



LAHDEN AMMATTIKORKEAKOULU
Lahti University of Applied Sciences

**USER BASE GROWTH VIA VIRAL MARKETING: THE
CONTRIBUTORY FACTORS**

Case: OstosNero by Avansera Ltd.

**LAHTI UNIVERSITY OF APPLIED
SCIENCES**

**Degree programme in International
Business**

Bachelor's Thesis

Spring 2013

Le, Thi Hong Thuy

Nguyen, Tien Tai

Lahti University of Applied Sciences
Degree Programme in International Business

LE, THI HONG THUY

User Base Growth via Viral Marketing:
The Contributory Factors

NGUYEN, TIEN TAI

Case: OstosNero by Avansera Ltd.

Bachelor's Thesis in International Business, 102 pages, 4 pages of appendices

Spring 2013

ABSTRACT

The past decade has witnessed a surge in the number of digital start-ups, many of which have achieved widely acclaimed success in less than a few years, attracting phenomenal numbers of users worldwide. A common marketing strategy has been employed: viral marketing. Viral marketing is recognized among practitioners and researchers as a contemporary and important marketing tool.

Avansera Ltd., a Finnish start-up founded in 2012, is developing a digital shopping intelligence platform entitled OstosNero. OstosNero optimizes users' shopping experiences while providing businesses with useful data. Avansera aims to build a broad and sustainable user base for OstosNero.

The main objective of this thesis is to assist the case company in formulating its viral marketing strategy for OstosNero by exploring and providing insights into user attraction and user retention, in both theory and practices.

This study's nature is exploratory and applied business research. Therefore, the authors employ a combination of deductive approach and qualitative method. The collection of both primary and secondary data is performed. Primary data is acquired from the authors' unstructured interviews and open, small-group discussions with the case company's CEO and employees. Secondary data is obtained from publications such as books, journals, articles, reports, previous studies in the literature, and electronic sources.

This thesis' core is comprised of three main parts. First, the authors undertake a detailed review of viral marketing and its application for digital services. Second, contributory factors in user base growth in the literature are extracted; the authors then examine historical cases that have achieved rapid and sustainable growth in user base in order to see how these factors have been practically implemented. Third, on the basis of theoretical findings and practical analyses, the authors formulate a list of contributory factors that can be utilized in the case company's marketing strategy and provide recommendation accordingly. Overall, this study leads the authors to believe that there is a correlation between the implementation of the contributory factors and user base growth.

Key words: viral marketing, digital service, user base growth, user attraction, user retention, user engagement, OstosNero, Avansera

CONTENTS

1	INTRODUCTION	3
1.1	Background information	3
1.2	Thesis objectives and research questions	4
1.3	Thesis structure	4
1.4	Research methodology	6
1.5	Thesis scope and limitations	8
2	VIRAL MARKETING FOR DIGITAL SERVICES	10
2.1	Viral marketing overview	10
2.1.1	Origin and definition	10
2.1.2	Objectives	13
2.1.3	Categorization	14
2.1.4	Opportunities and threats	16
2.1.5	Viral marketing for digital services	18
2.2	Key issues in viral marketing	21
2.2.1	Content	22
2.2.2	Recipients	23
2.2.3	Seeding strategy	30
2.2.4	Viral mechanics	33
2.3	User engagement in viral marketing	34
2.3.1	User engagement definition	34
2.3.2	User engagement characteristics	35
2.3.3	User retention by user engagement in viral marketing	37
3	CONTRIBUTORY FACTORS IN USER BASE GROWTH	38
3.1	Contributory factors in user base growth in literature	38
3.1.1	Content	39
3.1.2	Recipient's seeding behaviour	44
3.1.3	Viral mechanics	47
3.2	Contributory factors in user base growth in historical cases	48
3.2.1	Zynga	51
3.2.2	Foursquare	53
3.2.3	Old Spice	56
3.2.4	Facebook	57
3.2.5	LinkedIn	59

3.2.6	Instagram	61
3.2.7	Angry Birds	64
3.2.8	General remarks about viral marketing practices	67
4	EMPIRICAL CASE: OSTOSNERO SHOPPING INTELLIGENCE PLATFORM	69
4.1	Avansera Ltd.	69
4.2	OstosNero – Shopping Intelligence Platform	70
4.2.1	The service OstosNero	70
4.2.2	Technological aspects in OstosNero	73
4.2.3	OstosNero’s users vs. Avansera’s customers	75
4.3	Marketing strategy for OstosNero: Evaluation and recommendation	76
4.3.1	Viral marketing as the main marketing tool for OstosNero	76
4.3.2	Contributory factors in OstosNero’s user base growth	78
5	CONCLUSION AND SUGGESTIONS FOR FURTHER RESEARCH	85
5.1	Conclusion	85
5.2	Further research suggestions	87
6	SUMMARY	88
	REFERENCES	89
	APPENDICES	103

LIST OF FIGURES

FIGURE 1. Thesis structure	5
FIGURE 2. Research methodology	6
FIGURE 3. The relationship between word of mouth and viral marketing (Kaplan & Haenlein, 2011)	13
FIGURE 4. Categorization of viral marketing based on participation of customers/users (Bryce 2005)	15
FIGURE 5. Users vs. customers in different cases (modified from Shapiro 2011)	20
FIGURE 6. Key recipients in viral marketing (Red Ant 2009)	32
FIGURE 7. Foursquare's user base growth (Cocotas 2012)	54
FIGURE 8. Facebook's user base growth from 2004 to 2012 (Statista 2013)	57
FIGURE 9. LinkedIn's user base growth 2004-2012 (modified from LinkedIn Corporation 2013)	60
FIGURE 10. Instagram's user base growth 2010-2013 (Spencer 2013)	62
FIGURE 11. Angry Birds' number of downloads from December 2009 to February 2013 (modified from Spencer 2011; Rovio Entertainment 2012)	64
FIGURE 12. Concept pictures of OstosNero Shopping Intelligence Platform (Avansera Ltd. 2013b)	72
FIGURE 13. User benefit and business value cycle in OstosNero (Avansera Ltd. 2013b)	79

LIST OF TABLES

TABLE 1. Framework of viral marketing (Subramani & Rajagopalan 2003)	26
TABLE 2. Types of seeding strategy (Hinz et al. 2011)	30
TABLE 3. Contributory factors in user base growth via viral marketing	39
TABLE 4. Primary emotions and their effect in viral marketing	42
TABLE 5. Main contributory factors in historical cases	68
TABLE 6. Main findings	86

1 INTRODUCTION

1.1 Background information

The digital age has seen a dramatic rise in the number of digital start-ups (Red Ant 2009). Digital technology and the vast adoption of the Internet have had profound impacts on business, developing new and complex business models. Among contemporary issues, user base has increasingly caught businesses' attention. Many cases have laid the foundation for a fresh concept: the distinction between users and customers. Users are all the people that connect with a company via any digital platform and customers are the people that actually pay companies money. Since users play major roles in many modern business models, growing a user base is perceived a major objective. (Shapiro 2011.)

Many digital service providers have succeeded in growing their user base extremely fast. For instance, social network service providers such as Facebook, LinkedIn and Twitter gained their phenomenal popularity in less than a decade (Kleinberg 2008). A common marketing strategy has been employed by almost all start-ups in markets associated with information goods: viral marketing (Bryce 2005). While traditional marketing has declined in both usage (Hann et al. 2008) and benefits (Lam 2010), viral marketing has been increasingly popular among both practitioners and researchers because of not only the low budget and minimal level of effort it requires (Lam 2010) but also its ability to reach a substantial number of peer groups (Watts et al. 2007a).

However, some services, though managed to attract a large number of users via viral marketing, failed to retain their user base. In this scenario, "Draw Something", a mobile game application, can be viewed as an example of low user engagement after the application has attracted a considerable number of users (Tassi 2012). Thus, user engagement proves to be crucial to keep users constantly attracted and engaged with the services (O'Brien et al. 2008). In order for digital service providers to successfully grow and retain a large user base, there is a need to discover the contributory factors in user base growth.

Avansera Ltd, the case company, aims to build a sustainable user base for its new product - smart digital shopping assistant OstosNero. For the purpose of assisting the case company with its marketing strategy, the authors focus this thesis on the roles of viral marketing in attracting and retaining users, and apply the findings to the viral marketing campaign of OstosNero.

1.2 Thesis objectives and research questions

The main objective of this thesis is to assist the case company with its viral marketing strategy for its new digital service by providing insights into user attraction and user retention, in both theory and practice. Besides a detailed examination in marketing literature, this study aims to study some historical cases with successfully fast user base growth and compile a sequence of important contributory factors in a successful viral marketing strategy in the digital age.

Main research question: What are the main contributory factors in user base growth via viral marketing?

The sub-questions are formed to facilitate answering the main research question:

- How do digital service providers attract users with their viral marketing strategies?
- How do digital service providers retain their user base?
- Why is user engagement in viral marketing important for digital services?
- What are the main contributory factors that led to successful growth in user base in historical cases?
- How can the case company utilize these factors in its marketing strategy?

1.3 Thesis structure

Figure 1 illustrates the structure of this thesis, which comprises of 6 chapters.

Chapter 1 introduces the background information, formulation process and research designs of this study.

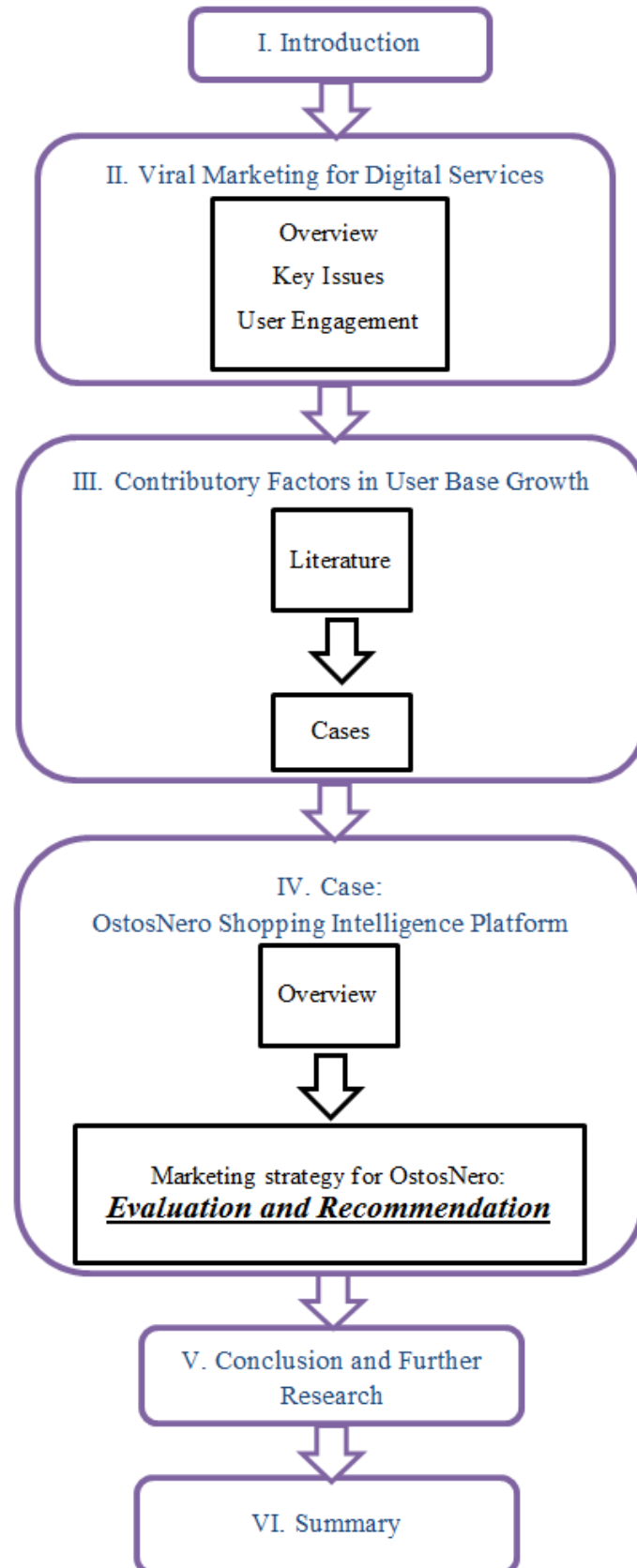


FIGURE 1. Thesis structure

Chapter 2 presents a detailed review of viral marketing for digital services.

Chapter 3 lists the contributory factors in user base growth extracted from previous research and examines their application in successful viral marketing campaigns in historical cases with rapid and sustainable user base growth.

Chapter 4 introduces the case and recommends the utilization of the factors, which are extracted from theoretical findings and practical analyses, in the case company's marketing strategy.

Chapter 5 delivers thesis findings and suggestions for further research.

Chapter 6 concludes this thesis with a final summary.

1.4 Research methodology

Figure 2 provides an overview of this thesis' methodology.

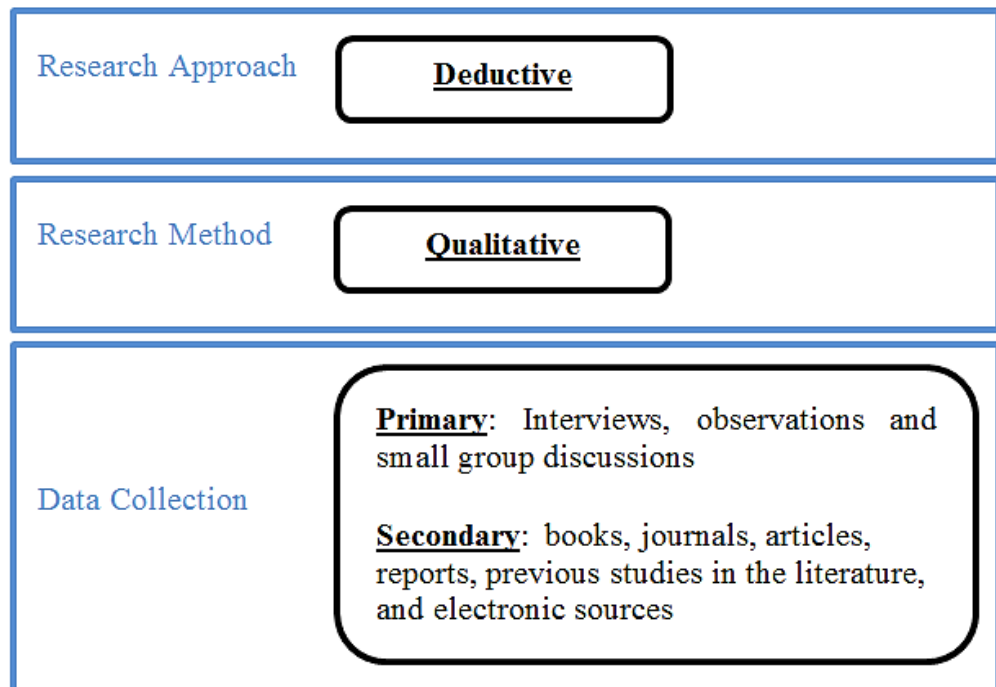


FIGURE 2. Research methodology

Research approach

There are two commonly applied approaches in business researches: deduction and induction. It is also possible to use a combination of both approaches, in which the characteristics of induction and deduction are integrated, within one research. Deductive approach involves the testing of a hypothesis from a theory, and a research strategy is developed for the purpose of testing the theory. On the contrary, an inductive approach involves the process of developing a theory after observing and analyzing empirical data. (Saunders et al. 2009, 124-127)

Saunders et al. (2009) maintain that two major criteria should be considered in selecting the appropriate approach: the nature of the research topic and available research time (Saunders et al. 2009, 124-127). The nature of this study is exploratory and applied business research. This nature, combined with a limited time frame of approximately three months, induces the authors to adopt a deductive approach throughout the research.

Research method

In business scientific researches, the two most prevalent research methods are quantitative and qualitative methods. Two methods can be differentiated by the nature of the data primarily used in the research. Quantitative method relies on the generation and usage of numeric data; conversely, qualitative method involves the generation and usage of non-numeric data. Moreover, some researchers also opt for a mixed-method consisting of both quantitative and qualitative elements. (Saunders et al. 2009, 151-154). The authors select qualitative as the principal method for this thesis.

According to Bryman & Bell (2007), qualitative method offers the prospect of flexibility, a detailed account or a descriptive evaluation, and an emphasis on the context of the situation (Bryman & Bell 2007, 402-409). This thesis is designed as an applied business research and bears an exploratory nature. Accordingly, with all the above-mentioned characteristics, qualitative method is a rational choice for this thesis.

Data collection

In a research, empirical data collected by researchers themselves are categorized as primary data. On the other hand, data that has existed from other sources irrespective of the researcher's actions and intention are referred to as secondary data (Eriksson & Kovalainen 2008, 77-80). In this study, the gathering of both primary and secondary data is carried out in order to fulfil the requirement of an exploratory and practical business research.

Primary data is collected from the authors' unstructured interviews and open, small-group discussions with the case company's CEO and employees. Moreover, primary data employed in the study also results from the authors' observations during the time cooperating with the case company on this thesis. According to Axinn and Pearce (2006), small group discussions can be also utilized as useful resources in researching (Axinn & Pearce 2006, 13). The authors had the opportunity to organize small group discussions with the CEO of the case company, as well as some of its employees, producing a great deal of valid and relevant information for the study.

Secondary data, complementary to primary data, is also a major source in the process of researching. Secondary data is obtained from publications such as books, journals, articles, reports, previous studies in the literature, and electronic sources.

1.5 Thesis scope and limitations

The authors' main interest is viral marketing for digital services. Viral marketing research and practice that are solely targeted to tangible products or brick-and-mortar services are considered irrelevant to this thesis. The reason is that the main goal of viral marketing campaigns for such products and services is commonly customers' final purchase behaviour (Bryce 2005). This thesis does not concern such a goal of viral marketing, but rather its roles in attracting and retaining users for digital service providers. The success of a viral marketing campaign in this thesis means sustainable growth in user base.

The business model of Ostosnero, a service developed by the case company Avansera, dictates that the service's users and the company's customers are different. In modern businesses that are highly involved with digital technology, there are cases in which users and customers constitute two distinctive groups. The nature of OstosNero is presented in chapter 4, while the differentiation between users and customers in digital age is discussed in section 2.1.5. As the users and customers of OstosNero service are separate entities, this thesis will explain the difference and express its sole focus on the users as the target of the case company's viral marketing campaign.

2 VIRAL MARKETING FOR DIGITAL SERVICES

2.1 Viral marketing overview

Viral marketing has gained significant popularity in the digital age when people spend more time on their mobile devices than ever before (Leskovec et al. 2007). Viral marketing has also been considerably studied in the past years. Literature review shows that this technique has been called word-of-mouth marketing, buzz marketing, and social engagement marketing (Toubia et al. 2011). This section presents a general review of viral marketing, including its origin and definition, its common objectives, its categorization and its opportunities and threats. In addition, since the authors' interest is user base growth, viral marketing for digital services is discussed in the last section 2.1.5.

2.1.1 Origin and definition

Jeffrey Rayport (1996), from Harvard Business School, is widely regarded in the literature as the inventor of both the concept of and the term “viral marketing” (Lam 2010). In the article “The Virus of Marketing”, published in December 1996, Rayport proposed the notion of considering a virus the “ultimate marketing program”. Rayport pointed out that a virus has some characteristics that are optimal for a marketing program: rapid speed of spreading, minimum costs and strong effect. (Rayport 1996.)

The general features of viral marketing are soon discovered from the case of Hotmail, the first service that practiced viral marketing and substantially grew its subscriber base (Subramani & Rajagopalan 2003; Leskovec et al. 2007). According to Bryce (2005), the success of Hotmail was attributed to three factors. First, each subscriber acted as Hotmail's salesman by voluntarily delivering the advertising message embedded in every email sent. Second, the free mail service worked properly. Last and most importantly, the service was recommended by a known and trusted source because people usually sent emails to the people they know – their friends, colleges and acquaintances. (Bryce 2005.)

Although these factors contribute greatly to Hotmail's success, Bryce (2005) recognizes the drawback of viral marketing definitions that only compile unique success factors from successful viral marketing campaign: these unique factors are difficult for other companies to imitate. On the foundation laid by the work of Helm (2000), Bryce attempts to reach a broader and more appropriate definition for viral marketing in his book "Viral marketing: Potential and Pitfalls". Bryce defines that viral marketing is a marketing technique that aims to grow the popularity of a service or product that provides the target group with an incentive to encourage them to spread the electronic message among their network on the Internet. (Helm 2000; Bryce 2005.)

However, according to Kulp (2007), such a definition is declared short-sighted for strictly limiting the scope of viral marketing to an online phenomenon.

Fundamentally, viral marketing works on the foundation of word of mouth that refers to intercommunication among people regardless of the medium of the conversation, whether face to face, on the phone or over the Internet. (Kulp 2007.)

As a result, viral marketing is deemed the technological extension of word-of-mouth marketing or, in other similar terms, word of mouse and networked-enhanced word of mouth (Thevenot & Watier 2001).

The intertwined relation between word of mouth and viral marketing makes it hard to separate them and is interesting enough to induce controversy among researchers over whether these two phenomena are the same or different (Kulp 2007). This thesis' authors, therefore, see the need to discuss the two phenomena in order to evaluate the importance of online and offline integration in viral marketing.

Word of mouth & viral marketing

As mentioned above, viral marketing in the digital age is considered word-of-mouth marketing with stimulation over the Internet; therefore, the authors find traditional word-of-mouth marketing processes and the flow of information in real-life social networks also highly relevant in developing a clear understanding of viral marketing and the utilization of different social networks, both online and offline.

Word of mouth has always been a common phenomenon, which is considered rational that people seek recommendation before purchasing a product or service as people want to validate information about the product or service that they have never experienced before. Research has shown that there is a high probability that consumers' purchase decisions are highly influenced by direct recommendation of other people, especially acquaintances. (Richins & Root-Shaffer 1988.)

Word of mouth can be leveraged as a powerful force in marketing since many people involve in the process. Silverman (2001) attributes the power of word of mouth, or the reasons why people are greatly influenced by the opinions and reviews of their peers, to several factors. First, the reviewers' credibility and independence from associated products or services play major role in convincing the people who seek for advice. Second, people reasonably think that the risks of purchasing unknown products or services could be reduced when information comes from experienced users. Third, the information given by people's peers is often highly relevant, to an extent that it could be described as "tailored information". Mostly in traditional word of mouth, peers are likely to be the ones that are familiar to and understand the asker's situation. (Silverman 2011.)

However, traditional word of mouth generally concerns verbal or writing conversations that deal with one sender and one receiver (Kulp 2007); whereas viral marketing, with the help of technology, enhances the conversation scope to the level that one sender can reach a large number of receivers at the same time (Bryce 2005). In a similar vein, Kaplan and Haenlein (2011) propose a framework that explains the link between word of mouth and modern viral marketing; this relationship is illustrated in figure 3 (Kaplan & Haenlein 2011).

As revealed by the figure, viral marketing is comprised of two defining factors in addition to traditional word of mouth: an exponential growth rate and the utilization of social media. These two elements help define the characteristics usually associated with viral marketing and differentiate it from traditional word-of-mouth marketing. (Kaplan & Haenlein 2011.)

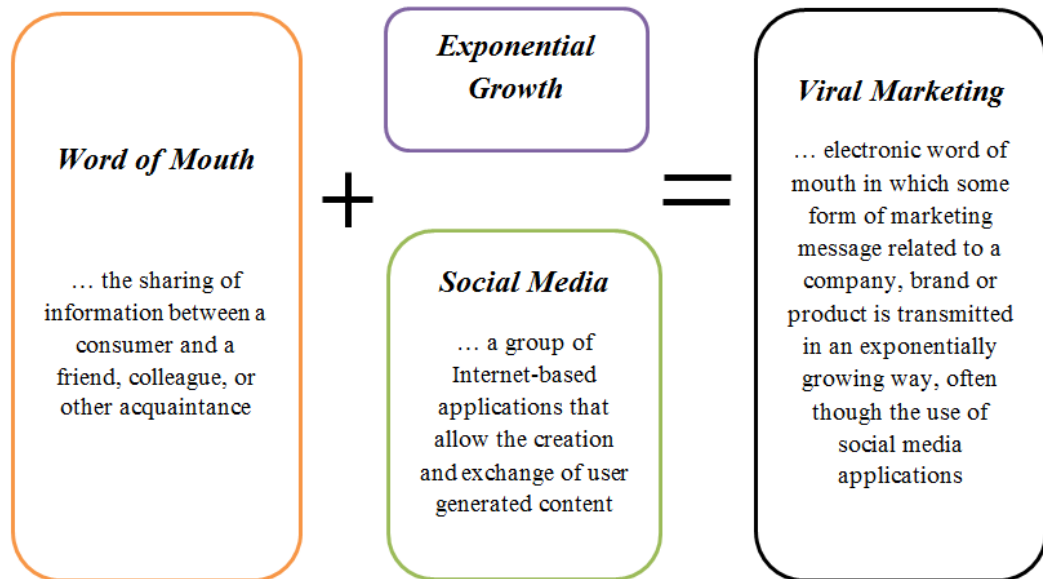


FIGURE 3. The relationship between word of mouth and viral marketing (Kaplan & Haenlein, 2011)

The authors of this thesis find the model presented by Kaplan and Haenlein (2011) representative of the connection between word of mouth and viral marketing. Overall, this thesis concurs with the finding that word of mouth is a component of but not representative of viral marketing and viral marketing is incomplete without the offline word of mouth mode of communication (Kulp 2007). This conclusion is crucial and applicable to the case company's viral marketing campaign, which is discussed in chapter 4.

2.1.2 Objectives

Although viral marketing is considered a promotional activity within a company's marketing strategy, there is a dispute whether the strategic goal of employing viral marketing is to encourage final purchase decision to generate profit or only to turn viral message receivers, product users, or service adopters into marketing force to gain brand awareness. However, the discrepancy is mainly due to the difference in the types of services and products offered. (Bryce 2005.)

Some common objectives that companies aim at when using viral marketing campaigns to communicate their brands are observed. Increase of brand exposure and brand awareness is the most common goal. Viral marketing is also targeted to increase website traffic and opt-in lists in online shopping. Opt-in list enumerates voluntary people who sign up for free information about the products or services such as newsletter and special offers. Besides, viral marketing enables marketers to track loyal customers and active users in order to build suitable loyalty programs, hence improve customer or user relationship management. Bryce (2005) also expresses the need to integrate viral marketing campaign into the whole marketing strategy in order to maintain the consistency of the brand image. (Bryce 2005.)

2.1.3 Categorization

There are several attempts to categorize viral marketing. For instance, viral marketing is classified according to the communication media into electronic viral marketing over the Internet and mobile viral marketing over mobile phones (Pousttchi & Wiedemann 2007; Wiedemann 2009). However, the most widely used categorization is based on the degree to which customers or users participate in spreading the viral message (Subramani & Rajagopalan 2003; Bryce 2005). Accordingly, Schmidt and Schogel (2002) claim two types of viral marketing: frictionless or low integration and active or high integration, illustrated in figure 5 (Bryce 2005).

Frictionless or low-integration viral marketing is used if the services or products and the viral message are the same – in other words, users receive the advertising message when using the services or products. This viral marketing type is demonstrated by the services Hotmail and Blue Mountain Art greeting cards, in which users, by sending emails or e-cards containing viral messages to friends, are using and spreading the services simultaneously. (Bryce 2005.)

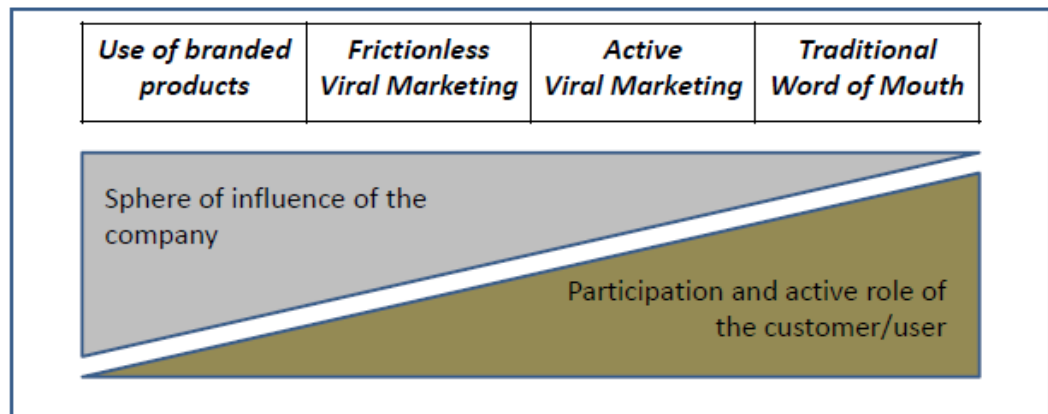


FIGURE 4. Categorization of viral marketing based on participation of customers/users (Bryce 2005)

On the other hand, active or high-integration viral marketing strategies are implemented when the services or products and the viral message are different and users are motivated to spread the message by direct benefits derived from increasing user base, or incentives offered by marketers. These incentives can be free samples, entertainment or value information that are relevant enough to the users for them to pass on the viral message. ICQ, an instant messaging service, is a typical example of this type of viral marketing. (Bryce 2005.)

However, since this thesis has affirmed that traditional offline word of mouth is considered a component of viral marketing, figure 5 presents a drawback of this categorization. As revealed from the figure, only two types of viral marketing are valid, and traditional word of mouth is separated from viral marketing. Consequently, this categorization contradicts the fundamental role of word of mouth in viral marketing and the intertwined relationship between the two phenomena.

Subramani et al. (2003), studying the nature of influence in viral marketing, also classifies different viral marketing types according to not only the role of the influencers but also the characteristics of the service or product. In this fashion, four types of viral marketing are shaped: awareness creation, benefits signalling; targeted recommendation; motivated evangelism; and signalling use, group

membership. These quadrants form the viral marketing framework based on the nature of influence. (Subramani & Rajagopalan 2003.)

As this framework is closely related to the role of viral message recipients in terms of influencing and spreading the service or product, its in-depth description is produced in subchapter 2.2 where recipients are examined as a key issue in viral marketing.

2.1.4 Opportunities and threats

Opportunities

First of all, viral marketing is inexpensive and potent because it taps in the existing digital networks that include global audience, giving companies large pools of potential customers and users to approach fast and cost-effectively (Thevenot & Watier 2001). According to Rodic and Koivisto (2012), the widespread popularity of social media platforms in recent years has provided a helpful tool for the implementation of viral marketing. Moreover, the emergence of those platforms has also enabled users to send a message to a bigger crowd with less effort than before. In other words, technology has allowed users to stay connected to their peers than ever before; hence the potential of viral marketing should be considerable. (Rodic & Koivisto 2012.) Additionally, viral marketing is cost efficient in that marketers only choose a limited target audience to seed the viral message and the act of spreading that viral messages is left for the viewers, users or customers to decide (Hinz et al. 2011).

Second, viral marketing takes its advantage in the nature of human behaviour when it comes to sharing, increasing the chance for positive experience of a service or product to become widespread and strongly promoting brands (Kulp 2007; Berger & Milkman 2010; Grifoni et al. 2013)

Finally, advanced technology enables marketers to track and monitor the progress of their viral marketing campaigns, providing tangible evidence to follow and evaluate the campaigns (Thevenot & Watier 2001).

Threats

Bryce (2005) identifies five threats that viral marketing can cause to marketers. First, attachments used in electronic messages are possibly exposed to computer virus infection before or during transmission, negatively affecting the database or discouraging potential customers from opening the attachments. Second, effortless spamming messages, though beneficial in some cases, annoy recipients with unrelated messages, deteriorate brand images for the lack of creativity in marketing and generally reduce viral marketing efficiency. Third, as the task of marketing is passed onto customers, marketers lose their control over viral messages that can be filtered or reflected partially, uncontrollably producing either positive or negative brand images. Fourth, the more popular viral marketing becomes, the more overwhelmed customers get by viral messages, a situation in which viral clutter would eventually weaken the motivation to pass on viral messages. Last but not least, as customers are more familiar with and informed about the Internet, their concern over privacy rises (Witthaus 2002), a fact that threatens companies that intend to benefit from customers' data without their permission. (Bryce 2005.)

Like Bryce (2005), Silverman (2001) confirms the threat of control over the viral message by claiming that when a customer finds a product or service favourable, he or she is likely to share the information with an average of three people; but when a customer has unfavourable impressions, he or she is likely to pass the information to an average of eleven people (Lam 2010). As a result, negative viral messages contain a threat of wide transmission, and consequently destroy brand images rapidly.

Rodic and Koivisto (2012) also claim that although viral marketing has been explored and better comprehended, it is still difficult to state with certainty the prospective success of a viral marketing campaign. This uncertainty in prediction of a viral marketing campaign is explained as a consequence of rapidly changing consumer behaviour in online environments. (Rodic & Koivisto 2012.)

2.1.5 Viral marketing for digital services

This thesis focuses on viral marketing for digital services to provide the case company with the most pertinent knowledge for their viral marketing campaign. Specifically, the case company's product, described in chapter 4, is a digital service with high network effect, ideally targeted to users with smart mobile devices because of its real time technology (Avansera Ltd. 2013b). Consequently, this thesis studies the popularity of smart mobile devices in the digital age and the distinction between users and customers in viral marketing.

Digital services in the forms of web applications and mobile applications are confirmed to be highly suitable for viral marketing because of their high network effect (Bryce 2005). Moreover, viral marketing is vital to digital services that aim to create online communities, in which users connect with one another to improve mutual benefit while using the services, such as social network sites and social games (Boyd & Ellison 2007).

Mobile internet services & Smart devices usage

The authors of this thesis believe that understanding the potential in smart devices market is critical to any company attempting to develop mobile internet centric services.

Mobile internet emerges as a result of the convergence of mobile telephony, the Internet and personal computing devices. Smartphones, and recently tablet computers, are the key devices to access mobile internet. Beside traditional wireless voice-communicating services, these smart devices offer native software applications, enabling users to run a plethora of Internet-based services, including email, location-based, video streaming and social networking services. This new category of devices and the related application services open new business opportunities but increase the complexity of competition. (Kenney & Pon 2011.)

A report by accounting and consulting company Deloitte, one of the biggest professional services firms in the world, forecasts that global shipments of smartphones are expected to exceed one billion units for the first time in 2013 as

the installed base of all smartphones is predicted to nearly two billion by the end of the year. (Deloitte 2013.)

According to a report produced by Gartner Inc. (2012), an information technology research and advisory firm, 821 million smart devices, including smartphones and tablets, are purchased worldwide in 2012. In the same report, the number of purchases is predicted to pass the billion mark in 2013. Smart devices account for around 70 percent of total devices sold in 2012. In an earlier report in 2010, Gartner Inc. (2010) has stated its prediction that across all devices, total mobile revenues coming from such sources as advertising, subscriptions, handsets and applications, are forecast to surpass \$1 trillion by 2014. (Gartner Inc. 2010.)

Milanesi (2012), research vice president at Gartner Inc., also expects that tablets will be the key accelerator to mobility. Gartner (2012) estimates that in 2012 the number of tablets sold to businesses reaches 13 million units and that it will more than triple by 2016 to 53 million units. Smart devices are claimed to have become truly pervasive in every aspect of an employee's life. (Gartner Inc. 2010.)

Users vs. Customers

Digital technology and the wide usage of the Internet have dramatically changed the way businesses function: as businesses develop new formats, customers and their behaviour become more complex. New digital business formats bring along a relatively fresh concept: the differentiation between users and customers.

Shapiro (2011) discusses this differentiation in his book "Users Not Customers". He defines users as the people that have connection with a company by interacting with it through digital media and technology. The interaction can be performed through an intranet, a mobile application, a website, a Facebook page, a Twitter account or any digital platforms that a company is involved. On the other hand, customers are the people who actually purchase the products or services and make payments to a company. (Shapiro 2011.)

The level of distinction between users and customers depends on business models. In some cases, the differentiation is not apparent: a group of users become customers, generating additional revenues for the company by paying for extra features of functionalities. (Osterwalder 2012.) The business model of Skype Inc.

is an example. Skype is a digital service provider that allows users to make Internet-based calls through its proprietary software. Skype software is offered free of charge to users. However, in order to have access to advanced functions such as group video calls or PC-to-mobile calls, users are required to pay accordingly (Skype & Microsoft 2013.). On the other hand, there are also cases in which users and customers are clearly separate entities. For instance, Google's search engine takes its revenue in the advertising payment made by customers while the search engine is offered free to users (Osterwalder 2012).

Figure 5 is developed on the foundation laid by Shapiro (2011) in combination with Osterwalder's analysis (2012) mentioned above. As revealed from the figure, Venn diagrams illustrate three different relationships between users and customers. The first (I.) diagram shows a relationship in which there are two sets and an intersection between the two: there is a group of people who are both users and customers. The second (II.) diagram indicates a relationship in which a group of users become customers; these customers are the subset of a bigger user group. The third (III.) illustrates a relationship in which users and customers are two distinct groups.

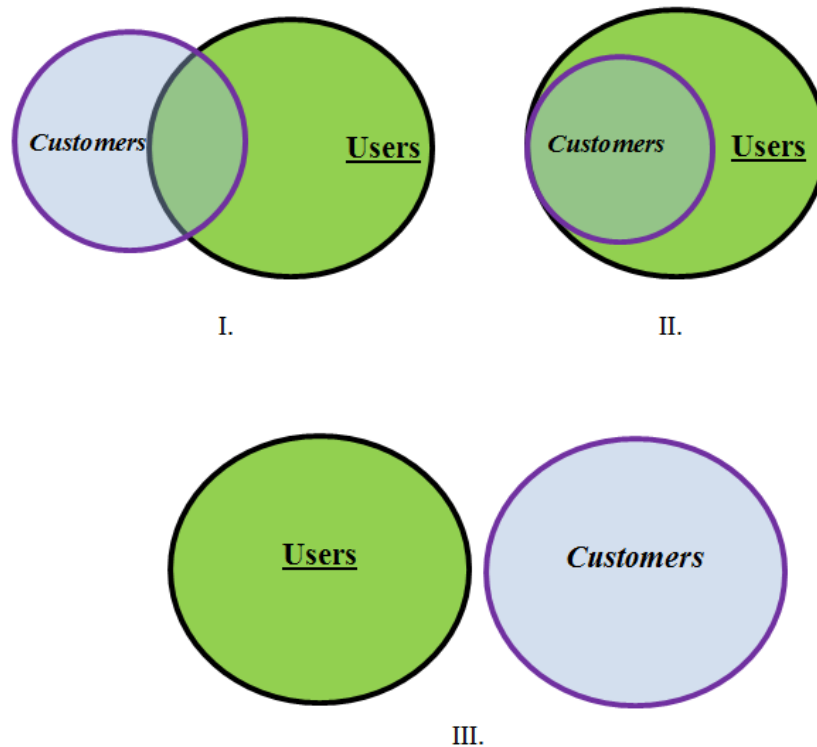


FIGURE 5. Users vs. customers in different cases (modified from Shapiro 2011)

In accordance with the examples given above by Osterwalder (2012), the user-customer relationship in Skype's business model is shown in the second diagram (II.) while that of Google's business model for their search engine is illustrated by the third diagram (III.). (Osterwalder 2012)

Shapiro (2011) leads a study of the companies presented in Fortune 1000 – the list of one thousand largest companies in America produced by the business magazine Fortune. The study aims to determine the factors that drive success in digital-centric business environment. Shapiro claims to have found that the most successful companies put their primary focus on users and view customers as a subset of this immense and influential group. Accordingly, Shapiro (2011) argues that every company operating in the digital age should start creating powerful user experience because if a company can grow its user base, its customer base will also grow. (Shapiro 2011.)

Shapiro's argument above is crucial and significantly relevant to the case company. Concerning the nature of its service and its business model described in chapter 4, the company's customers and the service' users are separate. The users do not have to pay for the service and do not become customers in the long run. In this case, there is a clear distinction between users and customers. The relationship between the two groups is best illustrated by the third diagram (III.) in figure 5. Thus, this thesis focuses on the users of the service, not the actual customers of the company.

2.2 Key issues in viral marketing

Bryce (2005) mentions several key issues that need to be considered in viral marketing campaigns in his book "Viral Marketing: Potential and Pitfalls" (Bryce 2005). Since the contributory factors in sustainable user base growth via viral marketing are the authors' main interest, this thesis only selects the relevant key issues and explains their concepts and important elements in this section. The key issues under consideration are content (Bryce 2005), recipients (Richardson & Domingos 2002), seeding strategy (Hinz et al. 2011), and viral mechanics (Rodic & Koivisto 2012). Based on this study's objectives and scope, content refers to only digital services and targeted recipients are potential users of those services.

2.2.1 Content

In order for a digital start-up to succeed in its viral marketing campaign, an original idea for its service and a well-thought viral message are essential (Grifoni et al. 2013). This subchapter discusses content as the most critical issue in viral marketing. Content in viral marketing refers to the viral message itself, which includes information of the service and viral elements (Bryce 2005).

- Information in viral message

Despite the advantages that viral marketing offers, it is not necessarily suitable for all kinds of services. It is important to understand the contexts in which viral marketing functions and the features of products and services for which it is most effective; inappropriate use of viral marketing may cause widespread negative brand image (Subramani & Rajagopalan 2003). According to Bryce (2005), services with high network effect are appropriate to be spread via viral marketing. High network effect means that the service functions in the Internet medium and its sharing mechanics utilize advanced technology. (Bryce 2005.)

Information in viral messages describes the service launched in the viral marketing campaign. As shared interest is the fundamental element of successful viral marketing campaigns (Perry & Whitaker 2003), viral message information, or the service, should be considerably relevant to recipients' needs and desires to be passed on to their peers - people of the same interest (Bryce 2005).

Thorough research on the preference, motivations and behaviours of the target market as well as the initial contacts is of extreme importance (Grifoni et al. 2013). Besides, test runs on a selected group of audience are recommended to understand their receptiveness and collect information on positive and negative comments (Bryce 2005).

- Viral elements

In addition to personal benefits from the service (Pousttchi & Wiedemann 2007), a viral message includes other crucial viral elements such as interaction, and incentives that evoke strong emotions (Bryce 2005). Interaction among users, such as greeting or playing, spurs users onto forwarding the service (Bryce 2005). Sharing valuable information enhances the feeling of belonging to a group and being an important part of it; forwarding the message to others is equal to doing them a favour (Witthaus 2002). Most importantly, emotions provoked in viral messages are argued to effectively connect with the recipients and potentially allow the viral message to spread (Dobele et al. 2006). These viral elements are closely examined in association with the relevant contributory factors in chapter 3.

2.2.2 Recipients

Recipients are the second most important issue in viral marketing because they not only provide potential users for digital services but also constitute marketing force to spread the viral message. The methodology of viral marketing is to seed the message to a particular number of recipients and let them decide whether to forward the message (Thevenot & Watier 2001; Bryce 2005; Leskovec et al. 2007). This methodology is taken seriously in seeding strategies for any viral marketing campaign (Hinz et al. 2011). Consequently, this thesis recognizes the need to examine recipients in viral marketing context regarding their values, characteristics, and functions. Also, studying seeding strategy furthers the understanding of how marketers approach recipients in their marketing campaigns.

Recipient values

Discussing viral message recipients, Richardson and Domingos (2002) study their intrinsic value and network value, specifically emphasizing the latter. Intrinsic value refers to the value of recipients as users of a service while network value indicates the degree to which recipients influence other's probability of adopting new services. In their paper "Mining Knowledge-Sharing Sites for Viral Marketing" (2002), the authors argue that network value is crucial for evaluating a

recipient's worth of the marketers' initial contact and that ignoring it can lead to mistaken marketing decision, especially for a service with strong network effect. A recipient with low intrinsic value but high network value might not appreciate the service initially but has the influence on his or her friends, who will then pass on the message to their friends and so on; the viral message is possibly widespread. On the contrary, marketing to a recipient with high intrinsic value but low network value, i.e. someone that appreciates the service but has little influential power on people in his or her network might prevent the message from spreading. (Richardson & Domingos 2002.)

Although intrinsic value helps recognize potential users (Richardson & Domingos 2002), this thesis agrees that recipients' network value should be emphasized in identifying the right targets to successfully seed the viral message. Despite the complex of recipients' network, the prominence of the Internet and a plethora of social network sites such as Facebook and LinkedIn, which have attracted millions of users (Boyd & Ellison 2007), facilitate marketers' task of defining relationships and connections of recipients (Subramani & Rajagopalan 2003). The rest of this section focuses on recipients' network value by analysing the nature of influence in the viral marketing framework (Subramani & Rajagopalan 2003), recipients' strong and weak ties (Bryce 2005), and opinion leaders (Hinz et al. 2011).

Nevertheless, before starting the analysis, different terms concerning recipients used in this thesis are explained. The need to classify recipients stems from the differences in the time of receiving the viral message, recipients' characteristics in their network, and the forwarding behaviours among recipients. Previous research has employed different terms to indicate the same objects of research; therefore this thesis proposes a consistent list of terms used in the later chapters. The term *recipients* generally indicates the people that receive the suggestion of using the service. *Initial contacts* are identified as a part of the targeted group that have the capability of spreading the viral message; therefore initial contacts are approached by marketers at the beginning of any viral marketing campaign (Pousttchi & Wiedemann 2007). A part of initial contacts that value and start using the service is called *early adopters* (Hinz et al. 2011). They are the service's first users. *Communicators* are early adopters who are so engaged in the service that they

recommend to their friends who share the same interests and preferences (Subramani & Rajagopalan 2003). Communicators that succeed in persuading a significant number of other people to use the service are called *influencers* (Subramani & Rajagopalan 2003). The people that are persuaded into using the service are called the *influenced* (Red Ant 2009).

Viral marketing framework on the nature of influence

An analysis of viral marketing highlights systematic patterns in the nature of knowledge-sharing, influence and compliance in online social networks. These patterns form a foundation for an organizing framework of adopters' influence and recipients' behaviour in viral marketing. The framework is built upon two main factors that affect the nature of influence in viral marketing: influencer's role and network externalities. (Subramani & Rajagopalan 2003.)

First, influencer's role is either active or passive (Subramani & Rajagopalan 2003). Active influencers communicate viral messages with the purpose of persuading others into adopting new services; they play a critical part in traditional word of mouth because they are personally involved in spreading the message. On the contrary, passive influencers are urged to forward the content by marketers' embedded request in the viral message. Viral marketing takes advantage of modern technologies to also turn passive influencers into marketing force; otherwise, these recipients would not forward the message voluntarily. (Pousttchi & Wiedemann 2007.)

Second, network externalities level varies between high and low. Network externalities indicate the benefits derived from a large user base of a particular service. (Subramani & Rajagopalan 2003.) For instance, a consumer's intention to purchase a telephone clearly depends on the number of his or her family members, friends and colleagues that join the telephone network so that he or she can stay in touch with them via telephone (Katz & Shapiro 1985). Another example is the case of a word processing product: a great number of users create a pool of consultants whom new users can turn to for help. Similarly, in the case of digital services, a user's willingness to adopt a new service is significantly influenced by the fact that other people in his or her network are also using the service. As a

result, high network externalities emphasize the benefits accrued from user base's increasing size while low network externalities indicate only individual benefits to users. (Subramani & Rajagopalan, 2003.)

These categories are illustrated in table 1, which reveals four quadrants of viral marketing: awareness creation, benefits signalling; targeted recommendation; motivated evangelism; and signalling use, group membership. As mentioned in section 2.1.3., these quadrants are also considered main categories of viral marketing (Subramani & Rajagopalan 2003). Although the concepts of these quadrants are different, they are not totally separate from one another. According to Pousttchi and Wiedemann (2007), viral marketing strategies usually employ more than one viral marketing standard type. (Pousttchi & Wiedemann 2007.)

TABLE 1. Framework of viral marketing (Subramani & Rajagopalan 2003)

Level of network externalities	High	Motivated Evangelism	Signaling Use, Group Membership
	Low	Targeted Recommendation	Awareness Creation, Benefits Signaling
		Active	Passive
Role of communicator in persuasion			

- Awareness creation, benefits signalling

This quadrant includes passive communicators and low network externalities, meaning that communicators do not put much effort in forwarding the message and that the service brings only individual benefits. The most popular application of this quadrant is greeting cards, which provide users limited opportunities to communicate with their peers in a personal and funny way. (Pousttchi & Wiedemann 2007.) Cards' recipients get personal emails that encourage them to

use the service to return the senders' greeting or to greet other people; as such, influencers create awareness and signal the service's benefits to other potential followers effortlessly (Subramani & Rajagopalan 2003).

This type of viral marketing is similar to the frictionless viral marketing discussed in section 2.1.3, in which the level of users' participation in spreading the word is low or passive.

- Targeted recommendation

This quadrant's characteristics are active influencers and low network externalities. A common spreading method in this quadrant is the send-to-a-friend option, by which recipients can send the content, such as a piece of news or a short video, to their friends via text messages or emails. The influencers are active in that they have to enter their friends' phone numbers or email address in order to forward the content. Network externalities are low because the benefits received do not vary in company with user base growth. (Pousttchi & Wiedemann 2007.)

Examples of this quadrant are online news providers such as ESPN.com, online music providers such as mp3.com, and online shopping services such as Amazon or Ebay. Amazon and Ebay utilize this type of marketing to encourage customers to spread product information by recommending to their friends. (Subramani & Rajagopalan 2003.)

Most importantly, communicators in targeted recommendation, with their own private information about their peers, are argued to accurately anticipate recipients' interests and preferences. Since connections among people of the same interests are essential in viral marketing's spreading mechanism, targeted recommendation plays a crucial role in spreading specific services within a target group or to identify potential adopters. (Subramani & Rajagopalan 2003.)

- Motivated Evangelism

As revealed from the figure, this quadrant is identified by active influencers and high network externalities. These characteristics are applicable to services that need both communicators and recipients to use the service to benefit from the usage. Inevitably, early adopters are motivated to actively forward the service to recipients and to persuade them into using it; therefore influencers play an active role in the service's wide diffusion to obtain high network externalities, which increasingly benefit a growing user base. (Pousttchi & Wiedemann 2007.)

Examples of this viral marketing type are communication applications such as ICQ, an instant messaging application, and Dialpad, an application to place telephone call over the Internet. Nowadays users are flooded with communication applications such as Yahoo!, Skype, and Lync and social networks including Facebook, Twitters, and LinkedIn; these are also examples of this type. Another application of motivated evangelism is group purchasing services for users benefit from low prices when the number of buyers increases. (Subramani & Rajagopalan 2003.)

- Signaling use, group membership

This quadrant, featured by passive influencers and high network externalities, is typical of file compressing services. Communicators' role is passive; when they send the file in a particular format, they do not explicitly suggest that format to the recipient. However, the high network externalities are revealed in the recipient's need to have the same format installed in his or her device to be able to read the file. (Subramani & Rajagopalan 2003.)

Another example is payment methodology. Once a payment is executed via a certain payment method by a user, the receiver is informed by the payment service provider; hence, the role of communicator is passive. However, users benefit from a broad user base with rapid transactions because of the high network externalities in these services. (Pousttchi & Wiedemann 2007.)

Despite the variation in communicators' motivation to pass on viral messages, all the four quadrants imply the assumption that communicators have connections

with whom they share similar interests and preferences. On this account, the authors of this thesis are compelled to study an important characteristic of recipients' relationship: tie strength.

Strong and weak ties

Bryce (2005) suggests that understanding the concept of tie strength among people in social groups provides insights into information flow in word-of-mouth marketing. Tie strength among people in social groups is described as the intensity of social relationships among consumers and the subsequent impact on word of mouth effect. (Bryce 2005.)

There are two kinds of ties that are correlative with the two levels of word-of-mouth marketing: strong ties and weak ties. Strong ties are the ties existing within a closely-related or mutual-interest group. On the other hand, weak ties are defined as the ties that bridge across social groups with dissimilar interests and demographics. (Bryce 2005.)

This tie strength concept manifests itself in social clusters and groups, in which people with mutual interests, background and acquaintance frequently share information. If marketers want to have access to such groups, they have to look for the people who actively take part in one or more of these groups, or the people who have connections across different groups. (Rosen 2001.)

In the same vein, Hinz et al. (2011) classify three types of recipients based on their socio-metric values: hub, fringe and bridge. **Hubs** are well-connected and active in strengthening their connections to others; meanwhile, **fringes** are poorly connected. **Bridges** are those that connect two parts of the network, which are otherwise unconnected without them. In the context of social ties, hubs represent strong ties while bridges are typical of weak ties. (Hinz et al. 2011)

Although hubs and bridges have different network values, their roles are essential in viral marketing seeding strategies. In the scope of modern viral marketing, which is almost inevitably associated with the Internet and online social networks, these people possess strong persuasion power, communicate across groups and hold unusually large number of social contacts. As they have exponential

influence in shaping and driving public opinion, they are referred to as *opinion leaders*. (Bryce 2005.)

Challenged by the complex in recipients' connection and relationship, marketers should study the role of these opinion leaders, i.e. hubs and bridges, to understand and influence the communication flow in social networks with the optimal seeding strategy (Iyenga et al. 2010).

2.2.3 Seeding strategy

Seeding strategy is the process in which marketers establish the initial group of targeted audience to seed the message in their viral marketing campaign (Libai et al. 2005; Hinz et al. 2011).

Early research has observed different groups of recipients according to their network values: hubs, bridges, and fringes; and, as shown in table 2, the variation among these groups breeds different seeding strategies: high degree seeding, high betweenness seeding, and low degree seeding (Hinz et al. 2011).

TABLE 2. Types of seeding strategy (Hinz et al. 2011)

<i>Target</i>	<i>Types of seeding strategy</i>
Hubs (opinion leaders)	High degree seeding
Bridges (opinion leaders)	High betweenness seeding
Fringes	Low degree seeding

- High degree seeding to hubs

This seeding strategy approaches hubs because of their strong connections and influence (Hinz et al. 2011). In addition to hubs' ability to persuade others into new services, a study in opinion leadership and social contagion supports hubs' significant activities in their social networks to spread the viral message. (Iyengar et al. 2010.) Furthermore, hubs are discovered to make more use of their reach potential, facilitating the spreading of services (Hinz et al. 2011). Consequently, initially seeding viral message to hubs increases the likelihood of the message to widely circulate among clusters.

- High-betweenness seeding to bridges

As explained above, bridges connect otherwise separated sub-networks; thus, in contrast to hubs' roles in circulating viral messages among clusters and groups, bridges enable strong diffusion of information across groups. Consequently, bridges are argued to also possess enormous influence sphere in virtue of their weak ties. Earlier research also emphasizes on the vast social circles and cross-cluster communication behaviour of these bridges in creating shortcuts for information to penetrate and spread across sub-networks. Bridges guarantee the effectiveness of viral marketing campaigns in that information does not just stay in one distinct social group but flow across different groups. (Brown & Reingen 1987; Bryce 2005; Hinz et al. 2011.)

In coherence with the tie strength concept, Rayport (1996) advocates exploiting the advantages of weak ties or bridges to spread the marketing virus; however, Watts (2004) also warns bridges' contribution in widespread negative brand images (Hinz et al. 2011).

There is a significant correlation between the cross-cluster communication discussed above and contemporary viral marketing. Viral marketing basically starts with an aim to trigger a positive word of mouth effect among users. The Internet and online social networks have direct and major influences on viral marketing because Internet-based word of mouth processes, or word of mouse (Perry & Whitaker 2003), can reach countless net users. Viral marketing has developed out of the traditional word-of-mouth marketing boundaries, where a

message is often exchanged only within mutual-interest groups, not across different social groups.

- Low degree seeding to fringes

Since opinion leaders are conventionally exposed to a great deal of influence from marketers, some researchers argue that hubs or bridges are much harder to persuade than less connected people. As a result, low degree seeding strategy is favoured. (Watts & Dodds 2007b.)

Also, when opinion leaders are not in favour of and resist the new service, fringes are considered valuable to seed the service because there has been evidence that fringes become early adopters (Iyengar et al. 2010).

Figure 6 illustrates the exponential effect of optimal seeding strategy in a viral message's spreading path.

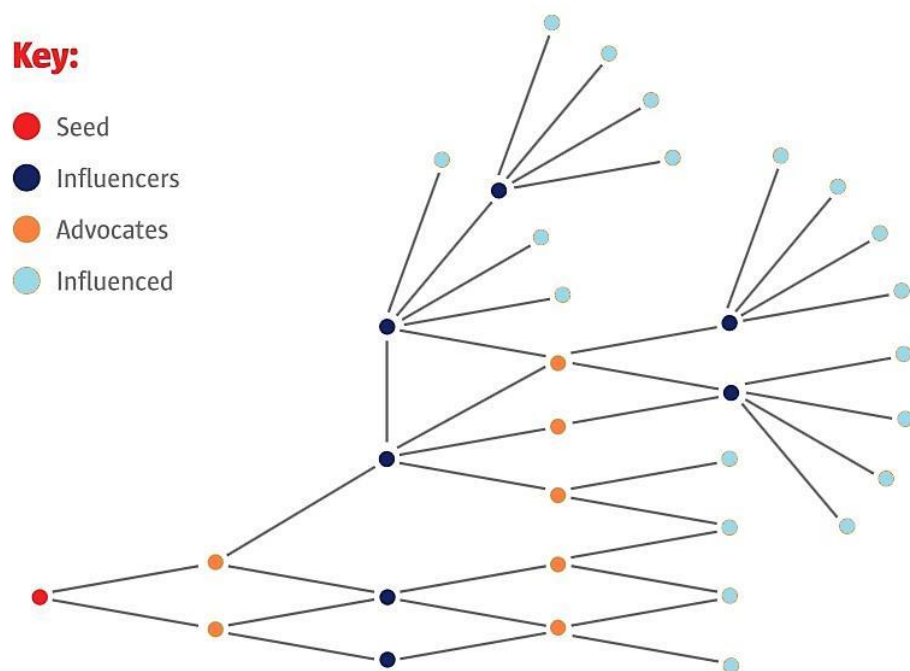


FIGURE 6. Key recipients in viral marketing (Red Ant 2009)

The seed from marketers is initially sent to the right advocates and influencers, meaning hubs and bridges, from whom the viral message spreads eventually to the influenced. As observed from the figure, the more influencers the viral message approaches on the way, the more diffusion the seeding strategy is able to create. Consequently, identifying the right opinion leaders or influencers is vital in viral marketing. (Red Ant 2009.)

However, although viral marketing is normally considered inexpensive, Bryce (2005) also adds that the costs associated with spotting and recruiting the right opinion leaders on the Internet may be considerably high. Different costings may affect the seeding strategies being used. (Bryce 2005.) Stonedahl et al. (2010) explain that even though the cost to seed every viral message is normally assumed to be constant along the seeding path, in reality the cost may increase to opinion leaders, i.e. hubs and bridges. People respect opinion leaders' advices, and thus these influential recipients are expected to be not easily swayed by promotions. (Stonedahl et al. 2010.)

2.2.4 Viral mechanics

The technical aspects which govern how a viral marketing campaign is implemented can be referred to as viral mechanics. Viral mechanics are discussed by Rodic & Koivisto (2012) in their research to analyse the technical aspects in the successful implementation of viral marketing. Viral mechanics cover technical factors such as the platforms on which viral messages are spread and the sharing mechanism of the messages. Accordingly, viral mechanics are considered an important part of modern viral marketing campaigns because they facilitate viral message realization. (Rodic & Koivisto 2012.) In the book "Viral Marketing: Potential and Pitfalls", this aspect is referred to as viral hosts, meaning the technical tools used to spread viral messages such as emails, mobile phones or websites (Bryce 2005). However, this thesis employs the term viral mechanics suggested by Rodic and Koivisto to indicate the technical platforms in which viral messages are launched and in which digital services are offered.

Second, computer-mediated communication media provide the unprecedented ability to connect individuals synchronously (for example, using instant

messaging) as well as asynchronously (through email). The new media thus broadens the availability of recipients, literally enabling influencers to access connected others around the clock. Third, in many cases, the media provide real-time feedback on the impact of influence, enabling motivated individuals to rapidly adapt their influence strategies and progressively enhance the effectiveness of their influence attempts. As a result, the ability to exert influence is considerably enhanced. (Subramani & Rajagopalan 2003.)

2.3 User engagement in viral marketing

User base growth is one of the common goals for digital service providers of web and mobile applications (Red Ant 2009). Concerning user-centred web or mobile applications, user engagement is a key concept since the more users engaging an application is, the higher its capability of retaining its user base (O'Brien & Toms 2010). With regard to this thesis' objectives, the authors realize the significant need to study user engagement of web and mobile applications in the context of viral marketing; this knowledge is the foundation to understand the contributory factors in user engagement specifically and in sustainable user base growth generally.

This section includes a general overview of user engagement, including user engagement definition, user engagement characteristics, and the role of user retention of user engagement in viral marketing.

2.3.1 User engagement definition

With the aim of reaching an operational definition of user engagement, O'Brien and Toms (2008) study various definitions of engagement in literature. However, their definition is considered relevant to this thesis for they examine user engagement in the technological context.

“User engagement refers to the quality of the user experience that emphasises the positive aspects of the interaction, and in particular the phenomena associated with being captivated by technology”. (O'Brien & Toms 2008)

O'Brien and Toms (2008) also emphasize that successful technologies, with the considerable development of human computer interaction, are not enough to be only useable nowadays but also user engaging (O'Brien & Toms 2008). This statement highlights the crucial role of user engagement in designing web and mobile applications.

In studying user-centred metrics of web applications, researchers from Google Inc. utilize the HEART framework (Happiness, Engagement, Adoption, Retention and Task success) in order to investigate user experience. In this framework, user engagement is defined as the degree to which users are involved in a product, which, in this regard, refers to a digital service. This degree can be identified by some user engagement variables such as frequency, intensity and depth of interaction over a particular period of time. (Rodden et al. 2010)

2.3.2 User engagement characteristics

Much research has been done to study the characteristics and components of user engagement in order to gain a deeper understanding of the concept and also to form the basis for measuring and evaluating user engagement (Attfield et al. 2011). However, this thesis explores the applicable attributes of user engagement in order to support the analysis of the contributory factors in user base growth in chapter 3.

This thesis compiles from literature review a list of user engagement characteristics that are relevant to the key issues discussed in subchapter 2.2 and to the contributory factors analysed in chapter 3. Although O'Brien and Toms (2010) consider perceived usability a component of user engagement (O'Brien & Toms 2010), this thesis maintains that perceived usability is the fundamental characteristic of any web and mobile application when it comes to human computer interaction design (Attfield et al. 2011); hence this thesis excludes the perceived usability from the list of user engagement characteristics.

- Focused attention

Engagement is identified as paying focused attention to an experience with full concentration, absorption and even loss of self-consciousness. This phenomenon

is also associated with distortion in the subjective perception of time during interaction. Focused attention is an important component in measuring games immersion. (Attfield et al. 2011)

- Positive affect

Affect connects to emotions experienced during an event. The emotions that build personal connection to an experience are referred to as positive affect (Attfield et al. 2011). Examples of positive affect are fun, intrinsic motivation, and affective hook encouraging exploration or active discovery (O'Brien & Toms 2008).

- Aesthetics

An important factor of user engagement is aesthetics, which concerns the visual appeal of an interface. In different contexts, the sensory and visual appeals of user interface concern different aspects, among which those mentioned by O'Brien and Toms (2008) are found relevant to this studies. They study user engagement in the context of online shopping, web searching, educational webcasting and video games; and relate aesthetics to factors such as screen layout, graphics and the use of design principles such as symmetry and balance. (O'Brien & Toms 2008.)

- Endurability

Endurability is a primary characteristic of user engagement because enjoyable, useful and engaging experiences are remembered and repeated willingly (Rad et al. 2002). More importantly, endurability also implies the possibility of a user to recommend the useful experience to others, or in other word, to spread the service. This phenomenon is considerably meaningful to service provider in the sense of holding users' attention and encouraging them to return to the service (Attfield et al. 2011). Endurability plays an important role in users' decision of re-engagement after a fun, new and surprising experience (O'Brien & Toms 2008).

- Novelty

Novelty relates to surprising, unfamiliar, and unexpected experiences (Attfield et al. 2011). Novelty is essential to user engagement in that it appeals to our sense of curiosity, induces inquisitive behaviour and encourages endurability (O'Brien &

Toms 2010). Despite the significant value novelty contributes to user engagement, balance of novelty and familiarity is emphasized to speed up engagement and prevent disorientation (Attfield et al. 2011).

- User context

User experience is context dependent and is affected by user's motivation, incentives and benefits (Attfield et al. 2011). User engagement is influenced by external factors such as alternatives, social norms, values and trends as well as internal factors such as personal preferences and priorities (Harper et al. 2008).

With the understanding of these characteristics, this thesis closely examines the applicability of these characteristics to the critical factors in successful viral marketing strategies in chapter 3. Specifically, focused attention, positive affect, novelty and durability are relevant to factors concerning content in subchapter 3.1.1, user context to recipient's seeding behaviour in subchapter 3.1.3, and aesthetics to viral mechanics in subchapter 3.1.3.

2.3.3 User retention by user engagement in viral marketing

A significant number of studies show the role of viral marketing in creating a buzz to increase awareness of a particular service among the target audience; in other words, viral marketing's main objective is to draw users' attention to a new service (Helm 2000; Bryce 2005; Leskovec et al. 2007; Grifoni et al. 2013). However, in addition to attracting users, it is crucial for service providers or marketers to engage users, especially influencers (hubs or bridges), to prolong user lifetime (Attfield et al. 2011). Thus, user engagement in viral marketing is important in user retention.

With the knowledge of user engagement characteristics, marketers have implemented different methods in viral marketing to engage users such as personal incentives, rewards for referrals, interaction among users, and online and offline integration; hence possibly retain their user base. These methods if implemented effectively will contribute to the success of viral marketing campaigns. Detailed discussion on effective user engagement methods are presented in chapter 3.

3 CONTRIBUTORY FACTORS IN USER BASE GROWTH

Based on the overall knowledge of viral marketing for digital services in the previous chapter, this chapter discovers the critical factors that contribute to successful viral marketing campaigns through literature review and multi case research. After compiling a list of these contributory factors from earlier research, this thesis investigates historical viral marketing campaigns of digital service providers to indicate the utilization of these factors. Both the fast growth in user base and the ability to retain users are taken into consideration.

3.1 Contributory factors in user base growth in literature

Considering the success factors in viral marketing, different terms are used in previous studies; this thesis discovers and categorizes the factors from earlier research into three groups: content, recipient's seeding behaviour and viral mechanics. These groups are consistent with the key issues discussed in chapter 2. Although a successful viral marketing strategy does not need to include all the factors, these factors increase the likelihood of success (Pousttchi & Wiedemann 2007).

In addition, since a successful viral marketing campaign fulfils the goal of positive brand image exposure through wide transmission of the viral message (Bryce 2005), the term "contributory factors in user base growth" in this thesis is relevant to the term "success factors" (Pousttchi & Wiedemann 2007) or "critical factors" (Bryce 2005) often used in literature. The authors choose the term as is to emphasize the sustainable user base growth as the most important goal of the case company.

Table 3 summarizes the list of all the contributory factors analyzed in this thesis.

TABLE 3. Contributory factors in user base growth via viral marketing

<i>Group</i>	<i>Main contributory factor</i>
Content	<ul style="list-style-type: none"> - Perceived usefulness - Originality - Free content - Positive affects, strong emotions - Engaging elements
Recipient's seeding behaviour	<ul style="list-style-type: none"> - Initial contacts – Opinion leaders – Knowledgeable helpers - Optimal seeding strategy - incentives
Viral mechanics	<ul style="list-style-type: none"> - Widely popular platform - Perceived ease of use and sharing - Integration of online and offline - Critical mass and scalability

Here follows detailed discussion on each factor.

3.1.1 Content

As discussed in section 2.2.1, viral message content consists of the information about the service and viral elements. Viral elements are closely related to the emotions evoked by the message (Dobele et al. 2006; Berger & Milkman 2010; Grifoni et al. 2013). In terms of content quality, the appropriation of the information and its ability to evoke enough emotions to generate social interactions among users are emphasized (Rodic & Koivisto 2012).

Information to attract viewers' attention

First and foremost, Pousttchi and Wiedemann (2007), studying the success factors in mobile viral marketing, claim that *perceived usefulness* accelerate users' uptake of new services. Cluttered with countless digital services, users are likely to accept a new service if they receive a relative advantage or an added value from it. (Pousttchi & Wiedemann 2007.) In addition to individual benefits, the social sharing process is increased if the targeted receivers consider the information useful and relevant to other people in their network (Clarke III & Flaherty 2005; Rodic & Koivisto 2012). Besides, as one of the most original characteristics of viral marketing is users' benefit from growing user base, information that induces high interaction among users has higher potential to be passed on (Bryce 2005). Therefore, perceived usefulness in viral marketing indicates both individual benefits and social benefits provided by the service. According to Dobeles et al. (2006), recipients appeared more than willing to forward a viral marketing message when it resonates with them personally, and they feel that people they forwarded the message to would also find it useful or amusing (Dobeles et al. 2006).

Besides, *originality* is claimed to act as a filter in recipients' forwarding behavior; therefore, pioneers with fresh ideas possess the advantage of exponential user attraction (Pousttchi & Wiedemann 2007; Kulp 2007). Dobeles et al. (2006) also substantiate that inventive, original and unique ideas easily capture recipients' attention (Dobeles et al. 2006). Consequently, the more original the idea is, the easier and faster the spreading process becomes (Rodic & Koivisto 2012).

Last but not least, given that the "for free mentality" has grown stronger among Internet users because Internet services are mostly free (Pousttchi & Wiedemann 2007), *free* services are more likely to attract users (Bryce 2005; Pousttchi & Wiedemann 2007).

Emotions to induce viewer's action

Psychological approach to studying viral marketing confirms that viral messages encourage receivers' forwarding behaviour when they evoke strong emotions (Berger & Milkman 2010; Rodic & Koivisto 2012; Grifoni, et al. 2013).

This relation of emotion and social transmission of online content is confirmed by Berger and Milkman (2010). Their experimental study suggests that content that arouses *activating emotions*, either positive (admiration, appreciation, or awe) or negative (outrage or anxiety), is potential to go viral. Moreover, although *positive* content, or specifically inspirational and transparent content, is deemed an effective emotional element in viral messages (Rodic & Koivisto 2012), the study denies the common notion that viral ads should not provoke negative emotions for the sake of high transmission. In contrast, ads that stimulate anxiety or anger are wider spread than those relaxation or contentment. (Berger & Milkman 2010.)

Based on the “social sharing of emotions” phenomenon, which plays a crucial role in word of mouth, *surprise* elements, are claimed to significantly influence the act of sharing. There is proof that the more disruptive an event is the sooner and more frequently it is shared. Thus, surprise, which is a disruptive emotion, potentially improves social sharing process such as viral marketing. Furthermore, the relation between surprise elements and the size of viral network created by surprised recipients is based on the common assumption that a positively surprising information to some people is likely to be new, pleasant, and useful to others. That is, in viral marketing, if surprised users believe in the information’s perceived usefulness to the recipients and trust the source of the message, they are likely to establish a large viral network by sharing the message to their peers. (Clarke III & Flaherty 2005.)

An experimental study on the role of emotions in recipients’ forwarding behaviour of viral messages confirms the importance of surprise as well. However, as shown in table 4, this study uncovers the effect of six main emotions that are considerably effective in inducing recipients to pass on the content in viral marketing. (Dobele et al. 2006.)

TABLE 4. Primary emotions and their effect in viral marketing

<i>Emotions</i>	<i>Effects</i>
Surprise	Surprise is usually the result of unexpected information of a new or unprecedented idea. Once this emotion occurs, it tends to dominate over other emotions, increasing its positive effect. Therefore, original ideas that amaze people successfully encourage them to forward the message.
Joy	Although joy is a weak emotion, a combination of joy and surprise intensifies the positive effect on forwarding behaviour.
Sadness	Sadness is often used to raise sympathy and to encourage support and donation for a company or especially charity organization. This emotion takes advantage of the fact that attention to sad individuals' quest is usually high.
Anger	Anger is a good catalyst for strong connection among angry individuals, who are considered fast and straightforward with their responses. This emotion is often used in campaigns against person or organization that is to be blamed for a victim's predicament.
Fear	Fear is a strong emotion that usually encourages action. This characteristic is suitable for viral marketing campaigns because if recipients are frightened by the message, they tend to do what it asks of them so as to escape the state of fear.
Disgust	Disgust is defined as a weak emotion with short duration and low experiential intensity. However, it is usually paired with humour to create strong sharing rates in some cases.

Among the six primary emotions in their experimental study, Dobeles et al. (2006) claim that surprise is the dominant emotion seen in almost every well-thought viral campaign. The authors explain that the willingness to forward a viral message is evident when recipients' imaginations were excited or captured through a new application of technology, a surprising ending or a unique brand message. Furthermore, in order to boost the effect, successful viral messages have to encourage actions by coupling surprise with another emotion such as joy to create delight or disgust to create humour. (Dobeles et al. 2006.)

Besides, the findings regarding humour of Rodic and Koivisto (2012) are in concert with other research. They claim that humour is a safe choice to make the viral message *entertaining*. Specifically, the humour contained in viral marketing should make the users feel easy to relate to. (Rodic & Koivisto 2012.)

Furthermore, Rodic and Koivisto (2012), who refer to viral message content as social objects, find that in order to increase the virality of a marketing message, the content should include, in addition to *entertaining* and *positive, interactive* elements. Interactivity and playability features are considered noteworthy and even typical to viral marketing. They can involve users deeply in the services or products as a consequence of spending more time with the brand. (Rodic & Koivisto 2012.) These attributes are grouped into the *engaging elements* in table 3, referring to their ability to capture users' attention and increase users' endurance to the service.

Finally, *branding* is also noted in viral marketing literature to provoke emotions and reactions. Chaffey (2006) maintains that sufficient brand visibility in viral messages, especially videos, also improves the company's image in viral marketing. Subtle branding belittles the company's image (Grifoni et al. 2013) while prominent branding tends to put off viewers. (Teixeira 2012.)

Given the importance of content in viral marketing and the threat of widespread negative brand image, testing viral messages among a small group before launching is highly recommended in order to discover and mitigate possible negative reactions. (Bryce 2005; Grifoni et al. 2013)

3.1.2 Recipient's seeding behaviour

Recipients are confirmed to play an important role in viral marketing as they are the ones that perform the seeding behaviour, helping the message to go viral. Fortunately, together with the popularity of the Internet, the rise of social networks expands the power of sharing content. The extensive effect of viral marketing benefits from this scale and scope influence power, rather than the simple sharing process between one sender and one receiver in word of mouth. Furthermore, as senders are equipped with developed sharing mechanics and spend less effort in approaching a large number of receivers, they tend to increasingly perform this sharing behaviour out of natural impulse. In other words, the *ease of sharing* induces people to instantly pass on information they perceive to be useful and timely to others in their social network. (Subramani & Rajagopalan 2003.)

On the contrary, the rising popularity of the Internet also means that people are overwhelmed with online advertising (Bryce 2005); people will not spend time on irrelevant and unattractive viral messages. Consequently Dobele et al (2007) maintains that identifying the right target to seed the viral message helps generate large-scale positive feedback (Grifoni et al. 2013). Similarly, Bryce (2005) emphasizes the importance of carefully selecting the initial recipients who are popular and persuasive in social network and typical of the target group (Bryce 2005). This factor, *initial contacts*, is important because the ability of digital service providers to identify and address the first users that are digitally active – that frequently receive and forward digital content – speeds up the spreading (Pousttchi & Wiedemann 2007). Also affirming the crucial contribution of well-chosen initial contacts to widespread transmission, Dobele et al. (2006) explain that initial recipients should be those that are familiar with the service, the company, the brand or the idea of the viral message to some extent to elicit a pre-positive response. For example, the first contacts might be company's staff, past or existing clients, or their friends and families, i.e. potential advocates for the service. (Dobele et al. 2006.)

Additionally, Rodic and Koivisto (2012), confirming the importance of detecting the right initial contacts, recommend *bloggers* to be potential initial contacts

because they are highly influential in digital viral marketing. Specifically, bloggers are potential opinion leaders, playing a crucial role in spreading a message. Many bloggers have a dominant voice among their peers. On top of that, they have high social networking potential and a propensity to share in the digital realm. Hence if they put the marketing message onto their blogs, there is a high probability that bloggers can create an avalanche. Bloggers, therefore, were suggested by Rodic & Koivisto as potential initial contacts. (Rodic & Koivisto 2012.) In an integrated framework for viral marketing campaign, blogs are also confirmed to be the most diffused environment to seed a viral message; hence the active role of bloggers should be emphasized in viral marketing (Grifoni et al. 2013).

An *optimal seeding strategy* is another crucial factor in successful viral marketing campaign. In an empirical comparison among the three aforementioned seeding strategies in section 2.2.3: high degree seeding strategy to hubs, high betweenness seeding strategy to bridges, and low degree seeding strategy to fringes, Hinz et al. (2011) conclude that high degree and high betweenness seeding strategies yield the highest level of diffusion, confirming the important role as opinion leaders of hubs and bridges in spreading the viral message (Hinz et al. 2011). These opinion leaders are also considered worth seeding because of their high network value to reach more people, their high intrinsic value as early adopters and heavy users, and their influence power (Iyengar et al. 2010).

Social network remains a crucial determinant in optimal seeding strategies in practice because seeding to hubs or bridges and utilizing socio-metric data potentially boost viral marketing effect. As a result, social structure is observable and measurable to reveal mutual relationships. For example, information about social ties can be obtained through online social communities such as Facebook or Linked In. (Hinz et al. 2011.)

With the Internet and social network services, modern viral marketing has sufficient facilitators to overcome obstacles that hinder the flow of information across different social clusters. As a consequence, spotting and seeding the message to opinion leaders on the Internet is emphasized by Bryce (2005) as a catalyst for the success of viral marketing campaigns. (Bryce 2005.)

However, success in viral marketing means that recipients view opinion leaders as *knowledgeable helpers* in the social network, not as agents of the marketer.

(Subramani & Rajagopalan 2003.)

In order to detect opinion leaders, Marsden (2005) develops a number of practical solutions for marketers to start their seeding phase: self-designation, professional activities, digital trace, key informants and socio-metry. (Marsden 2005.)

- Self-designation

This approach involves asking prospective users to respond to a short self-completion questionnaire and then screening them for opinion leadership status. Marsden (2005) claims that this technique, although may be self-bias in some cases, has been validated and reliable.

- Professional activities

Marketers can scan the job titles of target users to find indicators of opinion leadership status. This approach is viewed as less scientific, however it is argued to be practical and cost-effective.

- Digital trace

Nowadays opinions are increasingly shared online, leaving a digital trace that can be utilized by marketers as a method for identification of opinion leaders. Marketers can carry out an online search on relevant blogs, websites, online discussion panels and web forums.

- Key informants

This approach is ideally suitable for small markets. In this method, marketers ask a limited number of people, who are knowledgeable about the real-world word of mouth influences, to designate the opinion leaders.

- Socio-metry

Identification of opinion leaders is implemented by actually mapping the patterns of word of mouth influence in a target market. This method can be costly and time-intensive. (Marsden 2005.)

In order for any seeding strategy to succeed in urging initial recipients to pass on the viral message, *incentives* should be provided (Bryce 2005). Pousttchi and Wiedermann (2007) also suggest that rewards for communicator always encourage them to forward the service (Pousttchi & Wiedemann 2007). Moreover, since incentives are used widely in viral marketing, marketers are driven to examine the effect of incentives in improving credibility of the sender and eliminating spamming issues (Bryce 2005).

3.1.3 Viral mechanics

As mentioned in chapter 2, the term “viral mechanics” is used by Rodic & Koivisto (2012) in their research to indicate the technical aspects in the implementation of viral marketing. Viral mechanics facilitate viral messages realization. (Rodic & Koivisto 2012.)

There are different platforms to implement a viral marketing campaign. Examples given by Rodic & Koivisto (2012) include a varied selection: brand’s social media page, blogs, e-mail databases, campaign’s own websites and brand’s websites. A *widely popular platform* is thus crucial for a service to go viral. (Rodic & Koivisto 2012.)

In addition to the medium in which the service or the viral message is launched, the *perceived ease of use and sharing* is also considerably emphasized in viral marketing; i.e. users are willing to spread the service or viral messages if receiving and forwarding them require little to no effort (Bryce 2005; Pousttchi & Wiedemann 2007; Rodic & Koivisto 2012). Therefore, marketers should provide a simple way for users to share the content as easy transmission guarantees higher chance for a service to go viral.

Furthermore, as offline mode of word of mouth communication is an important component of viral marketing (Kulp 2007), *integration of online and offline* viral marketing is claimed to guarantee widespread of the viral message (Thevenot & Watier 2001). Besides harnessing the connection power of the Internet, viral marketing can motivate people to spread the message by giving them offline incentives, such as discounts at brick-and-mortar shops or restaurants, and offline

activities, such as sending packages to friends or family members (Thevenot & Watier 2001).

Last but not least, in studying the success factors in mobile viral marketing, Pousttchi and Wiedemann (2007) notice the importance of *critical mass* and *scalability* in maintaining digital services once they have gained a particular number of users (Pousttchi & Wiedemann 2007). The critical mass concept in viral marketing means the minimum number of adopters of an innovation for the further rate of adoption to be self-sustaining (Rogers 2003). Consequently, users' willingness or even possibility to forward a service is attributed to the sufficient size of installed base, the number of users that have adopted the service.

Considering scalability, A.B. Bondi (2000), examining the characteristics of scalability and their impact on software performance, defines scalability as a system's ability to contain, process and enlarge with an increasing amount of data. Pousttchi and Wiedemann (2007) indicate the benefits of scalability to both users and providers: users are certain that the service will work regardless of rising number of users and providers have an opportunity to commercialize the expanding service. (Pousttchi & Wiedemann 2007.)

3.2 Contributory factors in user base growth in historical cases

After extracting the factors from literature, the authors examine the implementation of these factors in practical cases. The cases presented in this subchapter are mostly chosen by the authors from literature review. However, the authors also take into consideration the suggestions for some cases from the case company. As the case company has also performed its own research and expressed its interest in some cases, its suggestions are highly pertinent to the thesis, which serves the purpose of assisting the case company with its own viral marketing campaign. Overall, the cases are selected according to the following criteria.

- Digital service providers

The case company itself is a digital service provider; therefore it is of its best interest to learn from other relevant businesses' successful viral marketing

campaigns. Specifically, companies that develop digital products and services for mobile Internet market constitutes the majority of the chosen cases.

- High virality

Most of the cases in this subchapter have experienced a viral growth in relatively short periods of time through their successful viral marketing campaigns. The authors select the products, services or the marketing campaigns that have achieved exponential growth in user base or have rapidly generated a considerable buzz. Thus, in some cases, the products offered are tangible products but their marketing campaigns are worth our consideration.

- Sustainable user base growth

As discussed earlier, user base growth cannot sustain without the ability of the service to engage and retain users. Consequently, the authors of this thesis also select the cases with the sustainable user base growth and observe their viral marketing strategy to discover and analyze the contributory factors.

After careful selection according to the aforementioned criteria, the authors pick seven cases:

- Zynga
- Foursquare
- Old Spice
- Facebook
- LinkedIn
- Instagram
- Angry Birds

The successful viral marketing campaigns of these cases are examined on the basis of the factors discussed in subchapter 3.1:

- Perceived usefulness
- Originality
- Free content
- Positive affects, strong emotions

- Engaging elements
- Initial contacts – Opinion leaders – Knowledgeable helpers
- Optimal seeding strategy – Seeding incentives
- Widely popular platform
- Perceived ease of use and sharing
- Integration of online and offline
- Critical mass and scalability

The authors examine the viral initiatives that these cases have implemented to demonstrate the correlation between the practical initiatives and the theoretical factors. This correlation is crucial to confirm the practical contribution of these factors in sustainable user base growth.

However, it is worth noticing that these factors are chosen to analyse because the authors realize their relevance to the literature review in this thesis and their significant contribution in these cases' viral marketing campaigns. These cases might have implemented other crucial factors, which are not discussed in this thesis, in order to achieve their massive success.

The factors “free content” and “critical mass and scalability” are excluded from the analysis. Most of the case services are offered free of charge to users and so is the service of the case company. As mentioned above, users are familiar with the “for free culture” on the Internet (Pousttchi & Wiedemann, 2007); hence, this factor is taken for granted to initially encourage users to download and use the service. Additionally, this thesis carefully selects the most viral cases that have achieved more than millions of users each; arguably, these services possess sufficient critical mass and scalability to operate smoothly with such large data and user base regardless of time and place.

In each case's analysis, first, background information about the company and the service is provided; then, virality statistics are presented; and finally, the contributory factors are analyzed to explain the viral growth. After the analysis, the authors also present some remarks about viral marketing practices of these cases in section 3.2.8.

3.2.1 Zynga

Zynga is an American service provider of online social games. The company was founded in July, 2007 and is currently headquartered in San Francisco, California (Takahashi 2011). Zynga has more than 240 million monthly active users; its games include such highly popular names as FarmVille, FrontierVille, Zynga Poker, Words With Friends, Scramble With Friends, and Café World. As of May 2012, statistics showed that Zynga had a total of eight different games standing in the list of 25 most-played Facebook games in terms of both daily and monthly active users. (Thompson 2012.)

The company develops online games that are often regarded as “social games”. Platforms for Zynga social games include mobile phone operational systems such as Apple iOS and Android, its own website Zynga.com; and social networking websites such as Facebook, Google+, and Tencent. "Connecting the world through games" is Zynga's stated mission. (Zynga Inc. 2013.) This mission reflects the social engagement strategies in Zynga's games.

Piskorski (2011) attributes the success of Zynga to the social engagement factors embedded in its each and every game. The company's social strategies are devised during the development and production of its services. Piskorski (2011) studies more than 60 companies from different industries to derive the important factors that can determine whether a business is able to thrive on social platforms. Among them, Zynga stands out as an example of great user base growth and also user retention with low costs. (Piskorski 2011.)

Two of Zynga's most popular games are Farmville and Cityville. The games have gone viral in a rather short period of time, transforming Zynga from an up-and-coming to a powerhouse name in the mobile game industry. As of May 2012, CityVille was the third most popular Facebook game in terms of daily active users, while FarmVille was the seventh most popular (Thompson 2012). The games are operated on Facebook platform. Users are able to post status updates about the games; however, the social elements are more deeply integrated into the games than that. To overcome the virtual obstacles in the game, a user can ask a friend in his or her list to help, via Facebook or Zynga's own messaging system. It

is also possible for a user to return a previous favour from his or her friends by sending virtual gifts or by helping them later. (Piskorski 2011.)

The content of the games developed by Zynga is argued to have brought *positive impact* on its users' social lives. Piskorski (2011) argues that, according to a survey by Information Solution Group, Zynga games help its users connect with their family and current friends, and encourage them to connect with their old friends and establish new friendships. The games themselves also demand a high interaction between users so that all the users can overcome the obstacles and get new achievements in the games. With an opportunity to maintain their actual social networks, users have more motivation to urge others to join or to return to the virtual world of Zynga games. (Piskorski 2011.)

In FarmVille, Zynga's implementation of social engagement strategies is shown in unique game features. One such feature is pointed out by Takahashi (2011): Zynga's FarmVille has an in-game feature named "wither," which ages players' crops over time so that the crops became virtually worthless if users do not harvest them in appropriate time. This feature is argued to *increase users' endurance*, meaning it has successfully kept users engaged and come back to the game often. (Takahashi 2011.)

In an interview conducted by the online technology website VentureBeat, Reynolds (2010), Zynga's chief game designer, confirms the social engaging efforts in developing Zynga's FrontierVille. Reynolds (2010) states that FrontierVille is designed with a mindset to encourage *deep user interaction*, and that its goal is to improve social experience quality. (Takahashi 2010.)

In coherence with the contributory factors studied in subchapter 3.1., the *perceived usefulness* in Zynga's games reflects in the social benefits they offer to users: the games help them establish or strengthen their relationships. Moreover, Piskorski (2011) also argues that social engagement strategies in Zynga's games help reduce its user acquisition and retention costs considerably. (Piskorski 2011.)

Another crucial factor that has helped Zynga grow its user base is the initial integration with the *popular platform* Facebook. Through Facebook, Zynga has access to the users and all the other Facebook users in their friend lists. As

mentioned above, users are able to post status updates about the games on Facebook. Takahashi (2011), in his in-depth analysis of Zynga, claims that Zynga has demonstrated the power of digital viral marketing. Zynga has leveraged its existing games in order to promote its new games. Zynga cross-promotes its games across its network and consequently attracts a huge number of users to its new games. (Takahashi 2011.)

3.2.2 Foursquare

Foursquare, a mobile device application, is developed as a location-based digital service. Foursquare allows its users to update and save information of the places they visit. In other words, Foursquare help users know where their friends are and share their current locations. When users want to share their locations, they use a function called “check-in” of Foursquare on their mobile devices; their friends are then able to view their positions on the Foursquare map. (Saint 2010; Foursquare Labs Inc. 2013.)

Moreover, Foursquare also gives its users personalized recommendations for interesting locations nearby (Foursquare Labs Inc. 2013). Foursquare rewards users with virtual points for their check-ins. The most active users might receive “badges” and virtual status such as “mayor” of a place. Foursquare is moving towards providing users with more interactive location-based contents. (The Week Staff 2010.)

Official updates from Foursquare (2013) in January 2013 reports that the service currently has more than 30 million registered users with more than 3 billion check-ins (Foursquare Labs Inc. 2013). Business Insider Intelligence (2012), a research and analysis service focusing on the Internet industry, illustrates the growth in Foursquare’s user base since its launch in 2009 to March 2012 in figure 7 (Cocotas 2012).

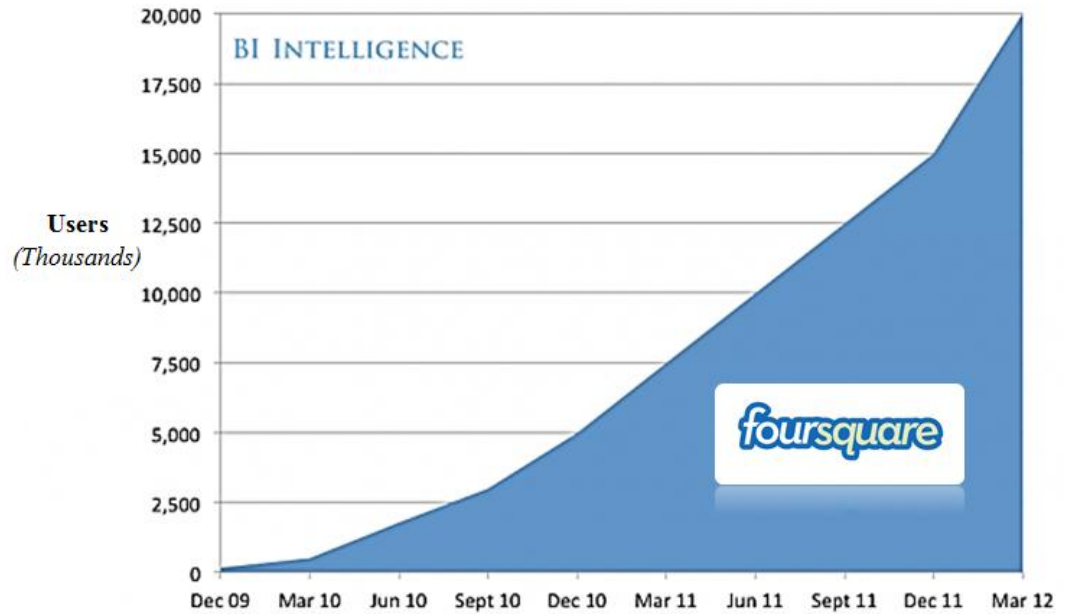


FIGURE 7. Foursquare's user base growth (Cocotas 2012)

As revealed from the figure, Foursquare has experienced accelerating user base growth. From December 2010 to December 2011, the number of Foursquare's users triple from 5 million to 15 million. (Cocotas 2012.)

In a study on Foursquare check-in system, interviews and surveys among Foursquare users are performed to obtain users' behaviour in their check-in activities. The study reveals that users' continuous check-in is due to the benefits they receive from the service. The *perceived usefulness* reflects in not only individual benefits but also social benefits. Users who check in frequently in Foursquare claim to keep better personal tracking in order to recall their own whereabouts over a specific period of time. Moreover, they are able to obtain discounts and special offers from the restaurants or stores that they actively visit and check in. Some users also attribute their discovery of new places to regular usage of Foursquare. In addition to individual benefits, social benefits are also realized when users have the opportunities to coordinate with their friends and meet new people with the same taste of entertainment. (Lindqvist et al. 2011.)

Emotional appeals are confirmed to play a crucial role in user engagement (Attfield et al. 2011) and Foursquare has proved to properly utilize *positive affect* to retain its users. Foursquare's users are attracted to the service because it brings them fun, connection to their friends, new connections, and exploration opportunities of new places. (Lindqvist et al. 2011.)

Furthermore, *virtual incentives* offered to active users such as points, badges, mayorship and games are surprisingly enough for users to share publicly via Facebook or Twitter (Lindqvist et al. 2011), hence helping spread the service.

In addition to its own community, Foursquare also takes advantage of the vast user base and considerable popularity of social networks including Facebook, Twitter, Google +, Flickr and Meetup. For example, users are able to post their activities in Foursquare on their Facebook wall or tweet them in Twitter. These posts and tweets are viewed by users' friends, who may not be Foursquare's users yet. Once these friends have seen a large enough numbers of their friends using the service, they are inclined to join it. (Foursquare Labs Inc. 2013.)

Although many users argue against privacy issues from Foursquare as their regular locations are exposed, they still use the service. An idea proposed to solve the problem is to separate real friends from followers, who are friends through the service but not acquaintances in reality. In this manner, users' posts are exposed to only their real friends whom they trust and are willing to share their whereabouts. (Lindqvist et al. 2011.)

Foursquare's success in their user base growth is significantly attributed to their ability to engage user. The crucial feature of the service is that users' *online and offline activities* are closely integrated in Foursquare because dining, shopping, and working are users' daily activities. However, in each and every activity, they are encouraged to virtually check-in in Foursquare to receive the benefits mentioned above. Hence, their *endurability* with the service increases when they revisit the application as regularly as they carry out their daily activities. (Lindqvist et al. 2011.)

3.2.3 Old Spice

The marketing campaign of Old Spice, a male grooming product brand, also shows a successful employment of viral mechanics, including existing *popular social platforms* such as Twitter and YouTube. Wieden+Kennedy is the advertising agency in charge of the Old Spice's "The Man Your Man Could Smell Like" campaign that has created a considerable buzz over the Internet (Borden 2010). The campaign revolves around a video series of a male character talking to the viewer in swift monologue. While the talk is uninterrupted, the character goes through different scenes with various activities and still maintains strong eye-contact with the viewers. This video receives wide acclaim for being *fresh and original*, winning many international awards for the idea (Wentz 2010; McMains 2011). To further connect with the viewers, the marketers encourage customers to post questions to the main character onto Twitter and Facebook. The questions are then answered directly by the character via a series of short videos; these tailored made videos are considered effective in *engaging* its customers. (Procter & Gamble 2010.)

As of March 2013, the campaign's original video receives nearly 45 million view counts on the YouTube website. Procter & Gamber (2010), the company that owns the Old Spice brand, reports a 2700% increase in Twitter followers and an 800% increase in Facebook interaction. The company also confirms that the campaign has helped product sales and buttressed the market position of the Old Spice brand. (Procter & Gamble 2010.)

Iain Tait (2010), Wieden+Kennedy's global interactive creative director, discusses the choice of *viral platforms* for the campaign in an interview with American business magazine Fast Company. The employment of YouTube platform instead of a dedicated website for Old Spice is due to the realization that any proprietary platform, if had been used, would have limited the viral message exposure. The campaign idea is argued to even impossible to carry out without the existence of YouTube platform and its video sharing mechanism. One important success factor is people's familiarity with YouTube, including the ways of sharing, liking and favoring a video. Tait (2010) considers the fact that videos can be shared instantly and widely a huge positive. Familiarity and *ease of sharing* have clearly been

contributory factors in the Old Spice’s “The Man Your Man Could Smell Like” viral marketing campaign. (Borden 2010.)

3.2.4 Facebook

Facebook is one of the most popular social network services in the world. In fact, it is the most visited social network website and the second-most visited website on the Internet, according to a traffic ranking of all websites by Alexa Internet Inc., a company that majors on commercial web traffic data. Alexa (2013) describes Facebook as “a social utility that connects people: keep up with friends, upload photos, share links and videos”. (Alexa Internet Inc. 2013.) As of January 2013, Facebook is reported to contain about 1.06 billion monthly active users. Figure 8 presents the growth of Facebook since its creation in 2004. In less than 10 years, Facebook has experienced incredible growth in user base. (Tam 2013.)

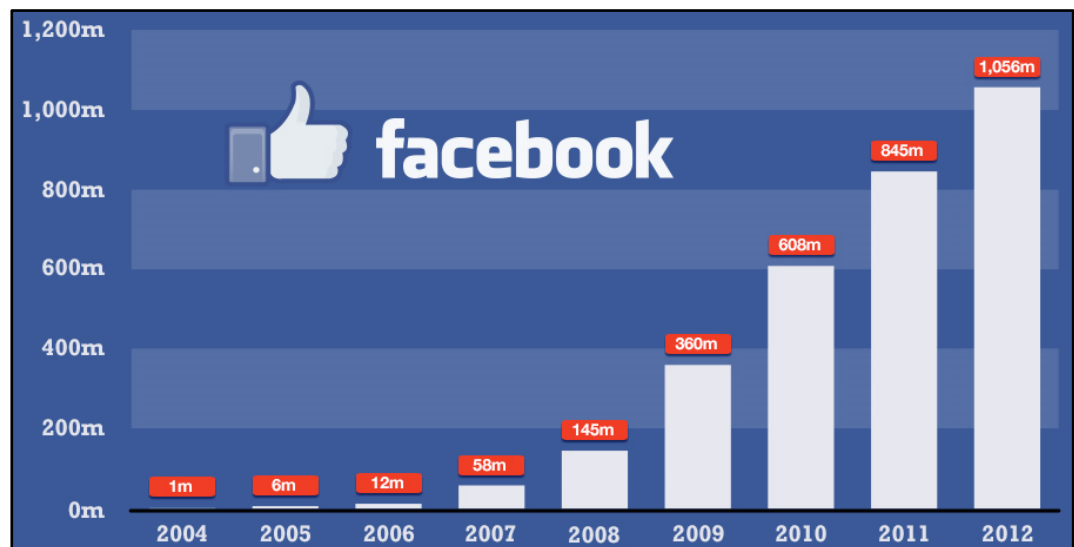


FIGURE 8. Facebook’s user base growth from 2004 to 2012 (Statista 2013)

As illustrated in figure 8, Facebook topped the 1-billion-user mark in September 2012. Recently, the company also publicly announces that the number of people

assessing Facebook on mobile devices has exceeded that on desktop systems. (Tam 2013.)

The *perceived usefulness* of Facebook is strongly emphasized in previous studies. Lampe et al. (2006) differentiate between “social searching” and “social browsing” in Facebook users’ purposes. Social searching refers to the use of Facebook to find and update information of offline contacts, and social browsing refers to the use of the service to establish new connections. (Lampe et al. 2006.) Findings from Golder et al. (2007) also suggest that Facebook messaging is used by a large proportion of users to maintain and build social ties across distances. In other words, users find Facebook effective in keeping in touch with other people who are outside of a person’s real local network. (Golder et al. 2007.)

Moreover, Joinson (2008) investigates the varied uses of Facebook and the motivations and gratifications of Facebook users. The use of Facebook under the category of “keeping in touch” is the most commonly-received responses in Joinson’s study. Besides, satisfaction, referred to as “gratification” by Joinson (2008), is believed to come from the use of Facebook in social ties building. Facebook is effectively used to build, invest in and maintain social ties with distant friends and contacts. (Joinson 2008.)

Hart et al. (2008) also investigate Facebook’s user experiences, revealing a list of *positive aspects* in the uses of Facebook. Accordingly, satisfaction from Facebook users may stem from various motivations: social pleasure, curiosity and fun, identification and self-expression, surprise and serendipity. Hart et al. (2008) assert that Facebook excels in providing positive user experiences. (Hart et al. 2008)

Last but not least, Hart et al. (2008) suggest that users find Facebook relatively *easy to use*. According to Hart et al., when the participants in their study were asked to rate Facebook’s ease-of-use on a Likert scale from 1 to 5 (1 being “very easy”, 5 being “very difficult”) the majority stated that it was “very easy” or “easy”. The remaining participants responded that it was “average”. None indicates it was “difficult” or “very difficult”. (Hart et al. 2008)

3.2.5 LinkedIn

LinkedIn is a social networking website, founded in December 2002 and launched on May 5, 2003 in California, U.S.A. The factor that makes LinkedIn stand out from other social network services is its target users: it targets people in professional occupations. In other words, LinkedIn is designed and used mainly for professional networking. (LinkedIn Corporation 2013.)

With less than ten years of operations, LinkedIn has achieved considerable success in terms of growing and retaining its user base. In October 2009, LinkedIn's CEO Jeff Weiner (2009) announced that LinkedIn had 50 million users worldwide and were growing that figure at approximately one new member per second. Weiner (2009) emphasized the fact that while it had taken LinkedIn almost 16 months to reach its first million members in 2003, it took only 12 days in 2009 to attract one million users. (Weiner 2009.) In March 2011, LinkedIn reported to have reached another mark: 100 million users worldwide, growing at roughly one million new LinkedIn members every week (Weiner 2011). Most recently, as of January 2013, LinkedIn reports more than 200 million acquired users counted in more than 200 countries and territories, stating that approximately the site is growing by 2 people per second (Nishar 2013).

Figure 9 depicts LinkedIn's process of popularization. The increasingly rapid growth of LinkedIn's user base resembles an avalanche: the more users it gets, the faster the growth rate. This thesis' authors, therefore, see LinkedIn as another highly successful case in creating a viral effect for its service.

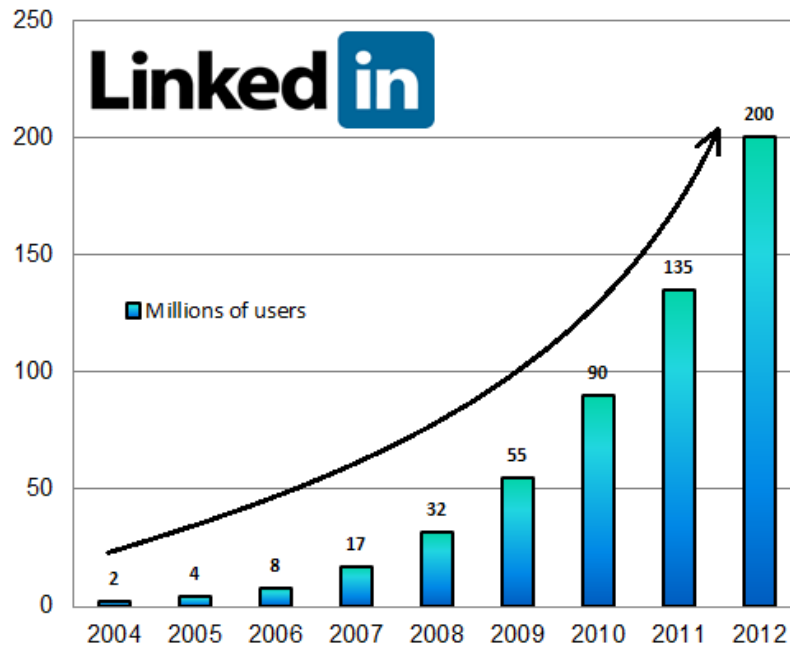


FIGURE 9. LinkedIn's user base growth 2004-2012 (modified from LinkedIn Corporation 2013)

Aiming at professional and occupational networking, LinkedIn has originally carved out *a niche* in the growing market of online social network services. In terms of *perceived usefulness*, the individual benefits that LinkedIn offers to its users are recognized in an article by Andrew Keen (2009): Joining LinkedIn allows users to be proactive in building their own networks, rebuilding their careers or presenting their skills to prospective employers. Keen (2009) asserts that LinkedIn enables users to build a network of like-minded professionals, by giving them access to a uniquely collaborative business environment (Keen 2009). Vanover (2009) adds that LinkedIn creates an inventory of professional connections that can be used across various jobs, personal interests, and affiliations. Moreover, LinkedIn is not only a space for individuals but also offers organizations with different services. For instance, companies can list jobs and search for potential candidates. (Vanover 2009.)

The content of LinkedIn's services is also highly relevant and practical with its users. With LinkedIn's focus on professional networking and job services, Slutsky (2010) argues that the increasing unemployment rate all over the world even

creates more opportunity for LinkedIn's growth when people use it as a tool to look for jobs. (Slutsky 2010.)

LinkedIn's interface design also reflects its objective of attracting business and professional users. Since its early days, LinkedIn has adopted *simple and clear designs* that are appropriate for business. LinkedIn has kept such social networking activities as posting photos or tagging friends to a minimum. (Slutsky 2010.) Additionally, normal resumes and curriculum vitae come in many different formats while LinkedIn profiles are consistent as the same format is in every profile. This consistency makes resumes easily comparable and searchable. (Sullivan 2012.)

The kind of *user engagement* that LinkedIn is trying to pursue may be different from that of other social network services. Users do not join LinkedIn to share their personal lives with others. The connection is through professional recommendation, an endorsement of someone's expertise or work performance. (Slutsky 2010.) This feature is possibly valued by prospective employers. Hence it may keep people revisit LinkedIn to ask for and write up-to-date recommendations, beside the fact that people are mostly engaged in updating their professional profiles as a kind of online interactive resume. LinkedIn periodically encourages users to keep improving and updating their profiles. Additionally, Sullivan (2012) maintains that since LinkedIn has been adding more professional features, users have more professional reasons to join and revisit the service. (Sullivan 2012.)

3.2.6 Instagram

The success of Instagram displays another case of rapid user base growth through a viral spread. Instagram is a mobile device application of which the basic functions revolve around photo-taking and social networking via photo-sharing. Specifically, Instagram enables its users to take photos, apply digital filters to pictures, and share them on a variety of social networking services, such as Twitter, Flickr, Tumblr, and Facebook. More importantly, it also functions as a simplified social network exclusively for photos where users are able to give comments and share pictures taken from their devices. A distinctive feature of

Instagram is that photos are resized into a square shape, creating a retro, nostalgic look for the photos. (Frommer 2010; Instagram 2013.)

Only two years and a half since Instagram was launched in October 2010, the service has attracted a considerable number of users. Figures reported by Instagram in January 2013 show that the company has over 100 million registered users. (Instagram 2013.) Figure 10 is a graphical presentation produced by Spencer (2013) for MacStories.net, revealing the user base statistics publicly announced by Instagram since its first public launch (Spencer 2013).

The last two data points in figure 10 are placed separately from the rest because they are counted in terms of monthly active users instead of total registered users (Spencer 2013). However, as pointed out by DesMarais (2013), the more meaningful and important number is Instagram's monthly active users of more than 90 million than the total registered users, which may also include inactive users (DesMarais 2013).

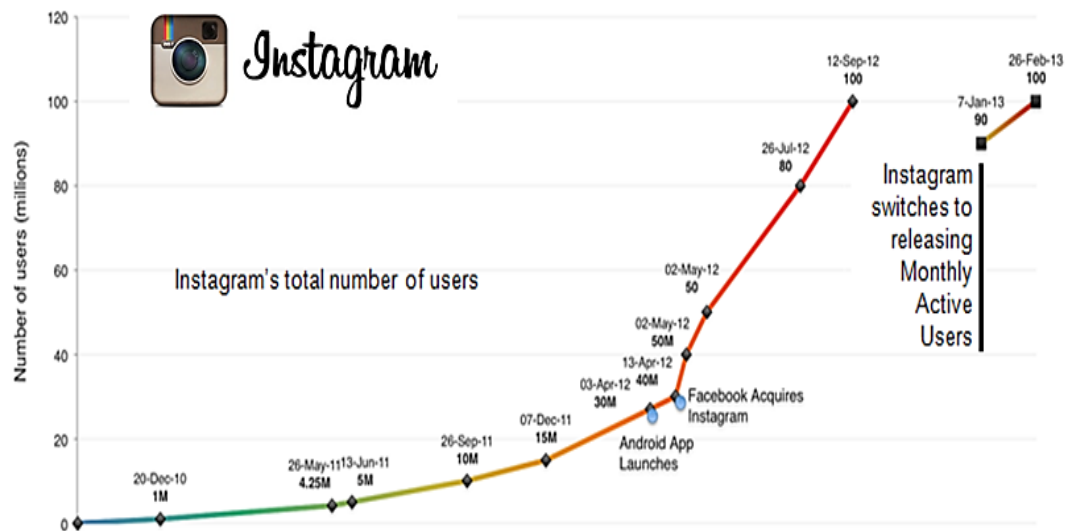


FIGURE 10. Instagram's user base growth 2010-2013 (Spencer 2013)

In addition, Instagram (2013) claims that 40 million photos are uploaded per day (DesMarais 2013). In 2011, one year and a half after its launch, Instagram was

named “App of the year” by Apple Inc (Tsukayama 2011). In 2012, the social networking powerhouse Facebook acquires Instagram for the price of \$ 1 billion (Upbin 2012).

The combination of photo-editing features and social networking functions is considered a contributory factor to the success of Instagram. Moffat (2011) even argues that the success of Instagram should be attributed more to Instagram’s *fun and interactive* community than just to its photo related functions. (Moffat 2011.) Instagram is substantially perceived as a space for users to express themselves through pictures (Ashpari 2012).

Discussing the reasons behind Instagram’s popularity, Ashpari (2012) points out that the *unique* vintage-feel effects and filters for photo editing attract users. Moreover, the emergence of smart mobile devices equipped with increasingly high resolution cameras enables users to conveniently take and share photos everywhere. Instagram successfully improves and brings joy to producing and sharing pictures via smart mobile devices. (Ashpari 2012.) The quality of Instagram’s filters is relatively high while the application has been kept simple yet well-designed (Bolt 2011).

Instagram’s success in constantly growing its user base has in return made its users more engaged with the application. The experiences that Instagram has provided users have different aspects: access to friends’, family members’ and celebrities’ shared photos, instantly get an audience base for one’s photos, and conveniently share those photos across other social network services. (Bolt 2011.)

Another contributory factor in Instagram’s rapid viral spread is that the creators, immediately after the service is launched, are able to contact *important opinion leaders* to test and seed the application. In an article written for The New York Times, Sengupta et al. (2012) indicate that Kevin Systrom (2012), Instagram’s co-founder and CEO, persuades some influential bloggers and contacts in the field of technology to test-run the application. For instance, one of the early adopters of Instagram was Jack Dorsey, who is widely known as the creator of Twitter. Later, the participation of celebrities in the Instagram network is also attributed to the constant growth in user base. (Sengupta et al. 2012.)

Perceived ease of use is a recognized characteristic that helps Instagram achieve its rapid popularization. Raman (2012) considers the simplicity of Instagram's interface a success factor, affirming that Instagram provides users with ease of use in taking, sharing and managing digital pictures. (Raman 2012.)

3.2.7 Angry Birds

Angry Birds is a video game that has developed swiftly into a franchise brand; the game was created by Helsinki-based game developer Rovio Entertainment. Angry Birds was first introduced in Apple's App Store for iOS devices in December 2009, being priced at 99 cents. The game has achieved enormous success and created a significantly rapid spread among smart mobile device users. (Cheshire 2011.) In March 2013, the total number of Angry Birds downloads across all platforms was reported to be 1.7 billion (Gaudiosi 2013). Figure 11 illustrates the rapid increase in the total number of Angry Birds downloads since its emergence in 2009 to spring 2013.

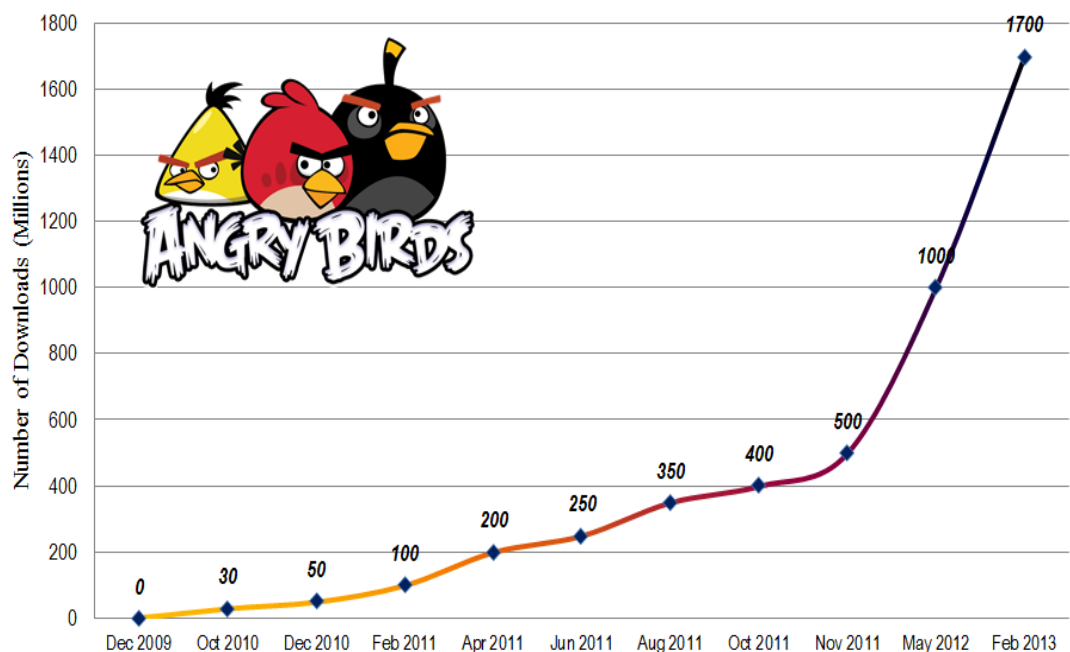


FIGURE 11. Angry Birds' number of downloads from December 2009 to February 2013 (modified from Spencer 2011; Rovio Entertainment 2012)

It can be seen from figure 11 that Angry Birds has experienced big leaps forward, especially in 2012 when it crossed the 1-billion-download mark. During the 2012 Christmas season alone, Rovio reveals that the game was downloaded more than 30 million times, of which 8 million downloads were done in Christmas day. Moreover, in December 2012, Angry Birds has 263 million monthly active users. (Rovio Entertainment 2013). At the end of 2012, Apple releases the “App Store Best of 2012” list, in which Angry Birds is claimed to be the 2012’s most downloaded paid iOS application (Warren 2012). Three years after its launch, Rovio has made Angry Birds an immensely popular name in the smart mobile device application market. Erikson et al. (2011) from MIT Entrepreneurship Review even claims that Angry Birds is “the largest mobile app success the world has seen so far”. (Eriksen & Abdymomunov 2011)

Before the development of Angry Birds, the creators at Rovio had realized the demographics of iPhone users: the phone is widely used by varied user groups, from teenagers to middle-age housewives. The team at Rovio, therefore, intended to design a game that is suitable for and appeal to a lot of different segments of iPhone users. (Cheshire 2011.)

Griffiths (2011) suggests that there is a connection between Angry Birds’ content and users’ psychology. Users’ absorption in the game is attributed to the near-win and constant-retry experiences. When users experience a near-win situation, they are likely to have a “*cognitively frustrating*” feeling. This feeling is argued to make the users feel an urge to retry the game again. Angry Birds is designed in a way that users can finish a game stage and replay in less than a minute. The connection between *emotions* and user engagement is significantly illustrated in this case. (Cheshire 2011.)

Simplicity and *perceived ease of use* are realized as a success factor in Angry Birds. In an effort to cognitively analyze Angry Birds success, Mauro (2011) focuses on the user interface and user experience designs that have been contributory to the popularity of the game. Angry Birds user interface is designed with simplicity, yet the user experience is engaging throughout the whole game. The mechanisms of the gameplay are easy to understand at first so that users are not overwhelmed with different features when starting the game. However, to

keep users' interest at a high level throughout the game, new features must be added. In Angry Birds, new features and more complex gameplay mechanisms are introduced gradually when users advance through different levels of difficulties. This incremental user experience, i.e. gradual progression of complexity, keeps the users engaged while it does not make the game over-complicated. (Mauro 2011.)

Additionally, *original* visual and audio designs are recognized as contributory factors to Angry Birds' success (Mauro 2011). The game's content is fun and refreshing; there is also a certain level of unpredictability in the gameplay that attract the users (Brian 2011). In the future, Rovio aims to develop Angry Birds in a more storytelling-oriented direction (Cheshire 2011).

Effective implementation of viral mechanics is also noteworthy in the case of Angry Birds. Developers at Rovio recognized the potential in Apple's App Store since its launch in 2008 as a *great platform* to widely spread a game. With the emergence of Apple's App Store, game developers have been able to offer their games directly to users. When starting to make Angry Birds, Rovio strategically put its concentration in the iPhone platform and aimed to make the game viral in Apple's App Store first, before expanding to other platforms. Rovio also shows flexibility in dealing with different platforms. When Angry Birds was introduced into the Android platform, Rovio recognized that paid content was not the best choice. Eventually, for Android, the business model of Angry Birds was changed to advertisements-based. Angry Birds has now expanded to other platforms besides iOS for iPhones. (Cheshire 2011.)

Regarding *user engagement* approaches, Rovio has tried to implement an active strategy that keeps users continuously connected. Rovio offers free-of-charge updates to Angry Birds' existing users to keep the game fresh. Besides using the game itself as an effective way to communicate with the users, Rovio also tries to stay connected by answering users' questions in Facebook and Twitter. Moreover, they create discussion space for users to pool ideas of new levels and new characters. (Cheshire 2011.)








The popularity of Angry Birds brand has given Rovio the necessary facilitation for its expansion plans, which include *a deep integration of online and offline user experiences*. Rovio aims to build an entertainment community that revolves around the Angry Birds characters, pushing the brand awareness among users in their everyday activities. Under franchise agreements, Angry Birds has appeared in a wide array of products: toys, t-shirts, candies, books, etc. In 2012, the official Angry Birds Land also came into operation at the Särkänniemi amusement park in Tampere, Finland. (McCorvey 2012.) Additionally, Rovio recently announced that an Angry Birds animation TV series is scheduled to be broadcast in 2013 (Gaudiosi 2013).




3.2.8 General remarks about viral marketing practices

The analysis of the above cases' viral marketing practices is summarized in table 5, which consists of seven cases in the same order as in the analysis and the factors classified into three groups: content, seeding behavior and viral mechanics. The factors that are utilized in each case are represented by a tick in the table.

As revealed by the table, engaging elements are highly employed in all seven cases, stressing the importance of user engagement in the context of viral marketing to user retention. Perceived usefulness; positive affect and strong emotional appeals; and ease of use and sharing are ranked second in the level of utilization among the cases. Thus, the contribution of these factors to successful viral marketing is validated in not only literature but also in practice.

TABLE 5. Main contributory factors in historical cases

<i>Factors</i> \ <i>Cases</i>	 Zynga	 foursquare	 Old spice	 Facebook	 LinkedIn	 Instagram	 Angry birds
Usefulness	✓	✓		✓	✓	✓	
Originality			✓		✓		✓
Positive affect & strong emotions	✓	✓		✓		✓	✓
Engaging elements	✓	✓	✓	✓	✓	✓	✓
Seeding incentives		✓					
Opinion leaders						✓	
Popular platform	✓	✓	✓				✓
Ease of use & sharing			✓	✓	✓	✓	✓
Online & Offline		✓					✓

-  Factors concerning content
-  Factors concerning seeding behaviour
-  Factors concerning viral mechanics

However, the importance of these factors in growing user base in these cases cannot be determined based on the frequency of utilization. The fact that the factors concerning seeding behavior, such as seeding incentives and opinion leaders, hardly appear in these cases does not mean that they are not employed to grow the user base. This lack of discussion on these factors is due to limited publication about them. In order to assess and measure the importance of these factors, further quantitative research is recommended.

4 EMPIRICAL CASE: OSTOSNERO SHOPPING INTELLIGENCE PLATFORM

The authors of this thesis aim to assist the case company Avansera Ltd. with its viral marketing campaign for OstosNero, a shopping intelligence platform. This thesis's objective is to study the contributory factors in a sustainable user base growth for a digital service and to apply these factors to the case of OstosNero. Consequently, OstosNero service is the main focus in the case study. This chapter gives a brief overview of the case company Avansera Ltd. and an in-depth description of OstosNero shopping intelligence platform.

4.1 Avansera Ltd.

Avansera Ltd, a Finnish startup founded in 2012, specializes in advanced tools to improve visibility, profiled marketing engagement and supply chain processes in the fast moving consumer goods sector (Avansera Ltd. 2013a).

Avansera offers advanced real-time consumer behaviour and product performance analytics in retail environments, across all chains and geographical locations. The company is committed to delivering effective profiled marketing platform to communicate prices, availability, offers, and product and store information to profiled consumers. (Avansera Ltd. 2013a.)

Avansera also provides ways to convert analytics into active marketing campaigns with the aim of increasing sales and enhancing customer retention; hence the company's performance is aligned with supply chain efficiency improvement. (Avansera Ltd. 2013a.)

Mission

Avansera's mission is to provide full service platform for both consumers and businesses with two main goals, which are closely pertinent to the purpose of OstosNero (Avansera Ltd. 2013a).

- To help consumers truly save money and time spent on shopping and,

- To help businesses improve their sales and supply chain efficiency and enhance marketing visibility.

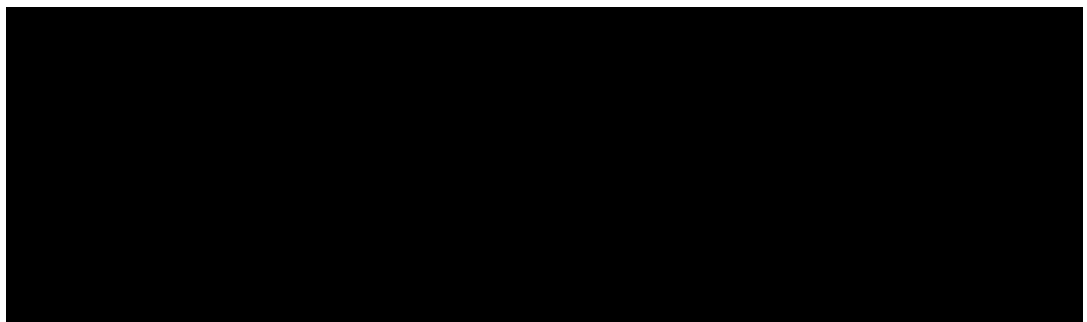
The original idea of Avansera is to provide consumers with a service, called OstosNero, which is fully explained in the next section, with the purpose of improving consumers' shopping experience. Avansera realizes the huge business potential of this service in that the company is capable of providing new insights into shopping experience as to how consumers look at products in stores, make decisions, select items and plan their shopping. Moreover, Avansera is also able to observe product performance, availability and demand in real-time. Consequently, the service can supply a new and unique source of information about shopping experience that businesses can utilize to improve their efficiency and productivity. (Avansera Ltd. 2013a.)

4.2 OstosNero – Shopping Intelligence Platform

OstosNero shopping intelligence platform is a free service that helps consumers save money and time by optimizing shopping experience and keeping track of their expenses automatically. Businesses can simultaneously, via OstosNero shopping intelligence platform, answer direct consumer demand; communicate prices, availability, and offers; promote short-lived campaigns; and deliver store and product information to consumers. (Avansera Ltd. 2013b.)

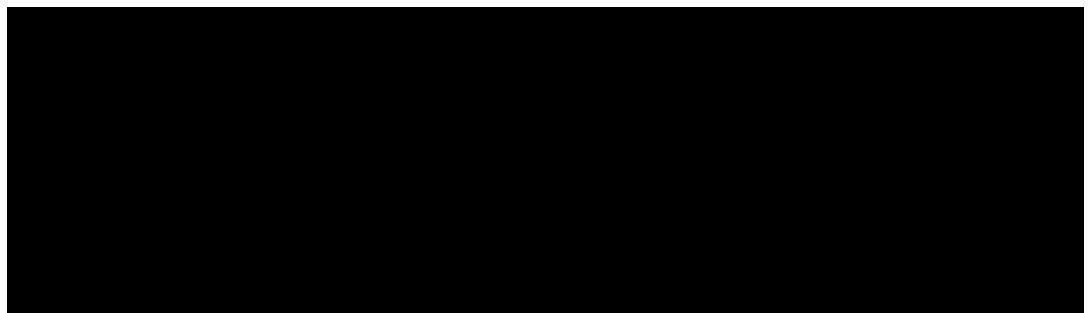
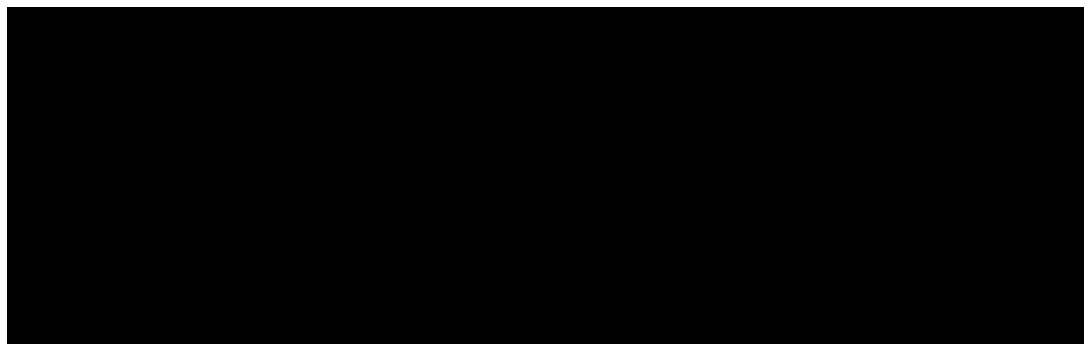
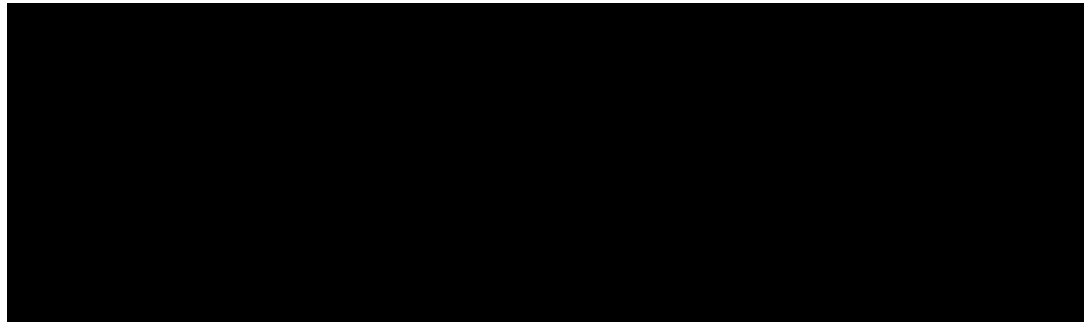
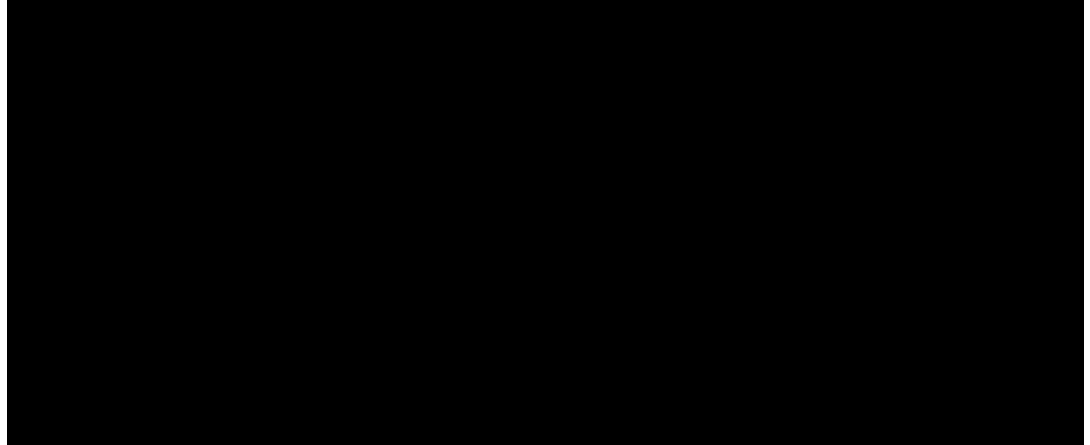
This section provides a comprehensive description of the service OstosNero and its technological aspects. Moreover, two entities are also indentified and separated from each other: OstosNero's users and Avansera's customers.

4.2.1 The service OstosNero





A detailed illustration of the service is provided in figure 12, which includes five concept pictures of OstosNero Shopping Intelligence platform. Enlarged pictures are provided in appendix 1 for ease of observation.



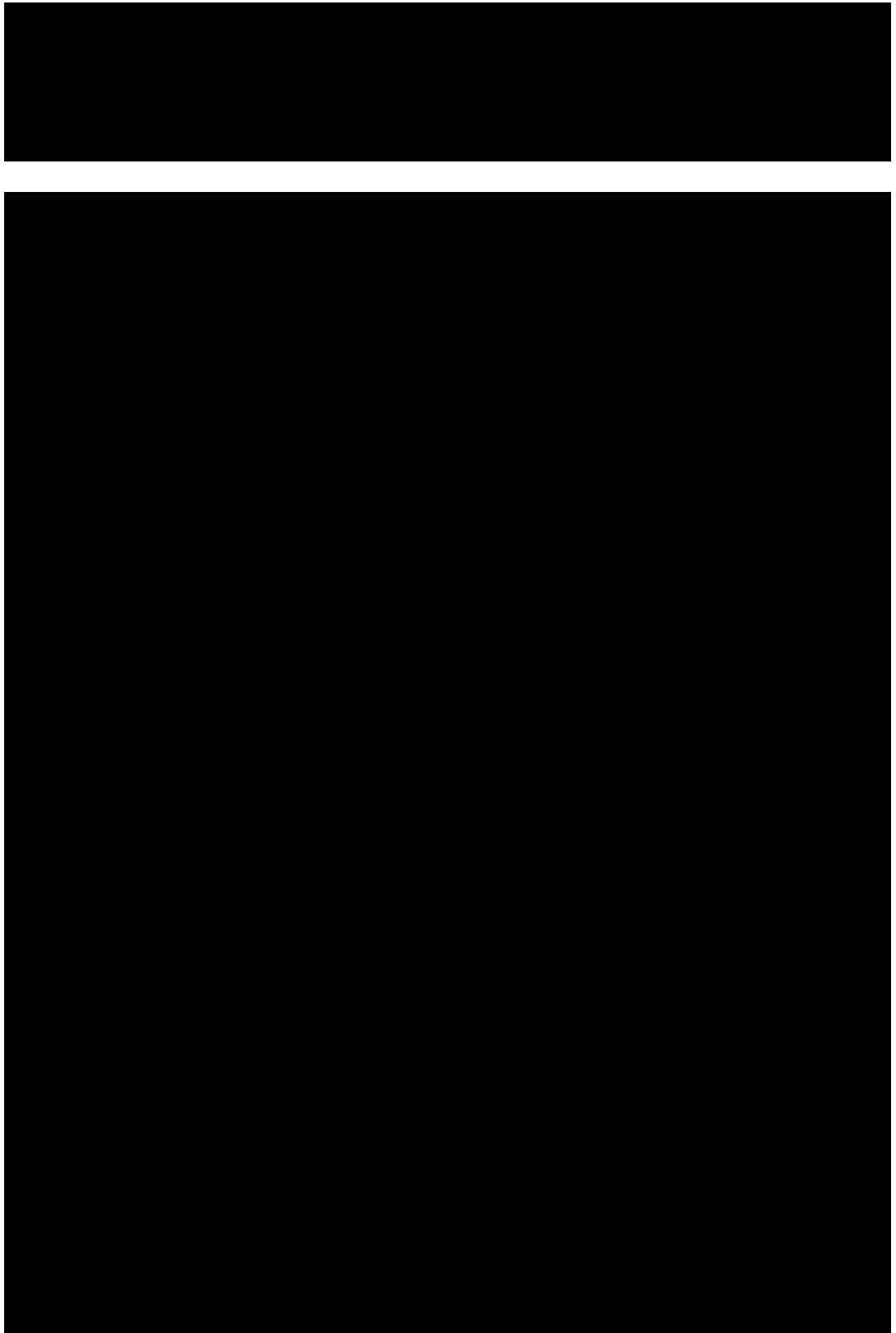



FIGURE 12. Concept pictures of OstosNero Shopping Intelligence Platform (Avansera Ltd. 2013b)



Although all the information in the concept pictures is in English, the real service is also in Finnish language because the service is initially launched in Finland where most shoppers speak Finnish. Additionally, a Swedish version of the service is provided. (Walsh & Martinez 2013.)

4.2.2 Technological aspects in OstosNero

Avansera's expertise in advanced technological tools and services helps businesses not only increase sales, improve supply chain and marketing efficiency but also reduce losses and waste. The service OstosNero that Avansera offers is targeted to businesses in importing, distributing, production, manufacturing and retailing. The main tools currently utilized in OstosNero are Micro Campaign Management (MCM), Visibility, and Real-time. (Avansera Ltd. 2013a.)

Micro Campaign Management (MCM)

Avansera MCM is a real-time campaign creator for the retail environment. Store personnel create targeted in-store micro campaigns about specific products, with the easy-to-use MCM and launch them via OstosNero service directly to specific consumers or groups of people. (Avansera Ltd. 2013a.)

MCM ensures stores to market directly to consumers that have specific needs, matching demand and increasing marketing efficiency by reducing inefficient print-media marketing. MCM helps reduce financial loss and waste by, for example, improving consumer awareness of product availability or about "best-before" offers on products. (Avansera Ltd. 2013a.)

MCM has its advantages in:

- Targeted marketing

- In-store campaigns
- Real-time marketing
- Moving specific products quicker
- Direct consumer communication (Avansera Ltd. 2013a.)

Visibility

As consumers are engaged in OstosNero service because of the tangible benefits it brings to their daily shopping experience, OstosNero becomes the direct channel to communicate with consumers. Via OstosNero shopping intelligence platform, shoppers are given price, product and availability information about their shopping lists; hence businesses can influence their shopping behaviors as to how shoppers shop, where they shop and when they shop. (Avansera Ltd. 2013a.)

As the power of stores in consumer's purchasing decision is improved, smaller stores get equal visibility amongst bigger stores in terms of products display, prices and inventory (Avansera Ltd. 2013a.).

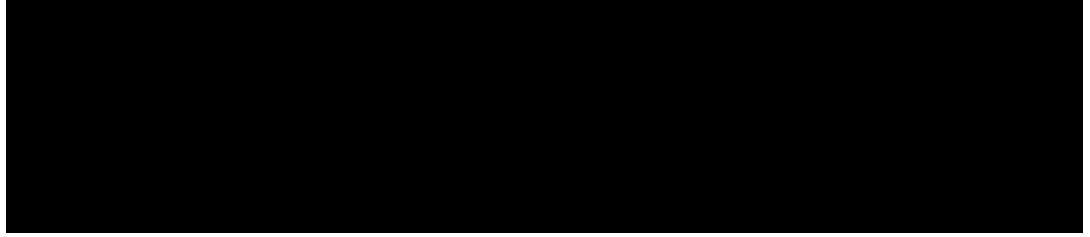
Real-time

Avansera Real-Time Retail Analytics – RTRA, observes happenings in any store at any location in order to improve supply chain processes and inventory management. RTRA is the next level of market research, providing immediate information about the market dynamics to key personnel and decision-makers. Therefore RTRA provides business with cost-effective method of obtaining knowledge about the market. (Avansera Ltd. 2013a.)

OstosNero and Avansera provide continuous real-time information about the real retail world from the pool of consumers, products and locations. Direct economic and performance efficiency benefits importers, producers, manufacturers, research and marketing companies and retailers. (Avansera Ltd. 2013a.)

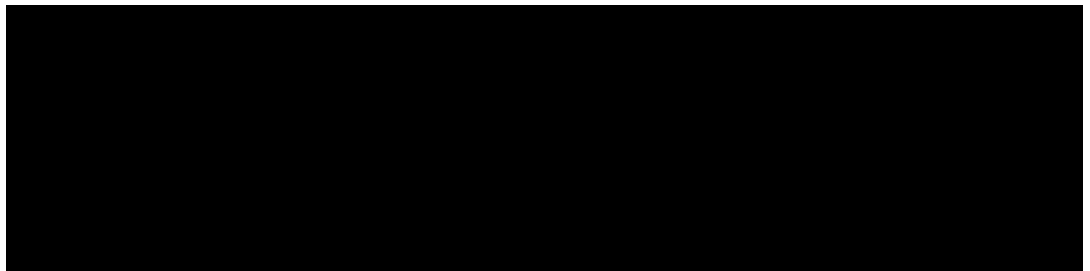
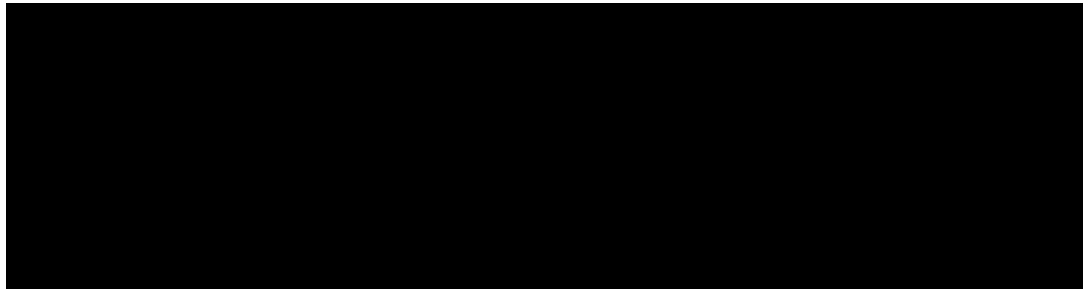
4.2.3 OstosNero's users vs. Avansera's customers

OstosNero's users



With regard to the thesis' objectives, the targeted users of OstosNero are the main focus in the next chapter, which presents a full analysis of the important contributory factors in building a sustainable user base for the service.

Avansera's customers



4.3 Marketing strategy for OstosNero: Evaluation and recommendation

After providing the knowledge about the case company Avansera and its shopping intelligence platform OstosNero, this thesis applies the contributory factors in user base growth discussed in chapter 3 to the case of OstosNero. The purpose of this subchapter is to answer the fifth sub-question “How can the case company utilize these factors in its marketing strategy?”. As Avansera is conducting its marketing campaign while this thesis is written, the authors both recommend the utilization of these factors in OstosNero marketing campaign and evaluate the company’s practical moves and plans that are relevant to these factors.

The authors first discuss the suitability of viral marketing for OstosNero service, and then evaluate and recommend the utilization of the contributory factors in OstosNero’s user base growth.

4.3.1 Viral marketing as the main marketing tool for OstosNero

As OstosNero shopping intelligence platform is a virtual service operated on the Internet, viral marketing is the most suitable and inexpensive marketing technique because. Avansera can take advantage of the considerable popularity of the Internet in Finland and Finns’ frequent access to the Internet both from laptops and smart devices. Some relevant statistics are presented.

Mobile Internet services & Smart devices usage in Finland

According to statistics from Internet World Stats, there were around 4,660,000 Internet users in Finland (representing 88.6% of the population) in mid-2012 (Internet World Stats 2012). Finland’s Internet usage rate is among the highest in Europe; still, according to Statistics Finland, Internet usage shows signs of gradual increase (Statistics Finland 2012).

Report from Statistics Finland indicates that Internet usage with a laptop and mobile devices is increasing in number and in frequency. Accordingly, in 2012, more than one-third (37%) of Finnish residents aged 16 to 74 and nearly one half (49%) of those aged 45 or under used the Internet with a mobile phone at least

once a week elsewhere than at home or work, showing increase compared to the average of 22% in 2011. (Statistics Finland 2012.)

Social network services, such as Facebook, Twitter, etc., have achieved considerable popularity in Finland. According to the survey on the use of information and communications technology by Statistics Finland, in spring 2012, one half of Finnish residents aged from 16 to 74 followed at least one social network service to which they were registered as members. Social network services have reached their current popularity very quickly and their popularity is still growing. The share of those following social network services rose in 2012 by four percentage points from the previous year. Results from Statistics Finland also points out that social network services attract more female than male. In 2012, 53 % of women had followed some social network service over the past three months. The share for men was 44 %. (Statistics Finland 2012.) More statistics about mobile internet services and smart devices usage in Finland is provided in appendix 2.

Objectives

The users and customers of the smart digital shopping assistant OstosNero are different parties; the former indicates the direct users of the service, i.e. the shoppers, while the latter refers to the beneficiaries of the analytical reports based on the data obtained from the users, i.e. the manufacturers (Avansera Ltd. 2013a). Consequently, the objective of the viral marketing campaign for OstosNero is mainly to increase shoppers' awareness of the service and to maintain its users' loyalty. In order to achieve the stated objective, the marketing strategy should be a constant process of attracting new users and engaging current users to sustain the user base.

Type

In the case of Avansera, the service OstosNero that the company offers is separate from the viral message that its marketing campaign aims to spread. In other words, users cannot use the service simultaneously while passing the service on as in the case of greeting cards services. Therefore OstosNero needs a certain degree of users' effort to pass on the viral messages as in high integration viral marketing

strategy. In the same vein, the role of OstosNero's influencers has to be active in the viral marketing framework based on the nature of influence. Specifically, the viral marketing campaign for OstosNero belongs to the quadrants motivated evangelism and targeted recommendation. The recipients' behaviour in these quadrants in the case of OstosNero is discussed in details in the next section.

4.3.2 Contributory factors in OstosNero's user base growth

Originality

A thorough research on OstosNero's competitors performed by Avansera Ltd. shows that although services with similar idea are provided elsewhere, there is currently no direct competitor in Finland. Moreover, those existing services do not possess the whole functionality that OstosNero offers to its users: online price comparison among grocery products at brick and mortar supermarkets, reports of users' diet and shopping expenditure and habits, entertaining games, rewards, social status and social activities. (Avansera Ltd. 2013b.) As a result, OstosNero possesses the first mover's advantage.

Perceived usefulness

As mentioned above, the individual benefits that users obtain from the *free* service OstosNero enhance their shopping experience. OstosNero makes shopping much easier and more economic than traditional shopping experience by allowing users to search, browse and compare prices online before the real purchase. Based on users' shopping lists, automatically generated shopping expenses according to shopping places gain users' awareness of the amount of money they can save if they follow OstosNero's advice. Moreover, users are able to check up-to-date information concerning daily offers and discounts from the shops they frequently visit. (Avansera Ltd. 2013b.) Moreover, real time advice can be given during shopping time from users' mobile smart devices (Avansera Ltd. 2013b). Consequently, OstosNero pushes shopping experience to the next level of convenience and intelligence in that users shop faster and spend less money.

Furthermore, free reports on diet and shopping expenditure are considered useful from users' perspective. The survey conducted by Avansera Ltd. reveals that

nearly 90% of the respondents want to keep track on their personal shopping expenses and savings. (Avansera Ltd. 2013b.)

In addition to individual benefit, OstosNero's scale and scope benefits offered to users are revealed in figure 13. The more frequently OstosNero service is used, the more data is obtained into the system about products, prices, and stores, creating even more value to shoppers. Moreover, the larger amount of data on users' shopping experience provides manufacturers with analytics on their consumers' direct demand and feedback via OstosNero platform, facilitating producers with their product development and eventually increasing consumers' benefits. As a result, rising user benefits attract even more users to the service; therefore OstosNero's user base grows while user experience with the service is improved. (Avansera Ltd. 2013b.)

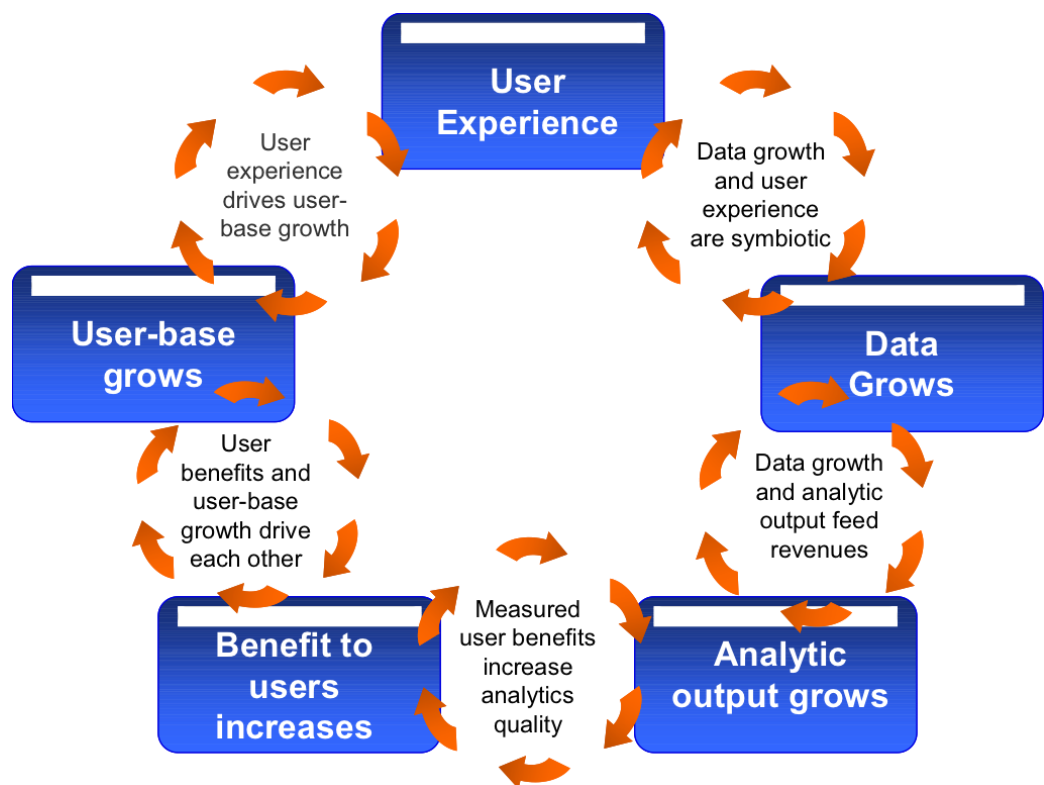


FIGURE 13. User benefit and business value cycle in OstosNero (Avansera Ltd. 2013b)

This figure illustrates OstosNero's high network externalities in that the larger the user base, the more benefits its users gain.

Online and offline integration

The integration of online and offline modes of communication in OstosNero service is revealed in its multiple roles, which are not constrained to only a genius shopping assistant. The service can also provide its users with a social platform and a source of entertainment (Walsh & Martinez 2013).

First of all, the concept of OstosNero social platform is a specialized social network (Hane 2011) on shopping that enables users to interact with one another (Walsh & Martinez 2013). Like other social networks, OstosNero basically allows users to create profiles, update statuses, and make new friends. This virtual community gives users a chance to discuss specifically grocery shopping experience in Finland, diet-related topics and other relevant and up-to-date issues. The integration is high as users can now discuss their favourite grocery products or daily shopping activities in a relevant online community.

In addition to online community, OstosNero platform is planned to provide users with social activities such as dinners with friends via OstosNero (Walsh & Martinez 2013). These activities are considered important in engaging users because they successfully make a strong connection between users' virtual and social lives. Using OstosNero and playing OstosNero's games help users make new friends with the same interest, specifically cooking, shopping and eating. Therefore, appropriately enabling these connections to real life activities is reckoned to integrate OstosNero deeply into users' lives.

Secondly, taking advantage of the fact that immersion in games is one of the most enduring forms of users' focused attention to a service (Jennett et al. 2008), OstosNero is recommended to offer users with games in which users can play individually or interactively with other users (Walsh & Martinez 2013). An idea emerges during the authors' meetings with the case company is the diet-related game concept "virtual chef": users are equipped with their own virtual kitchen to cook their meals. Users need game tokens to buy ingredients for their fridges; these tokens are earned by actively using OstosNero service, meaning following

OstosNero's advice in shopping, updating new products and prices, and inviting new users to the service. In the game, users are challenged by different recipes with different levels of difficulty. They can also create their own recipes and challenge other users. Such game feature as Farmville's "wither" of Zynga can be used as a means to encourage users to come back to their games and prolong their durability. This "wither" feature is suggested to age users' ingredients and users who have not revisited the games for a specific period of time waste their tokens on the unused ingredients. Also, levels of difficulty serve as a tool to attract and lengthen users' attention.

Furthermore, as OstosNero aims to educate users on shopping economically, another suggestion for OstosNero's games is price-related. The basic concept is that users guess the prices of given products, whether different products or the same products of different brands. The up-to-date price information helps gain user's awareness of price fluctuation as well as price discrepancy among stores. This game concept is supposedly appealing to price-oriented shoppers. Besides, shoppers often associate prices and quality with brands. Consequently, logos and brand names are also suitable for educational game concepts, attracting brand-oriented shoppers.

Nevertheless, the authors suggest that the games be simple, short and easy to play. The connection between players' psychology and game immersion, as illustrated in the case of Angry Birds, is worth considering.

Positive affect

If these above factors concerning OstosNero's content are implemented properly, the service is believed to elicit positive affect among users because of its benefits. First, the service is useful for users' daily shopping activities. Second, its games and social activities among users are considered fun and interactive. Last but not least, an OstosNero user is argued to be committed to living an environmentally friendly life. As long as users confirm their purchases through OstosNero platform, Avansera also plans to deliver notifications of nearly out-of-date products to users. This feature is deemed useful for large families to keep track of the abundance of grocery goods in their fridges and, therefore, ethical in that it

helps users reduce waste of unused products. Likewise, once the service obtains ideally enough users and the company's analytics prove to be useful for manufacturers, stores are persuaded to push their notifications of new products, discounts and offers via OstosNero platforms, hence they will stop using paper announcement eventually, saving tons of paper. Moreover, in the long run, manufacturers are equipped with more exact consumers' direct demand, producing less waste; generally speaking, OstosNero's users contribute to nature conservation. (Walsh & Martinez 2013.)

Opinion leaders

Avansera has conducted its survey among potential OstosNero's early adopters such as the company's employees, friends and families. This strategy is advised because advocates of the service are highly likely to be among these people (Dobele et al. 2006). Survey respondents are asked to subscribe to the service if they wish and initial contacts are chosen from the subscribers. In terms of opinion leaders, Avansera plans to approach some housewives and women groups, green and environment oriented organizations and some celebrities. (Walsh & Martinez 2013; Veres 2013)

Since blogs are confirmed to be the most diffused environment for viral campaigns (Rodic & Koivisto 2012), the authors suggest that the company approach some of the most active and popular bloggers, who are interested in shopping, food and eating in Finland.

As students, the authors also recommend the company to consider students test users because students with their tight budgets are considerably price oriented. Moreover, students are often active on social network sites; they are believed to potentially play active roles in using the service and spreading the words once they have experienced OstosNero's benefits.

Incentives

Avansera is committed to offering generous rewards for active users as well as active test users. Offline incentives such as shopping vouchers in different stores or vouchers for free products from active users' most favourite brands. These

incentives are considered pertinent to OstosNero's ultimate goal because active users' shopping experience is further enhanced by these incentives obtained from their activeness. Besides this offline incentive, virtual tokens are also given to active users so that they can play OstosNero's games. Moreover, users who participate in OstosNero's social activities are also rewarded. (Avansera Ltd. 2013b; Walsh & Martinez 2013.)

Types of viral marketing on the nature of influence

As mentioned above, one marketing strategy can employ more than one type of viral marketing in order to maximize the effect of spreading (Pousttchi & Wiedemann 2007). However, the role of influencers in the case of OstosNero is argued to be active in high degree viral marketing. Different forms of communication are recommended based on OstosNero's multiple benefits. Specifically, for users who utilize OstosNero to only improve their individual shopping experience, such as to save money and get updated about offers and discounts from stores, OstosNero is perceived to have low network externalities, meaning user base growth does not affect these users' benefits. Thus, targeted recommendation is advised for these users. An invited-a-friend button should be presented in the application to encourage these users to spread the perceived useful service to their friends, who they think will be interested. On the other hand, strong social benefits derived from OstosNero such as making new friends; participating in discussion about common interest including shopping, food and eating; and social activities imply OstosNero's high network externalities, meaning user base growth drive users' benefits. In this case, the referral task depends on the service's active users. They might spread the words actively via other popular social networks such as Facebook, Twitter, their available blogs, and other online and offline modes of communication to the people in their networks.

Perceived ease of use

In order to serve the goal of improving shopping experience, OstosNero's perceived ease of use is considered the most crucial factor to its success. An important element of convenient shopping is time saving. Thus, service lag is

deemed intolerable and diminishes users' interest in the service. Moreover, up-to-date information is valuable to shoppers; old prices and information such as discounts or offers that mislead shoppers are determinant in users' resistance to the service. In this case, *critical mass and scalability* play an important role in maintaining the large amount of OstosNero's data and operating its real time function properly.

Moreover, moving OstosNero service towards mobile device application format, especially smartphone application, is highly recommended for the full functionality of OstosNero such as camera and scanner. Camera function enables users to take pictures of new products that they want to update to OstosNero database. Scanner function allows users to scan products' barcode to quickly obtain their information.

Popular platforms

The widespread popularity of Facebook in Finland is undeniable; other platforms such as Twitter and YouTube may also provide a promising base (Rodic & Koivisto 2012). Thus, although Avansera insists on OstosNero's own community platform without integration to other popular social networks such as Facebook or Twitter, the company has created Facebook and Twitter fan pages to enable spreading on these platforms to some extent (Walsh & Martinez 2013; Veres 2013).

5 CONCLUSION AND SUGGESTIONS FOR FURTHER RESEARCH

This chapter includes this thesis's main findings in order to answer the research question and some suggestions for further research. In addition to presenting the findings, the authors also evaluate them and indicate their potentials and drawbacks, giving the foundation for further research recommendations.

5.1 Conclusion

This thesis aims to explore the main factors that contribute to sustainable user base growth in successful viral marketing campaigns, and apply these factors to the case of OstosNero. The scope of this thesis requires both literature review of previous studies to identify the factors and observation on real-life practices to validate the contribution of these factors. Thus, the findings of this thesis contribute to viral marketing theory and its practice.

Table 6 summarizes the main findings of this thesis with brief answers to the sub-questions.

As a result of the findings shown in table 6, viral marketing's roles in attracting and retaining users are not separated in previous research. Specifically, viral marketing is conventionally argued to improve the popularity of a particular service using the Internet (Bryce 2005). Hence, the authors claim that in order to increase the awareness of a service, marketers should be able to simultaneously attract new users and retain existing users. Literature review shows that a combination of different aspects concerning the key issues in viral marketing – content, recipients, seeding strategy and viral mechanics – has been employed in every viral marketing campaign to maximize the effect. Besides, user engagement is worth marketers' consideration for its significant role in retaining users. Engaging elements embedded in the content of the service serve to provide users with positive experience and an urge to repeat that experience (Attfield et al. 2011); these elements can be perceived individual benefits (Pousttchi & Wiedemann 2007), scale and scope benefits (Subramani & Rajagopalan 2003), emotions evoked by the service content (Dobele et al. 2006), game immersion (Jennett et al. 2008), and integration of virtual life to real life (Kulp 2007).

TABLE 6. Main findings

<i>Questions</i>	<i>Findings</i>
<p>Sub-question 1: How do digital service providers attract users with their viral marketing strategies?</p> <p>Sub-question 2: How do digital service providers retain their user base?</p>	<p>There are no separate answers to these two sub-questions; and the terms “user attraction” and “user retention” are hardly found in literature.</p> <p>Marketers flexibly combine different aspects concerning service content, seeding strategy and viral mechanics to both attract and retain users in their viral marketing campaigns.</p>
<p>Sub-question 3: Why is user engagement in viral marketing important for digital services?</p>	<p>User engagement plays a significant role in retaining users, contributing to sustainable user base growth.</p>
<p>Sub-question 4: What are the main contributory factors that led to successful growth in user base in historical cases?</p>	<p>The implementation of the eleven factors extracted from literature is evident in the historical cases discussed in subchapter 3.2.</p>
<p>Sub-question 5: How can the case company utilize these factors in its marketing strategy?</p>	<p>The authors recommend detailed utilization of each factor in subchapter 4.3. Overall, the eleven factors are applicable to the case of OstosNero.</p>
<p>Main research question:</p> <p><i>What are the main contributory factors in user base growth via viral marketing?</i></p>	<p>The list of main contributory factors in user base growth in viral marketing</p> <ul style="list-style-type: none"> • <i>perceived usefulness</i> • <i>originality</i> • <i>free content</i> • <i>positive affects, strong emotions</i> • <i>engaging elements</i> • <i>initial contacts – opinion leaders</i> • <i>seeding incentives</i> • <i>widely popular platform</i> • <i>perceived ease of use and sharing</i> • <i>integration of online and offline</i> • <i>critical mass and scalability</i>

The list of contributory factors derived from literature review consists of eleven factors: perceived usefulness, originality, free content, positive affects and strong emotions, engaging elements, initial contacts – opinion leaders as knowledgeable helpers, optimal seeding strategy and seeding incentives, widely popular platform, perceived ease of use and sharing, integration of online and offline, and critical mass and scalability; as shown in table 3. Moreover, historical cases' viral marketing practices are also observed to confirm the role of these factors in sustainably growing the user base. Overall, this qualitative research points to a logical and important conclusion that there is a noticeable correlation between the implementation of these factors and the success of viral marketing campaigns.

5.2 Further research suggestions

Based on this thesis's conclusion, some recommendations for further research are formed. Empirically, as the main objective of this thesis is to assist the case company with its viral marketing campaign, future tracking and evaluation of the implementation of the indicated factors in Avansera's marketing campaign are necessary to validate these factors' contribution to OstosNero's user base growth.

Theoretically, the authors are conscious of the limited nature of qualitative research in weighing these contributory factors. Thus, quantitative studies are suggested to measure the importance of each factor, building a clear framework of viral marketing for marketers. Moreover, the lack of research in differentiation between user attraction and user retention is worth noticing. Once service providers have achieved a relatively large user base, insights into user retention will guide them through appropriate and innovative measures to further engage their users, and hence sustain their user base.

6 SUMMARY

The authors of this thesis are inspired by the idea of OstosNero shopping intelligence platform and committed to assisting the case company Avansera with its viral marketing campaign for OstosNero service. This empirical objective drives the authors to study specific factors that contribute to sustainable user base growth via viral marketing in both theory and practice.

Theoretically, this thesis presents an overall literature review on viral marketing in order to obtain background knowledge of the topic. Then, key issues in viral marketing are defined. User engagement is also studied to complement viral marketing's role in retaining users. Finally, a list of eleven contributory factors in user base growth is compiled from previous research.

Empirically, the application of the factors derived from literature is examined in seven cases to validate the correlation between the contributions of these factors in theory and in practice. The choice of cases is made under careful consideration so that they are highly relevant to the case company and representative of modern viral marketing implementation. Findings demonstrate that the implementation of these factors and the success of viral marketing campaigns logically correlate.

Last but not least, the authors provide detailed recommendations on the utilization of these factors in the case of OstosNero's viral marketing campaign. The authors believe that in order to achieve a sustainable user base growth, Avansera Ltd. is well-advised to flexibly apply the contributory factors explored in this study to the case of OstosNero.

REFERENCES

Published references

Attfield, S., Kazai, G., Lalmas, M., & Piwowarski, B. (2011). *Towards a Science of User Engagement*. WSDM Workshop on User Modelling for Web Applications. Hong Kong: ACM International Conference on Web Search And Data Mining.

Axinn, W. G., & Pearce, L. D. (2006). *Mixed Method Data Collection Strategies*. Cambridge: Cambridge University Press.

Berger, J., & Milkman, K. L. (2010). *Social Transmission, Emotion, and the Virality of Online Content*. Philadelphia: Marketing Science Institute.

Boyd, D. M., & Ellison, N. B. (2007). *Social Network Sites: Definition, History, and Scholarship*. *Journal of Computer-Mediated Communication*, 210-230.

Brown, J. J., & Reingen, P. H. (1987). *Social Ties and Word-of-mouth Referral Behavior*. *Journal of Consumer Research*, 14, 350-362.

Bryce, M. (2005). *Viral marketing: Potential and Pitfalls*. Berlin: VDM Verlag Dr. Muller e. K.

Bryman, A., & Bell, E. (2007). *Business Research Methods*. Oxford University Press Inc.

Clarke III, I., & Flaherty, T. B. (2005). *Advances in Electronic Marketing*. London: Idea Group Publishing.

Deloitte. (2013). *Technology, Media & Telecommunications Predictions*. New York: Deloitte Touche Tohmatsu Limited.

Dobele, A., Beverland, M., Lindgreen, A., & van Wijk, R. (2006). *Forwarding Viral Messages: What Part Does Emotion Play?* Australia New Zealand Marketing Academy Conference (pp. 1-6). Queensland: Brisbane: Queensland University of Technology

- Eriksson, P., & Kovalainen, A. (2008). *Qualitative Methods in Business Research* (1st ed.). London: SAGE Publications Ltd.
- Golder, S. A., Wilkinson, D., & Huberman, B. A. (2007). *Rhythms of Social Interaction: Messaging within a Massive Online Network*. 3rd International Conference on Communities and Technologies. East Lansing.
- Grifoni, P., D'Andrea, A., & Ferri, F. (2013). *An Integrated Framework for Online Viral Marketing Campaign*. *International Business Research*, 22-30.
- Hane, P. J. (2011). *Specialized Social Networks Gain Traction*. *Information Today*, 8.
- Hann, I.H., Hui, K-L., Lee, S-Y. T., & Png, I. P. (2008). *Consumer Privacy and Marketing Avoidance: A Static Model*. *Management Science*.
- Harper, R., Rodden, T., Rogers, Y., & Sellen, A. (2008). *Being Human: Human Computer Interaction in the Year 2020*. Cambridge: Microsoft Research.
- Hart, J., Ridley, C., Taher, F., Sas, C., & Dix, A. (2008). *Exploring the Facebook Experience: A New Approach to Usability*. *Proceedings of the 5th Nordic Conference on Human-computer Interaction: Building Bridges* (pp. 471-474). Lund: ACM Publications.
- Helm, S. (2000). *Viral Marketing: Establishing Customer Relationships by Word-of-mouth*. *Electronic Markets*, 10(3), 158-161.
- Hinz, O., Skiera, B., Barrot, C., & Becker, J. U. (2011). *Seeding Strategies for Viral Marketing: An Empirical Comparison*. *Journal of Marketing*, 55-71.
- Iyengar, R., Van den Bulte, C., & Valente, T. W. (2010). *Opinion Leadership and Social Contagion in New Product Diffusion*. *Marketing Science*, 195-212 .
- Jennett, C., L., C. A., Cairns, P., Dhoparee, S., Epps, A., Tijds, T., & Walton, A. (2008). *Measuring and Defining the Experience of Immersion in Games*. *International Journal of Human-Computer Studies*, 641-661.

- Joinson, A. N. (2008). *"Looking at", "Looking up" or "Keeping up with" People?: Motives and Use of Facebook*. Proceedings of the SIGCHI Conference on Human Factors in Computing Systems (pp. 1027-1036). Florence: ACM Publications.
- Kaplan, A. M., & Haenlein, M. (2011, May). *Two hearts in three-quarter time: How to waltz the social media/viral marketing dance*. Business Horizons, 54(3), 253-263.
- Katz, M. L., & Shapiro, C. (1985). *Network Externalities, Competition, and Compatibility*. The American Economic Review, 424-440.
- Kleinberg, J. (2008). *The Convergence of Social and Technological Networks*. Communications of ACM, 51(11), 66-72.
- Kulp, S. C. (2007). *Advertising amongs Ourselves: A Qualitative Study of Viewer Attitudes towards Viral Marketing*. Chapel Hill: ProQuest Information and Learning Company.
- Lam, S. (2010). *Buyer Rank: Online Social Network Analysis for Viral Marketing*. Saarbrücken: LAMBERT Academic Publising AG & Co. KG.
- Lampe, C., Ellison, N., & Steinfield, C. (2006). *A Face(book) in the Crowd: Social Searching vs. Social Browsing*. Proceedings of the 2006 20th Anniversary Conference on Computer Supported Cooperative Work (pp. 167-170). ACM Publications.
- Leskovec, J., Adamic, L. A., & Huberman, B. A. (2007). *The Dynamics of Viral Marketing*. Social and Behavioral Sciences.
- Libai, B., Muller, E., & Peres, R. (2005). *The Role of Seeding in Multi-Market Entry*. International Journal of Research in Marketing, 375–393.
- Lindqvist, J., Cranshaw, J., Wiese, J., Hong, J., & Zimmerman, J. (2011). *I'm the mayor of my house: examining why people use foursquare - a social-driven location sharing application*. Proceedings of the SIGCHI Conference on Human Factors in Computing Systems (pp. 2409-2418). Vancouver: ACM Press.

- Marsden, P. (2005). *Seed to Spread: How seeding trials ignite epidemics of demand*. In J. Kirby, & P. Marsden (Eds.), *Connected Marketing: The Viral, Buzz and Word of Mouth Revolution* (pp. 3-23). Taylor & Francis.
- O'Brien, H. L., & Toms, E. G. (2008). *What is User Engagement? A Conceptual Framework for Defining User Engagement with Technology*. *Journal of the American Society for Information Science and Technology*, 938–955.
- O'Brien, H. L., & Toms, E. G. (2010). *The Development and Evaluation of a Survey to Measure User Engagement*. *Journal of the American Society for Information Science and Technology*, 50-69.
- Perry, R., & Whitaker, A. (2003). *Viral Marketing in a Week*. Hodder & Stoughton Canada.
- Piskorski, M. J. (2011, November). *Social Strategies That Work*. *Harvard Business Review*, pp. 116–122.
- Pousttchi, K., & Wiedemann, D. G. (2007). *Success Factors in Mobile Viral Marketing: A Multi-Case Study Approach*. *International Conference on the Management of Mobile Business* (pp. 1-8). Toronto: IEEE.
- Rad, J., MacFarlane, S., & Casey, C. (2002). *Endurability, Engagement and Expectations: Measuring Children's Fun*. *Interaction Design and Children* (pp. 189–198). Eindhoven: Shaker Publishing.
- Rayport, J. (1996, December). *The Virus of Marketing*. Fast Company.
- Richardson, M., & Domingos, P. (2002). *Mining Knowledge-Sharing Sites for Viral Marketing*. *Knowledge Discovery and Data Mining* (pp. 61-70). Alberta: ACM press.
- Richins, M. L., & Root-Shaffer, T. (1988). *The Role of Evolvment and Opinion Leadership in Consumer Word-Of-Mouth: an Implicit Model Made Explicit*. *Advances in Consumer Research*, 15, 32-36.

- Rodden, K., Hutchinson, H., & Fu, X. (2010). *Measuring the User Experience on a Large Scale: User-Centered Metrics for Web Applications*. ACM Conference on Human Factors in Computing Systems. California: ACM Press.
- Rodic, N., & Koivisto, E. (2012). *Best Practices in Viral Marketing*. Aalto University School of Economics, Department of Marketing. Helsinki: Aalto MediaMark.
- Rogers, E. M. (2003). *Diffusion of Innovation* (5th ed.). New York: New York: Free Press.
- Rosen, E. (2001). *The Anatomy of Buzz: Create Word of Mouth Marketing* (2nd ed.). London: Harper Collins.
- Saunders, M., Lewis, P., & Thornhill, A. (2009). *Research Methods for Business Students*. Pearson Education Limited.
- Shapiro, A. (2011). *Users Not Customers: Who really determines the success of your business*. New York, U.S.A: Penguin Group.
- Silverman, G. (2011). *The Secrets of Word-Of-Mouth Marketing: How to Trigger Exponential Sales Through Runaway Word of Mouth* (1st ed.). New York: Amacom Publications.
- Subramani, M. R., & Rajagopalan, B. (2003, December). *Knowledge-Sharing and Influence in Online Social Networks via Viral Marketing*. Communications of the ACM, pp. 300-307.
- Teixeira, T. (2012, March). *The New Science of Viral Ads*. Harvard Business Review, pp. 25-27.
- Toubia, O., Stephen, A. T., & Freud, A. (2011). *Identifying Active Members in Viral Marketing*. New York: Columbia Business School.
- Watts, D. J., & Dodds, P. S. (2007). *Influentials, Networks, and Public Opinion Formation*. Journal of Consumer Research, 441–458.

Watts, D. J., Peretti, J., & Frumin, M. (2007, May).

Viral Marketing for the Real World. Harvard Business Review (May 2007).

Wiedemann, D. G. (2009). *Exploring the Concept of Mobile Viral Marketing through Case Study Research*. *Mobilität und mobile Informationssysteme*, 2nd conference of GI-Fachgruppe MMS, (pp. 49–60). Aachen.

Witthaus, M. (2002, March 22). *Spreading the Word*. *Precision Marketing*, pp. 18-20.

Electronic references

Alexa Internet Inc. (2013). *Alexa: Top Sites*. Retrieved March 1, 2013, from Alexa - The Web Information Company: <http://www.alexa.com/topsites>

Ashpari, Z. (2012, April 6). *Why Is Instagram So Popular?* PC World. Retrieved March 11, 2013, from http://www.pcworld.com/article/253254/why_is_instagram_so_popular_.html

Avansera Ltd. (2013). *Avansera: About Us*. Retrieved February 20, 2013, from Avansera: <http://avansera.com/aboutus/>

Bolt, N. (2011, November 27). *Why Instagram Is So Popular: Quality, Audience, & Constraints*. Tech Crunch. Retrieved March 11, 2013, from <http://techcrunch.com/2011/11/27/why-instagram-is-so-popular/>

Borden, M. (2010, July 14). *The Team Who Made Old Spice Smell Good Again Reveals What's Behind Mustafa's Towel*. Fast Company. (R. Safian, Ed.) U.S.A. Retrieved March 4, 2013, from <http://www.fastcompany.com/1670314/team-who-made-old-spice-smell-good-again-reveals-whats-behind-mustafas-towel>

Brian, M. (2011, July 16). *Mobile Apps: A Look at What Makes a Good App Great*. The Next Web. Retrieved March 19, 2013, from <http://thenextweb.com/mobile/2011/07/16/mobile-apps-a-look-at-what-makes-a-good-app-great/>

Cheshire, T. (2011, March 11). *In Depth: How Rovio made Angry Birds a winner (and what's next)*. Wired UK. Condé Nast Publications. Retrieved March 15, 2013, from <http://www.wired.co.uk/magazine/archive/2011/04/features/how-rovio-made-angry-birds-a-winner?page=all>

Cocotas, A. (2012, April 6). *Foursquare's User Growth Accelerates*. Business Insider. Retrieved January 16, 2013, from http://articles.businessinsider.com/2012-04-06/news/31298509_1_location-based-services-foursquare-smartphone

DesMarais, C. (2013, January 20). *Facebook's Instagram says it has 90 million monthly active users*. PC World. U.S.A. Retrieved March 11, 2013, from <http://www.pcworld.com/article/2025801/facebooks-instagram-says-it-has-90-million-monthly-active-users.html>

Eriksen, E. H., & Abdymomunov, A. (2011, February 18). *Angry Birds will be bigger than Mickey Mouse and Mario. Is there a success formula for apps?* MIT Entrepreneurship Review. U.S.A. Retrieved March 19, 2013, from <http://mter.mit.edu/articleangry-birds-will-be-bigger-mickey-mouse-and-mario-there-success-formula-apps/>

Foursquare Labs Inc. (2013). *Foursquare: About*. Retrieved March 3, 2013, from Foursquare: <https://foursquare.com/about/>

Frommer, D. (2010, November 1). *Here's How To Use Instagram*. Business Insider. New York, U.S.A. Retrieved March 11, 2013, from <http://www.businessinsider.com/instagram-2010-11>

Gartner Inc. (2010, October 21). *Mobility will be a Trillion Dollar Business by 2014*. Stanford, Connecticut, U.S.A: Gartner Inc. Retrieved March 8, 2013, from <http://www.gartner.com/newsroom/id/1455314>

Gartner Inc. (2012, November 6). *821 Million Smart Devices Will Be Purchased Worldwide in 2012; Sales to Rise to 1.2 Billion in 2013*. Barcelona, Spain: Gartner Inc. Retrieved January 8, 2013, from <http://www.gartner.com/newsroom/id/2227215>

Gaudiosi, J. (2013, March 11). *Rovio Execs Explain What Angry Birds Toons Channel Opens Up To Its 1.7 Billion Gamers*. Forbes. Forbes Publications. Retrieved March 19, 2013, from <http://www.forbes.com/sites/johngaudiosi/2013/03/11/rovio-execs-explain-what-angry-birds-toons-channel-opens-up-to-its-1-7-billion-gamers/>

Instagram. (2013). *Instagram: Press Center*. Retrieved March 11, 2013, from Instagram: <http://instagram.com/press/>

Internet World Stats. (2012, June). *Internet Usage in Europe*. Retrieved February 15, 2013, from Internet World Stats:

<http://www.internetworldstats.com/stats4.htm#europe>

Keen, A. (2009, October 22). *LinkedIn: the secret to the online business network's success*. The Telegraph. Retrieved March 9, 2013, from

<http://www.telegraph.co.uk/technology/social-media/6406274/LinkedIn-the-secret-to-the-online-business-networks-success.html>

Kenney, M., & Pon, B. (2011). *Structuring the Smartphone Industry: Is the Mobile Internet OS Platform the Key*. University of California, Department of Human & Community Development. Oakland: University of California. Retrieved February 10, 2013, from <http://ssrn.com/abstract=1851686>

LinkedIn Corporation. (2013). *LinkedIn: Press Center: About LinkedIn*. Retrieved March 9, 2013, from LinkedIn : <http://press.linkedin.com/about>

Mauro, C. L. (2011, February 6). *Why Angry Birds is So Successful and Popular: A Cognitive Teardown of the User Experience*. Retrieved March 19, 2013, from

<http://www.mauronewmedia.com/blog/why-angry-birds-is-so-successful-a-cognitive-teardown-of-the-user-experience/>

McCorvey, J. J. (2012, November 26). *Rovio Takes Flight With "Angry Birds" But Disney-Sized Success Still Up In The Air*. Fast Company. Retrieved March 19,

2013, from <http://www.fastcompany.com/3002945/rovio-takes-flight-angry-birds-disney-sized-success-still-air>

McMains, A. (2011, June 7). *Grand Effie Winner Hard to Beat: Old Spice Continues Awards Show Stampede*. AdWeek. Retrieved February 25, 2013, from

<http://www.adweek.com/news/advertising-branding/grand-effie-winner-hard-beat-132334>

Moffat, K. (2011, June 28). *Is Instagram even about the photos?* PR & Social.

Retrieved March 11, 2013, from <http://prandsocial.com/2011/06/28/is-instagram-even-about-the-photos/>

Kuntz, T. (Director). (2010, February 4). *Old Spice: The Man Your Man Could Smell Like* [Motion Picture]. Retrieved March 5, 2013, from

<https://www.youtube.com/watch?v=owGykVbfgUE>

Nishar, D. (2013, January 9). *200 Million Members*. LinkedIn: Blog. California, U.S.A. Retrieved March 9, 2013, from

<http://blog.linkedin.com/2013/01/09/linkedin-200-million/>

Osterwalder, A. (2012, July 26). *Users vs Customers*. Retrieved January 25, 2013, from Business Model Alchemist:

<http://www.businessmodelalchemist.com/2010/07/users-vs-customers.html>

Procter & Gamble. (2010). *P&G: Downloads: Innovation*. Retrieved March 5, 2013, from Procter & Gamble Official Website:

http://www.pg.com/en_US/downloads/innovation/factsheet_OldSpice.pdf

Raman, S. (2012, September 24). *Instagram success paves way for photo, video app growth*. Fearce Mobile Content. Retrieved March 11, 2013, from

<http://www.fiercemobilecontent.com/special-reports/instagram-success-paves-way-photo-video-app-growth>

Red Ant. (2009). *Redant: Whitepapers*. (R. Conyard, Ed.) Retrieved March 5,

2013, from Redant: <https://www.redant.com/assets/files/Digital-Strategy-Whitepaper.pdf>

Rovio Entertainment. (2012, May 9). *One billion Angry Birds downloads*. Rovio News: Blog. Helsinki, Finland. Retrieved March 19, 2013, from Rovio:

<http://www.rovio.com/en/news/blog/162/1-billion-angry-birds-downloads/2012>

Rovio Entertainment. (2013, January 3). *Over 8 million game downloads on Christmas Day*. Rovio News: Blog. Helsinki, Finland. Retrieved March 19, 2013,

from <http://www.rovio.com/en/news/blog/256/over-8-million-game-downloads-on-christmas-day/>

Saint, N. (2010, January 28). *What Is Foursquare And How Do I Use It?* Business Insider. Retrieved March 16, 2013, from <http://www.businessinsider.com/how-hit-location-based-social-app-foursquare-works-2010-1?op=1>

- Sengupta, S., Perloth, N., & Wortham, J. (2012, April 13). *Behind Instagram's Success, Networking the Old Way*. The New York Times. San Francisco, California, U.S.A. Retrieved March 11, 2013, from http://www.nytimes.com/2012/04/14/technology/instagram-founders-were-helped-by-bay-area-connections.html?pagewanted=all&_r=2&
- Skype & Microsoft. (2013). *Skype: Learn: What is Skype?* Retrieved February 25, 2013, from Skype: <http://www.skype.com/en/what-is-skype/>
- Slutsky, I. (2010, December 6). *Why LinkedIn Is the Social Network That Will Never Die*. AdAge Digital. Retrieved March 9, 2013, from <http://adage.com/article/digital/linkedin-social-network-die/147475/>
- Spencer, G. (2011, November 2). *Angry Birds Reaches Half A Billion Downloads*. MacStories. Retrieved March 19, 2013, from <http://www.macstories.net/news/angry-birds-reaches-half-a-billion-downloads/>
- Spencer, G. (2013, February 26). *A Look Back At Instagram's Growth As It Hits 100 Million Monthly Active Users*. MacStories. Retrieved March 14, 2013, from <http://www.macstories.net/news/a-look-back-at-instagrams-growth-as-it-hits-100-million-monthly-active-users/>
- Statista. (2013, February 4). *Facebook's Remarkable User Growth*. Statista: The Statistics Portal. Retrieved March 15, 2013, from <http://www.statista.com/topics/751/facebook/chart/870/facebook-s-user-growth-since-2004/>
- Statistics Finland. (2012, November 7). *Use of information and communications technology by individuals*. Helsinki, Finland. Retrieved February 15, 2013, from http://www.tilastokeskus.fi/meta/til/sutivi_en.html
- Stonedahl, F., Rand, W. M., & Wilensky, U. (2010, July). *Evolving Viral Marketing Strategies*. Robert H. Smith School Research Paper No. RHS 06-133. Portland, Oregon, USA. Retrieved February 5, 2013, from <http://ssrn.com/abstract=1846505>

- Sullivan, J. (2012, July 2). *20 Reasons Why LinkedIn Will Be the Number 1 Recruiting Portal of the Future*. ERE.net. Retrieved March 9, 2013, from <http://www.ere.net/2012/07/02/20-reasons-why-linkedin-will-be-the-1-recruiting-portal-of-the-future/>
- Takahashi, D. (2010, June 9). *Zynga launches FrontierVille in bid to turn traffic around*. VentureBeat: GamesBeat. Retrieved March 1, 2013, from <http://venturebeat.com/2010/06/09/zynga-launches-frontierville-in-bid-to-turn-traffic-around/>
- Takahashi, D. (2011, December 12). *How Zynga grew from gaming outcast to \$9 billion social game powerhouse*. VentureBeat: GamesBeat. (M. Marshall, Editor, & VentureBeat) Retrieved February 20, 2013, from VentureBeat: <http://venturebeat.com/2011/12/12/zynga-history/view-all/>
- Tam, D. (2013, January 30). *Facebook by the numbers: 1.06 billion monthly active users*. CNET. U.S.A. Retrieved March 1, 2013, from http://news.cnet.com/8301-1023_3-57566550-93/facebook-by-the-numbers-1.06-billion-monthly-active-users/
- Tassi, P. (2012, May 4). *Draw Something Loses 5M Users a Month After Zynga Purchase*. Forbes. U.S.A: Forbes. Retrieved January 31, 2013, from <http://www.forbes.com/sites/insertcoin/2012/05/04/draw-something-loses-5m-users-a-month-after-zynga-purchase/>
- The Week Staff. (2010, March 15). *What is Foursquare?* The Week. Retrieved March 16, 2013, from <http://theweek.com/article/index/200751/what-is-foursquare>
- Thevenot, C., & Watier, K. (2001, May). *Viral Marketing*. Katherine Watier. Retrieved February 3, 2013, from Watier Creative Web site: <http://www.watier.org/kathy/education/papers.htm>
- Thompson, M. (2012, May 1). *InsideSocialGames: Explore: Social Games*. Retrieved February 15, 2013, from Inside Social Games: <http://www.insidesocialgames.com/2012/05/01/top-25-facebook-games-of-may-2012/>

- Tsukayama, H. (2011, December 9). *Apple names Instagram top app of the year*. The Washington Post. Washington, U.S.A. Retrieved March 11, 2013, from http://articles.washingtonpost.com/2011-12-09/business/35286456_1_instagram-fruit-ninja-top-flicks
- Upbin, B. (2012, April 9). *Facebook Buys Instagram For \$1 Billion*. Forbes. New York, U.S.A. Retrieved March 11, 2013, from <http://www.forbes.com/sites/bruceupbin/2012/04/09/facebook-buys-instagram-for-1-billion-wheres-the-revenue/>
- Vanover, R. (2009, May 19). *Five benefits of LinkedIn for organizations*. TechRepublic. Retrieved March 9, 2013, from <http://www.techrepublic.com/blog/networking/five-benefits-of-linkedin-for-organizations-and-it-pros/1471>
- Warren, C. (2012, December 13). *Apple Names Its Best iPhone and iPad Apps of 2012*. Mashable. U.S.A. Retrieved March 19, 2013, from <http://mashable.com/2012/12/13/apple-app-store-best-2012/>
- Weiner, J. (2009, October 14). *LinkedIn: 50 million professionals worldwide*. LinkedIn: Blog. California, U.S.A. Retrieved March 9, 2013, from <http://blog.linkedin.com/2009/10/14/linkedin-50-million-professionals-worldwide/>
- Weiner, J. (2011, March 22). *100 million members and counting*. LinkedIn: Blog. California, U.S.A. Retrieved March 9, 2013, from <http://blog.linkedin.com/2011/03/22/linkedin-100-million/>
- Wentz, L. (2010, June 26). *Old Spice's Manly Body Wash TV Spot Takes Film Grand Prix*. Advertising Age. Retrieved February 15, 2013, from <http://adage.com/article/special-report-cannes-2010/spice-s-man-man-smell-takes-film-grand-prix/144688/>
- Zynga Inc. (2013). *Zynga: About*. Retrieved February 20, 2013, from Zynga: <http://company.zynga.com/about>

Unpublished reference

Avansera Ltd. (2013). *OstosNero's Business Plan by Avansera Ltd.* Market Analysis and Business Plan, Helsinki.

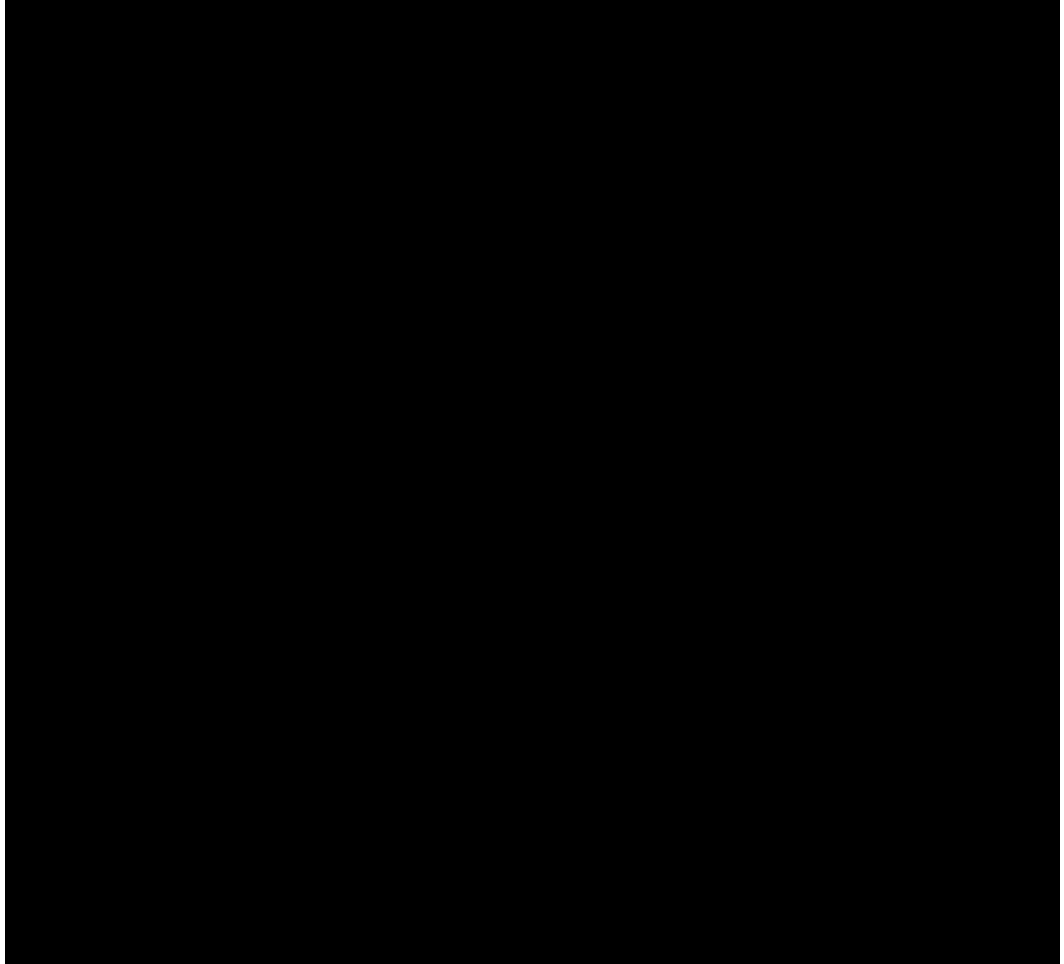
Interviews

Walsh, C., & Martinez, V. (2013, February 12). *How Is OstosNero Service Developed?* (T. H. Le, & T. T. Nguyen, Interviewers)

Veres, S. (2013, March 7). *How OstosNero Identifies Its Initial Contacts.* (T. H. Le, Interviewer)

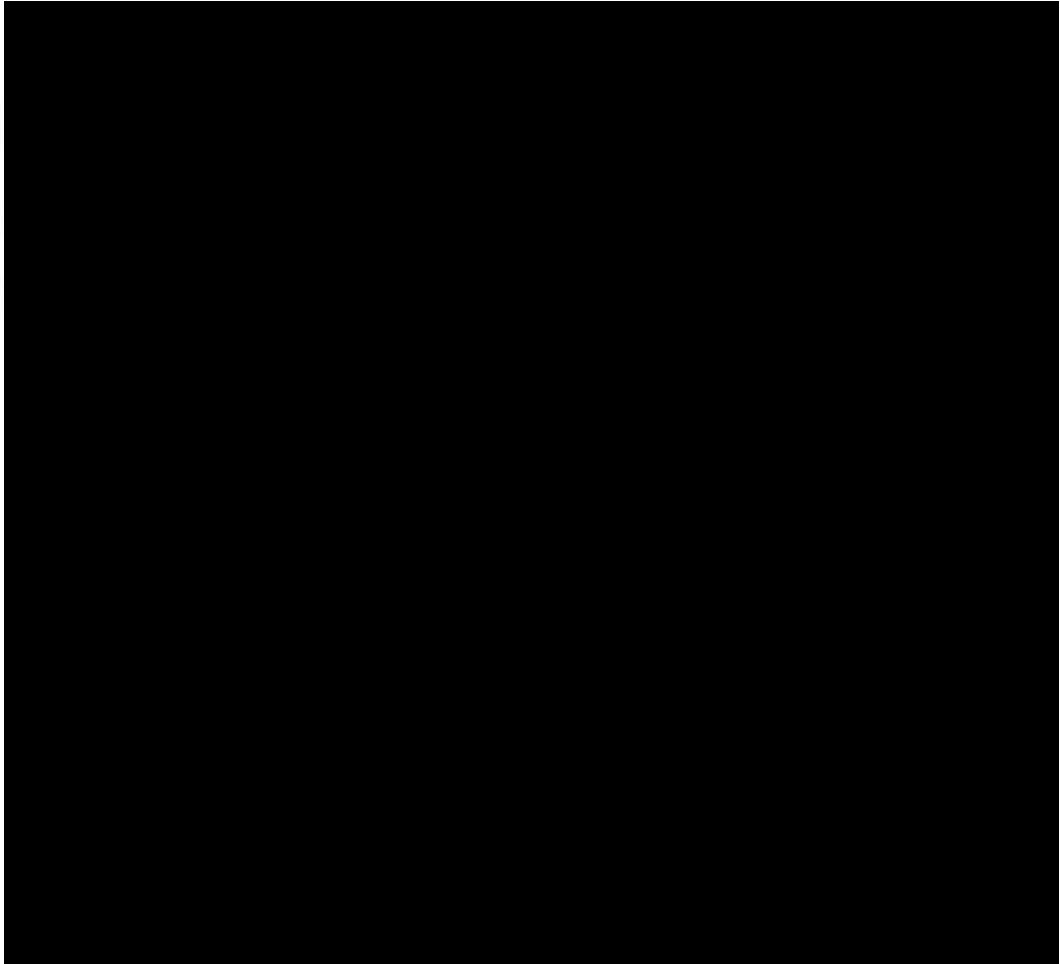
APPENDICES

APPENDIX 1. Concept pictures of OstosNero Shopping Intelligence Platform



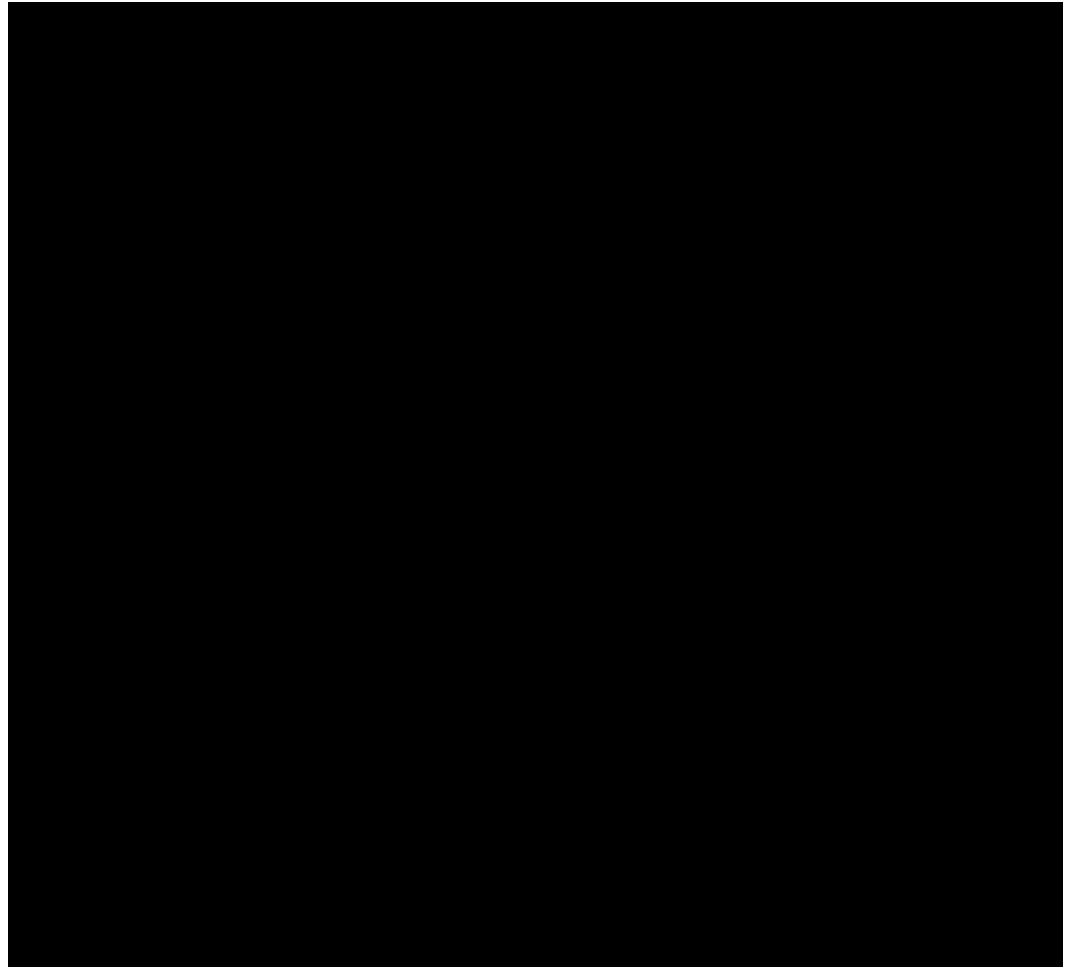
1. Homepage – Item
search

2. Product price
comparison



3. Shopping list for
one store

4. Totals for entire
shopping trip



5. Shopping history by
product category

APPENDIX 2. Statistics in Finland: Prevalence of Internet usage and certain purposes of use in 2012 (Statistics Finland 2012)

	Used the Internet in the past 3 months	Uses the Internet usually several times a day	Used Internet banking in the past 3 months	Bought over the Internet in the past 3 months	Followed some social network service in the past 3 months	Used the Internet with a laptop outside home and workplace in the past 3 months	Used the Internet with a mobile phone in the past 3 months	Has a smartphone in own use
Percentage of population aged 16–74 years								
Aged 16-24	100	80	75	54	86	51	51	64
Aged 25-34	100	88	98	67	80	48	48	69
Aged 35-44	98	74	96	61	58	47	47	66
Aged 45-54	96	68	92	54	39	38	38	50
Aged 55-64	82	44	74	31	22	24	24	30
Aged 65-74	61	26	51	13	10	11	11	15
Men	90	66	81	46	44	42	42	54
Women	90	61	83	53	53	32	32	45
Total	90	64	82	49	49	37	37	49