobile phone, to gain better knowledge used to maintaining their competitive advantage. A similar idea was presented by Drickhamer (2003), who noted that value chain analysis enables value chain stakeholders to "see the big picture" (Ibid, 57), and thus enable better management of customer and supplier relationships, because the actual *value-added* of inputs within the value chain are better understood.

Moving closer to using VCA as a tool for determining value distribution in case studies, we find Dekker's (2003) work on the subject, which was motivated by his own words by the fact that "… little empirical evidence has been published on the use of this [value chain] analysis in practice," even though VCA is thought of as being "a useful tool" in meeting the challenge of "the provision of information for the coordination and optimization of activities across firms in a value chain" (Dekker, 2003, 1). Even though Dekker referred to "firms in the value chain" (Ibid, 1), we can take that idea into this case analysis as well, and put it to use by looking at firms from countries other than the case company itself as representatives of foreign economies receiving value-added from the value chain.

Through a case study on the UK-based retail firm J. Sainsbury, Dekker noted that through value chain analysis, firms are more equipped to effectively manage their supply chains in the most strategically important segments, but at the same time the information acquired from this analysis firms were able to determine how much and where exactly the value-added of their products (or services) were being distributed (Dekker, 2003, 21-22). This is yet another piece of evidence towards the usefulness of VCA when determining value distribution in global value chains, or, to answer the question *where is value created?*

Further adding to the theoretical frameworks of the usage of value chain analysis in both an "internal" company-based view and an "external" view across industries and even nations, Crain and Abraham (2008, 29) formulated an updated method of determining how these internal or external VCA approaches can be chosen for

different types of case studies. While there are always certain companies in the focus of each value chain, and other participants are usually also company-level parties, Crain and Abraham noted that the *external value chain* is one that "… delineates the value-added stages from raw material to end-user as a product is manufactured and distributed…", meaning that while the *internal value chain* can be used to make strategic improvements to the efficiency of product or service production in a supply chain management sense, the external value chain analysis can help with determining how value is being distributed in a larger scale scenario (Ibid, 37-38). This external approach to value chain analysis is also used in this case study, when the aim is not to make improvement suggestions to how a certain value chain operates, and how it could be optimized, but to just determine how value is distributed among value chain participants using the present value chain composition and setting.

Value chain analysis of innovative end-products and online services

Moving on towards some of the most recent literature regarding value chain analysis, especially from the viewpoint of innovative services or products (Roper et al., 2008), and more accurately those that are purely web-based (Lakshminarasimha & Vijayan, 2008), we find two important insights regarding the value chain of Whitevector's Chat Reports service.

First, in the case of innovative products or services, the success of innovation can be determined by the effectiveness of the *innovation value chain* (Roper et al., 2008, 970-971), meaning that key growth indicators such as *labor productivity*, *sales growth* and *employment growth* of companies producing innovative outputs are essentially based on both the novelty and need for the innovative end-product itself (innovation intensity) and the innovation of the process in how to produce and distribute this end-product (process innovation), not forgetting the background force of *knowledge production*, meaning that behind successful innovation, the capability to manage and utilize previous knowledge (be it market-

or technology-oriented) related to the end-product eventually determines each case company's ability to capture higher amounts of value to be expected from their product or service (Roper et al., 2008, 971).

Thus, in the case of startup companies such as Whitevector, which usually make losses during the first years of operation before yielding profit (Chang, 2004), the innovativeness of the product and the process for building that product are detrimental to the amount of value captured by each startup. As such, the success of each innovation eventually determines the amount of value captured during the first years in business, and helps to explain the success or failure of startups in the scope of value chain analysis (Roper et al., 2008; Chang, 2004). This further emphasizes the importance of understanding where value is created, and that question is exactly what this case study aims to answer.

Second, in terms of value chain analysis of web-based services, Lakshminarasimha and Vijayan (2008) made two case examples of the extremely popular social networking sites Facebook and LinkedIn to find out how to analyze the value chains of services that are accessed only through internet browsers – exactly the same route used to access Whitevector's Chat Reports. They determined that from the end-customer's point of view (the end-customer also being the source of Porter's (1985) *margin* or *value added*), when the end-customer is at both ends of the value chain by providing content to these online services (i.e. content) and benefiting from the availability of that content (as a user or end-customer), these online services are then expected to carefully choose their target audience and keep providing the promised value to this group of customers through 1) maintaining their offering and b) keeping their offering current through regular updates and thus holding on to competitive advantage (Lakshminarasimha and Vijayan, 2008, 40-41).

In doing so, while companies offering online services are dependent on the end-customer at both ends of the value chain, and perhaps some key providers (e.g.

technology hardware providers), one of the keys to maintaining success is to outsource each activity that is not directly linked to the maintaining and updating of this service throughout the value chain in order to focus on the end-customers' needs and thus maximize the amount of value offered to these customers. Again, this is because the end-customers depend on material provided by themselves, shared on a platform such as Facebook, LinkedIn, and in a way, Whitevector's Chat Reports, the key here is to maintain the uniqueness of that platform in order to hold on to these content-generating customers.

Summary: VCA as means to determine value distribution globally

In this sub-chapter, the aim of the literature review was to determine the usefulness of value chain analysis – or VCA – in this particular case study. Furthermore, through various academic sources, some of the things to consider when analyzing the value chain of an *innovative online service* were presented as well (Roper et al., 2008 and Lakshminarasimha & Vijayan, 2008).

This sub-chapter has established that viewing the *external*, industry- or nation-level value chains of companies (Crain & Abraham, 2008) can help to determine the distribution of value globally, and thus bring to light – at least in case studies following the methodology of this one – where exactly value is created (Shank & Govindarajan, 1992; Stabell & Fjeldstad, 1998; Kaplinsky, 2000 and Drickhamer, 2003).

In the following sub-chapter, I will present the empirical findings from a few of the recent case studies made based on a similar research problem as is presented in this thesis. Through these findings, we will see exactly which line of research this thesis will contribute directly to. So far I explained the need for such research, as well as argued why the methodology of this type of research relies strongly on value chain analysis.

2.3 Results from previous empirical studies on value creation in a global setting

As it was presented in the first chapter of this thesis, determining the value distribution of products and services through a new method of case-by-case value chain analysis is a relatively unexplored field of research in academia. So far, there have been only two clearly similar studies made, and both are as recent as 2009 (Ali-Yrkkö, 2010a and Linden et al., 2009).

What sets this case study apart from the current ones, and perhaps following studies as well, is the fact that this study is centered on a service, instead of a tangible product, as has been the case in both Ali-Yrkkö's (2010a) and Linden et al.'s (2009) research thus far.

In order to be more familiar with the results presented later on in this thesis, it would be useful to present the results found by scholars who have researched this particular topic previously.

Case example number 1: The USA and Apple's iPod

Beginning from Linden et al.'s (2009) article titled *Who Captures Value in a Global Innovation Network? The Case of Apple's iPod*, the researchers attempted to offer their own answer to the previously described debate on economic growth drivers between Reich (1990) and Tyson (1991), by taking a U.S. product – Apple Inc.'s iPod – and determining how much of the overall value created belonged to the company behind the product – Apple Inc. – and how much of it was distributed among the other value chain members (Linden et al., 2009, 140).

As is the case in this study's methodology, and that of Ali-Yrkkö's (2010a), the research was conducted in three relatively simple stages. First, the researchers mapped out the Apple iPod's value chain in the same way as described in the first two sub-chapters of the literature review: by looking at the *external value chain*

(Crain & Abraham, 2008, 37-38) and concentrating on the strategically important participants of this value chain – or the *primary activities* (Porter, 1985, 38). Next, these value-adding participants were analyzed in terms of the costs attributed by each of them to the manufacturing and distribution of one Apple iPod. The end-result of this phase was a Bill of Materials (BOM) (term used by Ali-Yrkkö, 2010a, 97), where the costs of components per provider were turned into margins of the manufacturing price. Finally, once it was clear how much Apple had to pay for key inputs to their providers, what remained were the margins of value-added that remained with Apple as well as a breakdown of value-added along the rest of the value chain. An adaptation of the results gained by Linden et al. (2009, 143) are presented in Figure 3.

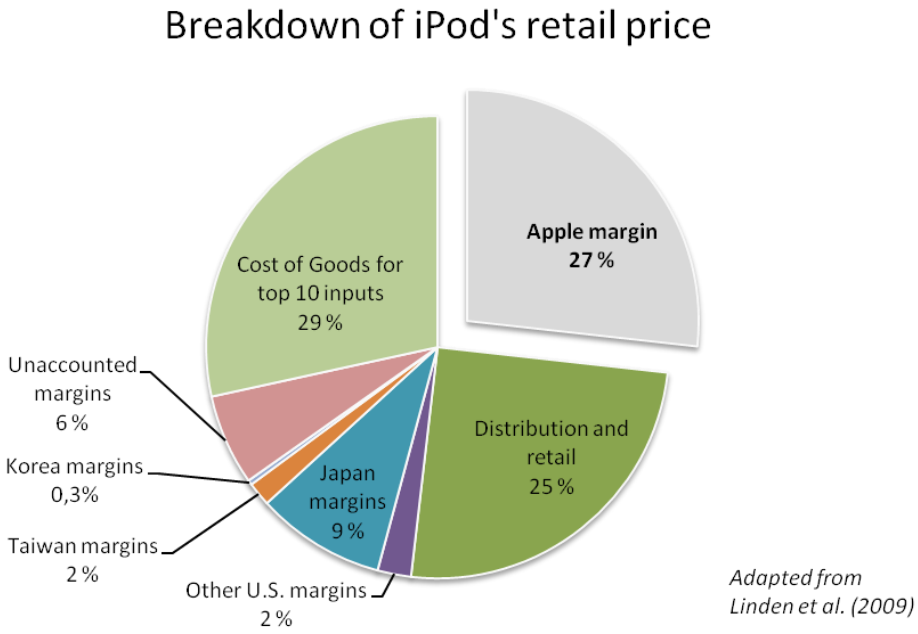

Figure 3. *Breakdown of iPod's retail price (Linden et al., 2009, 143)*

What Linden et al. (2009) concluded from their research, is a three-fold answer. The first two findings were, that "nationality (…) and innovation matters" (Ibid, 143-144). This means that since Apple, a U.S. company that exclusively *designs products*, and has outsourced all of its component, manufacturing and even

distribution needs to other value chain members, is able to capture more than a quarter of the value-added by each iPod sold, and the rest of the value is distributed among as many as dozens of different companies, Apple emerges to be the clear winner of the value chain in terms of capturing value and bringing it home to the USA. The third finding was, that "trade statistics can mislead as much as inform" (Ibid, 144), which is a direct referral to Reich's (1990) arguments for the importance of domestic production.

All in all, the conclusion made by analyzing the value chain of Apple's iPod, in terms of economic growth through value captured, the evidence in this case is quite clear. Apple is, simply through innovation ownership, able to keep the USA on top of the value-capturing nations among the value chain used for getting iPods into the consumers' pockets. The key input of this research was to state that since U.S. companies are not responsible for creating all of the innovation in the world, what should be done policy-wise, is increasing the amount of international cooperation in creating innovations, so that the U.S. economy would be able to tap into the growth provided by future innovations as well (Linden et al., 2009, 144).

Case example 2: Finland and Nokia's N95 smartphone

Ali-Yrkkö (2010a) has conducted a similar global value chain analysis study as Linden et al., both in terms of methodology and even results, even though this research was not concentrated on the U.S. economy, but the Finnish economy instead. Essentially, this thesis follows along the lines of Ali-Yrkkö's (2010a) research in the sense of this case study being concerned about the value-capturing capability of a Finnish firm, and what that means for the Finnish economy.

In Ali-Yrkkö's (2010a) study, the Finnish ICT company Nokia – and especially their flagship smartphone model at the time, N95 – was taken into closer inspection following a three-step methodology in order to see where value was created for this Finnish company's smartphone model's global value chain. First, the value

chain for the N95 would be broken down by component providers, manufacturers, and further down the chain assembly and manufacturing, distribution and retail. Second, by creating a bill-of-materials for the different key participants in the Nokia N95 value chain, Ali-Yrkkö (2010a) was able to determine how much of the production price for each phone belonged to each value chain participant, and how much was the amount of value-added between the production price and the N95's retail price. Third, by calculating the value-added margins for each value chain participant, and linking these participant companies to their domestic economies, Ali-Yrkkö (2010a) divided the whole sum of value-added among different parties, and thus reached the results of his research, which are further explained in juncture with figures 4 and 5.

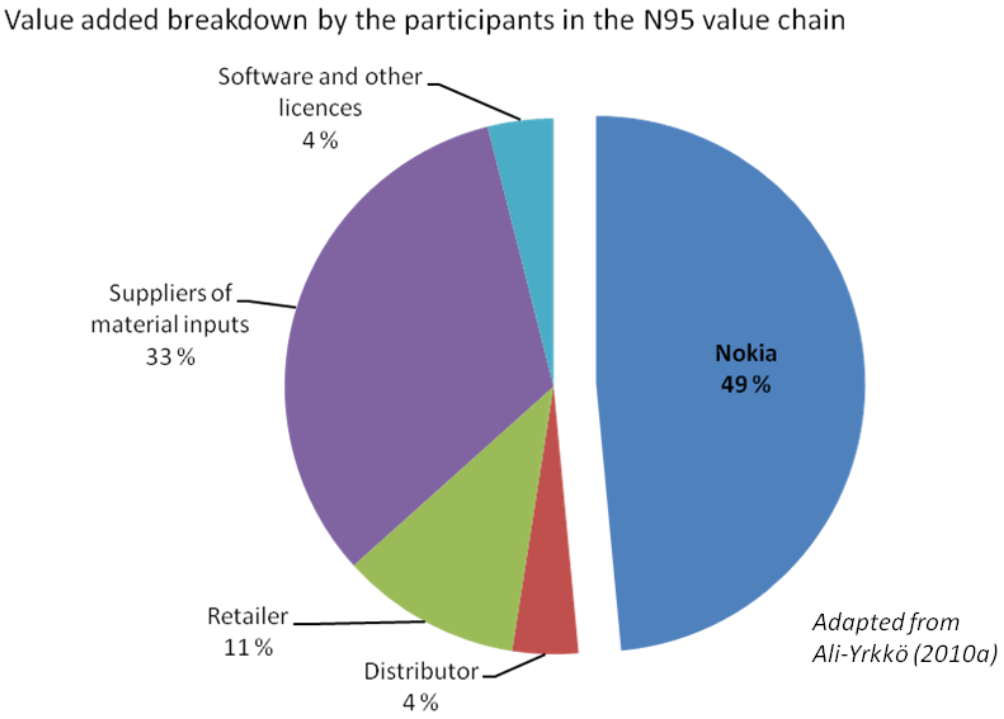

Figure 4. *The value added breakdown by the participants in the N95 value chain (Ali-Yrkkö, 2010a, 101)*

By creating a "value added breakdown" (Ali-Yrkkö, 2010a, 101), one of the main end results of Ali-Yrkkö's (2010a) case study was quite clear; even though Nokia

mainly designs and markets their phones, by far the largest share (49%) of the value added to be gained from at least the N95 smartphone was created by Nokia itself. Ali-Yrkkö also made the distinction, that "it should be noted, however, that this value added is not the same as profit" (Ibid, 101).

In essence, while the 49% share of value added does not indeed represent Nokia's profit margin per each N95 smartphone sold, it can however add to the evidence of the impact of innovation ownership. Nokia, being the designer and creator of a product such as the N95 is able to keep 49% of the value added, while the suppliers, manufacturers and distributors are left with significantly smaller value added margins. Thus, the 49% of value added belonging to Nokia alone – and no other companies – is a staggeringly high margin in comparison to any other value chain participant.

Ali-Yrkkö (2010a), unlike Linden et al. (2009), presented the geographical breakdown of value added as a separate result in order to emphasize the global distribution of value added in the case of Nokia's N95:

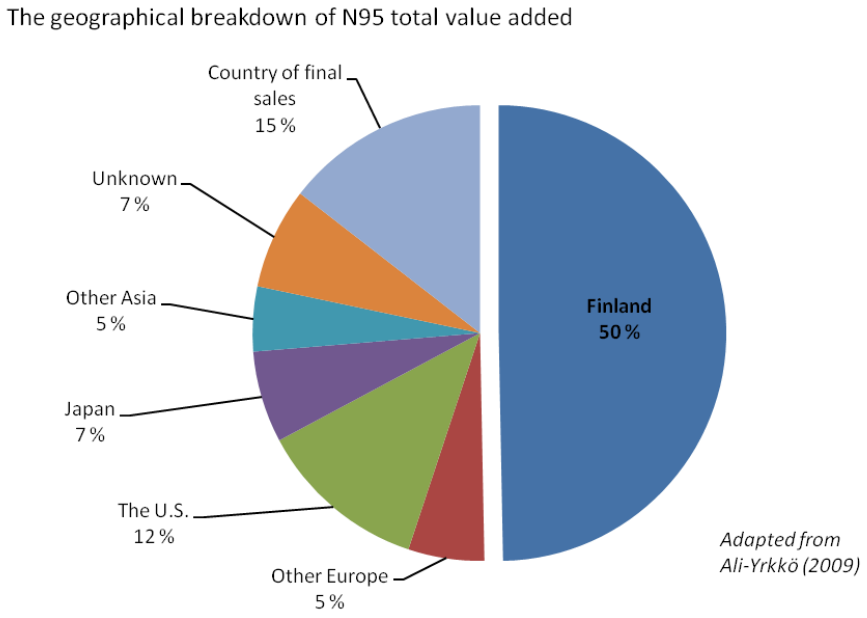

Figure 5. The geographical breakdown of N95 total value added (Ali-Yrkkö, 2010a, 103)

Again, since Nokia is a Finnish company, and is the owner of the innovation behind their product, the captured value added from each phone sold is then distributed back into the domestic country of Nokia (Ibid, 103-104).

What is interesting in the geographical breakdown of value added, is the fact that while Finland is the recipient of the majority of value to be gained from selling Nokia's N95 phones, the other half of value added is distributed in clearly smaller margins than they were when the value margins were distributed in terms of value chain function or phase such as distribution, retail, etc (Ibid, 103). This is due to the fact that while certain value adding functions can be grouped together, the companies within those functions may be situated in different countries or even continents, and thus the value added gets dispersed even further within these functions.

Another interesting finding was that the "country of final sales" (Ibid, 103) was one factor that could shift the amount of value added to be distributed globally. In essence, if a Nokia N95 phone was sold outside of Finland, the related distribution and retail would not concern Finland as such, and thus the value added towards Finland might be less than 50%[5]. However, for each phone sold within Finland, the value added margin to be attributed to Nokia's domestic economy would indeed be half of the overall value added.

All in all, Ali-Yrkkö (2010a) underlined three key findings from this particular case study. In addition to the two key findings that first, Nokia, and as a result, second, Finland are able to capture as much as 50% (in Finland's case this depends on the country of final sales as described above) of the value added created by selling the N95 smartphone (Ali-Yrkkö, 2010c, 7). The third result found through the case study was that, in Ali-Yrkkö's own words: "in the N95 case, the final assembly of

[5] In an earlier presentation by Ali-Yrkkö, the value added margin for Nokia N95 phones sold outside of Finland was approximately 40%. However, if the same product was sold within Finland, the value added margin would be as high as 55% (Ali-Yrkkö, 2010b; referenced to "Ali-Yrkkö et al. 2010 (*forthcoming*)").

the phone costs approximately EUR 11.5 accounting for only 2.1% of the total value added and 4.3% of the value added generated by Nokia. This implies that the final assembly of a high tech electronics product is in fact very low tech because the manufacturing function generates only a small amount of value added" (Ali-Yrkkö, 2010c, 7). This finding is particularly interesting in comparison to the earlier discussion on the value of innovation, and how innovation can drive economic growth.

Summary: the key findings from earlier case studies

The presented findings from Ali-Yrkkö were quite similar to the ones found in the U.S. case example by Linden et al. (2009), where the Apple iPod was put under similar value chain analysis. These two similar sets of results provide further evidence towards proving that even in the case of products based on high-technology, the component manufacturing and product assembly can in fact be quite straightforward – at least judging by the amount of value added by these value chain functions.

What seemed to be by far the strongest source of value, in these two case studies, was the product innovation itself – be it the Nokia smartphone or the Apple MP3-player. As such, this thesis aims to provide even more empirical evidence towards supporting the value-capturing capability of innovation ownership, while also providing a new viewpoint into how this previously used case methodology in these two case studies fits when analyzing a service value chain.

In the next sub-chapter, the very recent direction of value creation research will be presented and summarized, as this will build a solid background based on the most recent research available on the research topic of this thesis.

2.4 Current direction of value creation research

In the final research theme to be presented within this literature review, I will shortly discuss some of the most insightful publications found from academic literature that are closely linked – with regards to all or some of the previously described themes – to the research problem presented in this thesis.

First, the work done by scholars Linden, Kraemer and Dedrick, the team previously referred to in the Apple iPod case example as Linden et al. (2009), started out making connections between the impact of innovation on economic growth, value chain analysis, and value capture in global value chains. Their first endeavor into this subject was, as opposed to their 2009 case study (Linden et al., 2009), a theoretical paper on the value capture logic of global innovation value chains (Dedrick et al., 2007).

What the scholars were able to build through their theory on the value distribution logic was three-fold. First, they built a framework of two different types of innovation – *radical* (meaning entirely new product/service categories, such as digital cameras in the early 2000s) and *incremental* (i.e. evolutionary stages within an existing product/service category, as in 2-megapixel digital cameras evolving into 5-megapixel ones and so on) (Dedrick et al., 2007, 3). This distinction is important in terms of global value distribution, since owning *radical innovation* can be seen to initially have a higher rate of return in terms of value captured, while *incremental innovation* has a smaller effect on already established key functions at least in the consumer electronics industry[6] (Dedrick et al., 2007, 22-23). In other words, firms (and nations) that are able to be *radically innovative* more often than merely continuing the evolution of existing products by making them better, are seen to have a competitive advantage over the *incremental*

[6] However, the author of this thesis would like to suggest the following: it is quite possible that the same concept of radical and incremental innovation could be viewed in a similar manner in various other industries other than consumer electronics.

innovators, at least for the time when completely new product categories are being introduced into and embraced by the market (Ibid, 24).

The second result of Dedrick et al. (2007) was that while the value capture ability of firms within the consumer electronics industry might vary significantly between types of products (e.g. between MP3-players and notebook PCs), the same value capturing ability on a national level was seen to be "relatively consistent" (Ibid, 25). This is because the main industries of each nation tend to drive nations towards being *radical* or perhaps *incremental* innovators. As they said, "the innovative countries innovate, while the other countries nip at their heels and capture a small share of the value created" (Ibid, 25). This refers to the implication that countries that are concentrated on creating new product and service categories tend to end up owning innovation, while other countries might merely end up supplying and manufacturing for the innovation owners, and thus the majority share of value added for each new product tends to go towards the innovation owners (Ibid, 24-26).

The third finding, or more of a contribution, was that within their paper, Dedrick et al. (2007) first conceptualized 'the first version' of the set of methods used in analyzing value chains in order to determine the distribution of value added. This methodology has later on been enhanced by Linden et al. (2009) and more recently Ali-Yrkkö (2010a), and this initial contribution has set the basis for this study as well, and following case studies to come.

Further advances made to the concept of analyzing global value chains have been made in terms of global value chain (GVC) governance (Gibbon & Ponte, 2008), and understanding the implications for value capture when more than one company is involved in the innovation process of new products and services (Helm & Jones, 2010).

This sort of conceptual development done regarding the analysis of global value chains is quite important to note, as global value chains become more and more complex when the product or service in the middle between suppliers and distributors might be the end-product of multiple companies or might include some level of government ownership in terms of who created the innovation behind these new valuables making their way towards the end customer (Gibbon & Ponte, 2008; Helm & Jones, 2010; Johannessen & Olsen, 2010 and Hasan & Tucci, 2010).

In other words, along with future research made into the global value chains of innovative and eventually economic growth driving products and services, the level of complexity is expected to rise as well. Currently, it is relatively easy to find simple enough case examples to study, such as this one regarding Whitevector's Chat Reports service.

Yet eventually one might want to get more familiar with the value added distribution of products or services that are created through more complex global value chains based on, for example, cooperation between two or more parties – be it joint ventures, joint research (either between businesses or business and government) or co-branding (Gibbon & Ponte, 2008 and Helm & Jones, 2010).

Finally, there have been a few interesting Finnish publications related to the future of value creation in the globalized and competitive world we live in – or will live in within a decade. These publications provide further arguments for the importance of innovation ownership in the race for finding and securing competitive advantage while the global competition between nations continues to intensify (Hernesniemi, 2010 and Pajarinen et al., 2010).

First, as Pajarinen et al. (2010) noted, looking the foreign trade flows in terms of national deficit or surplus gives an erroneous and overly pessimistic view regarding the future of the current developed economies because of the increase of

outsourcing of the production sector, while in fact "the detailed product-level analysis reveals, that quite often the developed countries dominate the value creation process and thus keep on receiving most of the prosperity provided by supply chains" (Ibid, 69).

From a Finnish perspective, in terms of this economy being able to capture value now and in the future, Pajarinen et al. (2010) would argue that embracing the global networks is a key element in learning, and this is exactly what Finland would need in order to secure innovation ownership and thus keep driving economic growth sustainably (Ibid, 81-82).

Furthermore, Hernesniemi (2010) noted, also based on the case studies by Linden et al. (2009) and Ali-Yrkkö (2010a), that even though much of the Western world's production and manufacturing capability has within just a few decades been heavily transferred especially into Asian countries, and the "superior cost advantage" (Hernesniemi, 2010, 48) of those countries is often a concern, what really matters is the fact that most of the value added of products within the ICT sector at least is still captured by Finnish companies and thus returned into the Finnish economy (Ibid, 48).

Along with showing some of the most interesting directions taken recently in academic studies regarding global value creation and distribution, it is time to conclude the literature review through a concluding summary. In the following and final sub-chapter, some of the main topics presented previously will be summarized in short. After the summary, the research methodology used for the actual case study at hand, as well as the empirical results, analysis and discussion, and finally conclusions on the whole, will be presented.

2.5 Summary of the literature review

This literature review began by presenting the initial debate on the *value or role of innovation as a driver of economic growth* – a debate that initially sparked between Reich (1990) and Tyson (1991).

Once the stage had been set, the need for understanding the ability of innovation to provide sustainable economic growth and competitive advantage to nations was further explored through some of the most impactful literature of the 1990s (Barney, 1991; Grossman & Helpman, 1994; Stokey, 1995; Cameron, 1998). These ideas were then tested by reviewing even more recent studies on the same research topic, mostly based on academic literature from the 2000s, where the idea of innovation's higher importance over production and manufacturing in terms of economic growth was further strengthened (e.g. Brown et al., 2009, Berry & Grayeff, 2009; Jaruzelski & Dehoff, 2006 and Hasan & Tucci, 2010).

As an end result, it was established that at least within this thesis, the sentiment of innovation indeed being a more significant growth driver than the more traditional view of domestic production units (Reich, 1990) is seen as the more logical approach.

In the second sub-chapter of the literature review, the research topic of value chain analysis was introduced in order to provide insight into yet another important research concept pertaining to the research problem presented in this thesis. A synthesis of the value chain concept referred to in this thesis was provided, by noting that this thesis is concerned mainly with the strategically important primary activities of the case company's value chain (Porter, 1985), as it is also closely linked to the concept of a *service value chain* instead of a production value chain (Bruhn & Georgi, 2006). Furthermore, the concept of an *external value chain* was introduced as a better concept to use in global value chain analysis as well as a good distinction from the more traditional *internal value chains* that are often

referred to in the more traditional supply chain management literature (Crain & Abraham). Finally, in the second sub-chapter some of the recent methods and reasons behind current value chain analyses were introduced in terms of value chain governance (Humphrey & Schmitz, 2002) and the implications of FDI (Kaplinsky, 2000), as well as the *innovation value chain* (Roper et al., 2008)

What followed after these two main research themes was a few already existing examples of case studies that are very similar to this paper in terms of methodology, and potentially of the results. Through the works of Linden et al. (2009) and Ali-Yrkkö (2010a), it was noted that both the idea of innovation's role as an economic growth driver and the usefulness of value chain analysis would be two concepts bound into one research topic through case studies such as this one. Furthermore, these case studies so far were able to prove – through value chain analyses – that in the case of innovative products, the innovation owner seems to be the majority recipient of value added, while all of the other value chain participants are left with significantly smaller margins. Furthermore, the link between innovation ownership and domestic economy was made in both cases, noting that firm-level value capture is translated into national value capture (Dedrick et al., 2007).

Finally, the fourth sub-chapter of the literature review looked into some of the most recent advances in academic literature regarding the future of research based on global value distribution. It was noted, that in recent Finnish literature the innovation creation and ownership was seen as a key strategy in surviving future global competition (Hernesniemi, 2010 and Pajarinen et al., 2010). Also, the idea of similar global value chain analyses becoming more and more complex when innovative products or services created through cooperation would be taken into closer inspection through a similar methodology used so far (Gibbon & Ponte, 2008 and Helm & Jones, 2010).

Now that the literature review has been summarized, it is time to move on to the next chapter of this thesis: chapter 3 – *research methodology*.

3. RESEARCH METHODOLOGY

The methodology used for answering the research questions of this thesis is a combination of qualitative and quantitative methods. In this chapter, these research approaches will be described, in order to openly present how data was gathered for this research paper and why, what were the limitations, as well as the conditions within which this particular study was conducted. Finally, this chapter aims to validate the conducted study by proving how the means of gathering data fulfill the criteria set for these chosen research methods.

This case study was done as a commissioned thesis project. The research methodology was initially designed by ETLA, and discussed about with ETLA's Jyrki Ali-Yrkkö, who also acted as a supervisor of this particular project. The methodology and results found through the use of it were regularly discussed about with Ali-Yrkkö, either in person or via e-mail.

First, in order to build a clear overview of Whitevector's value chain, the company's Chief Executive Officer (CEO) Tommi Lehtonen was interviewed. He was the right person to discuss with, since he is responsible for the company's overall strategy and thus would have the knowledge of the main components of his company's value chain with accurate descriptions to each module of the chain in terms of significance and role.

Second, in order to understand how much of the total value of Chat Reports would *belong* to the company (Whitevector) itself, and how much of it was created by to the company's suppliers and retailers needed to be calculated in terms *value-added margins*. This called for quantitative financial analysis, which was the best

approach into answering questions related to *where the value added* was actually created geographically and per company.

Using this approach of mixed research methodology, it was possible to accurately determine the distribution of value added between Whitevector and the companies within its value chain, as well as the distribution between Finland and the countries that were recipients of the value created by the value chain that Whitevector was the central component of.

Furthermore, case studies while might not be intuitively considered to be the best sources for finding answers to macro-economic issues such as '*where is value created'* in terms of national economies.

However, this view has within the past decade been disregarded by some scholars (e.g. Flyvbjerg, 2006 and Ruddin, 2006), especially regarding the credibility of making generalizations from case study results (Flyvbjerg, 2006, p. 221).

Also, as Yin (2009) has explained, case analysis is a plausible approach to researching especially "… "how" or "why" some social phenomenon works." (Ibid, p. 340). This thesis indeed aims to show how value is created and what are the reasons behind the found results (i.e. 'why did the value added get distributed as it did?').

As for combining qualitative methods with financial data analysis, Yin (2009) also noted that while certain research methods – such as the case study itself – have their strengths and limitations, these limitations can be complemented by the use of other research methods (Ibid, 334). This idea of complementary methods is prevalent in this thesis, as the limitations of both qualitative and quantitative approaches are complementary to each other in the analysis phase of the thesis.

Both the qualitative (case-interview) and financial data analysis approaches will be narrated in sub-chapters 3.1 and 3.2 in terms of how they were actually executed.

By the end of this chapter, the advantages and possible limitations this methodology will be outlined, along with explanations to key terms which will be used throughout the analysis section of the paper.

3.1 Creating Value Chain Model through CEO interview

To answer the question *how is Whitevector's value chain constructed*, I conducted an interview with the company's CEO. This was a structured interview (as described by e.g. Gubrium & Holstein, 2006, p. 85-86), as the set of questions that needed answering were pre-determined, and there was no need to venture beyond the main focus of building a model of Whitevector's value chain. In other words, since the theme and questions of the interview were outlined very clearly beforehand, there was not much to be gained by searching for emergent results, as might have happened if an unstructured or a semi-structured interview approach was used (Gubrium & Holstein, 2006, p. 85-86).

Furthermore, the question set used for the interview and found in Appendix 1 was provided to me by ETLA – as the institution, being the commissioner for my thesis as well as in charge of the overall research project, determined the data gathering methods and contents thereof used for my case study.

Only one interview was necessary to be conducted for this case study, as the CEO of Whitevector had the required level of insight into answering the presented questions. Also, since Whitevector had only a few key value adding participants within its value chain (as presented in chapter 4), and all of the necessary data expected from those participants was available through other means (which are further explained in the following sub-chapter, 3.2), there was no need to conduct interviews with these parties. This is based on the assumption that the additional data provided through further interviews would not had been significant in terms of answering the main research problem.

Perhaps the limitation set by this particular informant in terms of data gathering was that as Whitevector provides a highly technical online service, understanding the inner workings of the service in terms of technological solutions used was to be expected more from the Chief Operating Officer (COO) and the Chief Technology Officer (CTO) of the company, and not the CEO, since the *product ownership* (i.e. main responsibility for having the online service up and running) was with the firm's other chief executives. However, since the aim of this thesis is not to answer the question '*how does Whitevector's online service work in detail?*', this highly technical insight cannot be seen as integral data in terms of this particular research project. Thus, explaining the service in less intrinsic detail will suffice, given the main focus of this study. This particular limitation in data gathering would also provide more room for focusing on the value creation aspect of the study.

As I am an employee for Whitevector, it was relatively effortless to arrange an interview with the company's CEO. Furthermore, as someone who has worked for the company and with the CEO for over 3 years by the time of writing, finding a mutual understanding between the interviewer and interviewee was quite facile as well. Admittedly, even though I was not able to fully place myself outside the case company as a thoroughly objective outside figure during the interview – given the circumstances – this was perhaps more of an advantage than a limitation since little or nothing was lost in translation when discussing the details of a company that operates within a relatively novel industry. In other words, it was easy to interpret the given interview answers due to my personal knowledge of Whitevector itself, its industry and the parties involved in its value chain.

Clearly this employer-employee relationship present during this particular data gathering situation might pose its own questions regarding the quality and reliability of gathering and analyzing the data gained from the interview. However, since both parties' end motive for conducting the interview was identical – eventually finding out where value is created within Whitevector's value chain –

the interview outcome does fulfill the set objective of modeling the value chain Whitevector operates within. Furthermore, since the interview questions were provided by an objective party and these questions were presented as such during the interview, the outcomes gained from the interview were not affected by the fact that during the session I was both a research and an employee of the case company.

The most relevant findings from this interview are presented in chapter 4.1, where Whitevector's value chain is presented in detail, with quotes from the interviewee in order to let his viewpoint to be shown as well, as an empirical result of its own. Also, by presenting actual interview quotes 'as is', the data gathered through qualitative means for this study are credible and objective findings as they are, unaffected by the researcher's professional relationship to Whitevector.

3.2 Calculating Value added Margins

Answering the question *where is value created within Whitevector's value chain* was answered by calculating the value added margins of Whitevector itself and those value chain participants that attributed to both the value creation and cost structures of the case company. In other words, I first determined how much of the value created by Whitevector's Chat Reports service was captured by Whitevector, and then distributed the remainder of the value created among the other value chain participants by cross-referencing their own value added margin with the Whitevector's cost of doing business with these particular parties.

Finding out which companies should be included in this part of the analysis came directly from the outcomes of the previous part, where Whitevector's value chain was modeled. This model provided a clear outline of the parties which both contribute to Whitevector's value added, and detract from the company's revenue,

making them both responsible for creating value and possibly distributing it outside of Finland into other countries.

This part of the study was conducted with financial data analysis as the main research method, since the data necessary for the analysis was purely numerical and based on the financial data of the case company (Grbich, 2007, p. 196-197). Based on the financial data of Whitevector and its value chain participants, I was able to find out how much each value chain member was contributing to the overall value created to Whitevector's end customers.

This data was gathered from secondary sources, mainly company information databases such as Orbis and the Finnish Company and Community Database (YTJ), although the information regarding Whitevector was gathered from the company's original records. All of the necessary data needed for analyzing the companies within Whitevector's value chain was available through the aforementioned information sources, and since more detailed data is required on the case company itself, this I was able to get access to without limitations due to the trust invested in me as an employer of the company.

It should be noted, that the data gathered for this part of my thesis is based mainly on figures found from 2009, *except* for Whitevector, which was able to produce financial records from 2010. The results presented in my thesis can still be considered valid, even though the year of analysis for each company is not identical.

This is because gathering the most recent data from as long a period as possible for the case company itself is important in terms of providing the most accurate analysis possible, while the results from other companies can be considered as being secondary objectives in terms of achieving the mentioned research goals.

Furthermore, as this thesis was written during the winter of 2010-2011, it could not be expected that all other companies included in the analysis would have their

financial records for 2010 ready even until the early spring of 2011, and hence I decided that as long as the data used for companies other than Whitevector is from the same period – 2009 – the secondary company data will then remain comparable.

Process of analyzing financial data in closer detail

In order to calculate value adding margins for both Whitevector and the companies present in its value chain, a few simple calculations needed to be carried out, and the results of these then combined. The formulae for all needed calculations were provided to me by ETLA.

In short, the process of determining how the value created by Whitevector's Chat Reports service was spread both within the value chain as well as geographically was as follows:

For each company, find the following key financial indicators:

1) Calculate the value-adding margin for each company using the following formula (1):

$$\text{Value-adding margin} = \frac{\text{EBIT*} + \text{depreciations} + \text{cost of employees} + \text{rent}}{\text{Turnover}} \quad (1)$$

* = EBIT is short for *earnings before interest and taxes,* also referred to as *operating profit*.

A simpler way to determine the numerator of this equation is as follows (2):

$$\text{Value-adding margin} = \frac{\text{Turnover} - \text{Purchases}}{\text{Turnover}} \quad (2)$$

In this thesis, the latter approach was chosen for deriving the value-added margin for Whitevector, and not only because it is a simpler approach, but because it gives a more accurate result in the case of a company that is still making loss as opposed to being profitable. In the former, more complex equation, if the EBIT is a negative figure, the equation might give out results that are not as concrete as in the latter equation, which does not take note of whether a company is profitable or not.

In the case of profitable companies, both equations provide identical answers, and thus the results obtained from two different equations are considered to be comparable.

Calculate each involved company's share of value created by Whitevector's Chat Reports service with the following formula (3):

$$\text{Share of total value} = \text{Provider's value-adding margin} * \text{Provider's cost for Whitevector} \quad (3)$$

Finally, using the *share of total value* and the *country of origin* of the company's operations related to the production of Chat Reports, determine the geographical distribution of created value by assuming that the *share of value added* is distributed directly to the company's *country of origin*.

To be more elaborate on the choice of formulae and variables I will explain the approaches used in the previously described action points in the following sections with a few examples to explicate why and how these formulae were approached in order to reach credible end results.

Finding key financial indicators and determining value-adding margins

First, the key financial indicators such as *turnover, staff costs, operating profit*, etc. were chosen since analysis of these figures provides a relatively accurate understanding of the value creating potential of each company under closer inspection. This becomes evident in the second part of the process, where the operating profit of each company is modified in terms of neutralizing the cost effects of three major cost components: *staff expenditure, depreciations* and *rent of facilities* used (figures that are not included in the EBIT figure), and then comparing this overall indicator with each company's earning potential, i.e. *turnover*.

By dividing the modified EBIT-figure with turnover, we are left with a figure that indicates the marginal amount of value created by the activities of each company's value chain that stays with the company in question. In other words, this figure represents the *value-adding margin*.

The reason why the EBIT-figure alone is not used, but instead certain cost factors (all except *materials and services, operating costs* as well as *extraordinary expenses*) are neutralized from this figure, is because these costs do not as such represent the interactions between one company and the participants of its value chain, but mainly the costs of doing business as that one particular company regardless of who is responsible for providing key value adding inputs (i.e. items such as staff costs or rent are expected to occur in any company that is operational, and stem from within the company, while the other aforementioned items stem mainly from other value chain participants).

Calculating shares of value created by Whitevector's Chat Reports service

Once it is known how much each company within the value chain is able to capture value from within their own value chains, shown by the value-adding margin, we would then proceed by looking at how much of the payments made from

Whitevector out to its key value chain members is represented in terms of value added created by the case company's Chat Reports service. In other terms, by multiplying each company's value-adding margin with their share of Whitevector's overall turnover in terms of costs incurred, we are able to find exactly how much any particular company is actually creating value within Whitevector's value chain.

For example, if a particular value chain participant has their own value-adding margin of 51%, and the Whitevector's cost of doing business with this company is represented by 4% of Whitevector's annual revenue, these figures are then multiplied (0.51 x 0.04), and we are left with a result of 0.0204 – or 2% – as that particular company's *share of value created by Chat Reports*. Furthermore, we can attribute the remainder of that figure to the *2nd tier providers*, meaning the providers to Whitevector's providers. This way we can see how much of the value generated by Chat Reports trickles beyond 1st tier providers.

While Whitevector's own value-adding margin is expectedly below 100%, since the company is not fully independent in creating the service it sells, what is left between Whitevector's own margin and the full value added is then, in this manner, distributed among the value-adding participants by summing up these shares of value until the full embodiment of value created by vending the Chat Reports service is found.

The actual results and any possible additional considerations to be made in Whitevector's case are presented in full detail under chapter 4, while this chapter is devoted to finding out *how* these results were found and gathered, instead of *what* those results actually were.

It should be noted that in order to find results for this particular problem, both in closer view of Whitevector as for any other case study to be made with similar methodology, it is critical to gather additional data from the case company itself. Data, that is at the same time not necessary to find for the other value chain

members under inspection. This key data is the costs incurred to the case company in terms of *each value chain participant separately*. In other words, in order to know how much a certain provider within Whitevector's value chain is responsible for creating value, we need to know exactly how much that particular company is taking out of Whitevector's revenue. In this case, it was possible to find out this data very accurately, as I was able to access Whitevector's detailed financial records for the year 2010 at great depth.

In other similar cases to be made, such detailed data, which is often thought of as being confidential and even delicate, might not be available as easily. In case it is not possible to get this data from the case company itself, one could ask the value chain participants themselves either accurate costs or estimates thereof, which can then be used to evaluate each value chain participant's share of created value. Even if these figures are not as accurate as the ones I was fortunate enough to work with, they would most likely suffice as long as the estimates were representative enough to be utilized with the objective of gaining reliable results.

Once both the added-value margins as well as the shares of created value have been determined through the calculations described above, we could proceed onto the question regarding *where* exactly was the value created, when looking at the value chain for the Chat Reports service.

Determining the geographical distribution of created value

Finally, after the previous calculations have been finalized, what remains to be determined is the geographical distribution of value created, when the Chat Reports service is sold onwards. What this entails is mainly comparing the *shares of created value* of each value chain participant with the main country of operations of each particular company in question.

For example, if Whitevector purchased a certain value-adding product from an Indian company, and that company was found to be responsible for 2% of the

overall value created by Chat Reports, we could say in addition to that particular Indian company, also *India as an economy* would then *receive* 2% of the value created by Whitevector, a Finnish company.

With this general idea in mind, we could then go through all of the countries where the value created by Chat Reports was being received, and ultimately answer the question *where is value created in the global value chain*, at least in the case of Whitevector. However, it is important to remember, that with this same practice, it would be possible to solve the same question for any other company regardless of its industry or size, as long as the needed information described earlier is available, and the aforementioned calculations have been performed correctly.

However, it should be noted that quite often companies might be found to have their activities distributed in quite a few countries, and the activities performed in each country can represent various different functions. For example, a company manufacturing computers can have its headquarters in the United States of America, a sales office in Finland and a manufacturing plant in China. Thus, when distributing the share of created value for a certain company in relation to the overall value created on a case-by-case basis, one should look at both *what* is being put in to the value chain as a value-adding component – in this quick example it would be said computers – and *where* that particular component is coming from.

In essence, if a Finnish company has a U.S. computer provider creating value for whatever they are producing, it is not the headquarters or the sales office that provided the physical end product that gets put into the value chain of the case company in question. Instead, it is the company's Chinese manufacturing plant where those computers actually came from, and so it should be considered that the American company provided value added to the Finnish company through China.

It could be argued, that if the Finnish sales office makes the sale, or that the U.S. headquarters eventually are the recipients of the payoff, then the value share

should then be attributed to either one of those countries, and not China. However, the reason behind seeing China as the country where value was created in this case comes from the fact that in the previously described calculations, the value-adding margins was already determined for each value chain member. This calculation takes into account the material costs present in their own value chain, and neutralizes the impact of the costs incurred by running the main organization (i.e. the headquarters or the sales office).

Hence the activity that has taken place in China is the most important one in terms of value creation, while the other mentioned activities can be seen as something of a supporting structure that enables the actual value-creating manufacturing process to be in place. This is why China should, in this example, be the *ultimate recipient economy of created value.*

Another important assumption to point out regarding this particular point when determining the geographical distribution of created value. If the value-adding company in question has value-adding operations in one country, the share of value added is attributed directly to that country or region. If, however, the company has similar operations in multiple countries or regions, the share of value added is then either divided equally among those areas, if one cannot pin-point the precise country where their value chain inputs were created.

In other words, if it can be safely determined that the activities pertaining to Whitevector's value chain have taken place in a distinct country or region, then the share of value added is attributed to that area in particular. If not, but the possible areas of input origins are known, it is a safer assumption to share the created value among those areas.

Practically in every case it should be quite easy to determine where a particular value chain participant has placed their operations, as it is to determine which operations are situated in which region, and thus it should be possible to gain

understanding on where the created value belongs. Even if this is an estimate at best, it should still provide a meaningful result once all data is put together.

Also, in terms of Whitevector, the company's value chain in the service production sense was surprisingly very Finnish, and as such it was actually quite easy to determine where the value created by Chat Reports would be distributed to. Even though Whitevector is dependent on many different companies across the globe, such as Dell for their servers or multiple software companies for software licenses, the cost structure Whitevector has in place for service production allows one to disregard most of these parties as non-relevant in terms of actual value added distribution.

For Dell's servers, Whitevector had put those into their balance sheet as investments, and thus they would appear on the company's income statement through *depreciations*, and not *purchases.* As for many of the foreign software licenses, Whitevector has extensively used open source licenses, which are totally free, and via the Production & Development Team, the company has turned those open source software licenses into value-adding parts of the service production value chain internally. Thus, the value added through those free licenses is kept within the company itself.

Analysis and interpretation of results

Once the overall process of determining *which* parts of a value chain were responsible for creating *certain amounts* of value and *where*, the results can be summarized in a set of two circle graphs: one that presents the distribution of created value on a company-level (Whitevector and value chain participants), and another that shows the distribution of created value on a country-level if not a regional level.

By summarizing the results in this fashion, I was able to note how much Whitevector was actually creating value by itself when vending the Chat Reports

service, which value chain participants were taking their share of created value, and how much exactly, and finally, how much did Finland's economy benefit from the value created by Chat Reports, and how much of it benefited other economies.

The actual process of analyzing the results, once gathered in one place as graphs would then be quite straightforward. One would have to look at each circle graph and determine whether any value-creation shares, either in terms of company or country, were surprisingly high or surprisingly low, or as expected.

However, expectations were quite difficult to place on this particular case study, in terms of end results, as this type of research has not been done before on service-providing companies. If the case study was done on a similar object as previous studies of this nature, then I could have had some sort of benchmark to compare my results to.

3.3 Evaluation of the chosen research methods

In order to tackle the main research question, there are essentially two main problems to solve. First, we need to know what Whitevector's value chain consists of, and second, we have to calculate how created value is distributed within that value chain.

So that these two problems could we solved, there have to be appropriate approaches to each. First is the qualitative approach, which is needed for modeling a firm's value chain, and secondly, calculating value-creating capabilities of the case company and other value chain participants, which calls for financial data analysis.

Perhaps the main link between these approaches to research is the fact that they are interdependent of each other. Without a clear model of the case company's value chain there is no knowledge on which other firms than Whitevector to place

under financial data analysis in the first place. Vice versa, without quantitative analysis on how much each value chain member is able to create value, we are left with just a value chain model, which does not tell us much more than who are the strategically important providers, resellers and clients of the case company.

Furthermore, since this particular research project was designed by ETLA, these aforementioned main problems to solve and the methods for solving them were described in the research briefing. What I had to do, then, was to identify these methods as being considered either qualitative or quantitative, define which particular methods under these approaches were used and finally understand the benefits as well as limitations to each chosen method.

The main advantages and possible shortcomings to keep in mind regarding the used methodology for this case study, both in terms of qualitative and quantitative approaches are briefly discussed in the following, before moving on to closer inspection of the empirical results.

First, gathering data for building the value chain model for Whitevector via interviewing the company's CEO was used because through this approach I was able to get answers to the key questions regarding the main strategic parties involved in producing the Chat Reports service.

The CEO was the person who had these answers due to his role within the company as the director in charge of strategic-level issues. Conducting an interview with this person would then be the right approach, when trying to understand the other companies Whitevector relied on in order to build and keep up the main source of value added.

The main limitation this approach has, however, is the possible subjectivity of the CEO, who was also the founder and one of the shareholders of the case company. Also, the fact that only one person was interviewed, when looking at a whole value chain might provide an extensively one-sided view of the interactions within the

chain when describing the bonds and importance between Whitevector and its different value chain participants.

However, we must keep in mind, that Whitevector is a small company, and as such has a limited amount of employees. This means that the decision-making structure of the company is quite straightforward, and roles distributed among the management team were very clear. The CTO of the company was responsible for the Product Administration and Development Team, while for example the COO was in turn in charge of managing the day-to-day operations within the firm across the different functions of the company. This means, that the CEO was at the same time the *only* person who, in a company of this size, was expected to have the needed answers ready, when constructing a model of Whitevector's value chain.

Furthermore, the reason why other companies within this value chain were not approached for an interview was the fact that Whitevector is a relatively small client for these companies, and thus it was safe to assume that these companies would not have had much to say about the strategic-level workings of being a part of Whitevector's value chain.

All in all, Whitevector could be seen as just another client among many others to each of these value chain members, instead of being of great importance as a source of revenue or even a strategic partner. More importantly, Whitevector has by itself created many of the technologies needed for the service the company is vending. Because of these reasons, I decided that not much would have been gained through conducting further interviews, and that the data gathered through one interview was enough to present a credible and correct answer to one of the two main research questions that needed answering.

Second, as for the way quantitative data was gathered and analyzed, I felt that using the formulae (provided by ETLA), which relied on key financial figures of both Whitevector and other value chain participants, was a very accurate and

elegant way to determine and distribute the shares of created value throughout the value chain.

This is because the formulae essentially looked at the value-creating ability of each value chain participant by comparing the sum of a company's operating profit and the costs related to running their production process with the company's overall turnover. This is able to tell, both in currency as well as percentage, how much of the created value each company is able to actually keep for itself, since this formula disregards other costs of doing business that might be irrelevant in terms of that one particular value creating product or service (i.e. cost such as staff expenditure or depreciations of investments were neutralized from these figures).

After these figures were established, it was easy to determine how much of the costs inflicted on Whitevector actually brought in value when producing the Chat Reports service, when the costs divided by Whitevector's turnover were multiplied with the value-adding margin of each company separately.

This figure was quite simple to calculate as long as the exact costs from Whitevector's viewpoint were known per provider. However simple, this particular formula was able to tell us exactly how much of the generated costs actually brought in value added, which was essentially the second main research question to answer – *where is value created?*

As these formulae were quite effortless to grasp, and the needed data to put in was openly available through secondary sources – mainly two different company information databases (Orbis and the Finnish YTJ).

However, noting that Whitevector is a startup company still generating losses, the charts explaining the value distribution throughout the value chain or geographically seemed to be missing a piece, when the first formula that noted each company's EBIT was used. Therefore, by using the second method, which considers only a company's turnover and purchases, was chosen as the better

option to use when calculating the value-added for Whitevector, and Connexor, which are the two companies generating losses in Whitevector's value chain.

The trick behind choosing either one of these formulas is actually quite simple, since the first one takes each company's EBIT into account, while the other one doesn't. In the case of profitable companies, these equations provide identical results. However, when a company is generating losses, its EBIT is a negative figure, and this drives down the result margin and thus generates a questionable grey area in the distribution of value added.

However, since the second equation provides the exact same answer for profitable companies, as does the first one (that notes EBIT), it is the more reasonable equation to use since it only notes a company's turnover (always a positive number) and their purchases (always a negative number). In essence, the second equation provides the same end result for profitable and loss-making companies alike.

Still, the first equation would be recommended to use as the data required for solving it is useful data to have in case studies such as these, as one would have to find out more data on each company than merely their turnover and purchases. Having more knowledge on each company's staff expenses (when available, which is not the case for companies following the U.S. GAAP accounting standards), operating profit, depreciations and so forth, would be useful for any researcher working on a case study regarding value distribution. Thus, it is a good idea to at least start out with using the more complex equation to get a better idea of each company in terms of value added margins to be expected from them.

In the following chapter, *empirical findings*, the results regarding both the modeling of Whitevector's value chain as well as the distribution of value added throughout that value chain will be presented.

4. EMPIRICAL FINDINGS

Within this chapter, I will first present the value chain model of the case company Whitevector, which was modeled based on an interview conducted with Whitevector's CEO. Second, the findings based on calculating the value added margins for Whitevector, its providers and formulating the overall added-value distribution for the service Whitevector provides will be presented and explained in detail.

Finally, this chapter will be concluded with an unambiguous formulation of the results found from utilizing the previously described research methods. In other words, in the end of this chapter the presented results will be summarized and presented as one coherent package containing the main findings from my research.

4.1 Whitevector's Value Chain Model

In order to provide a clear yet concise depiction of Whitevector's value chain and explanations of its most critical components that help build the value added provided by Whitevector's Chat Reports service, I conducted an interview with the company's CEO. The interviewee was asked a set of questions provided by ETLA, the research commissioner, and this interview question set can be found in Appendix 1 for reference.

The questions asked did not only help to build Whitevector's value chain, but they also helped to explain how the value chain came to be what it is today, which value chain members are most crucial and why, as well as what the future looks like for Whitevector and the value chain it operates in. Based on his description of the value chain Whitevector is embedded in, I was able to construct the following value chain overview, as presented in Figure 6:

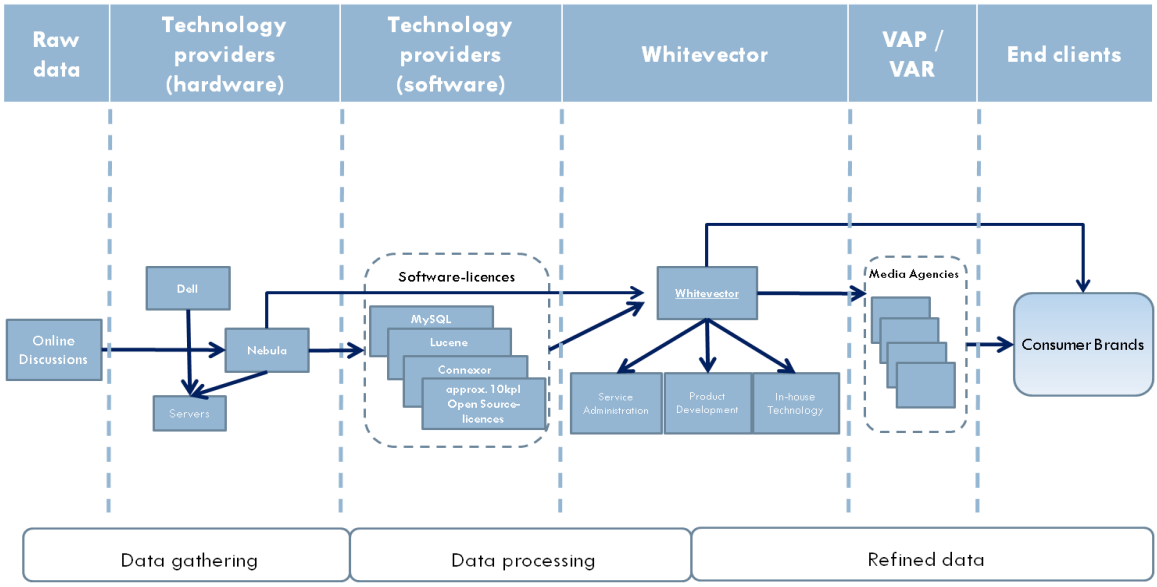

Figure 6. *Whitevector's Value Chain*

This value chain model shows the most crucial product and service providers Whitevector's main source of revenue Chat Reports is dependent on in order to function properly, the components needed for the upkeep of the service within Whitevector itself, and the two sales channels Whitevector is able to vend its service through. A larger-scale and more print-friendly version of Figure 6 can be found in Appendix 3 for a more convenient viewing experience.

As presented, the value chain model that depicts the passage of Whitevector's main service Chat Reports starting from the main ingredient, *raw data* (i.e. online discussions on multiple different social media platforms), through *suppliers*, *Whitevector itself* and finally, to the *end clients (*i.e. consumer brands). The value chain model contains all of the companies that have made an essential contribution into making Chat Reports a deliverable service.

Since the presented value chain model is an integral part of answering questions related to the distribution of value added gained from Whitevector's Chat Reports service, it is necessary to explain the different segments of the value chain in more

detail in order to fully understand the significance of each component and/or value chain member company.

These segments are as presented in Figure 6:

1) Raw Data (i.e. Online Discussions)
2) Hardware Technology Providers
3) Software Technology Providers
4) Whitevector
5) Value-Adding Partners / Value-adding Resellers
6) End Clients

These value chain segments will be taken into closer inspection in the following sections of this sub-chapter, in order to provide a thorough image of the components that enable Whitevector to vend its Chat Reports service, making it possible to create new value.

Furthermore, presenting the different components of Whitevector's value chain serves another practical purpose as well. Once the different parties involved in creating value through Chat Reports have been outlined, the results found through financial data analysis for each value chain participant (presented in sub-chapter 4.2) will be made clearer than without the following explanations.

Raw data and Hardware Technology Providers

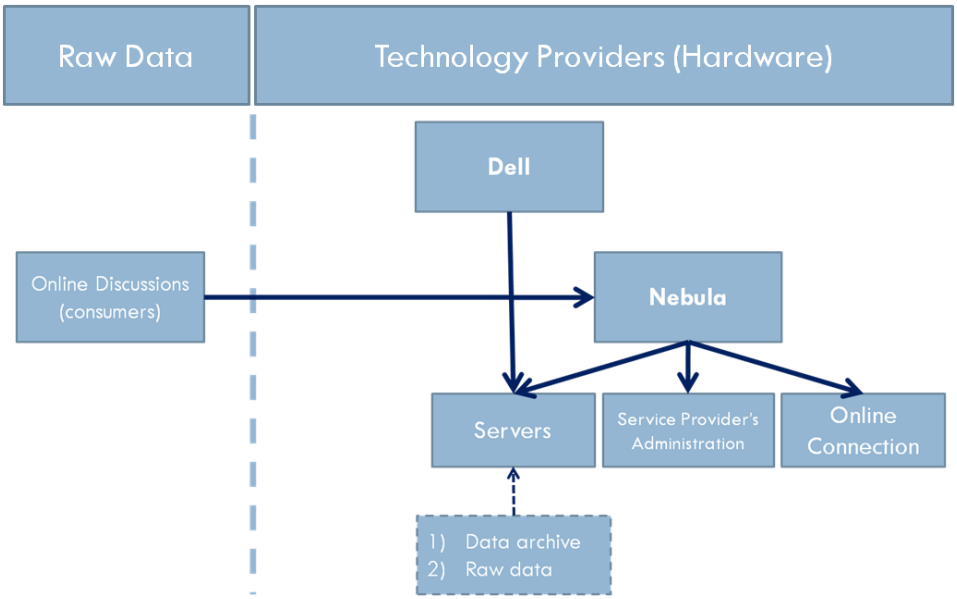

Figure 7. *Raw material and technological hardware providers*

Whitevector's service Chat Reports provides data based on online discussions. These discussions, in Whitevector's value chain can be thought of as being the *raw material*, which is in turn processed into an *end product*, so to speak. These online discussions are then referred to as *raw data*, provided by consumers who communicate with each other on the multiple different public online platforms that as a whole can be referred to as *social media*.

In fact, the company's CEO provided an example of comparing Whitevector to a more traditionally industrial type of company:

"Generally speaking, if we see ourselves as a company that sells information, which is refined or processed in a certain way, then you could say that we dig information out of the internet in the same way as mines and refineries dig out minerals and materials from the earth."

Perhaps the most interesting feature about this particular raw material, especially in terms of Whitevector's cost structure, is that online discussions are made public for everyone, and only very rarely restricted on a *members only* basis. This means that as long as the relevant online discussion channels are found, Whitevector is able to crawl through these discussions and archive the content for free – at the time of writing, no license fees have been required from by social media platform, making the raw material cost-free for Whitevector and similar companies.

However, before Whitevector is able to effectively tap into these discussions and process them in the form that they are being presented in on Chat Reports, a proper infrastructure is required. This infrastructure is provided by *technology providers* both in terms of *hardware* and *software*.

First, before any software solutions can be put into use, the infrastructure required for running Chat Reports needs hardware solutions in which the online discussions can be stored and later processed and distributed. In this segment of Whitevector's value chains there are two important providers.

Dell Inc., the American technology corporation provides Whitevector with the physical servers which are needed for saving the online discussion archive as well as placing the data processing instruments and the Chat Reports-platform on. Without these servers, there would be no way to access Whitevector's service via the Internet.

The other key provider in terms of technology hardware is *Nebula Oy*, a Finnish Internet Service Provider (ISP) concentrated on providing Finnish businesses with various internet connectivity solutions. Nebula provides Whitevector with a service package which entails room for and upkeep of the Dell servers mentioned earlier, local technical administration, and finally, the online connection needed for linking the servers with both the outside world and Whitevector's *Product Development & Administration Team*.

These two providers are responsible for the upkeep of the physical infrastructure and connectivity needed for running Chat Reports.

Software Technology Providers

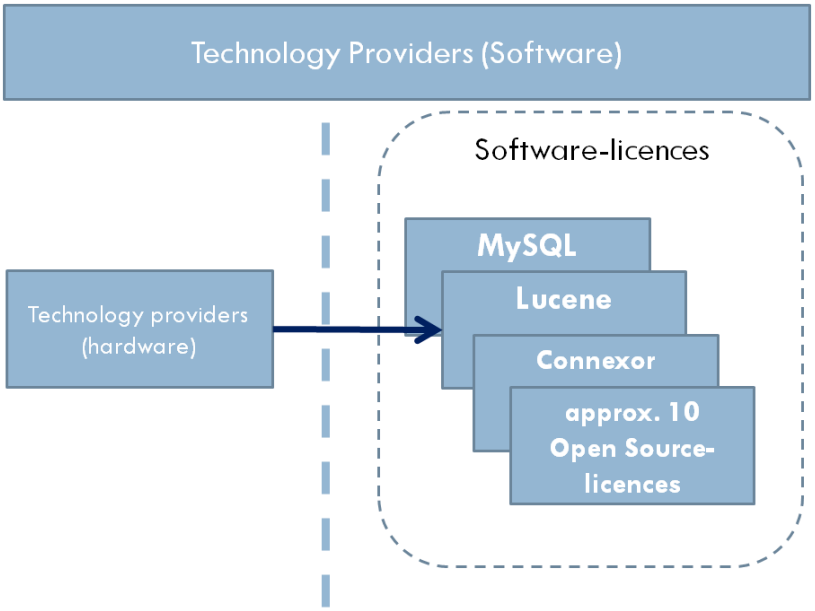

Figure 8. *Software technology providers*

After the hardware technology providers, the following essential value-adding segment in Whitevector's value chain is the *Software Providers*. This segment consists of more than a dozen of different software developing companies or communities. In this context, software developing *community* refers to a group of software developers who provide a free, open source software license that is distributed for no profit.

Whitevector relies on its software providers for multiple different aspects of creating and maintaining the infrastructure needed for the upkeep of Chat Reports. This set of software is necessary for e.g. data archiving, language detection, creating charts based on quantitative data, just to name a few purposes. In short,

the set of software used for Chat Reports is as one component the one which gathers, sorts and processes online discussions into the reporting format provided for the end users of Chat Reports.

As for the *raw material,* also the *software providers* present an interesting insight into Whitevector's cost structure. The vast majority of software licenses used for Chat Reports are free to use, and thus the only costs related to free software is indirect, and stems mainly from the labor costs by the Product Development Team, when this software is taken into use.

However, naturally some of the software needed for the infrastructure built for Chat Reports does come at a cost, even though there are only a few of these licenses in use.

In short, there are three essential companies to name in terms of value-adding software providers:

First, *Connexor Oy* is a Finnish company that provides Whitevector with a *language parser*, which is used in processing raw data into content categorized by element (such as discussion content, publish date, discussion heading, etc.).

Second, *Infinite InfoSoft Services Pvt. Ltd.,* an Indian company, provides Whitevector with the graphical engine used to build the charts that are shown to Chat Reports users. Both Connexor and InfoSoft are companies that Whitevector makes payments to for their key inputs considering the functionality of Chat Reports.

Third, *MySQL*, an originally Swedish company (currently owned by the American *Oracle Corporation*) provides Whitevector with the data management and archiving platform needed for storing and categorizing the online discussion content. Unlike the previous two, MySQL can actually be grouped with the selection of other providers which offer free, open source licenses to use. In other

words, companies such as MySQL, while providing valuable software solutions as such, are not receiving payments from Whitevector, as the company's Product Developers are able to make do with only the open source licenses, which do not add costs to the service production process of Chat Reports.

The combination of these, either free or paid-for software licenses enables Whitevector to build and upkeep the process needed for gathering online discussion content, process it and make it available to its customers in the form of the Chat Reports service. In the following segment we will take a closer look at Whitevector itself, where the *Product Development and Administration Team* is responsible for converting the inputs gained from the provider-side of Whitevector's value chain into outputs in the form of Chat Reports.

Whitevector's Service Production

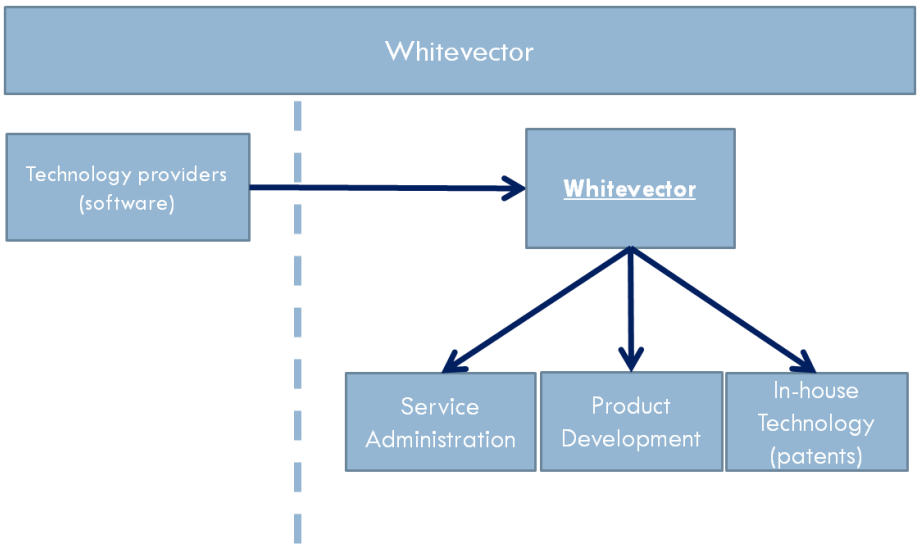

Figure 9. *Whitevector's production function*

Once the outside parties for keeping up the infrastructure needed for running Whitevector's Chat Reports service are in place, and all the needed technology is provided, the actual in-house development work can be conducted. This overall task falls on the shoulders of Whitevector's *Product Development and Administration* function. This part of the company is essentially responsible for executing three main processes: service administration, product development, and generating in-house technology (i.e. Whitevector's patented solutions).

The service administration part of Whitevector's Service Production is responsible for making sure that Chat Reports is online and accessible to Whitevector's clients at any point in time. Basically, if Chat Reports was not monitored constantly, anomalies in the web service's functionality would go unnoticed, and thus the user experience would start to deteriorate. Through service administration, the any programming bugs or other problems with using the online service do get noticed and fixed.

This task also includes the responsibility to make sure that all of the technology provided by Whitevector's providers is synchronized and properly working, meaning that the service administrator is now and then required to be in contact with Whitevector's technology providers in case certain issues related to Chat Reports' functionality stem from not within Whitevector but from the inputs provided by external parties.

The product development responsibility of this particular function makes sure that Chat Reports as a service keeps up with both how the social media outlets are evolving and what Whitevector's clients demand. More importantly, this particular task makes sure that all of the components described earlier are combined into one working infrastructure, which enables Chat Reports to be an online service in the first place.

As for new features in terms of different approaches to tracking and analyzing social media, they are also created and brought into the online service through product development. Furthermore, in case a certain social media platform, such as Twitter, makes changes to the way their data can be scanned through, the product development team makes sure that data flows remain constant by creating new solutions into how the changes made by external parties (which provide *raw data*) can be neutralized.

As for in-house technology, Whitevector's Product Development and Administration team is also the function that produces any new patent-worthy innovations used in Chat Reports. Once certain service features or solutions have been thought of, the development team designs and creates these solutions, and if possible, applies patents for the most valuable intellectual property created under the company's name.

While this part of this particular task remains perhaps a bit ambiguous, simultaneously it is very possibly the main source of where the value added that Whitevector is able to create comes from. This idea will be looked at more carefully towards the end of the thesis, as there are a few more results to be presented before jumping to this particular conclusion. However, at this point it should be pointed out, that without the innovative thinking, that has produced in-house solutions that make Chat Reports work as it does, all of the previously mentioned

Finally, it should be pointed out, that even though there were also other functions of Whitevector presented in Figure 1, in terms of value creation, these functions are not taken into account within the value chain model as *primary activities* (Porter, 1985), as these functions are not exactly *creating* value through *building* Chat Reports.

These other functions are namely responsible for sales and customer support, which are tasks that do not contribute anything to the creation and upkeep of the

service, while the Product and Administration function has this responsibility to themselves.

Value-Adding Resellers (VAR)

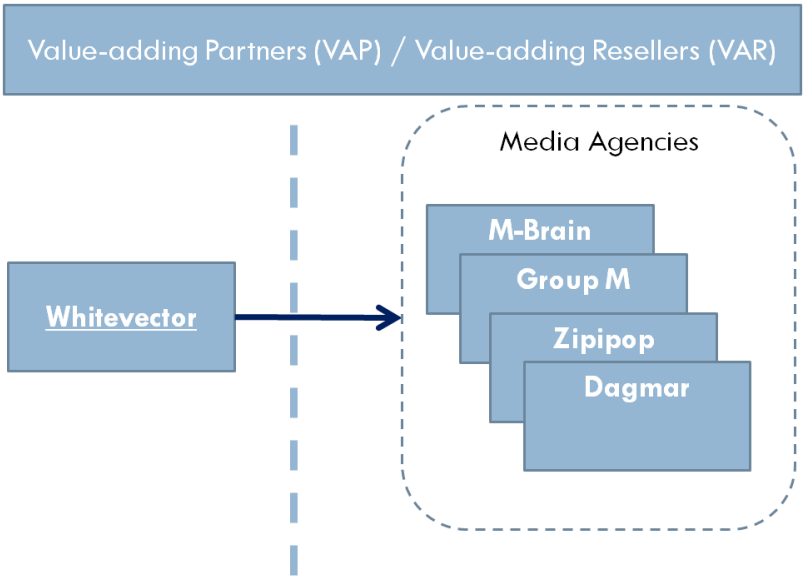

Figure 10. *Media agency clients*

Now that the production side of Whitevector's Chat Reports has been outlined from the needed raw material of online discussions to the key input providers until Whitevector's production function itself, it is time to move on towards the clients. Basically, Whitevector vends its Chat Reports service to two groups of end clients, one being the consumer brands themselves (*end clients*), and a various group of media agencies, or *"value-adding partners or value-adding resellers"* as Whitevector's CEO put it.

However, this term is in this case study's scope perhaps a bit misleading, since the media agencies are considered to be one type of end client that is merely a bit different from the *consumer brands*, but are nonetheless considered to be a part of the value chain in between Whitevector and the consumer brands since the media agencies help to drive sales for the Chat Reports product towards the end client.

These media agencies are based all over Europe, and are the main source of international sales for Whitevector. What these agencies provide, is a channel of sales towards the end clients that Whitevector is not selling the Chat Reports service directly to, but instead sells licenses as one part of the media advertising plans that media agencies offer their own clients.

Even though this group of clients is referred to as being either value-adding partners or value-adding resellers, the CEO of the company does not exactly see them as key value contributors, by stating that:

"Partners, be it any agency, are indifferent in the value chain perspective. It does not matter to us which approach they use to sell our licenses, since we consider media agencies to be our end clients as well, but we merely use different business models to make sales to agencies."

In other words, the pricing model for selling the Chat Reports service is a bit different for end clients than it is for media agencies, but both groups can be thought of as being different sides to *the end client*, as the price for each license is nearly identical in the end. Media agencies get charged less for each license, but are easier clients to manage in terms of customer support and sales, while selling straight to consumer brands requires more effort, and thus this client group is charged more.

However, in this case study, the resellers of the Chat Reports service are seen to be recipients of the value created by Chat Reports, since the payments made to Whitevector from its end clients are similar to the payments received by media

agencies which are selling Chat Reports. These clients found by media agencies are then driving the value creation of Chat Reports to some extent, and how much this part of the value chain is delivering will be taken into consideration in the analysis of value distribution.

End Clients

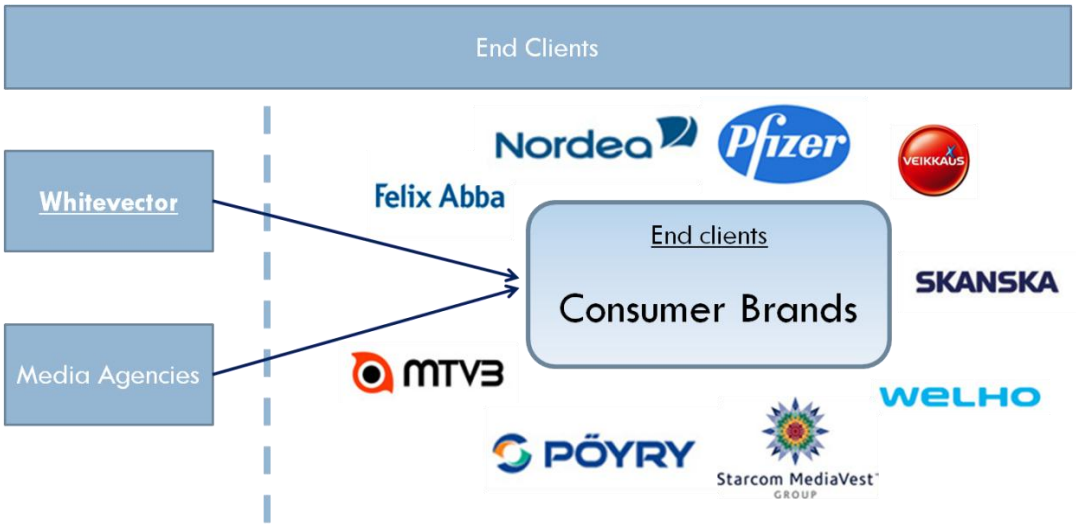

Figure 11. Consumer brand clients or end clients

Finally, we reach the *end clients* in the value chain model for Chat Reports. These are the consumer brands which consumers are discussing about in online discussions, and the quantitative and qualitative data regarding these discussions is gathered and compiled by Whitevector, and sold to these end clients in the form of the Chat Reports service.

The consumer brands essentially make the payments to Whitevector that represent the value added created by having the Chat Reports service up and running. In essence, this is where the value chain from the perspective of Chat Reports ends, as the clients of Whitevector's clients (i.e. consumers themselves) is

not what Whitevector is concerned about. What Chat Reports and Whitevector together strive to provide is, in the CEO's words, as follows:

"Even though the end clients of our end clients (consumer brands) are consumers, and in between we have the media agencies whose end clients are these consumer brands.

One thing to remember, however, is that we are not exactly a part of a production value chain, in the consumer's perspective. Consumers do not base their buying decisions on anything that we provide for the consumer brands.

The only reason why we exist, as Whitevector, is that we help our end clients – the consumer brands – in optimizing their own processes regarding marketing and communications."

Simply put, Whitevector's role in the value chains of their end clients is more of a supportive one, and thus could be linked to their own *secondary activities*, as described by Porter (1985). What this means is that consumer brands buy services from companies such as Whitevector to make sure their secondary value chain activities are optimized, while their production is dependent on the so-called *primary activities* (Porter, 1985).

Thus, Chat Reports is not among these activities, and because of this, the consumers are not noted in this particular value chain analysis. For a better view of how exactly are Whitevector's activities spread globally, please refer to Appendix 5.

This concludes the outline of the value chain needed for producing, maintaining and vending Whitevector's Chat Reports service. Now that the model is complete, it is time to move on and see where exactly is value created within this particular value chain of participants.

4.2 Value added Margins for Whitevector and its providers

Following the method of result presentation of Ali-Yrkkö (2010a), these results gathered will also be presented in two sets: first, the value distribution throughout the actual value chain, and second, the geographical distribution on a national economic level.

Distribution of value added throughout Whitevector's value chain

The results for the value distribution among a Finnish company, Whitevector, which offers an online service, Chat Reports, and the other key participants within the related value chain, were in two words, quite surprising.

By offering an intangible service, without the need for a specific *bill of materials* to be paid for each product sold, but instead having built one service that is scaled to cater to a large client base, Whitevector was by far the largest recipient of value added created by their Chat Reports service, as can be seen from Figure 12 below.

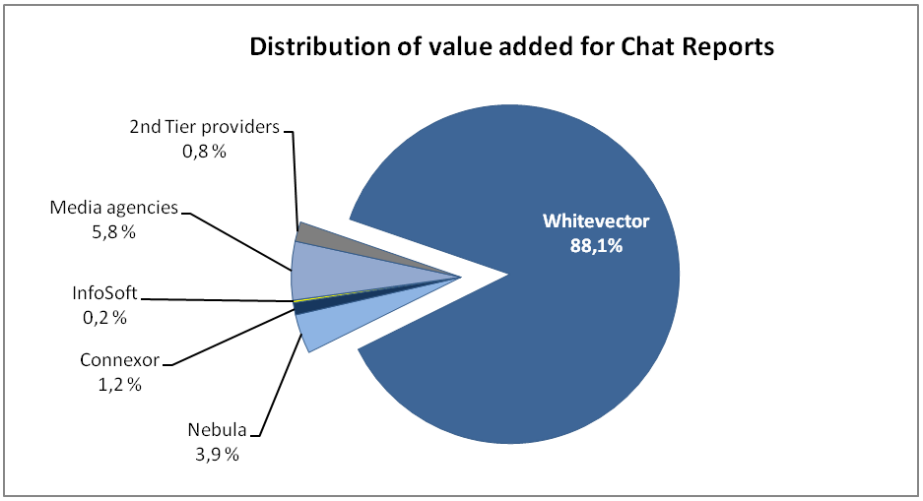

Figure 12. *Distribution of value added for the Chat Reports value chain*

As Figure 12 shows, as much as 88% of the value added created by Chat Reports is captured by Whitevector itself, while the remaining 12% gets distributed among

three providers (Nebula, 4%; Connexor, 1% and InfoSoft, 0.2%), their 2nd tier providers (1% of value added), and media agencies (6% out of value added).

There are quite a few reasons for such a staggeringly high margin of value capture by Whitevector. First of all, the online service provided can be seen, as the CEO of Whitevector put it "… just one machine that is up and running and caters to any number of clients while the service production costs remain the same for us." In essence, the Chat Reports service is scaled in such a manner, that the costs of service production do not grow in the same pace as licenses are sold. In fact, the cost of service production remains relatively stagnant no matter how many users there are for the service at any given point in time, and in this conclusion the costs related to other functions of the company (such as sales, support and marketing) are not seen to have a major impact on the actual service production of Whitevector's main source of revenue.

The second reason for such a high amount of value captured is that the service, which enables the tracking and analysis of social media content, is still quite novel, and calls for internal development more than the inputs from external providers. Simply put, Whitevector has itself created most of the functionalities found in their service, while the key providers within this particular value chain are providing Whitevector with relatively basic inputs such as the online connectivity between Chat Reports and its users (Nebula), or a simple chart-generator software which costs (InfoSoft) Whitevector less than 2000€ per year out of a 570,000€ revenue base. Also, the set of providers for enabling Chat Reports is quite small, as there were only three such value chain participants to name.

Third, as Chat Reports is distributed via the internet, there is no need to have a traditional distribution process in place, as the internet connectivity provider Nebula actually handles the so-called distribution of the online service by providing their connectivity input into the value chain.

The figures used to achieve these results are presented in Appendix 4, for further reference, although it should be noted that some of the more sensitive data regarding the case company may have been omitted in order to preserve some level of non-disclosure.

One question might arise when looking at the high margin of value capture for Whitevector, and the fact that the company is nonetheless still not profitable. This refers mainly to the fact that the company is still in the process of paying for previous investments made in order to develop and produce the Chat Reports service in the form it is today.

As mentioned before, Whitevector is a startup company, and currently only in its 6th year of operation. With such a high value added margin, however, it would seem that since the groundwork for Chat Reports has been finished by now, all the company needs to focus on is increasing sales in order to pay for their investments made, and turn the operating loss into operating profit.

In fact, it was suggested by the company's CEO, that the expected growth of Whitevector's operating margin would be brought into attention as well. Building on that idea, ETLA's Jyrki Ali-Yrkkö suggested that looking into the *growth of productivity* would be useful information as well, especially when compared to the *return of capital employed* (ROCE). Seeing as any information pertaining to how loss-generating companies function in terms of this case study is useful as such, these calculations are presented in short under Appendix 6, in order to keep the focus of this chapter on the direct results related to the research question itself.

Now that the distribution of value added for Whitevector's Chat Reports service has been introduced and to some extent explained (with more on the subject in the following chapter – *discussion and analysis*), it is time to present the geographical distribution of value added in terms of this particular value chain.

Geographical distribution of value added

As there are two ways for interpreting the research question, in terms of what does *where* mean, in the *where is value created*-sentence? In the previous section the *where* referred to the '*where within a value chain?*' and in this section the *where* refers to '*where in the world?*' or, more eloquently put, '*in which economy?*' In other words, it is time to see how much of the value created through offering Chat Reports remains in Finland, and how much of it finds its way around the world.

This result is presented in Figure 13 below:

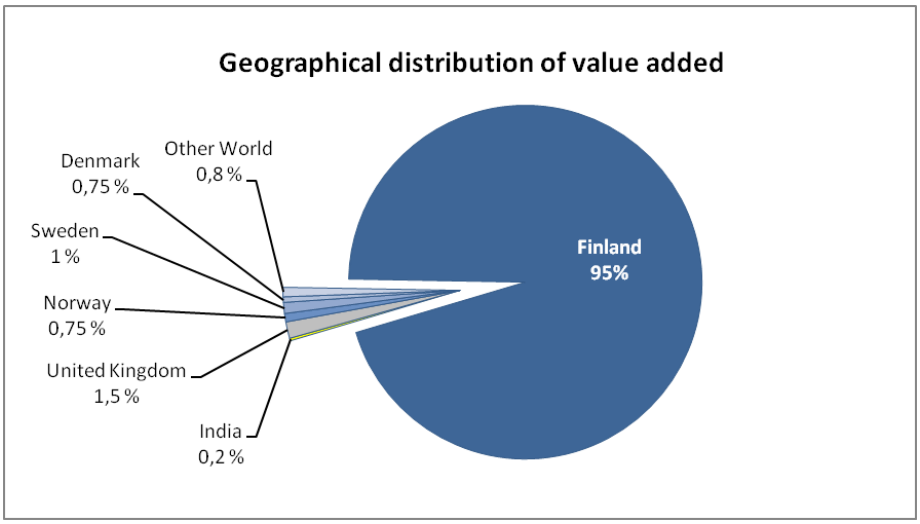

Figure 13. *Geographical distribution of value added gained from Chat Reports*

Perhaps it is no surprise, that Finland receives nearly 95% of the value added from Chat Reports. No surprise in light of the previously presented results, where Whitevector, a purely Finnish company, was the recipient of as much as 88% of the value added – which would mean that the same 88% of the value added from each Chat Reports license sold would remain in Finland. Seeing as how two of the key value chain participants – Nebula and Connexor – are Finnish companies as well, with no operations abroad mentioned on their information sources (websites and annual reports), the 4% and 1% of value added, respectively, could then also be

attributed to Finland. As for the Finnish media agencies, which acted as value-adding resellers, they would also keep their share of Chat Reports' created value within Finland – which amounts to a further 2%.

The remainder, with 4% spread amongst media agencies in different countries (UK agencies 1.5%, Swedish 1%, Norwegian 0.75% and Danish 0.75%), and 0.24% of value added being distributed to an Indian company called InfoSoft (or *Infinite InfoSoft Services PVT. Ltd.* in full), would in turn be attributable to India, while the close to 1% of 2nd tier value added cannot with certainty be pinpointed anywhere in particular. This could be found out, to some extent, by researching the value chain structures of all the other value chain participants, and calculating the value distribution for each. However, since we can assume that the remaining 0.86% of value added is distributed among the providers for three separate companies, this particular part gets distributed *somewhere* in the world, quite possible in dozens of fractions of that 1%. Thus, being able to divide the remaining 0.86% into many smaller pieces is probably not very useful information to gain, as this amount of value added can be thought of as being relatively insignificant.

What *is* significant, however, is that by owning the innovation behind what makes Chat Reports a functioning online service, Whitevector and Finland are able to capture nearly *all* of the value added by having the service up and running, as well as being sold both within Finland, and currently, across Europe.

In the next sub-chapter, *formulation of results*, these results regarding the value chain of Whitevector and the results gained from the analysis of said value chain are summarized in order to combine the two sets of empirical findings.

4.3 Summary of results

This chapter began through structuring the value chain for Whitevector's Chat Reports service, where the service production process in terms of *primary activities* (Porter, 1985).

It was established, that by gathering online discussion data from open social media sources, Whitevector was able to have the so-called raw material needed in order to eventually provide valuable content through the Chat Reports service. In between this raw material and Whitevector, there were a few key value chain participants, namely Nebula (internet connectivity provider), Connexor (language technology) and InfoSoft (chart generator software), and value-adding resellers, i.e. media agencies in the United Kingdom, Sweden, Norway and Denmark (see appendix 5).

What Whitevector did with this content, was to gather, process and then distribute it in a form which is found valuable from the viewpoint of Whitevector's clientele, which consisted mainly of media agencies and consumer brands in Finland and throughout Europe.

Once the value chain was modeled, it was possible to calculate how much exactly each key participant within this service production value chain was able to capture value added from each Chat Reports license sold. The results in terms of Whitevector as well as the Finnish economy were quite promising, despite the fact that the case company in question is not yet a profitable one.

Whitevector itself was able to capture 88% through owning the innovation that made Chat Reports a reality, and since most of the payments made for Whitevector's key value chain participants were Finnish companies themselves, the margin of value added that remained in Finland was as high as 95%. For a comparison on how these presented figures would alter without the effect of media agencies (which the CEO of Whitevector referred to as being not an integral part of the *production* of Chat Reports), please refer to Appendix 7.

The implications of these results will be considered with further detail in the next chapter, *discussion and analysis*, where certain alternative scenarios to the status quo are introduced, and in a wider context within the *conclusions* chapter.

5. DISCUSSION AND ANALYSIS

Within this chapter, the results of the case study will be synthesized into a coherent discussion, and taken into the perspective of what innovation ownership, especially in the case of an online service provider, means for in terms of national economic growth. Also, the current situation of Whitevector and its value chain are brought into a new light by considering a few alternative scenarios in Whitevector's value chain structure, and how these alterations to the current situation would mean in terms of the results presented so far.

Noting that Whitevector is able to capture as much as 88% of the value added by providing the Chat Reports service, it would seem clear that the owner of the innovation behind such services are able to provide immense contributions to their own company's growth as well as that of their domestic economies.

Furthermore, if a similar company that provides an intangible service, which is operated exclusively on the internet and is also based almost entirely on the technology developed by the company itself, there actually does not seem to be many opportunities open for other parties to capture significant amounts of value added from that particular service.

All in all, this is a very attractive notion in terms of company growth as sales activities increase, and it can be considered good news for the particular national economy, which has such companies operating within their borders, as the same amount of value added is contributed to that economy as well.

Additionally, if these companies with such innovative services are able to subcontract some of their primary activities (Porter, 1985) to businesses within the same country, then that particular economy can expect quite significant amounts of value added from the innovative service in question.

Perhaps one of the main reasons behind why especially online-based services are able to capture such a high margin of value added lies behind the fact that these services do not require a similar, physical infrastructure (Papazoglou et al., 2002, 210) as one might find by looking at other, more traditional types of services such as restaurant chains or travel agencies (Bruhn & Georgi, 2006, 153; 171).

Another very significant reason why Whitevector's value added margin is so high is that most of the functionalities and the technological infrastructure found in Chat Reports is constructed by the company itself, and by utilizing free, open source software. For example, if Chat Reports happened to be an online clothing shop, it would be required to make a higher amount of payments to a larger number of value chain participants, such as warehouse rents and upkeep, distribution channels and perhaps even the online shopping platform itself. By constructing the infrastructure and functionality by itself, Whitevector is able to reap the rewards of not only owning, but also by building their innovative service by themselves. Another way of seeing the situation is as the CEO of Whitevector explained it:

"If we wanted to make things very simple, all we would need – if we did not want to improve and update Chat Reports – would be just one computer for product administration and a telephone. Then we could get rid of all of our employees, and hire just one person to make sure the system is up and running, and to answer the customer service phone if necessary."

It might also be a useful exercise to see what might happen, if all of the key providers found in Whitevector's value chain were from other countries than Finland. Even in that case, as much as 88% of the total value added would remain with the Finnish economy, and hence in this case at least, re-configuring the value chain structure would make only a slight difference (maximum of 12% of value added, or 6% without the value-adding resellers) in how much the Finnish economy could benefit from such innovative services.

Also, one could find out whether a loss-generating company is actually providing value to any economy, if not actually consuming economic growth. That may be the case even for Whitevector, but the truly remarkable finding here is, that once Whitevector, or similar companies going through the first phases of growth are able to make profit, the capability of value capture in terms of value added margins could be expected to stay the same. Especially if there are no significant changes within the industries in which these companies operate.

In fact, when asked about the main changes for Whitevector's industry in the past 10 years, the company's CEO replied as follows:

"Digitalization is the most important change to have emerged. Providers of social media content – such as Facebook or Twitter – did not even exist five years ago. The popularity of social media among consumers has started a clear online marketing boom, as the digital marketing contributions have multiplied within just a few years, and are expected to keep growing their share in marketing budgets all around."

Perhaps, then, timing is an important factor as well in creating such an innovative service that caters to a need that is still just emerging, in order for Whitevector – and similar companies – to catch the wave of digital marketing growth in order to reach the actually profitable fiscal years during their existence. What is essential here, however, is each company's ability to capture as much of the value added from their service, as this is a driver of company growth as well – especially if the only way of creating revenue is one service and no other forms of business, similar to what Chat Reports represents to Whitevector. The higher the value added margin for each similar case company generating losses, the faster they will be able to become profitable, for themselves as well as their national economies.

6. CONCLUSIONS

This chapter will act as the ending for my thesis, and as such will summarize the points presented in previous chapters, and add to those some central suggestion based on the results and analysis thereof. These suggestions will be aimed at both the management of similar companies as Whitevector, as well as scholars who would like to research this particular topic further.

Setting off from the main research problem – '*where is value created in global value chains?*' – I attempted to establish the actual meaning of this seemingly simple question as being something a bit more complex. While ETLA has provided an easy methodology to follow, especially through Ali-Yrkkö's (2010a) case study, and once the results are gathered they can be quite effortlessly analyzed, what this type of case study actually attempts to provide answers to is *what drives economic growth?*

Taking this question even further, one may ponder the following: does the most significant value capture opportunity stem from production ownership or innovation ownership, especially in the case of an online service such as Chat Reports? Which is more beneficial for national economies, having companies that own the intellectual property of certain innovative products or services, or having companies that own the essential pieces of the production process needed for turning that intellectual property into something that adds value?

These questions, and which approaches could be taken in order to answer them, were contemplated even further in the literature review chapter of my thesis. First, the original debate on the issue of national economic growth drivers between Reich (1990 and 1991) and Tyson (1991) was presented, further reinforcing the view Tyson (1991) presented (by seeing innovation ownership as a more potential driver for economic growth than production ownership) through later academic literature (e.g. Barney, 1991; Grossman & Helpman, 1994; Stokey, 1995; Cameron,

1998; Madhok & Phene, 2001; Johannessen & Olsen, 2010 and Hasan & Tucci, 2010). While understanding the importance of innovation ownership as an economic growth driver is good as such, much of the relevant literature had taken on the issue from a macro level, while the aim of this case study is to provide a more micro level approach.

Thus, the usefulness of value chain analysis in terms of calculating value distribution – and eventually seeing where value is actually created – was described through previous academic literature on the subject of value chains and the different approaches into analyzing them (e.g. Porter, 1985; Shank & Govindarajan, 1992; Stabell & Fjeldstadt, 1998; Kaplinsky, 2000; Dekker, 2003; Bruhn & Georgi, 2006; Roper et al., 2008 and Lakshminarasimha & Vijayan, 2008). It was established, that with a certain methodology, utilizing value chain analysis in evaluating the value distribution on a case-by-case basis could provide useful information regarding the main research problem.

This idea was enforced by presenting two previous case studies that are methodologically very similar to this particular thesis (Linden et al., 2009 and Ali-Yrkkö, 2010a). The results presented by these two case studies also resemble that of the results found through my own case study, seeing how the innovation owning companies in each case were able to capture the clear majority of value added from their products or services. Finally, the most recent studies regarding the overall subject of global value distribution were put into a short overview (e.g. Dedrick et al., 2007; Helm & Jones, 2010; Johannessen & Olsen, 2010 and Hasan & Tucci, 2010).

The main difference found through comparing results from each case study, was that while consumer electronics products, such as the Apple iPod (Linden et al., 2009) and Nokia's N95 smartphone (Ali-Yrkkö, 2010a) provided the innovation owning companies nearly half of the value added for each product sold, in the case of an intangible online service Chat Reports by Whitevector, the amount of value

added that stayed with the case company showed an entirely different value added margin – which was as high as 88% while every provider in Whitevector's value chain was left to fight over the remaining 12% of each Chat Reports license sold – half of this belonging to the *value-adding resellers*.

This is a good piece of news for Finland as well, as Whitevector is based in that particular country, and two out of three key providers Whitevector had chosen were also Finnish. This is particularly good, because the value added margin on a global scale was heavily weighted towards Finland's benefit with nearly 95% of the value added staying in Finland, while the rest of the world gained 1% through 2nd tier providers and 4% through international media agencies.

In the following sub-chapters, I will further summarize the main findings and theoretical contribution this case study aims to provide, alongside with some suggestions on the subject for management and researchers alike.

6.1 MAIN FINDINGS AND THEORETICAL CONTRIBUTION

In essence, the end result of this thesis, found through the case study, is that innovation ownership seems to be exceedingly important in the case of companies that provide an online service. If the most knowledge-intensive part of the service value chain is owned by the company, also the benefits provided of that online service stem mainly from the mentioned company itself, which translates into a very high margin of value added – at least in the case of Whitevector.

The case company was able to capture as much as 88% of the value added that their Chat Reports online service created, while all of their key providers gained only 12% collectively by being a part of Whitevector's value chain. This high value added margin by Whitevector was achieved mainly by providing an intangible online service, with very little need for physical infrastructure or production,

which would dramatically alter the cost structure of producing Chat Reports – if found. Furthermore, the fact that the product development function of Whitevector had constructed the main functionalities of the online service by themselves, and relied quite strongly on cost-free open source software licenses, there would not be much room for other providers to tap into the value chain with value capturing in mind. Unless, of course, some of the most crucial open source software would be turned into fee-based licensing.

However, given the current situation, Whitevector still commands the vast majority of the value created by their Chat Reports service, and even if they were to switch all providers to foreign ones, Finland would still receive as much as 88% of value added. This value added margin is nearly double that of the earlier works on the subject by Linden et al. (2009) and Ali-Yrkkö (2010a), and even in their cases, the value added margins for Apple and Nokia respectively were quite high.

What this case study provides into the currently limited catalog of similar case studies is a new approach by looking at a provider of an intangible online service, which is also sold exclusively to other businesses, instead of consumers. While the previous case studies by Linden et al. (2009) and Ali-Yrkkö (2010a) were centered on tangible high-technology products sold to consumers, it is a valuable finding to see how much value added can be captured by a company and an economy, when dealing with value adding services that require very little in terms of physical infrastructure – thus diminishing production costs.

What is left then, between a similar company and success with such a high value added margin, is the quality of and demand for that particular service. What this calls for, is an initially high amount of risk taken on by the company in terms of investing heavily into research and development for creating intellectual property as well as in terms of timing when exactly to launch such a service. When Whitevector started, they were very early, and only last year a wider base of clients have found the demand for social media analysis services such as Chat Reports.

In the following sub-chapter, the managerial implications based on the main findings from this case study will be presented briefly.

6.2 MANAGERIAL IMPLICATIONS

There are a few quite interesting points for managers to be taken out of the case study based on Whitevector's Chat Reports. Especially people involved in providing online services – that are produced with a similar logic as Chat Reports is – may find the following four points useful.

First, even though it seems from Whitevector's example that a very high value added margin can be achieved through providing an innovative online service, one might want to think about the remaining value added that is being distributed somewhere else. At least in the case of Whitevector, all of the most crucial and complex functionalities regarding the Chat Reports service were produced from within the company, while the outsourced functions within the value chain were not as difficult to produce – one example being the internet service provider Nebula's internet connectivity services. Moreover, as stated previously, *the costs of service production do not grow in the same pace as licenses are sold*, and thus Whitevector and similar companies need to focus mainly on fixed costs.

If indeed some of the case company's key providers are providing a seemingly basic service, such as an internet connection, it might be useful to research cheaper alternatives which do not run the risk of diminishing service quality noticeably. This would be one way to increase the value added margin of each company involved in producing a similar service as Whitevector is.

However, one has to keep in mind the national economic impacts of doing business as well. So, in case there are multiple providers available for one primary activity within a given value chain, and especially if these providers are priced similarly, it

would make sense to choose a domestic provider in order to increase the value added margin of each case company's domestic economy.

For example, if Whitevector was to switch their internet service provider Nebula to another similar company from a foreign country, the value added margin for Finland gained from Chat Reports would drop from nearly 95% to approximately 91%.

However, as the second point to make, if prices between providers differ greatly, and foreign candidates are able to provide the same or a higher level of service at a smaller cost, it would then be a sensible move to switch to the foreign provider, as the smaller costs lead to higher value added margins for each case company, and thus that difference is returned to the domestic economy once again.

Third, it seems that startup companies such as Whitevector quite often call for heavy initial investments during their first few years of operation (Chang, 2004), and these investments are then redeemed through a high value added margin combined with healthy demand for whatever is being produced or provided. In order for startups with high value added margins to recuperate from their high initial investments in R&D, they should also design an effective sales process early on, as a high value margin means nothing if not enough of a product or service is being sold, yet a very high value margin should make it easy to turn a negative EBIT figure into a positive one.

This brings to the fourth and final point to make from a managerial perspective. That is, that in order to make the most of a high margin of value added, startups similar to Whitevector could make the time used to pay off initial R&D investments quite a bit shorter, if the initial concept of any product or service is described as well as could be imagined before setting off with the R&D process, which seems to be the strongest source of losses for high-technology startups during their first few years (Chang, 2004).

Again, if the ownership of an innovative product or service allows for the highest margin of value capture, this should be leveraged in order to first make up for initial R&D investments and later to make as much profit off of the innovation. If a high amount of resources have been put into developing an unclear product, service, or part thereof, it will take a longer time to make up for the investment made to acquire those resources. Even though having a high margin of value added is still very useful and beneficial, emphasizing the importance of effective operative management of product or service design or development in the early stages can shorten the time needed to make up for initial losses.

Finally, as a conclusion to this whole thesis, I would like to present some suggestions for further research, in order to reach a better understanding on the topic within the academic community.

6.3 SUGGESTIONS FOR FURTHER RESEARCH

As this particular research topic is still quite new, in terms of methodology and the micro-level approach to value distribution analysis through case studies, there are quite a few approaches that are still missing in the current body of research on the subject.

First, since the case studies published in books and journals so far are concentrated on the consumer electronics industry, it would be interesting to see how well the idea of innovation ownership holds true for other industries as well. Especially the more traditional industries (e.g. paper industry) or products (e.g. food products, bicycles or anything with a relatively long existence) would be interesting to study, as it might shed light on a completely new branch of case studies and corresponding results. Also, this approach would be a good test on the hypothesis that innovation ownership continuously provides a high value added margin.

Second, even though researching the value distribution margins of consumer companies provides valuable information, I would like to make a reminder, that the business-to-business companies would also be included in future case studies. This suggestion stems mainly from the fact that just one case study alone cannot provide a very strong answer regarding how much of a difference there is between business-to-business and business-to-consumer companies in terms of value added margins – if any.

Third, there is a call for more emphasis on case studies on the subject of value distribution regarding service providers. Undoubtedly there will be quite a few similar case studies within the near future regarding tangible products, but it would be interesting to see whether innovation ownership for service providers would continuously prove that the value added margins of service companies are higher than those of companies selling tangible products.

Fourth, and finally, it would be useful to conduct further research into companies similar to Whitevector, meaning *internet startups* (Chang, 2004) that produce an intangible online service, which require very little in terms of production infrastructure. Testing the results found through this case study through researching similar case companies could provide further insight into both whether these types of services could continuously provide such very high value added margins, and perhaps even how these sorts of high-risk startup companies should be valued in terms of initial financing needed for the heavy R&D investments.

6.4 FINAL WORDS

We have now reached the end of my master's thesis, which was based on a case study regarding the value chain of a certain Finnish online service provider, Whitevector Ltd., and thus it is time to conclude with these parting words.

The findings from this particular case research were quite astounding in showing what a significant source of growth innovation can be. Perhaps this was unusually well underlined in the case of Whitevector's Chat Reports, as there were only a few similar solutions available throughout the world at the time of writing, and thus this particular service can be considered a very novel one. Thus, the company behind such a service has had to take care of most of the service production steps needed to eventually have Chat Reports go online, and other stakeholders – especially from the providing side of producing the service – have not even had a very good chance of tapping into the value created through this particular service.

What could be derived from the case of even such a novel service, however, would be that the ability to come up with such services and products is a very attractive source of economic growth, both in the micro-perspective of individual companies and investors, as well as in the macro-scope of things regarding national economies where companies that own similar innovation are based.

Furthermore, as more and more case studies of this kind are completed and published, we will start to form an even clearer view of where exactly is value born in global value chains, and is it always the innovation owner who ends up gaining the clear majority of value added – no matter how novel or standard a certain product or service is?

Hopefully the line of similar case studies yet to be written will offer this clear and much needed new perspective, as this line of research can indeed have an eye-opening impact for entrepreneurs and policy-makers alike.

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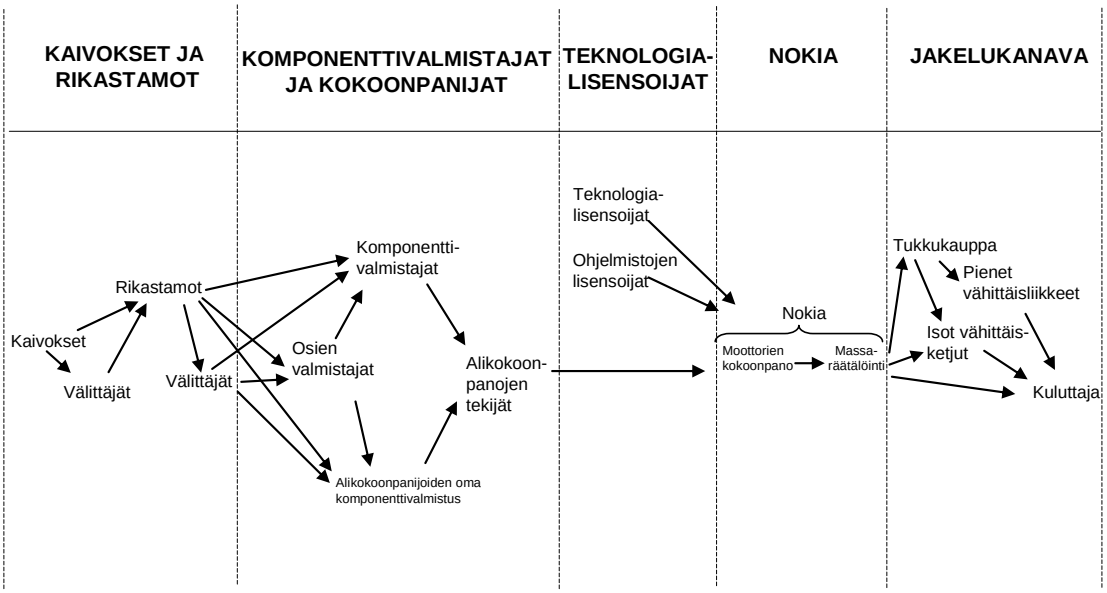
LIST OF APPENDICES

Appendix 1. Interview Themes and Questions

Note: This set of interview questions was translated into English from the original Finnish question set provided by ETLA.

Theme 1: Structure of the Requisition-Delivery-chain currently

1) What is the Requisition-Delivery chain for the case product/service structured using the following figure as an example?



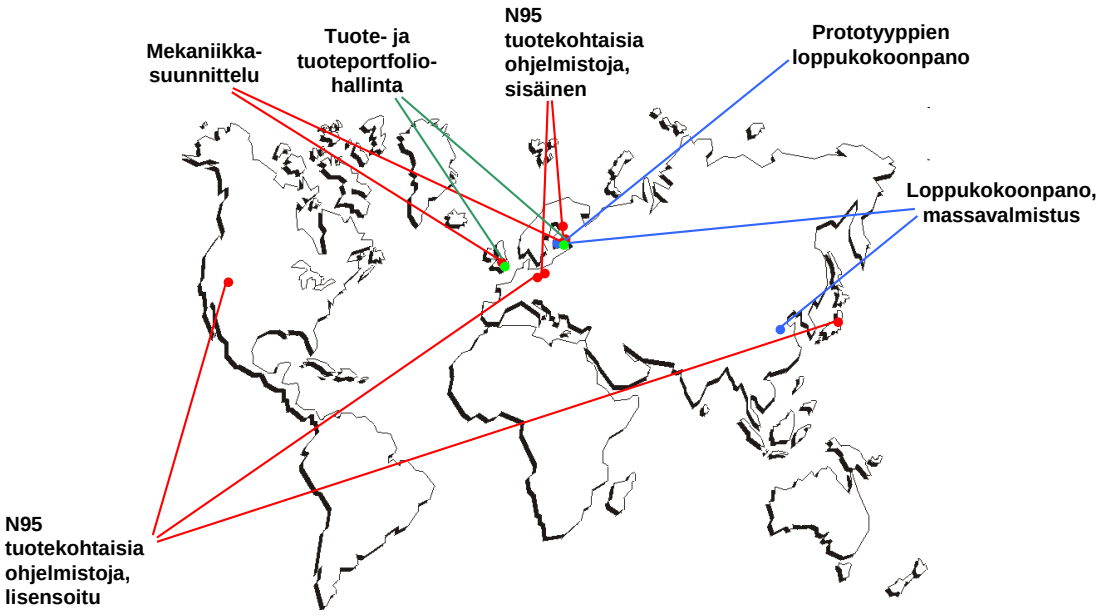
(Provided only with Finnish explanations)

2) Who are your direct clients, i.e. who do you sell your products to?
3) Who are the clients of your clients, and if applicable, their clients?
4) What are the central changes that have affected your clientele during the 2000s?
5) Who are the providers/subcontractors of your first tier providers?
6) Does your product/service contain licensed technology/software?
    a. If it does, then what is the share of the costs of these licenses from your turnover?
7) From which countries are the necessary components (both physical and immaterial) provided to your company?

8) Who are the providers/subcontractors of the providers related to the previous question?
9) What are the central changes that have affected your set of providers during the 2000s?

Theme 2: Tasks related to the product/service and geographical task locations

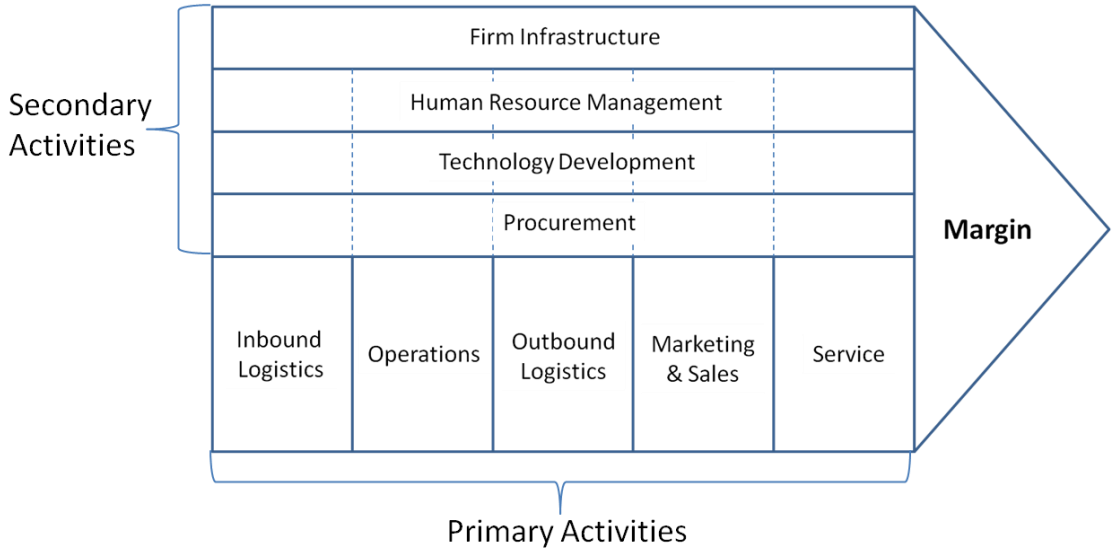
1) What are the central tasks related to producing, maintaining and administration of your product/service?
2) Where are these tasks performed, using the following figure as an example?



(Provided only with Finnish explanations)

3) What is the selling price of your product/service to your clients? Are there pricing variations dependent on geographical region or otherwise?
4) What are the combined material costs of the purchased physical components of your product/service?
5) What are the combined material costs of the purchased non-physical components (e.g. software, technological licenses)?
6) What is the Bill of Materials (BOM) per component, i.e. component, purchase price, component provider and origin, if known?

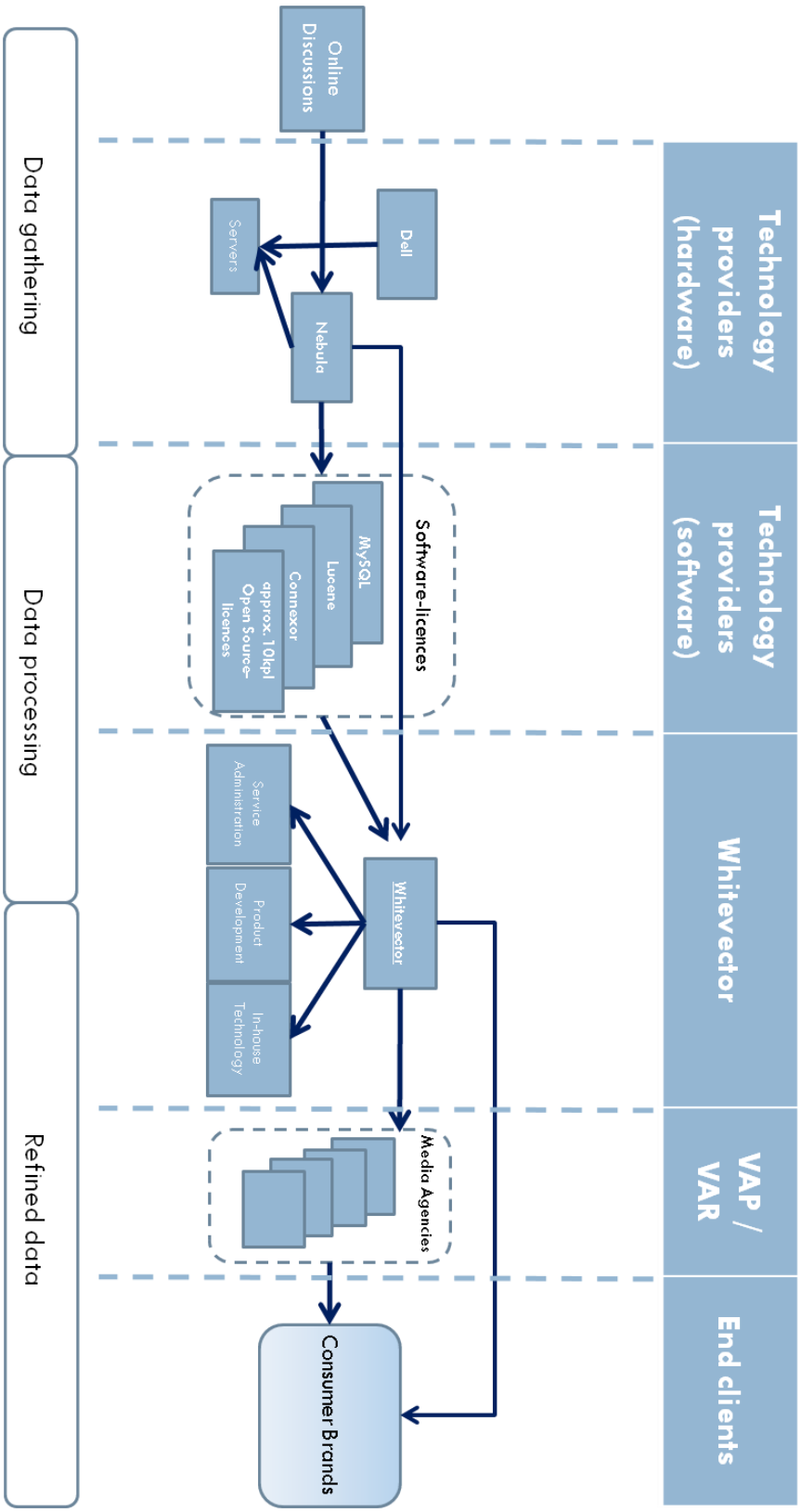
Appendix 2. Porter's Value Chain Model



From Porter (1985)

"The Generic Value Chain" found under Figure 2-2 in Porter (1985), p. 37.

Appendix 3. Whitevector's Value Chain (large version)



Appendix 4. Table of Financial Information from Whitevector's Value Chain

Financial Data from Value Chain Companies					
Type	Whitevector (FI)	Nebula (FI)	Infinite InfoSoft Services PVT Ltd. (IN)	Connexor (FI)	2nd Tied (World)
EBIT	-330 000 €	3 615 508 €	1 702 898 €	-261 199 €	-
Personnel expenses	540 000 €	3 708 264 €	859 668 €	394 513 €	-
Depreciations	120 000 €	1 522 159 €	19 725 €	69 511 €	-
Purchases	35 400 €	-	-	-	-
Production Value	534 600 €	-	-	-	-
VAR Value	30 500 €				-
Turnover	570 000 €	15 667 495 €	4 000 825 €	392 520 €	-
Value Added Margin	88.1 %	56.5 %	64,5 %	51,7 %	-
Margin of Whitevector's Turnover	-	NDA	NDA	NDA	-
Margin of Whitevector's Value Added	-	3.9 %	0.2 %	1.2%	0.9 %
Source:	Whitevector	YTJ	Orbis	Orbis	*Calculated by deducting previous figures from 100%
Note:	Data from 2010	Data from 2009	Data from 2009	Data from 2009	

Table 1. *Financial Information on Whitevector and Key Value Chain Participants*

This table (Table 1) presents the financial data used for the value chain analysis in chapter 4. Some detailed information was left out of the table due to non-disclosure (marked NDA), although all of the most central data can be seen from this table.

Also, the data shown here is mostly available through open data sources, except for Whitevector's 2010 financial information (not yet available through YTJ or Orbis, but will be published during spring 2011), and the *margins of Whitevector's value added.* The former piece of information is shown here, since it is very relevant for the sake of presenting the end results of this case study.

Appendix 5. Whitevector's Global Value Chain Activities

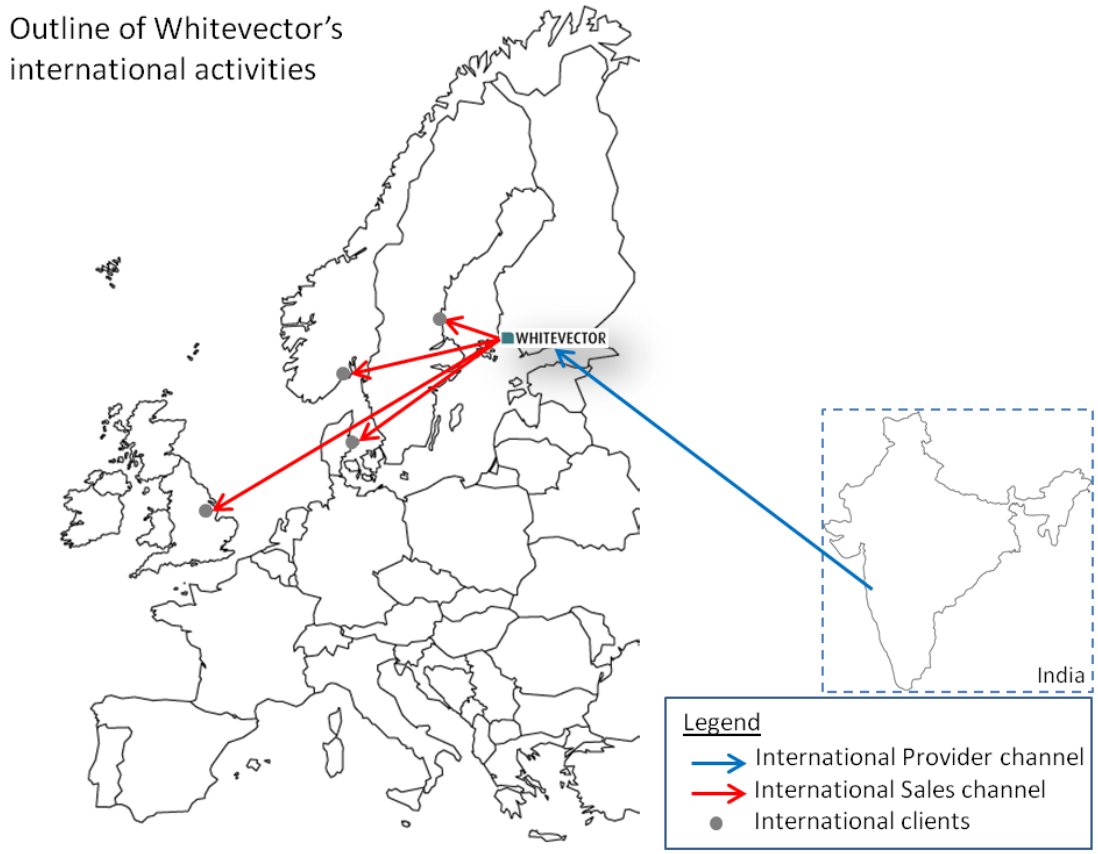


Figure 14. *Outline of Whitevector's International Activities*

This chart (Figure 14) shows the distribution of Whitevector's purchasing activities (blue lines) and sales activities (red lines) globally. As it can be seen, most of Whitevector's purchasing activities (providers) are centered in Finland with one exception being InfoSoft from India.

As for sales, Whitevector's clients are more dispersed internationally through central hubs of media agencies (grey dots) which are spread throughout Central Europe.

Appendix 6. Whitevector's Financial Performance 2006-2013 (Estimates)

Within this appendix, some financial performance data regarding Whitevector from the company's founding (2006) until 2013 (estimates) will be presented in order to show the expectations for future growth for this particular company, which is still making losses.

The figures presented below will show that even though the company is still not profitable, most of the heavier investments have already been made during previous fiscal years, and will be compensated for through growth in revenue. It should be noted that the figures show mere estimates from 2011 and onwards.

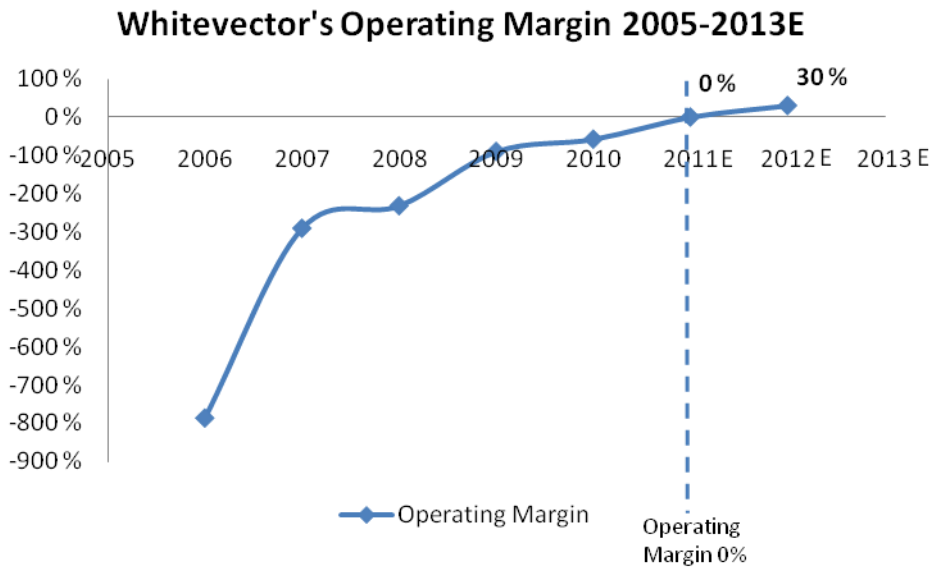


Figure 15. *Whitevector's Operating Margin through 2006-2013E*

As Figure 15 shows, Whitevector is expected to reach a minimum Operating Margin of 0% - if not a positive figure. This means that the company is expected to start making profit either during or immediately after 2011.

The following figures to be presented, referring to both Whitevector's overall productivity trend as well as the value added per staff member further explain the

growth in the company's productivity both until the year 2010 as well as for a few years to follow.

The figures also explain how the company has started to offset the previously made investments used for developing the Chat Reports Service.

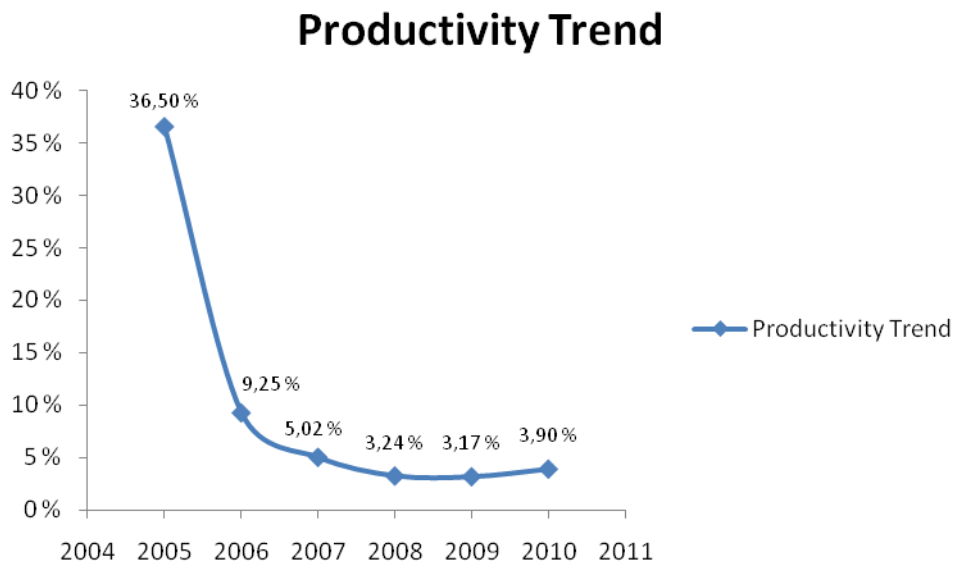


Figure 16. *Whitevector's Productivity Trend*

Even though Whitevector's productivity trend has been quite low and declining in terms of margins, the first slight increase was noted for 2010. This growth is expected to continue at a stronger pace to accommodate for the company's profitability targets for the year 2011.

Even though no estimates were calculated for the company's overall productivity trend for years to follow – due to ambiguity and multiple variables at stake (e.g. the pricing structure for social media analysis services could change dramatically, as has happened once before already), Figure 16 goes to show that the company has a good chance of raising their productivity level past the first year of actual business (2006 – when the productivity margin was 9,25%).

This growth is indeed to be expected, as the company has shifted heavily from service development to a more sales oriented approach.

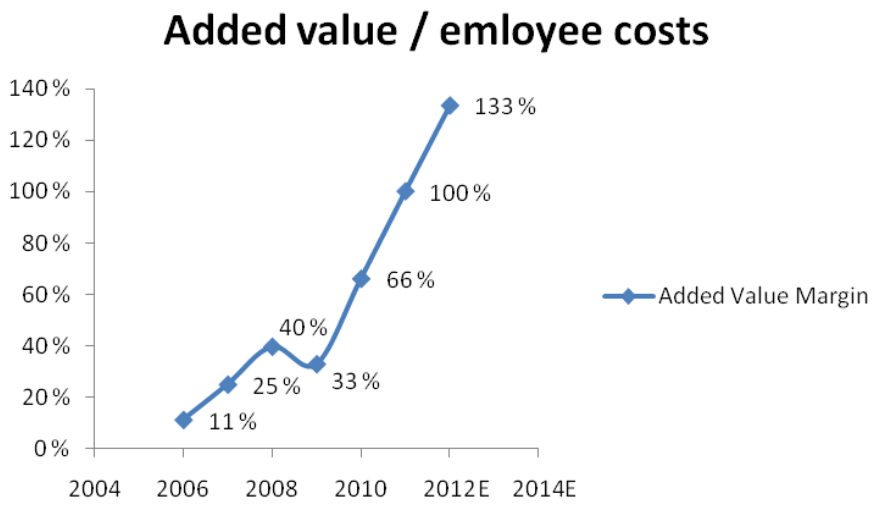


Figure 17. *Whitevector's Value added per Staff Member as margins*

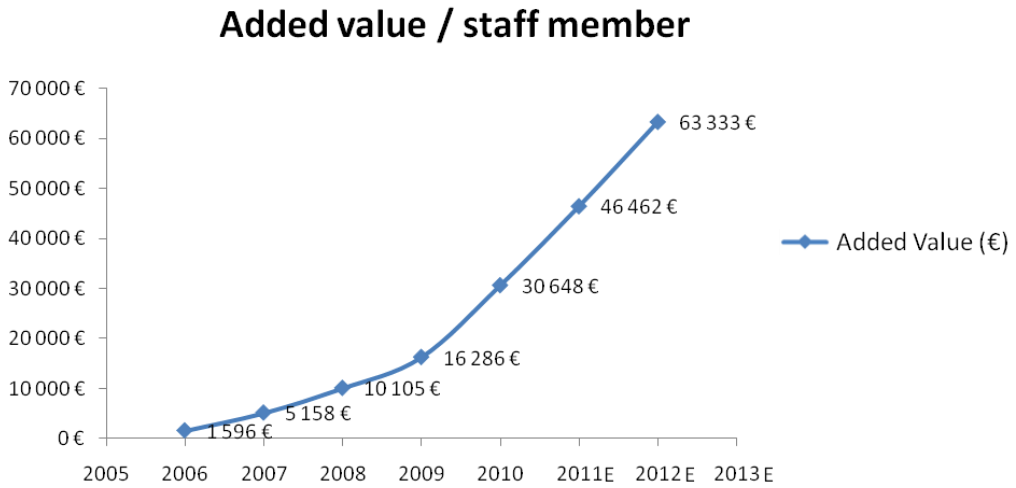


Figure 18. *Whitevector's Value added per Staff Member in currency (EUR)*

Figures 17 and 18 show the amounts of value added per staff member both in terms of margins of value added (Figure 17) and in terms of currency (Figure 18).

These figures show the realized (2006-2010) and expected (2011-2013) productivity figures for each staff member at Whitevector. These calculations have been made by deflating the used staff cost figures according to the *Consumer Index* provided by *Statistics Finland* (Tilastokeskus) and using the year 2005 as the starting year (2005 = 100 index points).

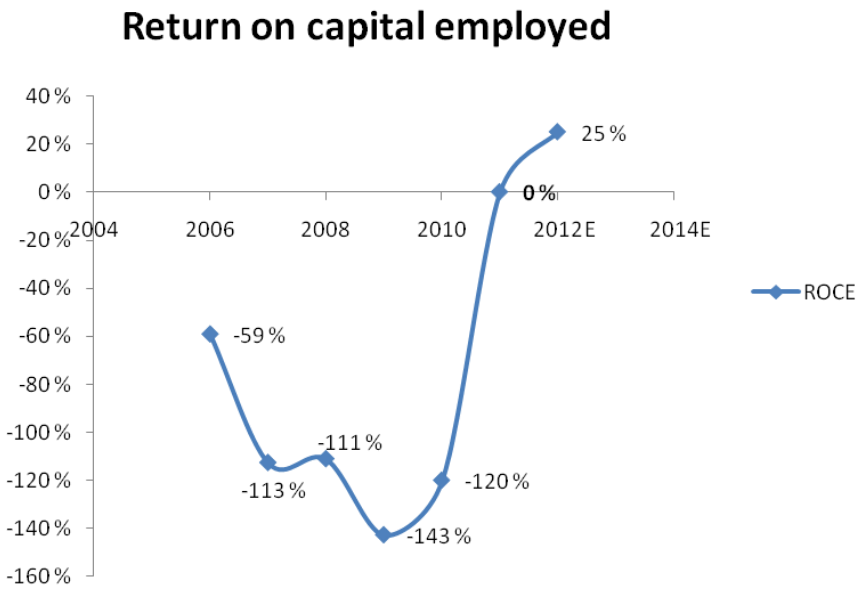


Figure 19. *Whitevector's Return on Capital Employed*

Figure 19 finally shows the Return on Capital Employed (ROCE) alongside the realized and expected value added margins per staff member as well to show when the investors of Whitevector should be expecting returns on their initial inputs. This particular figure also coincides with the productivity trend in the sense that the margin of ROCE for Whitevector already started growing during 2010 and will be expected to reach 0% or more after 2011 with a stronger concentration in sales.

The calculations for these figures required somewhat detailed information on the case company, and thus unfortunately these figures cannot be shown publicly due to non-disclosure.

Appendix 7. Results with and without Value-Added Reseller effect

This comparison is aimed to show the effect of Whitevector's *value-adding resellers* on Chat Reports' value distribution. The value chain distribution is presented in Figure 20, while the geographical distribution comparison can be found in Figure 21.

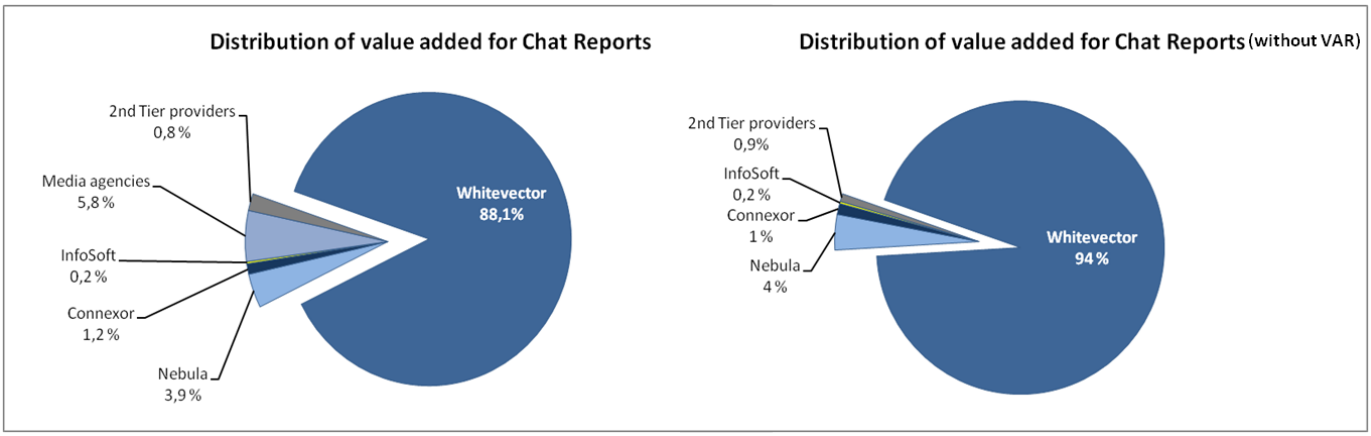


Figure 20. Distribution of value added with and without VAR effect

As can be seen from the distribution graphs for the value chain of Chat Reports, without the value adding resellers, Whitevector alone would be able to capture as much as 94% of value added, as opposed to the previously presented 88.1%. However, without the new business generated by these VARs, Whitevector's overall revenues would be smaller than currently, thus perhaps it is worth it to the case company to open up a new channel of business to media agencies, while still capturing 88% of overall value added.

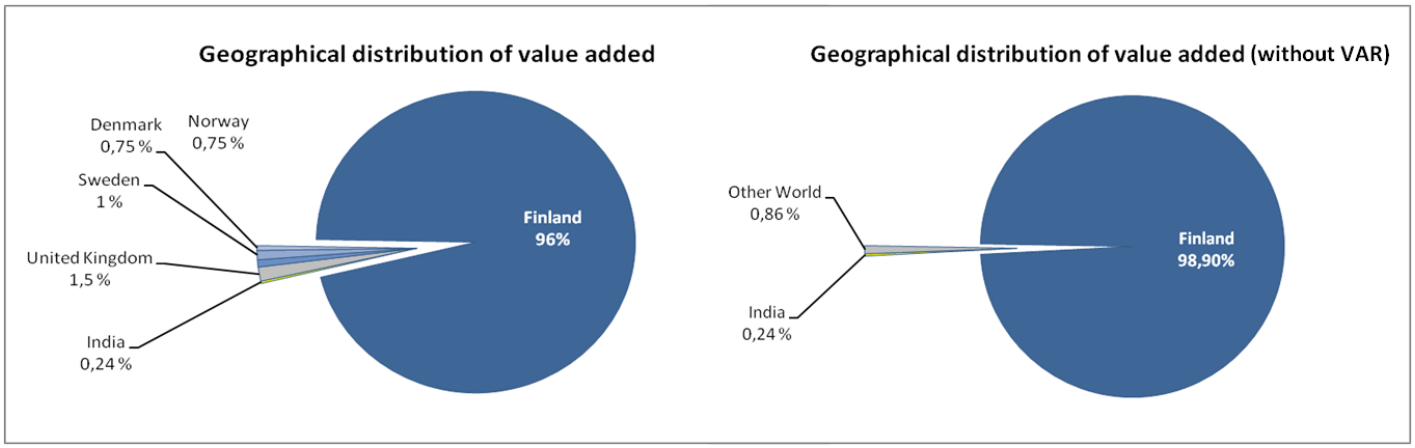


Figure 21. Geographical distribution of value added with and without VAR effect

As far as the geographical distribution goes, since most of Whitevector's international business is done via foreign media agencies, the value added distribution does drop from a very beneficial (for Finland at least) 99% down to 95% - which again is perhaps not too much of a drop, considering that Finland still remains in control of nearly all of the value added by Chat Reports.

The reason why the distribution does not drop at the same rate as it did in the previous comparison (by 6% because of VARs in figure 20, instead of the 4% shown in figure 21), is that Whitevector is conducting business through Finnish media agencies (VARs) as well. These media agencies control very nearly 50% of the total value added for VARs in the case of Chat Reports, meaning that 4% of that 'VAR value added' still remains in Finland.