



Using Social Media to Develop and Commercialize New ICT Products

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Abstract

Objective

The commercialization or go-to-market process is one of the most important activities for any business. Companies are searching for methodologies and techniques to rapidly validate their concepts and at an early stage integrate market needs into their development process so that they can accelerate the go-to-market process of a new product.

In order to create an effective tool to support companies, this research is conducted to study on how social media be used in developing and commercializing new products.

Methodology

The research used qualitative research method in which a mix of different types of data were collected. Multiple case study approach analyses various aspects of the commercialization processes and social media practices thus seeking for answers from the overview phenomena.

Results and findings

An integration framework generated from theory review helps companies to better understand their development process as well as practices that need to be carried out in certain phases of the process and to accelerate the innovation in entering a new market.

The social media canvas was created and aimed to be a practical tool for company in conducting a workshop within the team and planning how to utilize social media in developing or commercializing a product.

Keywords Social media, commercialization, innovation, ICT, new product development, digital marketing, go-to-market, acceleration

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Glossary

B2B: Business to Business

B2C: Business to Consumer

CGC: Consumer-Generated Content

CMS: Content Management System

FEI: Front-End Innovation

ICT: Information Communication Technology

IDEO: An International Design and Consulting Firm

ITEA: the EUREKA Cluster program supporting innovative, industry-driven, pre-competitive R&D projects in the area of Software-intensive Systems & Services

NPD: New Product Development

RSS: Really Simple Syndication

SMEs: Small or Medium Enterprises

SMS: Short Message Services

SNS: Social Network Sites

UGC: User-generated content

Vlogs: Video Blogs

Web 2.0: World Wide Web sites that emphasize user-generated content, usability, and interoperability

1. Introduction

1.1. Research background

Innovation in any industry requires more than just the creation of a technology or product. The commercialization or go-to-market process is one of the most important activities for any business. The match between the market needs and company offering defines the success or failure of the new product or service. Companies are searching for methodologies and techniques to rapidly validate their concepts and at an early stage integrate market needs into their development process so that they can accelerate the go-to-market process of a new product.

Although there has been a huge amount of research on the innovation process and the commercialization of innovation, such as the Cooper stage-gate model (Cooper 1990), front-end innovation (Koen et al. 2001) and the co-creation process (Prahalad & Ramaswamy 2004; Hoyer et al. 2010), early studies of innovation in the ICT industry are quite scarce and not consistent (Pikkarainen et al. 2011, p2). The integration of product development and commercialization of a new product is a complicated topic involving various aspects (R&D, manufacturing, marketing, etc.). Among the elements influencing the innovation process, customer engagement is a critical factor in determining the success of new products or services. In recent years, the lean startup (Ries 2011) and customer development model (Blank 2007) have been popularized and applied by both startups and larger companies. The main theories of lean principles, iterating circles and experimenting activities, have been well-adopted by other scholars (Brown & Rowe 2008, Maurya 2012, Koen 2015). The author of front-end innovation, Koen (2015) has also incorporated lean theory into his theory on innovation management for large corporations; the global design consultant company IDEO applies the principles of lean iterating circles into their well-known design thinking process (Brown & Rowe 2008) or, for example, the “Lean Stack” theory developed by Maurya (2012). Nevertheless, the knowledge is still relatively new, many aspects of this principle can be investigated further.

Web 2.0 is a term to emphasize the World Wide Web that changes from a static page to user-generated-content. Social media describes online communication channels where users can create and share content or participate in social networking. In the dynamic and interconnected environment, web 2.0 and social media have a tremendous influence on the way companies develop businesses and engage with customers. There are many discussions of the benefits of using social media in communication, marketing and branding, for instance in enhancing interaction with customers, generating sales or managing the company's reputation, etc. Especially in the go-to-market, market-expanding or globalizing phase, social media and online user-generated content platforms (Berthon et al. 2012) are the critical channels for reaching mass audiences at optimal cost. Although social media is well-known as a channel for marketing activities, as the post-launch phase of the innovation process, the principles of social media are about connecting people, building the community and maintaining relationships through user interaction (Kietzmann et al. 2011; Mislove et al. 2007); thus, social media can be applied to other phases of the innovation process. Even though it is widely agreed on the significant results from involving users in an early phase (von Hippel 1986; Lettl 2007; Gales & Mansour-Cole 1995), despite the clear evidence of social media as a tool for discovering customer demand and for product development, many companies, business-to-business (B2B) companies especially, have yet to fully utilize social media in their innovation process (Kärkkäinen et al. 2010). Thus, more research into how to take advantage of social media in the prelaunch and launch phase is needed.

Previous studies on social media mostly focus on social its roles and advantages in business, but not how to apply them in practice. The majority of social media guidelines are produced by online communities or marketing gurus. The knowledge is based on practical experience and lacks academic research. Companies are challenged to catch up with the rapid development and appearance of new social media channels. It is a continuous learning process for both industry and research entities to utilize social media channels. There are many opportunities but also threats which companies must pay attention to when utilizing digital channels. In order to create an effective tool that

companies can use when creating their digital or social media marketing strategies and implementing their activities, research needs to be conducted into using social media in commercializing new products.

1.2. The “Accelerate” project

This thesis is a part of ITEA – Accelerate project: A platform for go-to-market in ICT industry. ITEA is the cluster programme supporting innovative and industry-driven research projects in the area of Software-intensive Systems & Services (SiSS). Accelerate is a joint project between 18 consortium partners from Finland, Belgium, Romania, France and Spain representing research institutes, large industry providers and SMEs.

The Accelerate project aims to create services based on technological innovation, advanced processes and new software technologies; thus accumulating know-how on how to accelerate in the European technology industry. The project’s results will offer ICT sector methodologies, systematic approaches, innovative tools and models to support go-to-market processes.

This thesis belongs to the work package 1 (WP1) of the Accelerate project: “Acceleration Methodologies and Performance Indicators for ICT”. The WP1 is led by the Finnish consortium and it focuses on solving research problems related to the learning cycle of go-to-market including methodology developments, iterations and validations. The results of this work package are planned to be:

- Innovation canvas for SMEs and start-ups
- User-driven methods for innovation
- Methods for commercialization

1.3. Research questions and objectives

As a part of the WP-1, the ultimate goal of this research is to create a guideline for using social media in the innovation and commercialization of ICT products and services. As a part of the goal, this thesis aims to answer the research question: “How should social media be used in developing and commercializing ICT products?”

The research question has been modified several times from the initial suggestion for the topic of using social media in marketing and branding for go-to-market strategies of ICT product/services. The research scope has been finalized to focus on the market development part of an innovation process, with the sub-questions as follows:

- Which social media activities can be involved in the different phases of innovation or co-creation process?
- How different are social media practices and strategies depending on the innovation process phase, company size, market (B2B or B2C)?
- How to create social media strategy?

This research aims to create an integration framework of market development and product development model (Figure 1). The integration framework helps companies to better understand the development process as well as practices that need to be carried out in certain phases of the process and to accelerate the innovation in entering a new market.

The research focuses on utilizing social media at various stages of the integration model and in different sized companies. Thus, social media is considered as a channel for companies to implement their go-to-market strategies.

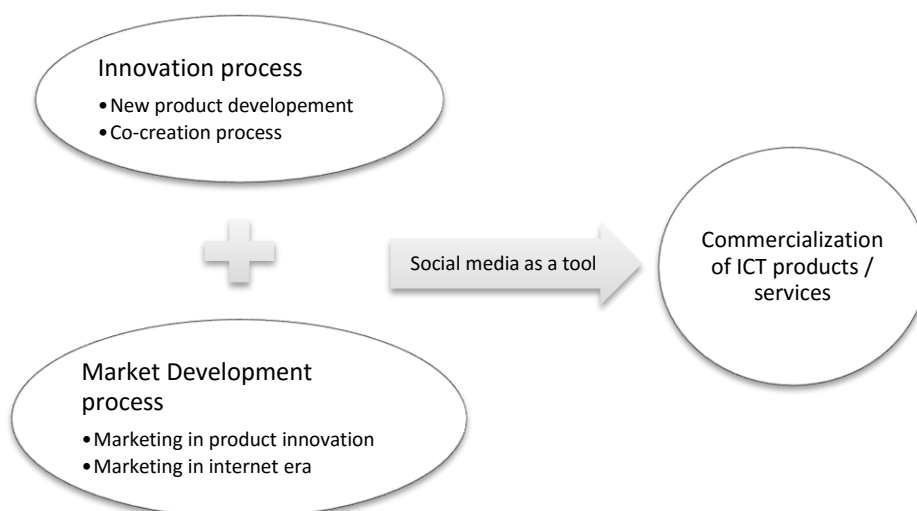


Figure 1 Framework for the approach to the research

1.4. Thesis structure

The thesis is divided into seven sections. Chapter Two presents a literature review to establish the understanding of innovation and marketing processes in order to build the integrated framework. Chapter Three clarifies the methodology and research approach. Chapter Four introduces the multiple-case study and explains the case set-up as well as the action research carried out. Findings from each case are presented in Chapter Five, while the case comparison and discussion are given in Chapter Six. The final chapter presents the conclusions and suggestions for future research.

2. Literature review

2.1. Innovation process

In this sub-chapter different innovation process models are reviewed, and the similarities and differences of those models are benchmarked. Researching on the co-creation process clarifies the customers'/end-users' roles in the process. Since social media is a tool to engage with users, understanding the user involvement will help to identify in which phase and how the company can use social media to interact with its targeted audience.

On the market development part, a similar approach has been taken with Kotler (2000)'s traditional marketing process in product development, the entrepreneurial marketing concept (Bjerke & Hultman 2002; Gruber 2004), and Blank (2007)'s customer development model. Also, the theory of integrated marketing communication concept has been reviewed.

For the social media practices, there is little academic research on social media roles in branding and communication (Erdoğan & Çiçek 2012; Hassan et al. 2015; Berthon et al. 2012; Kaplan & Haenlein 2010; Dennhardt 2013), but not many studies about the actual practices and results of each activity. Practice guidelines and tips related to digital marketing from online sources and gurus will be used. Taking into account the fresh aspect of social media and the experimental orientation of this study, online materials are considered as a good resource to generate new knowledge.

2.1.1. The innovation concept

Innovation is a spectrum of activities starting from generating and implementing new ideas to developing new products or services and finally entering the market, which necessarily provides new value for customer and at the same time satisfies the financial return to the company or entrepreneur (Thompson 1965; Buckler 1997). Innovation is more than just an idea or invention; it can be linked both to business renewal (Bowen et al. 1994; Brown & Eisenhardt 1997), growth, and competitiveness of companies,

networks and ecosystems (Miller & Morris 1999). Thus, innovation can be seen as result or also as a process.

As a process, according to Peter Drucker, innovation is a specific function of entrepreneurship and results from “a conscious, purposeful search for innovation opportunities”. Innovation opportunities exist within an organization or an industry as unexpected occurrences, incongruities between the expectations, or needs to change a process or reality. Changes include internal industrial and market changes or external changes in the social and intellectual environment such as demographic, perception or knowledge (Drucker 1998). Concluded from all practices toward changes, there are five types of development driven by innovation: launch of a new product, application of a new method in production, opening of a new market, acquiring new sources of supply, and new industry structure (Schumpeter 1939).

Many scholars have been studying the innovation concept, its characteristics and activities in recent decades. Recently researchers have identified additional dimensions of innovation for example: innovations around process, product, position and paradigm (Tidd et al. 2005) or the 12 different ways of business innovations: offering, platform, solution, customers, customer experience, value capture, processes, organization, supply chain, presences, networking and brand (Sawhney et al. 2007). For user experience innovation, various innovation approaches are suggested by Kraft (2012): innovating with lead users, innovating around first impression, innovating around paradoxes, context awareness, new product or new users.

In the technology industry, the main focus of innovation definition is new product development or new technology invention (Nord & Tucker 1987). The sections of Chapter 2 that follow will review the elements of innovation process with the focus on acknowledged models for new product development and the commercialization process of hi-tech products.

2.1.2. New product development process

A product innovation can be new technology or a combination of technologies and practices, commercialized to meet users' or markets' needs (Utterback & Abernathy 1975). The introduction of a new product or improvement of an existing one must lead to development (Schumpeter 1939) and bring financial or other benefits (Rogers 2003; Schumpeter 1939). The product innovation development process is a set “of all the decisions, activities, and their impacts that occur from recognition of a need or a problem, through research, development, and commercialization of an innovation, through diffusion and adoption of the innovation by users, to its consequences” (Rogers, 2003, p. 137)

There are a number of interpretations of innovation or new product development process models. Cooper's (1990) Stage-Gate system divided the product innovation process into a number of stages or workstations, with a quality control checkpoint or gate in between each stage, in order to ensure and improve the quality of output (Cooper 1990) (see Figure 2).

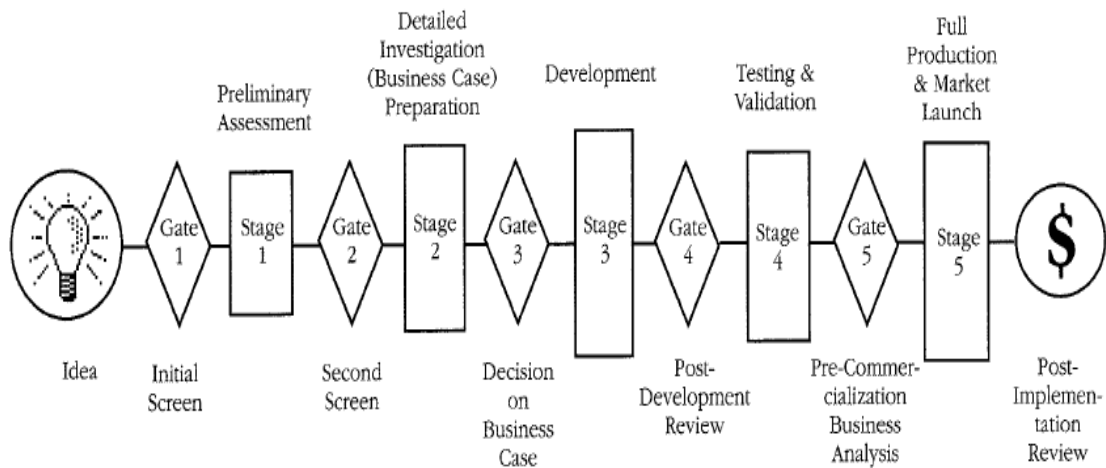


Figure 2 An overview of Stage-Gate system (Adapted from Cooper 1990)

Buckler (1997) and Koen et al. (2001) divided the process into three main areas: fuzzy front-end, new product and process development, and commercialization (see Figure 3).

In their view, the characteristics of front-end of innovation (FEI) and the new product development (NDP) process are different. The front-end innovation works in an unpredictable and chaotic way, has variable funding and involves a great deal of speculation while the new product development is disciplined, goal-oriented in planning, has budgeted funding and a defined release date (Buckler 1997; Koen et al. 2001).

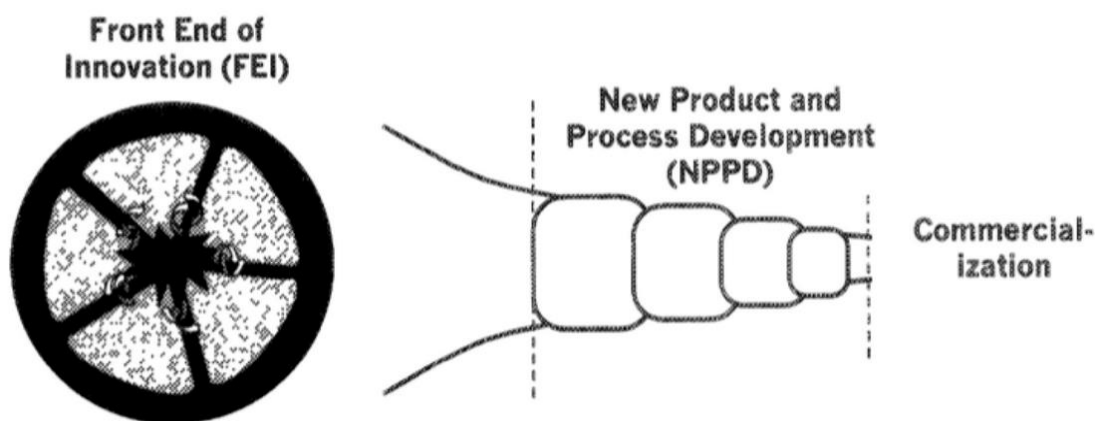


Figure 3 Fuzzy front-end innovation model (Adapted from Buckler 1997, Koen et al. 2001)

The comparison may be applied to the traditional development model, for example Bright (1969)'s Stage-gate model in which the process starts from a scientific suggestion or scientific discover and moves to laboratory verification, trial attempts and finally commercialization (Bright 1969). In their theory about co-creation development (to be discussed in subsection 2.1.3), Joshi & Sharma (2004) defined the NPD process as consisting of two main phases: prelaunch and post-launch (Joshi & Sharma 2004), in which the pre-launch phase includes idea generation, concept refinement, product development and product testing. Hoyer identified the NPD stages as idea generation and product development (prelaunch), commercialization (launching) and post-launch (Hoyer et al. 2010). The idea generation and concept refinement mentioned above are similar to the five front-end elements in the FEI model including opportunity identification, opportunity analysis, idea genesis, idea selection and concept and technology development (Koen et al. 2001). Figure 4 demonstrates Joshi & Sharma (2004) and Hoyer et al. (2010) NPD process.

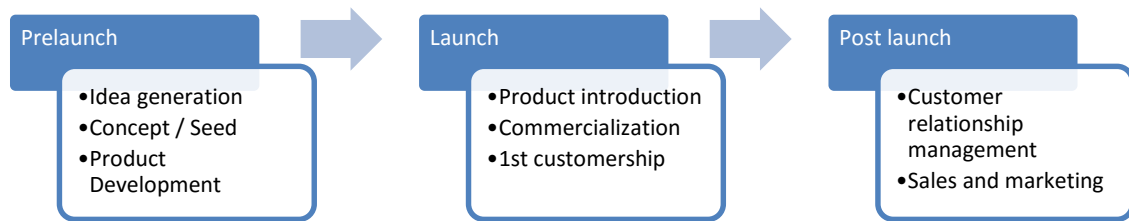


Figure 4 New product development model based on Joshi & Sharma (2004) and Hoyer et al. (2010) theory

Overall, despite the different phases and steps of each innovation process model, they still retain the fundamentals of Schumpeterian economic evolution, which consists of three main stages of the process: concept development, product development and market development (Schumpeter 1939). All the models contribute to the innovation management by applying necessary skills, leadership principles and process management practices (Bright 1969; Cooper et al. 2001). Table 1 describes the evolution of product innovation process models over time.

Table 1 The innovation process models

Schumpeter and Traditional 3-way Classification	Bright (1969) Stages	Cooper (1990) Stage-Gate system	Buckler (1997), Koen et al. (2001) FEI process	Joshi & Sharma (2004), Hoyer et al. (2010) NPD model
1. Concept development	1. Scientific suggestion, discovery or recognition of need 2. Development of theory of design concept 3. Laboratory verification	1. Idea initial screening and preliminary assessment 2. Idea second screening and business case preparation	1. Fuzzy front-end and new concept development model	1. Idea generation 2. Concept development
2. Product development	4. Demonstration of application 5. Field trial of full-scale trial	3. Decision on business case and development 4. Post development review, testing and validation	2. New product and process development	3. Product development 4. A/B testing
3. Market development	6. Commercialization 7. Widespread adoption 8. Proliferation	5. Pre-commercialization, business analysis, full production and market launch 6. Post-implementation review	3. Commercialization	5. Product launching 6. Commercialization 7. Post launching

Adapted and modified from Valiauga (2013) master thesis. Sources: (Schumpeter 1939; Bright 1969; Cooper 1990; Joshi & Sharma 2004; Koen et al. 2001)

2.1.3. The co-creation process

Customer- or user-driven innovation

All the previous studies tell us that customer involvement is necessary and inevitable in modern innovation processes (Piller & West 2014). Customer involvement creates market-related knowledge, thus reducing market uncertainties (Lettl 2007). Joshi & Sharma (2004) described the process of understanding what the customers' preference for a new product is through the iteration of learning from and responding to customer feedback while direct contact between users and product developers plays an important role in user involvement (Howe 2006). The iteration process and intensive user interaction orientation have been applied to the design consulting firm IDEO's well-known design thinking process. The process consists of generating, developing and testing ideas (Brown & Rowe 2008). Lahti (2007) stated that firms can benefit from their customer-driven innovation to create a differentiation strategy, especially for growing firms, since "*global giants cannot combine large-scaled marketing and logistics with customer-specific strategies*".

The co-creation concept

A common definition of co-creation, originally from Prahalad & Ramaswamy(2004), is about involving customers in the collaborative activities when developing new product or service ideas (Prahalad & Ramaswamy 2004; Hoyer et al. 2010; O'Hern & Rindfleisch 2008; Stern 2011).

"A collaborative new product development (NPD) activity in which consumers actively contribute and select various elements of a new product offering" (O'Hern & Rindfleisch 2008,4)

Co-creation enables a dynamic and creative market research process (Stern 2011) where the consumers can provide new ideas to fulfil the market needs or improve the existing offerings, thus increasing the new product success (Hoyer et al. 2010). Consumers want

to interact with companies and influence the business system (Prahalad & Ramaswamy 2004). Companies are not just researching customers' needs, but also engaging customers (Wu & Fang 2010) to understand their preferences (Joshi & Sharma 2004) for the new product, thus satisfying their needs. Given the values of their inputs, customers are viewed as a source of R&D (Füller et al. 2006)

A challenge of co-creation is that consumers' ideas can be novel, but many of them may be infeasible to produce (Magnusson et al. 2003) because the co-creation process is also about involving many external communities outside the company, including not only customers but suppliers, or the general population (Benson 2013). Nonetheless, co-creation supports a company in increasing innovation capacity & velocity (Benson 2013; Jeppesen & Molin 2003), reducing innovation risk of product failure (Benson 2013; Hoyer et al. 2010), enhancing the development pipeline, and finally accelerating the time to market of new products or services (Benson 2013; Joshi & Sharma 2004; Sawhney et al. 2005)

User involvement in different stages

To get the best from user involvement in the co-creation process, companies need to know the users' capability for contribution, which users are capable of providing valuable insights and how to interact with them (Lettl 2007; von Hippel 1986). Understanding the “*user involvement competence*” to “*involve the right users at the right time in the right form*” is important for firms to significantly benefit from the users' contributions (Lettl 2007).

In the ideation stage of the innovation process, user involvement may deal with idea crowdsourcing (Howe 2006) or anticipating opportunities in the market (Sandberg 2007). Since markets for radical innovations are small and uncertain, a product idea coming from consumers is an indication of a profitable market (von Hippel et al. 2011). High problem pressure is the key motivation for users in searching for new solutions (Lettl 2007). However, at that early stage even users find it hard to express their needs, since they do not know what is possible (Sandberg 2007), especially in the case of high technological

innovation or when there is no existing product reference. Kraft (2012) suggested the method called “empathic design” as a variation of user observation in which the observer looks for the underlying feelings users have to identify hidden needs. Systematic searching for highly creative users will enhance the process. Lettl (2007) identified the following critical characteristics of users: intensive knowledge about the field and the respective needs, openness to new technologies, accessibility to resources, and strong passion for new solutions.

Some researchers questioned the value of customer input at the development stage since it might be a waste of resources, thus user involvement tends to decrease during that phase (Sandberg 2007). However, the testing and validating part of the development phase is vital to minimize the risk of failure (Apilo et al. 2015). Once the prototype is developed, it enables users to interact with the innovation (Sandberg 2007). Some innovations developed by users are interesting only to the original group, but others have greater potential. Involving users at the development phase is beneficial to developing new product features, but it also provides market research data (von Hippel et al. 2011). Imagination capabilities, technological competencies, ‘innovation tolerance’ such as tolerance of ambiguity, willingness to take risks and willingness to experiment are needed from users at the development phase (Lettl 2007)

At the launch stage, the key issue is whether users accept the new product. Creating awareness, training and trial marketing are used to influence users, while modifying the product after launch based on users’ feedback will increase the compatibility between the innovation and users (Hoyer et al. 2010; Sandberg 2007). User acquisition is the most important factor for the success of the product. Hence, user involvement in the previous stages helps to establish a user base and spread the word-of-mouth (Apilo et al. 2015). Starting from the launch, the innovation is commercialized and officially entering the market

2.1.4. Commercialization of ICT products

The consumer segments or type of users

From marketing perspective, there are various ways to categorize users of high technology products so as to identify the correct market segments. From the innovation process point of view, the consumer segments can be divided into 3 groups: early market, mainstream market and laggards. The early markets include innovators and early adopters, while the mainstream markets or market mavens are the majority of users. (Moore 2002)

Innovators are the technology enthusiasts, the first target group of any high-tech marketing effort (Moore 2002). They are creative consumers who are early to adopt a new product, and they also develop innovative applications (Jeppesen & Molin 2003; Hoyer et al. 2010). With their extensive product knowledge and strong motivation in engaging with the community to support each other in problem-solving or idea generation, they also modify and transform the offerings (Wu & Fang 2010)

There are various names given to early adopters such as visionaries (Moore 2002), emergent consumers (Hoffman et al. 2008) or leader users (von Hippel 1986). Early adopters accept new product concepts very early in the product life cycle, although they are not technologists like innovators (Moore 2002). They are those who face needs, that will eventually become general in the market place before the market place encounters those needs (von Hippel 1986). They are active product users who interact with other users and discuss user-related issues (Jeppesen & Molin 2003)

Mainstream market or market maven are people who have information about many kinds of products and base their influence on general knowledge and experience of the market (Feick & Price 1987). They are passive product users who use the product alone and do not communicate with others (Jeppesen & Molin 2003). Early majority is a group similar to early adopters, but they are more driven by practicality. They prefer to wait for well-established preference before investing in the product. While the early majority is more comfortable with the new technology, the late majority wants the new concept to become

an established standard or buy the product only from large companies. The mainstream market accounts for two-third of the total buy population of the whole adoption life cycle (Moore 2002).

2.2. Overview of marketing

2.2.1. Marketing principles in new product development

The traditional marketing management process from Philip Kotler includes three consecutive phases: market analysis, marketing planning and implementation, and controlling. The market analysis is to understand the market opportunity, consumers' insights and competitions. From the market understanding, companies can build the strategic marketing plan for their products to target marketing segmentation and create the marketing mixes (Kotler & Armstrong 2013). In the new product development context, the marketing process is coherent with the linear traditional NPD (Figure 5), starting from concept development and marketing strategy development, to product development and market testing, and finally to product commercialization (Kotler 2000)

Similar to the challenge of the traditional NPD diagram, the process is complex and might cause significant losses to companies when a concept fails and is dropped too late. Extensive research has to be undertaken to “construct the model of consumers and how they react to various steps taken by the firm”, but “the customers are not expected to make drastic moves” (Bjerke & Hultman 2002). The process is not ideal for small companies or start-ups with scarce resources, especially in start-ups that do not execute their available business model or business strategies but are on their way to building one (Blank 2007; Ries 2011).

In the revised edition of his book, Kotler (2001) also mentions the change of marketing practices in the 21st century. There are three stages in marketing practices: entrepreneurial marketing is applied when companies or individuals visualize an opportunity, seek for market attention or create a new market; formulated marketing is when companies achieve some success and create their customer base; and entrepreneurial marketing when

large companies “get stuck in the formulated market” and lack of entrepreneurial creativity and passion (Kotler 2001). Nevertheless, the process mentioned in most of the textbooks, with the four P’s principles: price, promotion, product and placement, still focuses on marketing as a function in a big corporation and has limitations for understanding market behaviour in the new economic era (Bjerke & Hultman 2002), in which firms have to develop “greater consumer responsiveness” (Baker 2003). Many scholars have also questioned the usefulness of the traditional 4P’s theory, and have noted that they are not adaptable, flexible and responsive enough to function effectively for SMEs (Martin 2009). The concept of entrepreneurial marketing has been developed to serve the fast-growth entrepreneurial firms. Although the entrepreneurial marketing approach has been intended for small and medium-sized enterprises (SMEs), it can also be more sustainable and economically viable for corporations (Miles & Darroch 2006; Blank 2007).

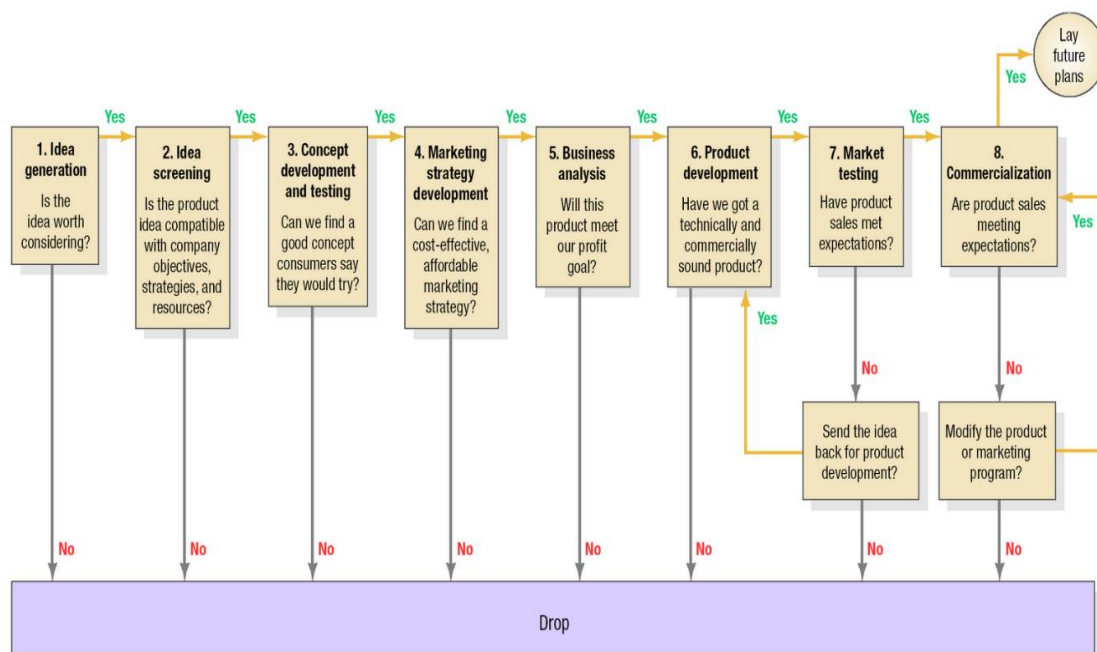


Figure 5 Marketing practices in the new product development process, adapted from Kotler 2000)

2.2.2. Entrepreneurial marketing approach

The conceptual framework for entrepreneurial marketing built by Bjerke and Hultman is based on four pillars: entrepreneurship, resources, processes and actors (Bjerke & Hultman 2002), while (Gruber 2004) discussed the five concerns in entrepreneurial marketing as: opportunity recognition, establishing a marketing function, establishing a company identity/brand name, leverage scarce marketing resources and market entry strategy. On the another hand, (Zontanos & Anderson 2006) offered the new 4P's, person, process, purpose and practices, as an entrepreneurial marketing framework. Regardless of the different terms, those three models are complementary and strongly aligned with the co-creation process and value-creation for customers.

The concept of “entrepreneurship” explains “why and how opportunities are recognized and implemented into customer value” (Bjerke & Hultman 2002). This stage is influenced by “marketing and market-related knowledge”, “trait, styles, competencies and behaviours” of the entrepreneurs and their active roles in the organization (Gruber 2004, Zontanos & Anderson 2006, Martin 2009). The “actors” or the “people”, including entrepreneurs, employees, partners, customers, etc. and the networks connecting them, run different processes to co-create customer values (Bjerke & Hultman 2002, Zontanos & Anderson 2006). Decisions about which practice to follow in the processes are based on innovative thinking and resources leveraging (Martin 2009; Miles & Darroch 2006; Gruber 2004).

Different from traditional marketing principles, entrepreneurial marketing is “interrelated business processes, connected in different types of dependencies with the ultimate purpose of creating customer value” (Bjerke & Hultman 2002). Especially in SMEs or a new venture context, the companies must sooner or later attract a number of customers, and marketing literately means growing the firm (Bjerke & Hultman 2002). This means that marketing is as important as product development, and they should be developed together (Blank 2007)

Entrepreneurial marketing, new product development, the co-creation development process and customer-value creation are all huge topics to study and relatively young concepts in scientific research. Besides, there is limited research about marketing practices in new product development due to the diversity of market characteristics, the drastic market changes and the intensive requirement on practical experiences to implement successful processes. Nonetheless, as customers are the critical factor determining a successful business, all the theories have been built around customers, such as customer co-creation, customer value, customer network, customer relationship, etc.

2.2.3. Market development process

Consumer-centric value creation

In the current dynamic market, many changes have occurred and the changes are drastic, difficult and genuinely uncertain (Bjerke & Hultman 2002); the consumers have become more “active”, “knowledgeable”, more “marketing literate” and “IT-enabled” (Baker 2003). Thus, a successful company must be consumer-oriented by providing the “value on the consumers’ term” (Baker 2003) which are both “subjective perception of what customers find as a best-buy” and technology or resources that the company want to deliver in order to create better customer value (Bjerke & Hultman 2002). Switching the marketing attention from the relationship between customer-derived benefits and customer-derived costs (Kotler & Armstrong 2013) to the value proposition for customers, entrepreneurial marketing is more customer-oriented and value-centric approach (Collinson & Shaw 2002). In order to have an innovative approach to value creation, marketers have to adjust their strategies in line with “the shift from a production-driven to a consumption-led economy” (Baker 2003). The concept of consumer-centric value creation is correlative with the co-creation development approach, and has a strong role in marketing and branding in new product development to-be-mentioned in a later section.

Customer development process

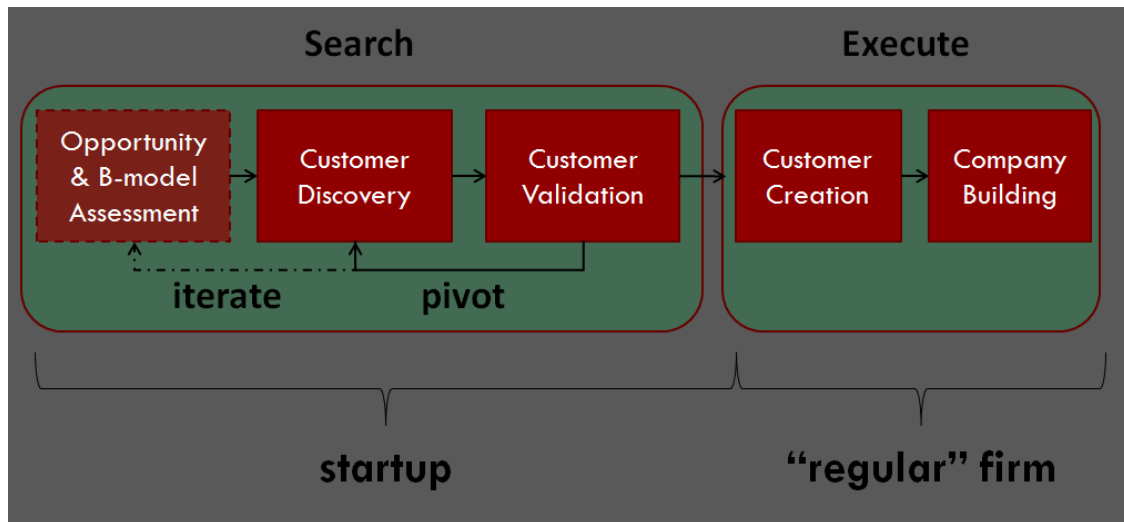


Figure 6 Customer Development Model, adapted from Blank (2007)

Customers are the most important indication in proving the success of any new product. While the product development model focuses on the “first customership” date, the early market – technology enthusiasts or visionaries (Moore 2002) – might not be “the representative of a scalable mainstream market” (Blank 2007). The first customership does not mean that the company understands its customers or the market because the first customership usually happens when the product is almost finished and organization has already been scaled up with the burden of all marketing cost, which is spent to “create a demand without a true understanding of customers’ needs” (Blank 2007).

“The Customer Development model of a start-up starts with a simple premise: learning and discovering who a company's initial customers will be, and what markets they are in, requires a separate and distinct process from Product Development”(Blank 2007) (Figure 6)

Customer discovery is about finding out “who the customers for your product are and whether the problem you believe you are solving is important to them” (Blank 2007). “This step involves discovering whether the problem, product and customer hypotheses in your business plan are correct” (Blank 2007). “The job of the Customer Development

team is to see whether there are customers and a market for that vision”, not to “collect feature lists” nor “run lots of focus group” (Blank 2007)

Customer validation is the key checkpoint to understand whether there are enough customers who are willing to pay for the new product. This step is a KPI to decide whether to continue the concept or return to customer discovery phase. Moreover, by successfully selling the product to early customers, this step is to build a “repeatable sales road map” and sales process for the sales and marketing teams to follow later. (Blank 2007)

In the customer creation phase, heavy marketing is usually made, aiming to create end-user demand and drive the demand into sales. The customer creation phase starts from the successfulness of a company’s initial sales. Later on, the company building phase starts when the company transforms from discovery-oriented phase into formal functional departments of sales, marketing and business development, etc. From then onwards, the executives begin the mission-oriented approach (Blank 2007).

2.2.4. Marketing in modern context

Strategic marketing activities are product development, supply chain management, and customer relationship management (Srivastava et al. 1999). In order to create a suitable strategic marketing plan in this contemporary economic, one should understand the modern consumer behaviours and their journey of decision making. The traditional decision-making process or the funnel metaphor implies that consumers makes their decision by systematically narrowing their choices. Nowadays, it takes more iterative and less reductive process through 4 stages: consider, evaluate, buy and enjoy/advocate/bond (Edelmann 2010)

A one-sided communication model applied to traditional mass media was no longer suitable in the dynamic environment of the internet era (Christodoulides 2009). The power in controlling a brand and its messages is shifting to customers, forcing companies to move to two-way communication model (Safko 2012), since new consumers now look for brand experience over features and benefits (Baker 2003). They are more interested

in what the peer thinks about the product than what the company says about it (Safko 2012). One-way communication applies to the funnel decision-making metaphor, in which consumers make the final choice by filtering the available brands. As a result, the media cost for interacting with consumers in the traditional allocation spending across the media outweighed the creative's fixed cost (Edelmann 2010). The strategies in the internet era are moving towards interaction and relationship with customers (Christodoulides 2009), specialized marketing channels by utilizing multi-media format (Mangold & Faulds 2009) and focusing on both owned media (the channels that a brand controls) and earned media (customer-created channels) (Edelmann 2010)

2.3. Internet era and social media

2.3.1. Overview of web 2.0 and social media

Definition of web 2.0 and social media

While web 1.0 is "internet-enabled delivered content" (Adebanjo & Michaelides 2010) which means a static, read-only web allowing users to search and read information (Fleerackers 2011), web 2.0 enables users to communicate, create content and share it with each other via communities, social networks and virtual worlds (Kärkkäinen et al. 2010). Web 2.0 facilitates inexpensive content creation by interacting, participating and collaborating between the users or community on the world wide web (Berthon et al. 2012; Kaplan & Haenlein 2010). O'Reilly described the Web 2.0 as the platform to "deliver rich user experiences" (O'Reilly 2005). Companies can embrace the web as a platform and use its strengths to serve audiences' needs (Berthon et al. 2012)

Social media involves user-generated content (UGC) or consumer-generated content (CGC) platforms which inspire consumers to create value (Berthon et al. 2012). Web 2.0 is the ideological and technological foundation of social media, while UGC is the way people make use of social media (Kaplan & Haenlein 2010)

Characteristics of social media

There is no fixed concept of the characteristics of social media. Based on the definitions of social media and web 2.0, content, tools and communities are the three important parts of social media. Kietzmann et al. (2011) listed seven functional building blocks of social media: identity, conversations, sharing, presence, relationship, reputation, and groups; while Dube (2015), based on Mislove et al. (2007)'s research, clarified the five core characteristics of social media including user-based, interactive, community-driven, relationship and emotion over content. Nevertheless, the key elements of social media from various theories have similar principles and are the results of users' interaction and exchanging information on social media setting are:

- Community-driven: The formulation of communities or social groups by users who share commonalities
- Information or content management: The information generated, created and shared by users
- Relationship management: The networks or contacts that users or companies create via social media
- Identity and reputation: How users reveal or identify themselves and others in social media setting

2.3.2. Social media channels

Social media is a rapidly changing area. Every year, new platforms are developed and only a few of them become popular worldwide or will be acquired by major players. While some social media platforms are used by billions of users around the globe for all purposes, some are limited either in geographical area or are function-based. It is impossible to list all the social media channels. Most of previous studies either focus on one particular social media channel or discuss the general opportunities and challenges of social media. Since this study aims to conduct insights from various aspects, common categories of social media tools are presented with the introduction of the currently most popular channels, which will be used in the empirical research.

Social media classification

Social media tools and services can be divided into different categories based on the applications' functions and types. Since there are constantly new channels and ways of interaction, building a fixed classification for social media is not applicable. By reviewing and comparing various categories and online materials, three existing ways to classify social media channels can be identified:

- (1) Categories based on applications' functions (Constantinides & Fountain 2008)
- (2) Categories based on formats of content (Safko 2012; Scoble 2007)
- (3) Categories based on users' purposes (Turner 2010)

Constantinides & Fountain (2008) divided the tools into five categories based on the applications' functions:

- Blogs and podcasts: online diary or journal where people post ideas, images, links and comments.
- Social networks: applications where users build personal websites, exchange information and communicate with others.
- Communities: platforms where members organize and share particular type of content such as photos or videos.
- Forums: sites where members exchange ideas and information around special interests or topics.
- Content aggregators: applications where users customize contents they wish to access by using RSS – Really Simple Syndication. RSS is a solution allowing users to filter, subscribe and receive updates from a website (Safko 2012)

In 2007, the social media expert and celebrity blogger Robert Scoble (2007) illustrated the social media landscape as a social media starfish with 12 categories, based on the formats of content such as blogs, photos, audios, videos, etc. Safko (2012) also included search engines, mobiles and gaming – new trends in the digital marketing in his

categorizes. The full illustration of Scoble's starfish and Safko's categories can be found in the Appendix.

Given the vast number of tools and services, Jamie Turner (2010), the founder of 60secondmarketer and author of many books on digital marketing, simplified 52 social media channels into three main categories based on use purposes. Turner also listed SMS, email, content management tools and social media management tools as a part of the social network.

- Platforms which help to network
- Platform which help to promote
- Platform which help to share

Integrating the three types of classifications and characteristics of social media, Table 2 presents an overview of the social media landscape with using purposes, actions taken and type of channels

Table 2 The classifications of social media channels

Using purposes	Actions	Types of channels	Example
Promoting	Content creating	Blogs	Blogger, WordPress
		Emails	Company owned channels
		Multimedia creating	Vlogs, Vine, Podcast
	Content sharing	SMS	Snapchat, Viber, WhatsApp
Microblogs		Tumblr, Xanga, Twitter	
Sharing	Multimedia sharing	Multimedia sharing	YouTube, Instagram, Pinterest, Slideshare, Webinar, Periscope
		Events	Eventbrite
	Content aggregating	Wiki	Wikipedia, Quora, Reddit
		Reviews and ratings	Yelp, Amazon, Tech reviews (Wired, CNET)
Networking	Community creating	Forum	Zoho, Vbulletin
		White label social networks	
	User interacting	Social network sites	Facebook, Google, LinkedIn, Twitter
		Virtual Worlds	SecondLife

Descriptions and the combination of tools

The effectiveness of social media relies on using a combination of tools and activities to get the audience’s attraction (Safko 2012). The section below describes the use of tools and how they can complement each other, and briefly introduces the current major players in the social media landscape.

- **Blog:** Considered as an online journal or diary, this is a website to which an individual or business can regularly upload posts or entries. The most important feature of a blog is that readers can interact with the writer (or blogger) by sharing their opinions or asking question through comment section (Safko 2012). To manage a web blog, blogger needs a content management system (CMS) such as Blogger, WordPress or a customized system.
- **Multimedia in blogging:** Besides having text in the blog, bloggers can add art, photographs, music, audio or video into a specific post to create rich content for the blog; or focus on one type of format to create a specialized blog such as artblog, photoblog (portfolio), musicblog or vlog (videoblog) (Safko 2012)
- **Multimedia creating and sharing:** Instead of having a general blogging platform, users can select a specific service which supports a particular format of content such as audio or video. These services enable users to create their specialized content site. Users can also share the content from these platforms to their blogs, other platforms or social networks. The advantages of these services are high visualization of contents, strong technical support for the specific format and match with their audience's interest. Some examples are:
 - Audio and video: Podcast services, YouTube, Vine, Soundcloud, iTunes
 - Photo: Instagram, Pinterest, Flickr
 - Presentation: Slideshare
- **Microblog:** This is similar to a blog, but the content is usually smaller in size. The advantages of a microblog are high frequency of posts, prompt posting and reading. Microblog platforms also includes the possibility of attaching multimedia in a post (Safko 2012). Twitter and Tumblr are the two most popular microblogging services. Twitter limits the content to 140 characters or less.
- **Wiki:** This is a platform that multiple users can contribute to in order to develop the content, typically text and pictures. Based on contributors' knowledge and expertise, they can edit information on specific subjects (Safko 2012). The most

popular wiki is Wikipedia. Other platforms are hybrids of wiki and question blogs such as Quora, WikiHow.

- **Forum:** This is the first online networking and communication tool that engages users in an interactive conversation on a specific topic (Safko 2012). Forum differs from a blog in the initiation of the content idea (any member can start a thread versus only the blog owner); it differs from wiki in the quality and credibility of content. The advantage of a forum is to build strong community tie, and a trusted network. In my own opinion, Quora or WikiHow can be considered as an evolution of the forum with higher quality of content and easier access to focused information but with less users' interaction. Companies can create their own forums to engage with customers or join existing communities.
- **Reviews and ratings:** These are platforms or functions where users can evaluate a product or service. The evaluation can be either essay (review) and/or based on scale (rating). Sites for experts' evaluation are for example PCWorld, CNET. In most of the forums, there is a section or sub-category for users' reviews. Retail sites such as Amazon or Ebay have review and rating function for each product. There are also standalone user-based review and rating platforms such as TripAdvisor, Yelp, and FourSquare.
- **Social networking site (SNS):** This is an application that allows users to build their personal profile, and connect and share information with others. SNS acts like an online social community where individual users can talk about what is happening in their lives, communicate with family and friends and ask for advice, and where businesses can have their business pages to share their professional knowledge and engage with customers (Safko 2012). Users can link their social network account with other social media channels so as to promote their blogs and discussions. The most popular social network is Facebook, with more than 1.4 billion monthly active users. LinkedIn is a special network for business and professional purpose with 90 million monthly active users (Statista 2015).

- **Short Message Service (SMS):** This is a text messaging service through the mobile communication system. The traditional SMS is not considered as a social network, but has been used for mobile advertising. However, with the deployment of mobile technology, free texting services, and extra features, the messenger applications have generated a large number of users and started a new trend in mobile social networks. Thus, this is a channel that companies should not neglect in their efforts to reach potential customers. The most popular texting services are QQ and WhatsApp with more than 800 million users. While QQ users are mostly in China and Asia, WhatsApp has a more global reach. Snapchat, released in 2011, has generated 200 million users within four years (Statista 2015)

2.3.3. Roles of social media

Social media in innovation

Web 2.0 and the social media have forged online-interaction, a new concept of interaction, which is a crucial factor in innovation process and leading to new possibilities (Wu & Fang 2010). Thus, social media offers a possibility for multiple ways of communications and enables user involvement in the co-creation. According to Kärkkäinen et al. (2010), in innovation management, social media can:

- Enable and increase the knowledge creation and distribution both within and outside the company via open communities of peers using various types of collaborative web tools.
- Provide useful ways of interacting and collaborating in the innovation process

Social media optimizes the expenses while increasing the inputs from consumers at all stages of NPD (Hull 2004; Hoyer et al. 2010). Roberts & Candi (2014) identified the uses of social media in three major phases of new product development process as:

- The use of social media for market research
- The use of social media for user collaboration
- The use of social media for new product launch

In market research for NPD, Carr et al. (2015) suggested companies utilize social media not only as a marketing research tool but as a tool to generate valid consumer insights related to product or category. By collecting large amounts of qualitative data at low cost, social software can complement the existing consumer research approaches. To compare with traditional market research, virtual environments boost the customer interactions to take place faster, in real-time and in higher frequency (Sawhney et al. 2005).

In both the ideation and product development stages, firms can co-create value with consumers either by using traditional market research technique or by leveraging web technologies and social media to increase input and reduce expense (Hoyer et al. 2010)

Companies can generate consumer awareness by creating “buzz” around the product or service when commercializing or collecting feedback for understanding purchasing rationales, thus increasing purchasing rates at post-launching stage (Hoyer et al. 2010)

Social media in marketing

There are 4 business functions of social media: sales, marketing, public relations, and internal communications (Gordon 2009) and they are closely related to key elements of the promotional mix in integrated marketing communication (IMC): advertising, personal selling, public relations, publicity, direct marketing and sales promotion (Boone & Kurtz 2007). The integrated marketing communication was first defined by the American Association of Advertising Agencies (4As) as an approach to coordinating different promotional methods and marketing channels to increase the communication impact (Schultz & Schultz 1998). Since social media is referred to as consumer-generated media, it is a combination of traditional IMC with word-of-mouth marketing (Mangold & Faulds 2009)

According to Mangold & Faulds (2009), the role of social media in promotion-related activities is to enable both a company-customer and customer-customer information exchange in which the first is consistent with the traditional IMC and the latter is the world-of-mouth communication. Social media can be used by organizations of various

sizes (Hassan et al. 2015) as a marketing tool which enables companies to connect with customers at the right time (Kaplan & Haenlein 2010), and to keep themselves updated on what customers are interested in (Erdoğan & Çiçek 2012). The lower cost and higher efficiency than other traditional communication tools allows social media not only to be monopolized by large business organizations, but also to be used by small and medium enterprises (Kaplan & Haenlein 2010). Customers view social media as a service channel where they can share information with their peers about the products and services (Erdoğan & Çiçek 2012; Safko 2012). Hence, social media enhance the impact of word-of-mouth in marketing (Erdoğan & Çiçek 2012; Kaplan & Haenlein 2010; Baker 2003; Mangold & Faulds 2009; Hanna et al. 2011; Safko 2012).

Marketing and PR are leading businesses uses of social media (Gordon 2009). The confirmation of social media's importance for businesses has been increased from 86% in 2013 to 92% in 2014 (Stelzner 2014). Marketing activities used in social media are: promoting organic messages, monitoring customer trends, advertising and researching new product ideas (Gordon 2009; Stelzner 2014). The major uses of social media for sales are maintaining and building relationships by enhancing human interaction and conversation, thus enhancing customer engagement (Mangold & Faulds 2009). Instead of direct selling (Gordon 2009), the PR uses of social media include maintaining a company profile page, distributing press releases and news items, monitoring and responding to mentions of the company and its products, interacting with bloggers and members of the traditional press. For internal communication, social media helps the internal workflow by sharing documents, maintaining communication with teams. However, internal communication usage is a minor role of social media when only 38% are using it to support collaborative work (Gordon 2009)

About 90% of marketers want to know which media tactic is the most effective and how to engage the audience with social media (Stelzner 2014). According to Gordon, the future priority in using social media is to generate leads. Facebook and LinkedIn are the most popular social networks (Stelzner 2014) due to their diverse forms of content. The original written content is the most important in social media marketing (Stelzner 2014)

because it informs about the products and activities around products and “consumer are more likely to talk about companies and products when they feel they know a lot about them” (Mangold & Faulds 2009)

2.4. Research framework

2.4.1. Synthesis of literature review

The literature review covers paradigms of innovation and marketing theories. Moreover, principal concepts of social media in the last sub-chapter clarified how social media can be used as a tool for both innovation and marketing process. Although many frameworks have been introduced (Schultz & Schultz 1998; Cooper 1990; Koen et al. 2001; Blank 2007; Hoyer et al. 2010; Ries 2011), they are well synthesized together in the product cycle. Figure 7 demonstrates innovation and market development processes integrated together for the commercialization of a new product, as well as the role of social media in the process. During the analysis, discussion and explanation of the empirical research, the integrated framework will help to proposition different cases’ practices.

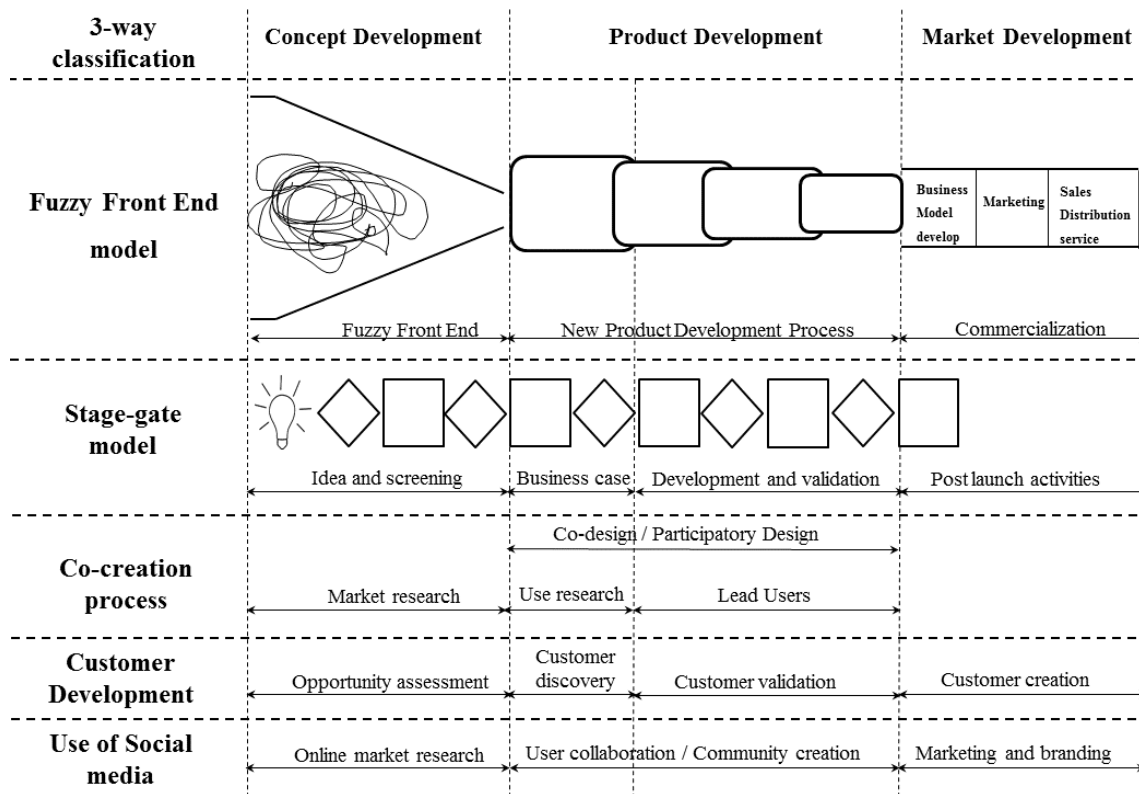


Figure 7 The integration of innovation and market development processes

2.4.2. Preliminary framework

A preliminary social media canvas (Figure 8) was created and would be used as the principal framework for the action research. The framework was a result of reviewing Brake (2009), Safko (2012)'s guidelines for social media strategy planning, practical tips from marketing institutes and online materials (Turner 2010; Gordon 2009; Marketo 2012; Stelzner 2014). In the empirical research, the first round interview with multiple-cases produced insights into what kind of information and guideline companies would need in order to plan and implement their social media strategies. The insights contributed to the construction of the structure of the canvas. Insights learnt from using the canvas for action research and results from second round interviews were used to improve the canvas. The improved version of the canvas will be explained in the discussion section.

SOCIAL MEDIA STRATEGIES CANVAS

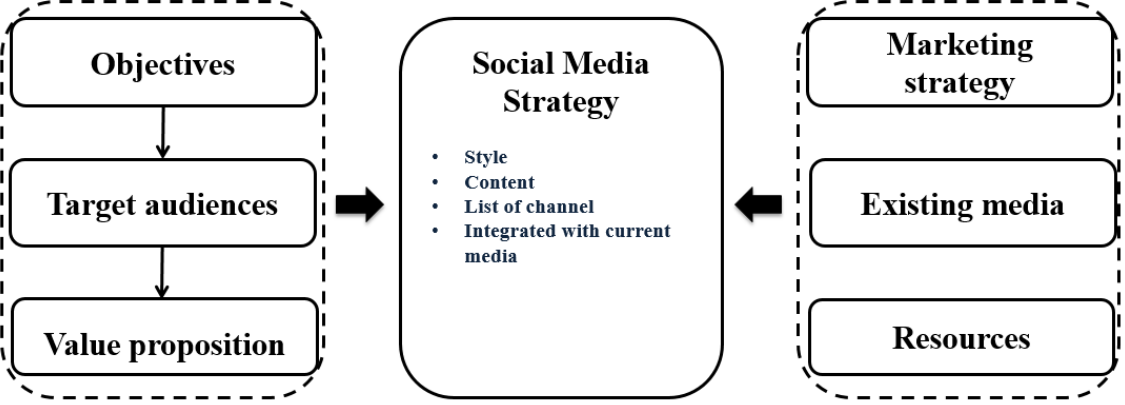


Figure 8 The preliminary framework

3. Research method

3.1. Research approaches

This study aims to answer the research questions related to commercialization and social media practices of ICT innovation by utilizing qualitative research methods. My intention is to analyse various aspects of the innovation and commercialization processes and to seek for answers from the overview phenomena. Qualitative research methods are used to increase in-depth understanding of the phenomena, to discover how things are scoped differently in the contexts, and to find local explanations for each aspect in the phenomena (Yin 2011; Eriksson & Kovalainen 2008). As mentioned in the theory review, commercialization is closely integrated with entrepreneurship practice. Qualitative methods help to identify and understand the behaviour of the community, while the “numbers” or quantitative approach does not fit with the nature of this research (Gartner & Birley 2002).

3.2. Multi-case study and justification

The results of the research will be used in creating a practical guideline for using social media in the acceleration process for the ICT industry. Multi-case study is the selected approach in the empirical research. The case studies are preferred when the focus is on a contemporary phenomenon within the real-life context (Yin 2003) or the dynamics inside a certain case (Eisenhardt 1989). The case study research is good not only at investigating “how” and “why” question, but also at developing new theories and ideas (Voss et al. 2002). The experiment and case study can be used to test complicated issues such as strategy implementation. From insights gained through multi cases, I would have gained a deeper understanding of “how” to use social media.

Single case study offers the opportunity for in-depth observations, but have the limitation to the generalization of the conclusions developed from only one case study. “It includes the risks of misjudging and exaggerating the available data” (Voss et al. 2002, p201). While the nature of entrepreneurship study is case by case, social media is a dynamic context where the social reaction and interaction is unpredictable; the study needs

diversified sources and evidences from multi-cases to ensure quality of data. “Multi-case study may reduce the depth of study but can augment external validity and help guard against observer bias” (Voss et al. 2002, p202)

Findings generated from multiple case studies will provide a broader view of using social media in the commercialization process, thus enabling the creation of a practical model for planning social media strategies. The model needs to be tested and validated by further research in latter part of the project.

3.3. Research design and process

A common research process includes five steps: reviewing existing theory, formulating research questions, collecting data, analysing data and discussing findings. However, in qualitative research, the progress does not go through a linear model, but is often a circular process (Eriksson & Kovalainen 2008) (Figure 9)

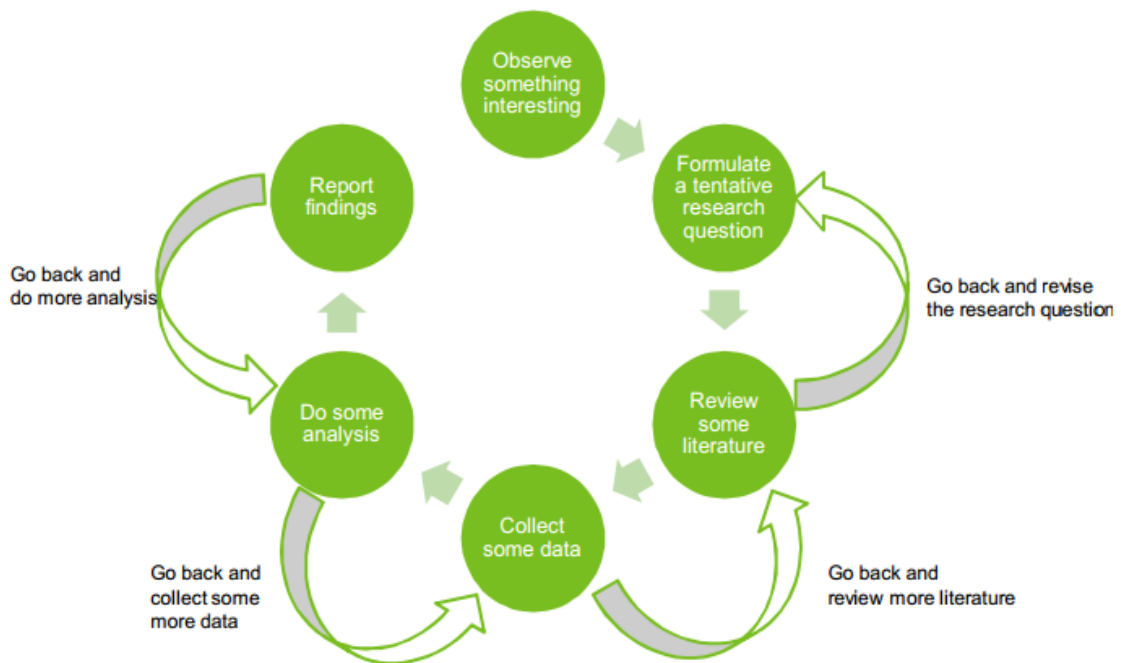


Figure 9 Qualitative research process, adapted from (Eriksson & Kovalainen 2008)

For the case study approach, both Yin (2003) and Eisenhardt & Graebner (2007) mentioned that there is no codified process for how to apply the method. Nevertheless,

there are five crucial components of a case design: the research question, its propositions, its unit of analysis, the logic linking the data to the propositions and criteria for interpreting the findings (Yin 2003). The question-formulating process explained below clarifies the first two components of the research. The last three components are covered in the data collection and data analysis section.

Research question formulating process

In theory-building from case study research, the research question changes during the working process. The researcher should formulate a research problem and some potentially important variables, but not think too specifically about the relationship between variables and theories (Eisenhardt 1989).

In this thesis, the initial research question posted by the project team was “Using social media in marketing and branding for the go-to-market of ICT products”. During the working progress, I have learnt from previous scholars that customer engagement is an aspect common to social media and new marketing and branding concept. While new marketing and branding principles emphasize the shift from one-side to multi-side in communication (company-consumer, consumer-consumer) (Edelmann 2010; Christodoulides 2009), social media enable effective and low cost user interaction. Taking customer engagement as a prime factor, combined with my background in user-centric design innovation, the idea of using social media for early user involvement was suggested. Blank (2007) customer development model and co-creation process is well synergized with the topic. To understand the correlation between co-creation, innovation and commercialization process, more theories on those concepts were reviewed.

The research scope is finalized as “Using social media for co-creating in commercialization process”. The commercialization of a new product or innovation process is the integration of product development and market development activities. Regardless of the change in the research question, the research problem is around the “how” and “why” using social media as a tool for creating and developing the market for

a new product. The finalized research question was: “How to use social media in developing and commercializing ICT products?”

3.4. Research philosophy

Research philosophy refers to the systematic critical evaluation of what the research is about, what falls within and outside of the research limitation (Guba & Lincoln 1994). In qualitative business research, it is helpful that the researcher understands the basic of philosophical concepts to specify the research design and strategy (Eriksson & Kovalainen 2008). Key concepts of the philosophy consist of ontology, epistemology, methodology, methods and paradigm. Guba & Lincoln (1994) discussed that the unification of ontology, epistemology and methodology creates the research paradigm and acts as the initial framework for the study.

Ontology concerns the nature of reality, the existence of and the relationship between the human being and the real world. Ontology aims to answer the question “What is there in the world that can be known?” (Eriksson & Kovalainen 2008) Epistemology, usually discussed together with ontology, defines the knowledge, the sources and limits of knowledge, and the relationship between “how things are” and “how things work” (Guba & Lincoln 1994; Eriksson & Kovalainen 2008). This study has the post-positivism or critical realism paradigm.

This part clarifies the research paradigm of this study, while the practical methods will be explained more in the data collection section.

Ontology:

In post-positivism ontology, the nature of finding reflects the reality, but it is imperfect, and social actors experience it in different ways. Given the fact that companies want to understand their market via interaction with customers, thus producing new product and market strategies, the ontology of the research is post-positivism in which “social actors produce social reality through social interaction” (Eriksson & Kovalainen 2008)

Epistemology:

Critical realism in an epistemological view is when there is substantial material but “people interpret it differently at different times and in different contexts” (Eriksson, 2008). As the knowledge of co-creation and customer development are relatively new, many aspects of this principle can be investigated further. On the other hand, with the rapid evolution of social media, companies everyday keep learning the methodology to utilize the existing channels and to catch up with the upcoming ones.

Methodology

The thesis aims to create the integration framework of customer development and the product development model. The integration framework will help companies to better understand the development process as well as the practices needed to be carried out in certain phases of the process.

Focusing on social media as a tool to accelerate the commercialization process, the research will investigate the various activities that social media can be deployed for in the different stages of the process, how the result of using social media influences the product features and business strategies, and differences in social media practices regarding company size and resources.

Overall, the research paradigm is post-positivism in which I would like to study on the different ways companies employ social media in their innovation process. The cases, selected from different sized companies that are in different phases of the process, enable me to detect findings in the whole process; thus, I can get a “close enough approximation of the reality”. The aim of the second round of in-depth interviews and social media activity data is to strengthen the objectivism from my participation in the experiment.

4. Multi-case study set-up

4.1. Case selection

Replication logic is applied to multi-case studies, in which, “*each case must be carefully selected so that it either (a) predicts similar results (a literal replication) or (b) predicts contrasting results but for predictable reasons (a theoretical replication)*” (Yin 2003, p. 45). In order to have a broad understanding of social media benefits in the different phases of the commercialization process, theoretical replication is a suitable approach for this study. I am interested in comparing practices from various aspects to obtain as holistic a view as possible. By mapping out different case scenarios, I listed selected criteria in four categories:

- Company type: start-ups, small and medium enterprises (SMEs), or large corporations.
- Product type: ICT technology, software applications, services or hardware products.
- Market type: business to consumer (B2C), business to business (B2B) or two-sided (network) market.
- Commercialization phase (pre-launch, launch, post-launch) and related activities (co-creation, marketing, sales)

There were several factors which influenced the case selection. The first was the company's willingness to participate in the study and share information. Secondly was the variety of cases to cover all the selecting criteria. Lastly was the diversity of the company's knowledge and experience with social media. As a result, four cases were selected for the study. Their case characteristics are described in Table 3

Table 3 Multiple cases' characteristics

Cases	Company type	Product type	Market
Alpha	Start-up	Software application	2-sided market
Bravo	Large	Technology	B2B
Charlie	Large	Software & Hardware	B2C
Delta	SME	Software application	Network market

Data collected from the study is projected not to be replicated but thorough in every aspect of the phenomena. As Eisenhardt (1989) argued, selecting diverse organizations allows us to build a model that is applicable across organization types. Eisenhardt (1989) also recommended having between four and ten cases. The number of cases was small but good enough to generate insights, since the cases had several mini-cases within them.

4.2. Introduction of cases

4.2.1. Case Alpha

Company overview

Alpha is a start-up which is developing a mobile-based platform to connect service providers and service seekers. Alpha provides marketplace and support tools for service providers to easily operate and grow their businesses. Services which can use Alpha vary from catering, event planning to renovating or fitness and beauty, etc. Although based in Finland, the start-up targets emerging markets with piloting activities in Nigeria and the Philippines.

Case setup

Alpha participated in the research with two social media marketing campaigns, one for service providers and one for service seekers. The whole experiment lasted for six weeks, of which one week was for preparation and five weeks for running campaigns. My role

was co-creating plans with the founder and monitoring the working process during campaigns. Campaigns were implemented by the start-up team members.

After the first interview with company's manager to acquire general information about the company, their current activities and objectives; a social media strategy based on social media canvas for the company was created. Then, a two-hour-workshop was organized with the managers in order to adjust the strategy and to plan the campaigns' actions. The second workshop was organized for the whole team to clarify specific tasks and to agree on individual's responsibility. There was a slight change in the actions during the campaign according to reality and analytics provided by the team. After the campaigns, another interview was conducted with the manager so as to reflect on the result and learning.

4.2.2. Case Bravo

Company overview

Bravo is the leading research and technology company in the Nordic area. The company produces new technology, research and innovation services in almost every branch of industry. Bravo offers both standard technologies and customized research services.

Case setup

Bravo participated in the research as a case of using social media as a tool for marketing and sales. The company has its own social media channels, but they are mostly used for communication and branding. On the business development side, the company has not fully deployed social media to reach more customers and generate international leads. The company is aware of the benefits of social media, but still lacks digital marketing and sales knowledge for B2B . Thj Bravo case positions in the study as a scenario of companies which have innovation resources but limited social media knowledge in a marketing function.

There were four interviews with the company's managers on business development, marketing and communication department and one group discussion with the whole marketing team about their situation. Marketing and sales materials and feedback about the social media canvas were collected during those interviews. Then, four sets of social media strategies were created in the case. A final group discussion with the marketing team was conducted in order to collect feedback and insights about the strategies and their future plans.

4.2.3. Case Charlie

Company overview

Charlie is an online security and privacy company, providing solutions and applications to defend against digital threats. It is a listed company with 25 offices around the globe, representatives in over 100 countries and two labs based in Finland and Malaysia. Charlie has three business lines including home-user-products, solutions for businesses and software as a service for operators. The company has more than ten million users all over the world.

Case setup

Charlie participated in the research with two experimental products and one official product. The experimental products "Funny Hat Stickers" and "Secure Selfie" are developed under a separated brand with the purpose of exploring new market needs and learning how to use different social media channels without damaging the company's reputation. All the experiments are planned and implemented by the company's members or partners. I played an observer role in this case.

The company used the term "tested products" and "faked brand" for their experimenting products and separate brand. In this thesis, similar terms will be used when describing the Charlie case. The first part of the experiments included using Twitter and Snapchat to promote and generate downloads for tested products. The second part was using Twitter

to raise awareness and gain attention about the topic related to their new developed product.

4.2.4. Case Delta

Company overview

Delta is a medium-sized IT solutions company. The company's core offering is a digital workspace which supports the innovation management with different applications and embedded processes. The company's main customers are businesses. Delta provides both standard and customized solutions.

Case setup

Delta participated in the research with its new product named Sport Popup. Sport Popup is a networked platform for the fitness and training industry. The company wants to have a social media marketing strategy for its first development phase. My role was to provide ideas and guidelines for future activities. The company gave feedbacks and insights from its realistic situation in return for validating my suggestion. The company has not used social media in their business before; thus, this case reflected the scenario of companies which have both innovation and marketing knowledge but a lack of social media knowledge.

I conducted the first interview with the marketing manager. From this, I derived their needs and perceptions with social media to create the social media canvas. The company representatives sent me a presentation slide about the new product idea before the second meeting. In the second meeting, I conducted a group discussion with the management team to discuss their new product idea, the development plan for it and the ongoing product development process. At the end of the meeting, we had a small brainstorming session to improve the concept. Then I created a social media strategy for the new product according to the development plan. The last step was a group discussion where the management team provided me with feedback on the strategy, and insights into how the concept had changed after validating it with the potential partners and investors.

4.3. Data collection

Data collection is challenging in case study research as the researcher has to determine which types of data are needed for the case and which sources to use to collect data. According to Yin (2003), there are six major sources of evidence in case study: documentation, archival records, interviews, direct observations, participant observations and physical artefacts. Each source of evidence has its own strengths and weaknesses. How to use these sources for different methodological procedures is up to the investigator.

In this study, a mix of different types of data has been collected for each case. The social media canvas introduced in 2.4.1 was also used as a tool for data collection. The collected data aimed to fill all the information needed in the canvas. The diverse data sources complemented each other, thus providing insightful data and reducing bias. Moreover, there were many surprises as changes in case companies, scheduling challenges, confidential issues and other circumstances, data sources had occurred several times during the data collecting process. I had to be flexible in adjusting my working method when facing changes.

Documentations:

Documentations collected in the study include information on each company's website (all cases); internal presentations about product, plans, strategies, or business model, etc. (Case Alpha, Bravo, Delta); and content of blogs or posts on company's social media channels (Case Charlie, Alpha, Bravo); previous formal study (journal article) of similar topic under the same case (Case Charlie). Analyzing documentation provided a general understanding of each company's practices and strategies.

Social media activity data:

Social media activity data are collected from a company's public social media channels. The collection includes the information on different channels that they are using and the statistics of those channels. The number of users, followers or page-likes are used to assess the company's reach to their market. The number of posts based on a period of

time, numbers of likes or comments in a post give an idea of the interaction level between company and users. Social media activity data were collected from all cases.

Participatory action research:

To achieve a deeper understanding, participatory action research was conducted. Sometimes, companies do not themselves notice the indicators which lead to a shift in their operations or commercialization practices. In another case, companies do not have the competences to fully optimize the benefits of social media. With action research, I involve myself in the social media strategy planning and observe the implementation. From there, I can examine the working process and the impact of involving users in product and market development. Moreover, action research gives me the accessibility to internal information which companies do not usually reveal during the interviews.

I tried to be as moderate as possible in the action research. It is challenging for me on the one hand to participate enough in order to provide the basic skills and knowledge that companies need to develop further and, on the other hand, to maintain the necessary detachment in order to stay objective. The action research consisted of a six-week-experiment with two mini campaigns on social media for case Alpha, and proposals on social media strategy for cases Delta and Bravo. Case Charlie conducted their own experiments without my participation.

Interviews or discussions:

In-depth interviews or open discussions with companies help to understand their situation and perception of the topic better. I conducted two rounds of interview with all the cases. The first round was to obtain the background information, current situation and to ask for permission for action research. The second round is after the action research to reflect on the companies' views about the results and to discuss what has been learnt.

I designed the questionnaire of the first round according to the findings from the literature review and initiated it with three aims:

- Gathering background knowledge: To understand the existing practices in the company; how social media activities have been implemented and their perceptions of the topic

- Collecting available data for the case: To ask for existing documentations related to commercialization practices, marketing strategies and social media planning
- Action research opportunity: To ask for company's participation to the action research.

The second round of interviews was designed as feedback sections in which the questions focused on social media issues and the company's future plans, in order to obtain answers to research sub-questions. Only three interviews in the first round were recorded. In the other interviews, the interviewees wished not to be recorded due to personal preference or confidentiality. Field notes of all interviews were taken and approved by the interviewees. All the action research and interviews were conducted with top managers, or managers in R&D, business development and marketing departments.

Table 4 summarizes the sources of data and data types for each case. Altogether, the sources of evidence consisted of more than 25 websites or social media accounts, 11 documentations, three workshops, two social media campaigns (with several posts, images and infographics), five proposals on using social media, 14 interviews or groups discussions. In addition to that, 45 pages of field notes were made during the research process.

Table 4 Sources of collected data

	Documentations	Naturally occurring data	Participatory action research	Interviews or discussions
Case Alpha	Company website, social media channels, internal materials (x3)	Statistics on social media	Two workshops Social media campaigns Communication archived during the campaigns Archival records	One interview on the first round One interview on the second round
Case Bravo	Company website, social media channels, internal presentations (x6)	Statistics on social media	Social media strategy proposal	Five interview on the first round One interview on the second round
Case Charlie	Company website, social media channels, previous formal study (x1)	Statistics on social media	X	Two interviews on the first round Two group discussions on the second round
Case Delta	Company website, internal presentations (x1)	No social media statistics	One workshop Social media strategy proposals (x4)	One interview on the first round

				One interview on the second round
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4.4. Data analysis

Analysing data is the most difficult and the least developed process in carrying out case studies (Eisenhardt 1989; Yin 2003). The reason is because the strategies and techniques of how to analyse a case study have not been well defined or fixed-formulated (Yin 2003). The proposed process that was advised by corporate advisors is firstly to start with the within-case analysis then conduct multi-case analysis either by finding a common set of data and searching for cross-case patterns or by comparing single cases and positioning them in a holistic picture. As mentioned in the case selection section, the second approach was chosen to analyse multi-cases. The analysing process followed Yin (2011)'s Five-Phased Cycle for analysing qualitative data: (1) compile database, (2) disassemble data, (3) reassemble data, (4) interpret data, (5) conclude. Figure 10 describes the process of analysing data in the study. In the analytical process, there were two sets of work carried out in parallel. The first set was single case analysis and the second was multi-case comparison. Firstly, the descriptions for each case and their position in the multi-case study framework were developed (Figure 11). Detailed within-case analysis was carried out for each case while the similar data was put in multi-case comparison.

There were two phases also for analysing data. The first part of analysing data was before the action research, in which all the available data were collected and compiled together. The data were tagged both by case and by the information they present. The data collected were reviewed several times, analysed separately, clustered within-case and compared with other cases. Due to the issue of limited of time and scheduling, I immediately disassembled any data after collecting it while gathering other data at the same time. Thus, part of the data was coded. After a few coding processes, I discovered certain sets of codes or categories that data belong to. Compared with the theoretical framework and the research questions, I modified the questionnaire for the next interviews and reconstructed

data displaying. Hence, the coding work was gradually reduced through the collecting and disassembling process. Disassembling data without coding them offers “*the potential benefit of being more thoughtful and insightful*” but may lead to “*non-systematic and inconsistent judgments*” (Yin 2011, p188). Partly coding data supported me in creating some routines and utilizing the strength of both disassembling methods. A practical model called “Social media canvas” was derived from the findings (Figure 8). The canvas was also used as one framework to display data and a tool to develop the action research.

In the second part, more data were collected to supplement the missing pieces of the first part. After updating the case descriptions, I restarted the data collecting and analysing process. Data was finally interpreted in the within-case analysis so that each case can be considered as a separate entity. Single cases were then placed in the holistic comparison for multi-case study.

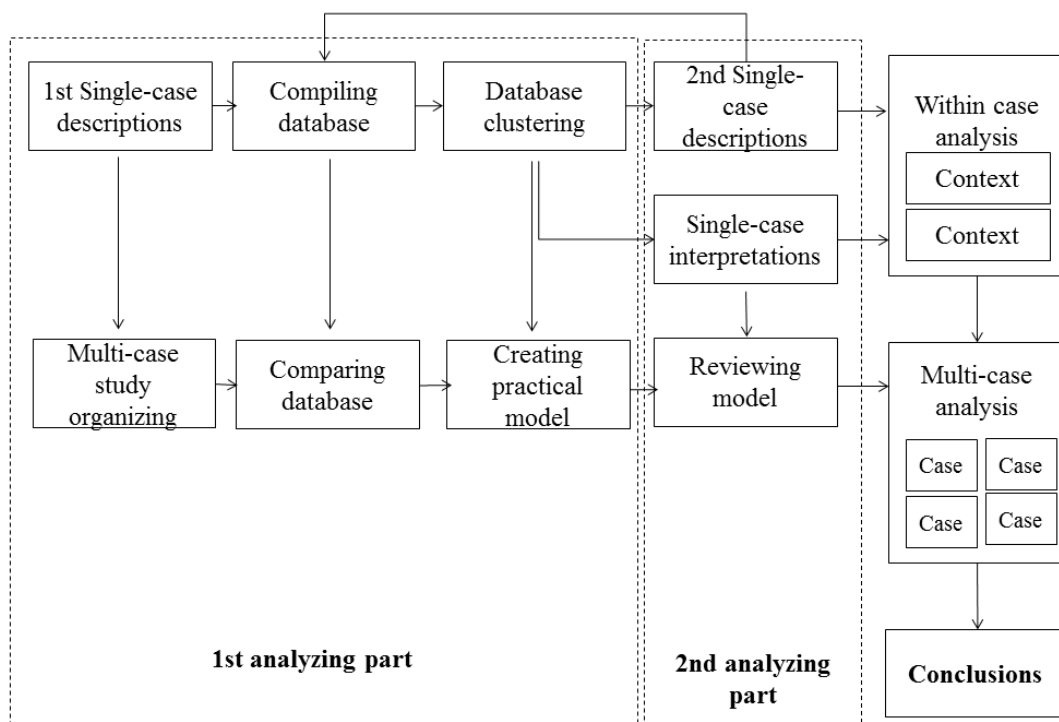


Figure 10 Data analysis process

5. Case studies and findings

5.1. Overview of cases

Positioning of cases

This multiple-case study enabled me to establish a comprehensive view of the commercialization process. Figure 11 clarifies the case positioning in the holistic picture of the process.

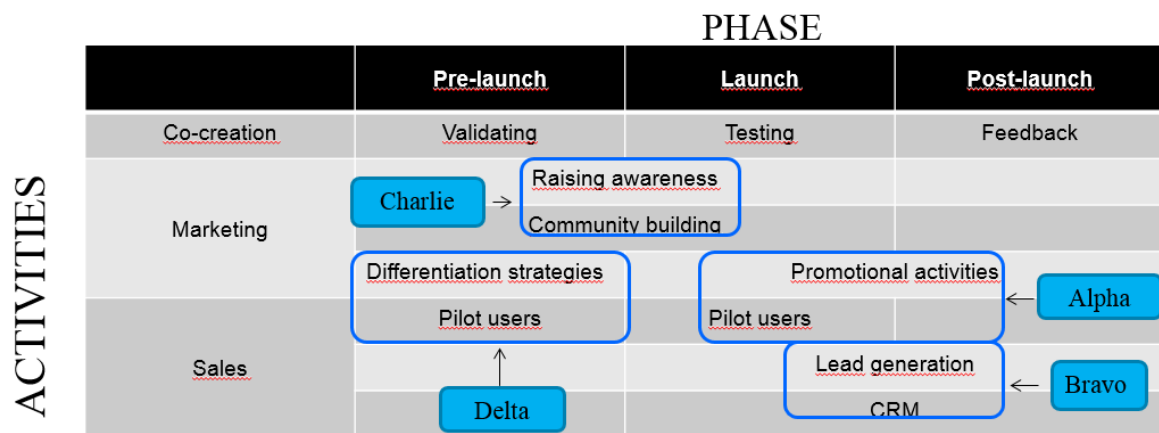


Figure 11 Positioning of multiple cases

Overview of social media statistics

Table 5 describe statistics from cases' social media channels. Information was collected in December 2015. Details on each case social media practices will be described in single case descriptions.

Table 5 Social media statistics of multiple cases

	Alpha	Bravo	Charlie	Delta
LinkedIn	48 followers	10,526 followers	11,917 followers	11 followers
Twitter	102 followers 194 tweets	6,907 followers 2,015 tweets	5,789 followers 1,381 tweets	N/A
Facebook	1,811 likes	1,281 likes	200K likes	N/A
Google +	+AlphaHQ			N/A

YouTube	3 uploads	153 uploads 100–1,0000 views each clip	304 uploads 50–400k views each clip	N/A
Slideshare	N/A	40 followers 71 presentations 52 documents	45 followers 23 presentations 12 documents 2 infographics	N/A
Webinar	N/A	Several webinars but no official links to list all of them	Yes	N/A
Blogs	1 official blog	1 official blogs 3 sub-blogs All blogs are under different domain	1 official blogs 3 sub-blogs All blogs are under company's official domain	N/A
Instagram	92 followers	N/A	667 followers	N/A
Snapchat	N/A	N/A	Faked accounts	N/A
Others	Pinterest	N/A	Community site	N/A

5.2. Case Alpha

5.2.1. Commercialization practices

The establishment of Alpha starts from the founder's passion to do business with the emerging market. The approach to the commercialization process is based on the lean principle and customer development model, as the founder considers himself “*a lean junker*”. As a start-up, Alpha has very limited resources, thus the lean process is the right principle to help the team moving forward.

“The Lean Startup method builds capital-efficient companies because it allows start-ups to recognize that it's time to pivot sooner, creating less waste of time and money.”(Ries 2011, p83)

The process is a set of interating circles of having idea, building minimum viable product, testing with the market, measuring result, learning from the market and creating new idea to develop the product. One or more circles are applied in the first part of the customer

development models: customer discovery and customer validation stages. In fact, Alpha has run several experiments and had four updates within six months. Alpha has passed the fuzzy front-end of the innovation process. With a clearer concept, the company is now on the product development phase and refining business model.

Alpha identified the opportunity in the fast growing economies of emerging markets and the potential impact of mobile technology into flourish the market. Alpha's founder decided firstly to find a market in a country which falls into the category of growing economies and is also the country that he has the most knowledge of and networks in. Market opportunities are identified by observing social development, living lifestyle and analyzing the emerging markets. The product's idea is a mixed solution which deploys technology and collaborative economy in solving the market problem.

“As Kevin Spain mentioned in a recent post on Techcrunch there are more than 3 billion people globally who work in some capacity. Yet only 20 percent of them have ever had access to technology to help them perform their jobs more effectively. Majority of these people live in Asia-Pacific, Middle East and Africa and Latin America.<...>

Smartphone penetration is skyrocketing and despite the relatively high cost of data, people spend tremendous amount of time on Facebook, Twitter, gossip blogs and very recently, online shopping.<...>” (Company's blog)

By launching with a minimal viable product, Alpha could pilot the idea and create the first user base without using many resources. User feedbacks collecting from app stores, comments, posts and user testings are used to improve not only the idea, model but also the product's features. The first user database acts as a minimum viable audience who help the company grow organically and gain enough insight “what the audience wants to solve their problems or satisfy their desires” (Clark 2012)

It is a chicken andegg situation in the two-sided markets or platform business. The critical factor determining the success of the business is how to create the user database and the

leverage between two sets of users. In the beginning, Alpha focused on attracting first service providers joining the platform by providing them with extra features which support their business operation activities. After having a good number of service providers on the platform, Alpha can use them to attract end-users, who are seeking services, thus creating the network effect.

5.2.2. Marketing practices

The marketing practices of Alpha consist of both online and offline activities. Alpha's business plan is divided into three phases. The company is in the transition between phase (1) and (2).

- (1) Service providers' acquisition
- (2) End-users (or service seekers) acquisition and transaction boosting
- (3) Global development

In the first phase, Alpha focused on the photography, catering, beauty and wellness sectors, due to the intensive market needs in those services. Personal network and word-of-mouth marketing played a critical role in acquiring new users from the beginning. The combination of the word-of-mouth approach and the minimum viable-audience helped the company to raise awareness. Many minimum viable-audiences have later become brand ambassadors for the company and actively advertise the service.

“We started with asking our friends, family members to join the platform and spread the words. We received lots of good feedback about the concepts and contributions to improve the product. When we launched our ambassador programme, many users want to join because they like the idea and they are passionate about it. Next, we started to advertise the service on Facebook and that's how it rolls”(Interviewee 1)

The digital marketing practices apply principles of content marketing, online advertising and search engine optimization (SEO). The content strategy is to provide valuable information for users such as instructions on how to use the platform, tips for growth

business or motivational quotes. The channels used include the company's blog, emails, text messages, push notifications and social media. The online advertising is implemented by using adwords on social media. Advertising has brought most results into the user acquisition section. Detailed findings of Alpha's digital marketing practices are discussed in the later section.

For offline marketing activities, Alpha has created the Alpha's ambassador and the university ambassador network. The greatest challenge in offline marketing is resource. Since Alpha's headquarters are based in Finland, it is difficult to monitor the local teamwork. The limited budget does not allow the company to advertise on traditional media. However, traditional media such as newspapers is not Alpha's strategy, as the founder stated:

“We are doing online business; the marketing should be online.”(Interviewee 1)

Alpha also practices direct marketing with customers. The majority of offline activities were to engage with key users for testings, testimonials and showcases. The challenge here is poor infrastructure in developing country that causes logistic and transportation problem in reaching customers. With a few number of members in the team, this practice is resource-consuming although it brings good customer relationship and brand results as well as supports the content creating part.

5.2.3. Social media practices

Alpha has used multi-channels for their social media practices. The purposes of using social media are to promote Alpha platform and to share the content created by the team. Table 6 lists the channels used by Alpha from the beginning:

Table 6 Social media channels used by Alpha

Purpose	Actions	Channels
Promote Alpha	Advertise with keywords	Facebook Ads
	Share posts and links to download the app	Facebook, Twitter, Google +
	Link to Alpha website	Instagram
Engage user	Remind and activate users	SMS, push notification
Share information, content	Create blog posts	Blog
	Share blog posts	Facebook, Twitter, Google +
	Share motivation post	Facebook, Instagram
	Share interesting content from other sources	Twitter

The selection of channels relies on three indicators: the target audiences’ preference, the company’s capacity and the characteristics of each channels comparing with company’s offer. At the same time, the company wants to be present in various media to build the awareness beyond different groups of users and to test the market.

Among those channels, Google Plus is the least efficient one and has been stopped after three months of using, while Facebook has been so far the most effective. Facebook has brought the best result because majority of the target audiences are active on Facebook. While the visual-intended channels such as Instagram or Pinterest have much potential, company does not have good resource to exploit them.

“Content is the key but we do not have anyone in the team who can fully concentrate on that <...> Searching for a right picture to use is also a problem”(Interviewee 1)

5.2.4. Social media experiments and learnings

Objectives

Alpha wanted to activate the current users to be more active on the platform thus boosting the transaction done via Alpha. In order to increase the amount of transaction via Alpha, the company had to improve both quality and quantitative of service pool on their platform and persuade more people to use it. The objectives for social media set before the campaigns were to

- (1) Encourage service providers to update their profiles and make them more attractive towards seekers
- (2) Encourage service seekers to book services via Alpha platform

Besides, the experiments aimed to test how to use social media and content marketing to obtain organic growth. The budget for advertising was limited.

Target audiences and value proposition

There are two set of target audiences, service providers and service seekers, in corresponding to objective (1) and (2). Service providers are small business owners or any individuals who have special skills or are looking for new work opportunities. Service seekers are any users who need a service. In that sense, a service provider can be a seeker for other services. Thus, in order to boost the number of transactions, the company can also enable service-exchange on the platform.

A simple analysis was conducted to understand the target audience's characteristics. The people in both target groups are quite practical and straight-forward. They wish to get support on their earning issues such as how to get more customers, how to do book keeping or pricing, etc. Technical information or macro-economic are not "their languages". They are strong on hand-on activities, keen on trying new solutions if it does not require financial investment. However, they lack business and marketing knowledge.

According to the personality of the target audiences, the benefits that Alpha could provide via social media to attract the audiences are tips about how to create business, to price their services, how to do marketing and to look for new customers; supporting tools to build portfolio or to monitor business operations, etc. Alpha can aim at creating an image as a supporter or community builder around the mobile-enabled-services.

Strategies and campaigns

To encourage service provider, a “Pimp Your Profile” competition was launched, in which the winner’s services would be advertised via Alpha Facebook page. During the campaigns, Facebook Ads was only used to promote Alpha’s service provider as a prize for winning the competition. For service seekers, a special discount was applied when they booked the service at that time.

Facebook and blog were the main channels for the campaign. Other supporting channels such as SMS, Push Notifications or Instagram were used to utilize the content for maximum reach or to serve as a reminder.

Results and learnings

The measurable result was collected from company “User Data Analysis Weekly Report”. The report gathered the numbers of users, service providers, number of searches and matches every week. The amount of users is accumulated over time and weekly statistic only compared with previous week. Thus the statistic was good for following the trend and adjusting weekly activities but could not evaluate the campaigns’ result. The number of matches was only 81.4% of the target for that campaign period. Weekly amount of searches and matches were fluctuating. However, if the amount of searches was higher than average in one week, the amount of matches would increase in 1-2 weeks later. It is predicted to take 1-2 weeks for users to make their booking decisions.

The organic reach on Facebook increased during and after the campaigns. A post would get approximately 80% - 120% more reaches if it was shared by one more person in the same geography. Posts related to service information, discounts and instructions got more

attentions. The content directly about a specific service or user received the most attention and engagement. All posts aimed to have visualized content and simple texts. However, responses towards different types of contents were unpredictable.

Overall, it is difficult to measure the results social media activities, especially at the beginning of the commercialization process. When the company is small and there is little customer data, data analytics and prediction is challenging. Trying out new things and frequently observing the result will help to the team in making correct assumption about the trend or customer's preference.

Other challenge of the campaigns was campaign coordinating. Rolling wave project planning approach was applied. This meant that high level goals and milestones were set in the beginning. The content planning and creating was supposed to be done a week before the published date. The idea was to enable a dynamic work, to maximize the executing time and to learn from iterations. The campaign started a week later than planned and team collaboration in the first two weeks were not as fluid as expected. The situation was improved gradually still content deliveries were 2-5 days behind the deadline due to several rounds of editing; hence the publishing was usually one week later than planned. For future work, it is recommended to have the content ready 2 weeks prior the publishing dates to avoid delaying.

Synchronization between marketing activities and technical development was another issue. The bugs in push notification, problem with SMS services or application's features affected to the plan. Nevertheless, there was no damage to the user experiences or company's reputation. In fact, users actively reported feedback. The experiments were a good chance for co-creation and receiving useful insights for future exploitation with very small expenditure.

5.3. Case Bravo

5.3.1. Commercialization practices

Bravo has different commercialization approaches depending on types of product offers or project's characteristics. The company categorizes their offers into three groups:

- (1) Licensed patents
- (2) Contracted services
- (3) Spinoffs or ventures.

Licensed patents are technologies invented and owned by the company from previous researches. The practices follow the traditional innovation process of concept development, product (technology) development and market development. Commercialization of patents strongly depends on IPR (Intellectual Property Right) issue, the customer needs and technology options. Due to confidential requirement for IPR, commercialization activities in this category start in the end of the process when they have the offer ready. Idea assessment is based on market research, technology trend and opportunity assumption. The commercialized rate of patents is less than 30%. No specific underlying reasons or investigation on the topic were discussed, neither the industrial average commercialized rate.

“Less than 30% of our patents are licensed due to customer needs, technology options and old licenses” (Interviewee 4)

Contracted services are customer-projects or jointly-funded projects where the company acts as an open innovation suppliers. On company's level, there is no fixed approach to commercialize the offers. However, the commercializing activities usually start in the beginning of the innovation process when discovering the customer's needs. Within a project, the innovation activities apply the co-creation process with customers by analyzing customer's situation and co-developing along with customer's practices.

Spinoffs or ventures are separated companies established by Bravo's team to exploit a particular technology or product. Spinoffs happen when the team has strong know-how on technology but weak in commercializing IPR. Spinoffs are independent startups which are funded by the company or other funding sources.

As a technology supplier, the commercialization practices of Bravo are different than product innovation process. Having wide range of industrial topics and types of offers, the selection of commercialization approaches in Bravo rely on many factors, such as characteristics of the project, internal competencies and external requirements of the case.

5.3.2. Marketing practices

Considering from marketing and sales perspective, the company has similar needs and activities as any B2B organization. In this study, I focused on the contracted-service offers in order to be aligned with other cases. As a large corporation, the company has divided their practices into two distinguished sets:

- (1) Practices for branding and (internal & external) communication purposes
- (2) Practices for sales and business developments

Branding and communication practices are executed on the organization level for the general images of the company. Bravo applies the integrated marketing communication approach to cross-promote their brand and to reach different target groups. Both traditional media such as press releases and newspapers as well as social media have been used. Bravo takes advantage of web technologies and social media to improve the communication with their audiences. In the transition of one-sided communication to multi-sided communication, Bravo found it challenging to use social media in communication.

“Social media is about one-on-one connection and it's challenging to create the connection on behalf of the organization” (Interviewee 2)

On the sales and business development side, marketing plan is derived from business goals and sale targets. The offers are packaged around customer base and customer needs. Marketing practices also have a lean approach of testing, validating, learning and iterating circle.

“We create a marketing plan twice a year. Still, during one period, we monitor what we have done and then of course plan again and try to correct things that were not successful” (Interviewee 3)

Bravo identifies three targets for their marketing strategy, naming as: “drive awareness”, “drive aggressive growth”, “maintain and growth”. Different business lines are allocated into a specific target according to the offering-readiness, market trend and sale history. Usually, the allocation of each business line is set based on the product life cycle.

- New products, technologies or solutions, which have a lot of deploying potential but the market is still immature, are in “drive awareness” group. Marketing activities for this group focus on *“driving awareness to new offerings or entering new networks and alliances”*.
- Growing products, technologies or solutions, *“which have already a share of sales and still possess a remarkable growth potential”*, are in “drive aggressive growth group”. Marketing activities for this group focus on new customer acquisition.
- Mature products, technologies or solutions, *“which have remarkable sales and profitability”*, are in “maintain & grow” group. Marketing activities for this group focus on *“managing the existing key accounts”* and *“internationalization and technology partnerships”*

The company uses event marketing like participating in exhibitions and industrial fairs, or organizing their own seminars and visiting customers’ events. Although it is the traditional marketing practice that Bravo has been followed most of the time, the marketing experts consider it as ad-hoc marketing. They see social media as a potential tool to have more strategic approach. The company is transforming from their traditional

marketing activities to having more social media activities. Having specific strategies and activities focused on each target group is needed but the company has limited resource to do that, especially on the social media side. Thus, I decided to create social media strategy plans for Bravo in the action research part in order to supplement information on the social media side and explore the problem as well as opportunity space.

“When you are going to a fair, it is like a lottery day, you don’t know who are there, who are coming at your stand so you don’t know kinds of contacts you will get there. It’s like ad-hoc<...>Anyway, I think that’s going to change. Some of the money we are spending in fairs are going to transfer to digital media” (Interviewee 3)

Digital marketing like adwords or emails have been implemented in some business area. The result of email marketing is very positive with high open-rate and click-through-rate. The open-rate of Bravo’s email marketing is 25%, while the average rate in ICT or electrical related industry is 20%. The click-through-rate is 7.5%, higher than the average rate of 2.5% - 3%. The high rates validate the content’s quality of their emails and audience’s interest towards company’s work.

Overall, content marketing is the selected approach for Bravo to reach their marketing and branding goal. Nevertheless, all the interviewees shared similar opinion that Bravo is underusing both content marketing approach and company’s available resources as well as existing contents. The company also associate content marketing closely related with social media. Details about their current content marketing practices are described in 5.4.3

Social media practices

“ We are underusing the content marketing<...> There are numerous amount of contents have been created. We need a content-marketing-process strategy, like how to utilize similar contents created internally and promote them in various social media channels” (Interviewee 3)

“We need a way to produce content that direct to social media channels”
(Interviewee 3)

5.3.3. Social media practices

Bravo has used multiple social media channels for branding on company level and LinkedIn for sales in only one business unit. Table 7 describes how Bravo has used social media.

Table 7 Social media channels used by Bravo

Purpose	Actions	Channels
Promote Bravo’s results	Create and share publications, blogs, videos and other contents	Blog YouTube Slideshare, Webinars
Create employer image	Share everyday life post	Facebook
	Promote open vacancies	LinkedIn
Cross-promote	Share content with topics that closely related to general public	Facebook
	Promote blogs	LinkedIn
	Publish versatile contents	Twitter
Marketing and sales	Create network	LinkedIn Expert
	Create awareness of products and services	Groups
	Generate leads	LinkedIn Sales Navigator Webinars

The selection of social media channels depends on the nature of the channel and types of content that users prefer to get from each channels. For instance, Facebook users like to have more personal, relaxed information thus the company only publishes posts related to everyday life and other information that is easy to understand by general public. LinkedIn users expect to have professional information and work-related posts, thus it is the right channel to particularly promote employer’s image. Blog, Slideshare, Webinars, Youtube or LinkedIn Expert Groups are suitable channels to introduce advanced content related to products, technologies, etc. Blog is considered as a channel to “*get the experts*”

closer to audience”, while Youtube and Slideshare support multimedia content and are easy to share with others. Having focus on specific topics, LinkedIn Expert Groups are places to create awareness of interested categories, visibility of the company toward international audience and to build networks. Webinars and LinkedIn Sales Navigator are combined channels to convert content marketing into sales by generating and engaging with lead contacts.

“We use LinkedIn Sale Navigator when we were looking for companies working in energy sector <...> When we found companies in that energy sector and are interested in investing in solar energy, we contact their R&D people and invite them to our webinar. Few of them came, now they seemed to be really good leads for us...” (Interviewee 3)

Overall, the company has covered a good range of social media activities, but has not yet leveraged them into sale revenue. The reason was that social media activities were carried out by communication department and had little interactions with either the business development, marketing and sales team or the employees.

5.3.4. Social media experiments and learnings

Objectives

The experiments took place with the marketing and sales team in Bravo. The team wanted to implement social media activities for their 3 marketing targets “drive awareness”, “drive aggressive growth”, “maintain and growth”. The company expected to have ideas and recommendations for their social media strategies. The recommendations can be on high level with information of how to use social media, the working processes and suggested channels. No concrete social media objective for each target was set. The experiments’ purposes were to answer following questions:

- How can social media be used to reach each target, regardless the business line?
- What kind of activities needs to be done? Example of implementing process

- What are key performing indicators (KPI) or measure of results for those activities?

Bravo has generally good awareness toward the target market. However, the company has plentiful services to offer and it is challenging to ensure a prospected customer would know that the company has what they need. Moreover, Bravo wants to expose their brand globally, aiming to discover markets outside Europe.

Internally, Bravo would like to take advantages of their employees' expert knowledge and encourage employees' social media activities. Thus, they need a clear process of social media activities in order to provide training and support.

Target audiences and value proposition

For sales purpose, targeted audiences are Bravo's customer, usually R&D departments of companies in Europe and North America. Additionally, experts and people who are interested in specific topics are in their target group for raising awareness. The audiences have good knowledge in specific fields or technologies and like to receive more industrial-related information. Targeted audience's interest is varied, depends on their company's position, needs and plans. In some cases, the customers are clear with their goals and only need to do technical benchmarking in picking the right offers. In most of the time, they need more supports in analyzing the context, the ecosystem and advices.

Bravo aims to create the spearhead image of solution providers. The company can provide advanced and prior knowledge of future technologies and developments. Audiences are able to have in-depth discussions with company's experts via social media.

Proposed social media strategies

The proposed social media strategies for Bravo included 4 parts. The first part suggested different activity sets to do with social media for all 3 target groups (Figure 12) and explained the key principles as well as the process of each set. The 5 activity sets are:

- Generating contents for company's social media channels

- Utilizing contents via different channels
- Creating the network and building the community
- Generating new leads from social media or converting content marketing into sales
- Managing and utilizing relationships with existed customers

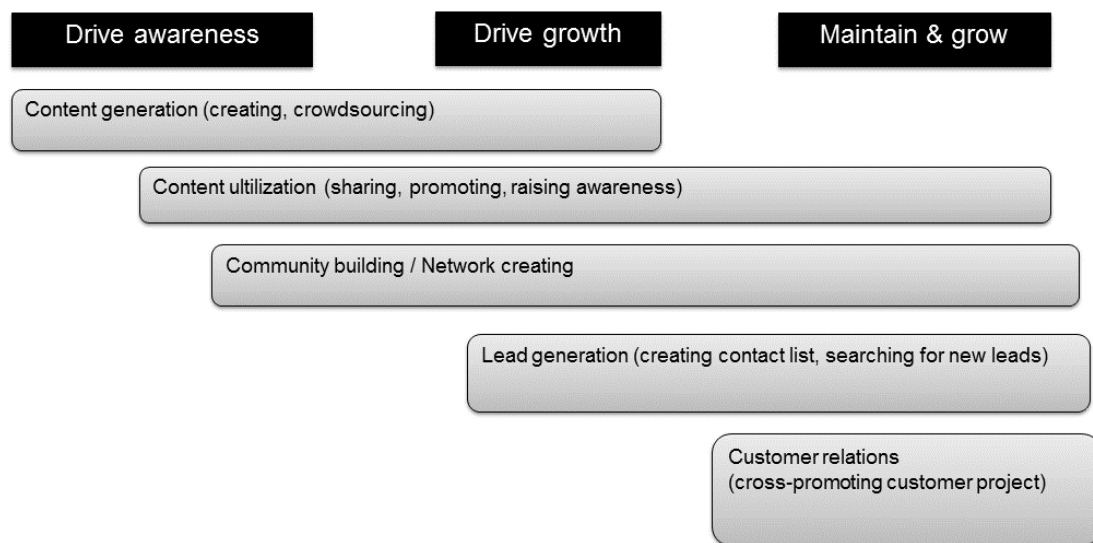


Figure 12 Social media activity sets for Bravo

Three proposals for each marketing target were introduced to the company. The proposals analyzed the situation, explained the high level of social media strategy and clarified the working process, including activities in different phase of the working process, corresponding responsibilities, call-to-actions and tangible KPIs. The proposals also suggested various content ideas, recommended different ways compose the content or using hashtags to get the best result.

Results and learnings

All proposals were presented to the case company representatives. Then company representatives comments on the proposals, their perceptions of feasibility or challenges were discussed. The team liked the way proposals were constructed and how different ideas were introduced. The high level strategy fit into their marketing and sales strategies while the social media process provided “*a full picture of what to do, how to do and who should do*” (Interviewee 5). Overall, the proposals received good feedback from Bravo and were considered as “*quite comprehensive tactics*” that they “*can implement in many ways*”.

The team identified certain issues which they can act on immediately, including strengthening the collaboration with communication department and making use of existing publications for lead generation. The publications are monthly magazines which are freely available to public on the company’s website. The magazines have required much work effort, had good responses from readers but are not advertised widely nor used for conversion. In addition, current blogs, which are under the control of the communication department or some experts, do not have similar domain with the company’s official website. In that sense, content marketing efforts bring little result towards the brand and there is no conversion of digital marketing, in term of driving traffic to the company’s website and increasing SEO (search engine optimization) effect. The team agreed those issues could be fixed easily but not by marketing and sales personnel.

“Something we have to discuss with the communication and information units immediate” (Interviewee 5)

“We know we should utilize more...” (Interviewee 5)

For other recommendations, as there were many actions can be done, the team need to know “*which is the right order to implement them*”. Hands-on experiences with some practical exercises would be carried out first to learn how to react on social media,

especially LinkedIn, then social media training for key personnel who involve in the working process would be organized.

Challenges raised from exploiting social media were related to the consequences of social media activities toward company's brand and potential risks engaging with those activities. The team considered how they could comprehensive to ensure everyone in the organization does the same; how Bravo's brand would show on social media as there are individual accounts from employees representing the organization. Trainings and guidelines could be provided internally but there would be risk whether people follow them. Posts related to one personal interests or political issues could be sensitive when they are under company's brand. Another challenge was the conflict between IPR, confidential information and open innovaton.

“We can be advocacy but we should be careful what we publish on social media and what our people say there” (Interviewee 5)

5.4. Case Charlie

5.4.1. Commercialization practices

Charlie existing products are software applications, which they offer for both consumer and business market. The sales channels are divided into two groups: direct sales online to consumer or businesses, partnering with resellers for businesses and cooperating with operators to provide bundled services for consumer.

This study focuses on Charlie new product, a hardware device. The innovation idea came from the decision of Board of Advisory. Hence, the team started straight to the product development phase without the front-end phase of innovation process. The decision making process of the board was not clarified during data collection part. Nevertheless, according to the market situation, the team was genuinely excited and motivated with the new idea.

The company encourages entrepreneurial mindset and applies lean principle into the process by structuring the product development team as an “*internal startup*”, in which both the budget for product development and the amount of team members are small.

Commercialization activities are not directly taking part in the NPD phase due to confidential policies. In order to learn about new market development and overcome the confidentiality, Charlie created faked products and faked brand to do experiments. The faked product were developed as a part of the company’s “*light-weight development process*” (Interviewee 6), aimed to totally new customer groups and to explore new opportunities. Growth hacking techniques including utilizing social media, viral customer acquisition, content marketing and A/B testing (Biyani 2013) were exercised. Insights from experiments are applied to the new product.

The new product launch happened recently during this study and the new product is not yet available on market. Thus, further commercialization practices of the product cannot be discussed during the data collection.

5.4.2. Marketing practices

This study does not discuss general marketing practices on company level but only the practices for the new product. Online marketing is the main approach the company chose to develop new market. Before the product launch, marketing attempted to create awareness and “buzz” around the topic related to the product. The product was launched in an industrial-related event and followed by press releases for a couple days. Then, online marketing practices, especially on social media have been continued. As an internal startup, the team has versatile roles for their members. R&D personnel also took part into marketing activities.

The lean principle, known as “*light-weight development process*” and “*internal startup*”, proved to be very efficient since the team accomplished their goals within projected time and without spending much on marketing. More details will be described in the next part, Charlie’s social media practices.

5.4.3. Social media practices

In company level, multiple social media channels have been used for various purposes (see Table 8 for list of channels). This section only discusses practices used by the experiment team. Table describes channels have been used for the new product and experiments.

Table 8 Social media channels used by Charlie

Purpose	Actions	Channels
Raise awareness	Create blog posts	Blog
	Share industrial related info	Twitter
Promote products	Acquire new users	Twitter, Instagram
	Engage with people	Twitter, Snapchat
	Advertise	AdWords
Co-creation	A/B test	Facebook
	Create value propositions	Facebook

To understand the abstract level of social media marketing and to test how the market reacts in the different channels, the team firstly started with the most common channels: blog, Facebook and Twitter. Then, young and growing channels such as Snapchat or Periscope were considered, aiming to bring fresh and creative approach in market development.

A sub-blog besides company's existing ones were created to dedicate on the targeted market. The blog aimed to get market's attention and raise awareness on the current problem, hence becoming a foundation to introduce the new solution. The blog is under company's official brand.

Twitter is a preferable channel for the case company due to its massive amount of users, tweets and interactions. The team can test the market and directly interact with potential users under a small budget. In addition to the company's official account, Charlie has multiple Twitter accounts for their faked products, two accounts under the company's brand for its official product. Among the official Twitter accounts, one was linked with the

blog, used to build the community and customer base for the product before the launch and one was under the product name, used after product launch.

Facebook was used anonymously by developer team to conduct A/B tests and create value propositions. For example, a kiscstarter campaign testing was implemented to collect market feedback. The team also tried out acquiring new users on Snapchat for their faked products.

5.4.4. Social media experiments and learnings

Objectives

As mentioned above, the main goal of the social media experiments executed by Charlie was to learn how different channels work and how to act on each channel. The company kept an open mind and was flexible with different small tests. Thus their objectives were not fixed.

The main focus of social media experiements for faked products were either to acquire new users for the products or new followers on their social media accounts. No concrete goal numbers were set for faked products.

For the official product, the company wanted to reach 5000 followers within 4 months on one Twitter account used to raise awareness and buzz around the industrial topic. The followers must be from organic growth, meaning no expenditure on Twitter ads or company's ads was used.

Target audiences and value proposition

There was no target audience for the faked products. For the official product, target audiences are technology early adopters, aged from 25 to 50 years old. The audiences are people who keen on high technology, cyber security and like to try new things. They can be either IT specialists or anyone with basic tech-knowledge. The company did not consider about value proposition for their audiences on social media before the experiments.

Strategies and experiments

As mentioned before, the experiments were conducted by the case company and practices were discussed in section 5.3.3. During the data collection process, majority of findings were related to Twitter experiments. Insights about Snapchat were limited due to the short experiment time.

Results and learnings

The two faked products were mobile applications which were published at Google Play in May 2014 and November 2014. At the end of January 2015, the first application had been downloaded 10,553 times while the second application had 1,212 downloads. In the middle of December 2015, four Twitter accounts for those apps had 4574; 2896; 1089 and 3545 followers.

The Twitter account used to raise awareness for official product Sieto was created in 2009 but was inactive with around 300 followers for all the time. The account was reactivated in the beginning of September 2015 and reached 5000 followers in 2.5 months.

To gain the followers, Charlie applied the principle strategy “*follow the follower*”. The strategy worked well in the beginning but it could become more challenge when the account hits the limit of following more than 5000 users. There, Twitter starts to limit the ability to follow more users according to the account’s following and follower ratio. Another strategy was to get promoted by supporting accounts such as company’s official account or Twitter’s “celebrities”.

“It was useful to take advantage of existing networks and use available tools to assist in managing the Twitter followers and following” (Interviewee 7)

Besides available tools in tracking Twitter accounts, tweet exposure and engagement; Charlie had two python scripts using Twitter REST API to identify keywords, hashtags and find Twitter accounts talking about relevant topic. “*The REST APIs provide programmatic access to read and write Twitter data*” (Twitter 2015)

Content-wise, the account holders could not guess in advance which type of tweet would get more attention. Nevertheless, the team learnt that same rules on tabloid magazines could apply to attract audiences. The “list-tweets” such as “7 tips, 5 things, etc” , interesting photos, embedded tweets, puzzle tweets which make people to think or tweets start with “according to survey” will attract more user engagements.

Measuring the results of Twitter activities is difficult. Traffic-wise, the engagement rate of tweets is less than 15%. The company noticed that the more followers their Twitter accounts have, the less attention in their tweets. Comparing with one Twitter account for another product, which acquired users through ads, Sieto’s Twitter account has little less followers but much higher engagement.

Tweets about Sieto product promotion got less attention than others, while blog posts received double exposure or engagement. Although there is no direct conversion from Twitter activities into sales, the impact of Twitter to market development is undeniable. In the experiment with faked product, Twitter statistics showed only few download straight from their accounts but the total downloads of the app were more than 10,000 while Twitter was the only promoting channels. According to the experiment team, Twitter is a better place to raise awareness and connect users than marketing and advertising.

“You can not expect Twitter as avertising tools for you <...> It is more a branding tool” (Interviewee 7)

Engaging and having high quality followers were more important for branding and raising awareness on Twitter than number of followers.

“The key challenge is to get followers that are interested in the promoted app, or at least eager to spread awareness of the app by retweeting” (Interviewee 6)

In that sense, organic growth enhances the engagement by creating a human connection from following, retweeting each others. The content of tweet can contributed to positive attention from other users.

“There was one freelancer who followed us. In his blog, he wrote first a common post about our topic, which we were pretty sure was inspired by our blog or about us, without our brand mentioned. But in the next article, he wrote explicitly about us.” (Interviewee 7)

Similar to Bravo’s concern, the challenge of social media activities Charlie faced with was collaborating multi people in managing one account. The overall tone for the account and the general atmosphere that the account tries to create should be defined. In some case, there might be problem with marketing team who does not know what to share in the specific technical context. Thus, common shared idea of the account interests and topics for tweets should be agreed.

Internal training will be needed to encourage everybody participating in social media. The training can consist of ideas to invent good posts, how to utilize different channels’ features and how to utilize the same content multiple times without being to repetitive. Guidelines and practical tips should be also given.

The internal communication and collaboration during and after social media activities are crucial to the continuous development of the new product. As the handling of the successful Twitter account was changed from the experiment team to other staff for further exploitation, the engagement rate reduced. Many reasons underlied that reduction. Nevertheless, the experiment team was worried *“how well other people understand that (= all the learning and insights mentioned, especially the conflict between user engagement and advertising)?”* (Interviewee 7)

Besides Twitter, Charlie continues to investigate on using Snapchat for user acquisition with the faked products. However, there were not much learning from that and the team has been struggling to understand the Snapchat’s “work mechanism” and how to acquire

new followers on Snapchat. It seems challenging because the demographic group of Snapchat users is totally different from Twitter or other popular channels.

5.5. Case Delta

5.5.1. Commercialization practices

In this case study, the company wanted to follow the lean principle for their new product. The new product idea is an online platform that connects end-users, professional trainers and advertisers for example sport or health-related producers. The general commercialization practices of Delta for existing products were not discussed during data collection.

The company is in front end phase of the innovation process, when they still need to discover the market needs and validate the concept. Commercialization activities have already been carried out in parallel with concept development and product development process; starting with fast creating minimum viable prototype, testing the prototype and validating concepts with different stakeholders.

Market opportunity was first identified based on personal interest and alertness from market observation. The initial idea was developed by deploying the market opportunity with internal resources. The concept changed after discussions with other people, investors and potential partners. In that sense, the co-creation process enabled more market opportunities to Delta. The business models and value propositions are still open and planned to be defined later, depending on the validating process and partnership situation.

5.5.2. Marketing practices

In general, the networks, partnerships and personal connections play an important role in Delta marketing practices. The company had not used social media marketing in the past and differentiated themselves in the market by building networks and connecting with their partners. The networks can be either in the same or supporting industries. In other

words, the company build a social network offline via meetings, events and by having face-to-face connections with partners. For example with the new product idea, Delta had discussed with sport academies and universities before product-launch for cooperation.

The principle of creating community and peer support to raise awareness is similar with the principle of using social media. Thus, the company is thinking to take advantage of social media in order to expand the market and discover more opportunities.

5.5.3. Social media practices

As Delta was not using social media when conducting this study, there was no data about social media practices in Delta case

5.5.4. Social media experiments and learnings

Objectives

To build the concept of network market, the business development plan was divided into 3 particular phases.

- (1) first user acquisition phase: create professional trainer pool
- (2) second user acquisition phase: acquire new end-users into the platform
- (3) Business development phase: attract advertising partners

There would be different approaches of social media practices in each phase. For the action research, Delta wanted to attract professional trainers in the targeted market, and to understand which activities they could conduct on social media for both branding and user acquisition.

Target audiences and value propositions

The target audiences are professional trainers who would like to develop their entrepreneurial career path; or recently graduated trainers who need to build their own brand and look for work opportunities. The challenge for target audiences is transforming

their traditional training sections into online services. Delta can provide support on producing online training material and digital marketing activities

There would be no limitation with geographical region from where the trainers were from. However, having a specific focus in the beginning would help the company to allocate the resources. The chosen area were Northern Europe and North America, where the company had resources for also offline marketing.

Proposed social media strategies

Similar to case Bravo, one social media plan with key activity sets for all business development phases and one detailed proposal for social media practices in the first phase were proposed. Besides, a mini test on using different keywords to find the right group of target on LinkedIn and Twitter was conducted. As the result, a list of keywords as well as LinkedIn Expert Groups was suggested. General information about types of activities and type of contents on social media in the focused topic was gathered.

Results and learnings

There was not many feedbacks from the social media plan due to changing concept after the first iteration round. Some strategies which fit the business model of the previous concept would response differently with the new idea. Nevertheless, the following market learnings from social media scanning were solid and valuable for future use.

Social media was found to be effective for quick market researches or competitor benchmarkings. Information related to similar services in the same industry, similar business concepts but for other industries, or various business models for a network market platform could be collected fast and economically through social media investigating. The market responses and expectations for those businesses were also gathered from user's feedbacks and interactions on their social media channels.

The minimum viable product helped the company explain their concept with prospect users and stakeholders, thus enabling them not only to provide high quality feedback but

also to contribute in developing the concept and initiating collaboration opportunities. The result of quick testing and validating was a new concept with various potential business models.

6. Discussion

In this chapter, a comparison of findings from multiple-case study and validation of social media canvas will be discussed in order to provide answers for the research question that how social media can be utilized in supporting innovation process and commercialization of new ICT product. The first sub-chapter, comparing all cases, will answer the follow sub-questions:

- Which social media activities can be involved into different phases of innovation or co-creation process?
- How different are social media practices and strategies regarding to: phase, company size, market (B2B or B2C)?

The second sub-chapter will discuss the validation of social media canvas and improving points after action researchs and feedback from others. The canvas aims to give useful information for companies in answering the following questions:

- How to use social media in developing and commercialing ICT products?
- How to create social media strategy

6.1.Utilization of social media

6.1.1. Social media activities in different phases of innovation process

While majority of companies think of using social media for marketing and communication efforts, leveraging them for product innovation is relative a new concept for most. Many companies, in fact have been involved social media actions in their product innovations, despite a lack of strategy (Kenly & Poston 2011). In their research, Kenly & Poston (2011) found that 70% of the surveyed companies were using or planning social media for product innovation. Among those, only 33% have had a plan and 51% either have had or been developing a plan. Similar to multiple-case-study, clearly, companies are experimenting. Using social media is an emerging trend on the early stage

of adoption. Findings from the multiple-case study have proved that social media can be used in every phase of the innovation process

As a result of literature review, in the concept development phase, social media can be used for market research and customer validation of the new concept (Carr et al. 2015). In addition, social media can be leveraged as ideation and crowdsourcing application during the front-end of innovation (Kenly & Poston 2011) or concept development phase.

- Case Delta: Using social media to supplement the traditional focus group or formal market research (Roberts & Candi 2014) will save time and money. By scanning through social media activities of industrial related groups on different channels, Delta got an overview of market potential and geographical segments from the numbers of users and locations in each group. Analyzing what have been posted on the groups provide the company knowledge on their prospect customers' needs and behaviours.
- Case Charlie: For opportunity assessment in the customer development phase (Blank 2007) social media can be used to generate consumer insight (Carr et al. 2015), to boost customer interaction (Sawhney et al. 2005) and to create buzz around the product (Hoyer et al. 2010). With Twitter, Charlie understood how much consumer had paid attention to the industry they were in and how to interact with customer. Analyzing Twitter's engagement rates, the company generated consumer's thoughts and comments about other products available in their industry.

In the product development phase, social media involves in co-creation process (Roberts & Candi 2014). The multiple case study clarified social media activities in the product development phase. Social media can be used to gather users' feedback and develop business case (case Alpha); to look for users in piloting phase (case Delta); thus enabling user collaboration. In addition, company can build the community or customer base for the new product in advanced (case Charlie).

Last but not least, for commercialization or post launch practices, social media will be utilized for marketing and communication as it is commonly known (chapter 2.3.3). Activities such as branding (case Alpha, Bravo, Charlie), customer creating and customer relationship managing (case Alpha, Bravo) are taken into accounts.

Overall, social media are tools which can be leveraged in every phase of the process. Companies should utilize the benefits of these channels to boost the result as well as foster the product innovation.

6.1.2. Comparison in strategies and practices

During the multiple-case study, I found various aspects which might influence social media practices. Those aspects were categorized into three major groups, related to the companies' resources, existing practices on innovation and marketing.

Comparison on resources

Table 9 compared the innovation resources, marketing resources and social media knowledge for commercialization of multiple cases.

Table 9 Resource comparison

	Alpha	Bravo	Charlie	Delta
Innovation resources	Limited	Good	Good	Good
Marketing resources	Limited	Fair	Fair	Fair
Social Media knowledge	Good	Limited	Good	Limited

The resources focus on three elements: budgets, personnels and know-how on the topics. Social media, as tools to accelerate the innovation and commercialization process, are widely available for all cases, thus only knowledge of using social media was taken into account.

Case Alpha, as a startup company, naturally had limited financial resources and personnels to operate. Although the manager had good understanding on social media performing, it was challenging for Alpha to find a right person to implement the work.

Bravo, as a technology supplier, had extremely good innovation resources, fairly good budgets for marketing but limited marketing specialists comparing with the company's size. Moreover, digital marketing and online marketing knowledge was not distributed evenly in the organization when there was tacit knowledge about social media in some teams but not introduced to the marketing team. Similarly, Charlie also had good innovation resources. The marketing resources on Charlie company level were good but within the experiment team, resources were more limited. Limiting the resources was the team's decision to test the exploitation of social media and to gain more social media knowledge. As the result, the team had obtained good understanding of using social media. Among multiple cases, Delta had the least knowledge on social media even though the company aware of the social media's benefits and would like to exploit it.

All companies agreed that social media is a good tool for them to optimize their expenses while still increase their interactions with customers (Hull 2004; Hoyer et al. 2010). According to the marketing manager in Bravo, expenses on social media may also grow as big as traditional marketing channels, especially for advertising with keywords. However, companies have more flexibility to plan their social media marketing budgets and adjust them according to their financial conditions than other channels like television ads or events. Charlie successfully achieved their goals with zero budget for social media while Alpha also limited their social media advertising budget.

Overall, the know-how level of social media is different from one company to another, regardless their sizes. Although general know-how of using social media would be fast transferred from one member to others in the team, as social media is a very practical topic, knowledge is best accumulated by practicing, observing results and iterating the practices. Hence, social media practices can be time consuming, especially at the beginning. The correlation between knowledge and available resources will also influence the effectiveness of social media practices.

Comparison on innovation process

Company's size and product development phase have impacted the approach of their product development process. Startups or SMEs like Alpha and Delta could easily apply the co-creation approach into their new product developments. The flexibility towards change and openness of new idea are similar in both cases, while the flexibility reduces when company scale is bigger or they are in later phase of developing process. More managerial implications and IPR issues would be involved into the operations thus diminishing their openness. Charlie recommended experiments under "faked brand" as a good solution to maintain the openness, flexibility and avoid risk to the official brand.

The business and product types also identify the co-creation level. Software products such as mobile applications can be tested by end users and requires less cost of change than hardware products. It is especially crucial for applications in network market types to be cocreated and adopted by end users.

Comparison on marketing practices

While case Alpha and Charlie focus their marketing effort fulling on online marketing, Bravo and Delta marketing practices apply the traditional approach based on connections, direct contacts with potential customers, long-term partnerships and event participations. Nevethless, all cases regconize the significance of combining both online and offline channels to reach their target markets.

6.2.Social media strategy planning

The social media canvas was created and aimed to be a practical tool for company in conducting a workshop within the team and planning how to utilize social media in developing or commercializing a product. In the multiple-case study, the canvas was used as a frame to conduct action research.

Figure 13 demonstrates the improved version of social media canvas.

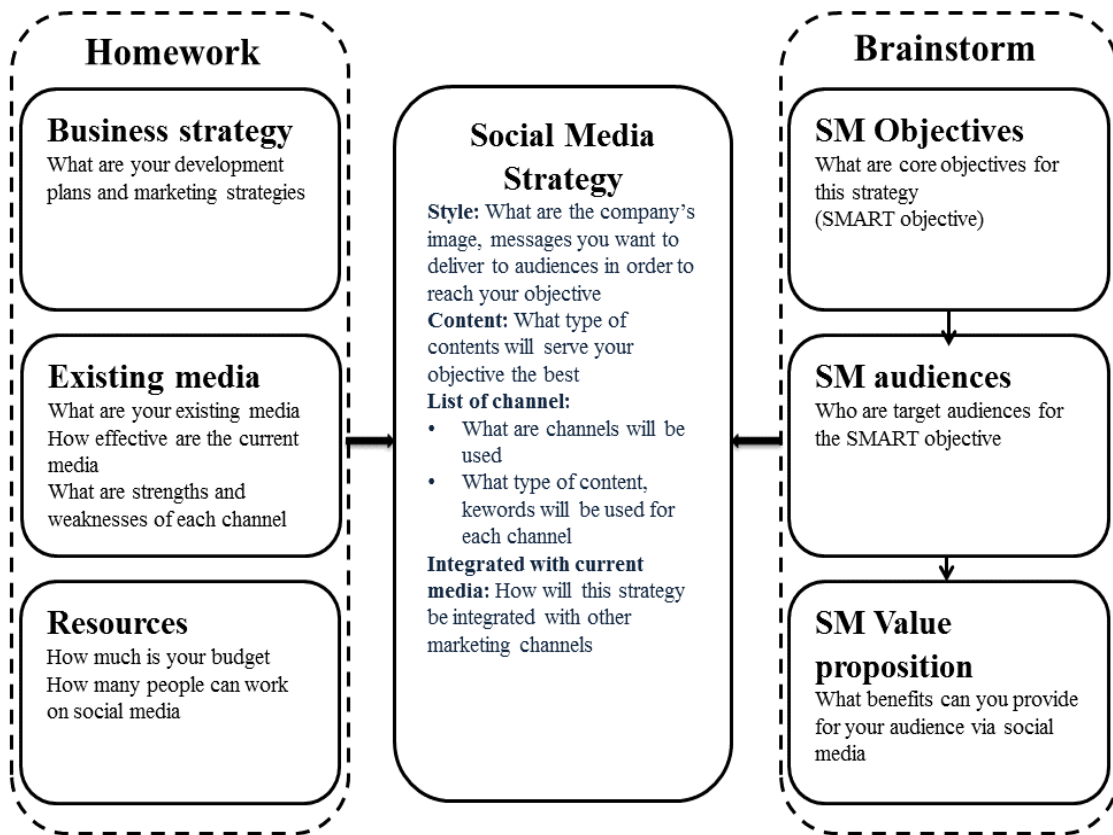


Figure 13 The social media canvas

The canvas includes 3 parts: the “homework”, the “brainstorm” section and the social media strategy.

The “Homework”:

The homework is available information about the company, the product or the case. The homework section reviews company’s situation and existing operation models. In order to make the best out of social media, company needs to understand clearly the business models as well as current practices, thus leveraging online channels to integrate with the successful practices, to compliment the strenghts or to eliminate the weaknesses. To fill the boxes in “homework” section, company can answers questions belows:

- Business strategies: to recap on the concept or business model
 - What is your product, concept?
 - What is your development plan and schedule?
 - What is the targeted market?
 - How do you plan to reach customers?
- Existing media: to analyze existing media which have been used
 - List all the online and offline channels which have been used
 - What are the results of using those channels? (conversion rates, return on investment)
 - What are the strengths and weaknesses of each channel?
- Resources
 - What are company’s budgets and human resources?
 - What are company’s competencies toward existing and plan-to-used channels?

The “Brainstorm”:

After fulfilling the “homework” section, company can start a brainstorming section with their team to discover their objectives, needs and potential audiences from social media. The “brainstorm” section include social media objectives, social media audiences and value propositions for targeted audiences.

It is critical to remember that answers for this sections are different than the company's business goal, targeted customers or product value propositions. In the case of using social media for marketing and sales, the objectives might be similar for social media plan and marketing plan. However, in case of using social media in product innovation, the objectives and targeted audiences can be totally different. For example in case Delta, while the paying customers will finally be sport equipment manufacturer, the target audiences for social media can either be internet users or professional trainers, depending on the development phase. Thus, that is the reason why I used the term "audience" for targeted people in social media instead of "consumers" or "targeted market".

The social media objectives answer the question: "What does company want to achieve from social media". The social media objectives are goals to support the business strategies and are set to be achieved in a period of time. The SMART objective's structure is recommended in which the objective needs to be Specific, Measurable, Action-oriented, Realistic and within a Time-frame.

Target audiences are groups of users on social media who company wants to reach for achieving the goal. The audiences can be either paying customers, end-users, suppliers or a specific community existing online. The audience analysis follows the "think-like-wish" structure, when the company draws different personas of the audiences and answers those questions:

- How do the audiences think and behave?
- What do they like? What do they not like?
- What do they wish to have?
- Which social media channels will they use? And what will they do there?

Lastly, the social media value propositions clarify what the audiences expect to receive from a company's social media and which benefits the company can provide for their audiences via those. In many cases, companies mistake the social media's value with product's values thus tending to have purely advertisement on their channels.

The “Social Media Strategies”

The social media strategies are derived from the “homework” and “brainstorm”. The strategies consist of image or style that company aims to, type of contents to provide on social media, list of prospected channels, action plans according to proposed strategies and to integrate with existing practices. The social media strategies usually answer below questions:

- Branding aspects:
 - Which kind of image is the company aiming to create?
 - Which kind of message do you want to deliver to target audiences?
 - For example: to be an expert in the field, to create an image of a supporter, etc.
- Strategies:
 - How will you achieve the goal and image?
 - Which concrete actions to take?
 - How to integrate with offline activities?
- Contents:
 - Which type of contents that can serve your objective?
 - Which type of contents that audiences are attracted to?
- Channels:
 - What are channels to be used?
 - What are activities on each channels?
 - List of keywords, hashtags or supporting tools for each channel?

7. Evaluation and recommendation

7.1. Practical implication of the research

Social media can be applied in every stage of the innovation process. The social media canvas is derived from literature review on various innovation theories, marketing principles, and customer development process then improved after the practical experiences. In this sub chapter, I will discuss the coherent between literature review and the research main outcome – the social media canvas and how company can use the knowledge in practice.

The literature review covered various innovation concepts (Schumpeter 1939; Cooper 1990; Koen et al. 2001; Prahalad & Ramaswamy 2004; Hoyer et al. 2010) and integrated them into the product cycle. The knowledge about innovation and commercialization connects directly to the social media planning in the “Business strategy” part of the canvas. Companies can apply theories into planning and implementing their development strategies. By filling the “Business strategy” part, companies have chance to review and examine their development process.

The marketing aspects, reviewing Kotler (2001)’s marketing principles and the new concept of entrepreneurial marketing, connect to the “Existing media” section in which company will evaluate their marketing practices; while Blank (2007) customer development model correlated with both innovation process and marketing practices.

Theories related to modern marketing, internet era and social media concepts are used to support decision making on which activities and channels that companies should use in their strategies. Practical insights from multiple-case study brought advanced understanding toward different practices. Learnings from action researches and experiments provided valid tips for the “Brainstorm” section to plan social media practice and give good examples of various concrete activities companies can carry out.

The research’s outcome brings more understanding of using social media for developing and commercializing new product and concept to outline companies’ social media needs,

means and usage. The canvas is a framework that helps company to create their social media strategy.

7.2. Evaluation of the research

To ensure the quality of the research, the case design have to maximize 4 conditions: construct validity, internal validity, external validity and reliability (Yin 2003). However, I found that ensuring both construct validity and internal validity is challenging. Guba (1981) proposed four criteria for qualitative research in order to pursuit trustworthiness, as:

- Credibility of the research instead of internal validity.
- Transferability in preference to external validity.
- Dependability in preference to reliability.
- Confirmability in preference to objectivity.

Choosing the right theoretical framework is important for increasing the credibility of the study. To increase the dependability, it requires maintaining the consistency of the research process. For multi-case study, similar method to collect and analyse data was applied for each case. The differences in cases are compared in the holistic picture. Learning from theoretical review was used to generate a framework as a pattern for case study.

The initial framework, so-called social media canvas, is inspired by the business model canvas, and based on intensive review of guidelines to build social media strategies (Safko 2012; Marketo 2012). Feedback about the first version was conducted with marketing managers in the cases. Besides, the first version of social media canvas was presented in an event at Oulu Takomo Enterprise's organization with more than 50 participants and received positive feedback. The audience stated the canvas' structure and guidelines would be useful for their companies' when developing a social media plan. Some audiences had asked for a copy of the canvas for future use in their organizations. At the same time, the canvas was introduced to one growth-hacking expert and got insight

how to improve it further. As a nature of this research, the canvas was published to Slideshare for end-user validating and received 340 views. The business model canvas is an effective tool for starting a new business development. Thus, applying the principle of the business model canvas (values propositions, target audiences, resources, etc.) into the framework provide a good synergies of using social media for commercialization. Using social media canvas will create a good connection from the literature review and empirical research.

Last but not least, I applied various data collection methods to strengthen the confirmability of the research. In-depth interviews with the case representatives from both R&D and marketing departments provided comprehensive information from multi-aspects.

7.3. Limitation and recommendation for future research

Time is the first limitation of this research. Generally, learning the market responses and using behaviours of any tool and experimenting the activities are time-consuming processes. Especially when applying the principle of iterating circles, I would need a large amount of time to change the practice or to adapt with the audience's reaction. Within a little time frame of a master thesis and company's constraints, there was no opportunity to iterate the action researches to validate learnings from failure or succeed.

The selection of cases is the second limitation of the research. Since I aimed to study a holistic view of social media practices in innovation, it is expected to have multiple cases in every phase of the process. The selection of cases should also cover all the company types and market types. Although the selected set of cases satisfied the criteria, more variety of combinations in types would be needed.

Type of data collected is another limitation of the research. Due to confidentiality and cases' diversity, the study was able to access into diverse type of data depending on company's agreement. Thus, it is difficult for me to compare the multiple-case or benchmark them with each other.

Furthermore, the study will not investigate deeply into data analytics of social media or digital marketing, financial issues, organizational operation within cases, or connection between technical developments with market development. Future researches could answer the limitations regarding mentioning aspects in social media practices. In-depth analysis of practices in each development phase in the innovation process could be conducted. More case studies are required to generate knowledge of using social media in order to produce an intensive guideline for companies. Besides, a quantitative research with marketing experts is needed to validate the tips suggested in the social media canvas.

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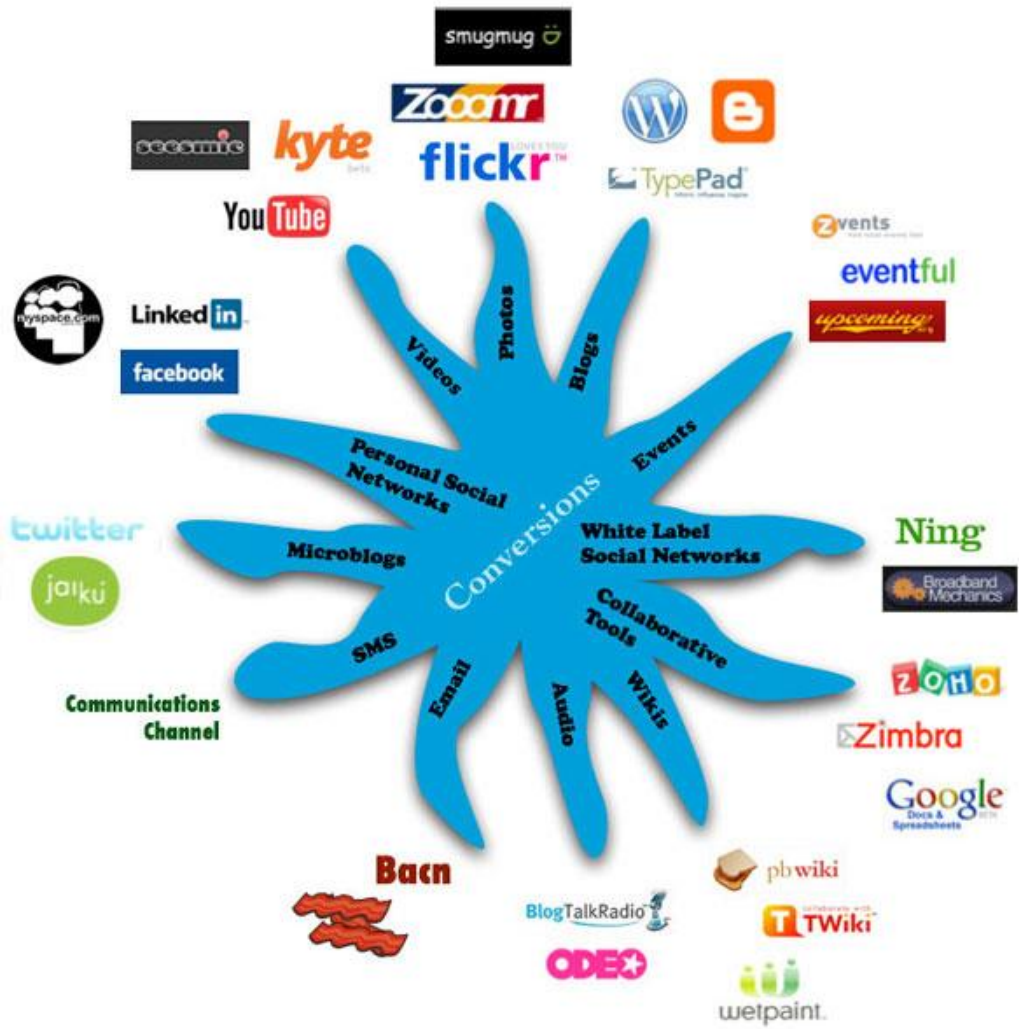
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Appendix I: Robert Scoble Social Media Starfish



Appendix II: Lon Safko Social Media Categories

Table 1.1 The 15 Social Media Categories

Category Title	Tactics and Tools Chapters
Social Networking	Chapter 2
Photo Sharing	Chapter 8
Audio	Chapters 9 and 10
Video	Chapters 11 and 12
Microblogging	Chapter 13
Livecasting	Chapter 14
Virtual Worlds	Chapter 15
Gaming	Chapter 16
RSS and Aggregators	Chapter 17
Search	Chapters 18 and 19
Mobile	Chapter 20
Interpersonal	Chapter 21

Appendix III: List of interviewees

Interviewee	Case	Job title
Interviewee 1	Alpha	CEO
Interviewee 2	Bravo	Communication & Social Media Specialist
Interviewee 3	Bravo	Marketing Manager
Interviewee 4	Bravo	Business Development Manager
Interviewee 5	Bravo	Vice President in Marketing
Interviewee 6	Charlie	Senior Manager (R&D)
Interviewee 7	Charlie	Senior Manager (R&D)
Interviewee 8	Delta	Marketing Director
Interviewee 9	Delta	CEO

Appendix IV: Questionnaire of 1st interview round

General info:

- What are your products / services / business about?
- Who are the customers / target markets?
- Who are the competitors?
- R&D: How do you engage with potential customer in your R&D process

Marketing:

- Information about general marketing practices, activities
- What are marketing / business development strategies?
- What are customer development activities? How do you acquire new leads / customers?

Social media:

- Current situation of using social media?
- What are you using social media for?
- What are the active channels?
- How are you using them? Can you describe specifically your SM practices?
- Do you have any social media strategies?
- How do you measure the result? Measurement metrics?
- What are the potential / opportunity with social media?
- What are the challenges?

Future plan:

- What are the next steps?
- Anything you would like to improve?
- How can we collaborate further in the research?

Appendix V: Questionnaire of second interview round

About the plan:

- What do you like / not like about the plan?
- What are the challenges you see from implementing that plan? From different aspects
 - o Organizational aspects: decision making, strategies, etc.
 - o Capacity (ability, competency, resource) aspects
 - o Nature of industry, external influences
 - o Synergy with offline activities
- What is the most feasible solution?
 - o Organizational aspects: decision making, strategies, etc.
 - o Capacity (ability, competency, resource) aspects
 - o Nature of industry, external influences
 - o Synergy with offline activities
- What information / ideas you find valuable and useful?
- What information / ideas are confusing or redundant?

Future plan:

- What will the final adjustment of the plan?
- How do you make the decision?
- How will you start the work?
- How would the prospect process look like?
- What will be the resource, budget?
- What kind of information you would need more / clarify in the plan?
- Your expectation towards the project?