

NEW PRODUCT DEVELOPMENT OF DIGITAL INFORMATION PRODUCTS: A CASE STUDY OF THE AB ONLINE-MARKETING GMBH

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Abstract

This case study analyzes the underlying process of new information product development projects and its critical success factors (CSFs). The study was carried out by means of a qualitative and exploratory approach. The data were obtained through semi-structured interviews, direct observation and a review of the firm's documents. It was found that the firm uses an informal and cross-functional NPD process to move an idea to a sellable product (idea generation, idea validation, product creation, and product launch). We also found ten factors that significantly affect the success of NPD projects. The main contributions to the literature are: the crystallization of the NPD practices for digital information products within a small-sized firm in the online-marketing niche; the development of a new conceptual process within which all findings for developing and launching digital information products may be accommodated; a comprehensive list of CSFs influencing the success rate of the development of digital information products. Suggestions were also made to improve the current NPD process of the firm investigated.

Keywords: Project management, New product development process, Digital products, Critical success factors, Case study.

1 Introduction

According to a recent market study released by Technavio (2016), the market size of the corporate global e-learning market is predicted to reach close to US\$ 31 billion in revenues by the end of 2020. Such example of success of digital information products has been further validated by many of the largest companies across multiple digital fields, i.e., Amazon, which currently sells more eBooks than printed books (<http://www.bbc.com/future/story/20120817-a-new-chapter-for-ebooks>, retrieved August 13, 2017). Udemy, an online learning marketplace is another example: it displays more than 8,000 courses taught to more than 800,000 students (Yeung, 2013). Developing and selling digital information products online such as online courses, eBooks or webinars has been the way through which countless entrepreneurs have succeeded and as digitalization and technology continues to advance, this may continue to be an attractive market.

The continuous need to market new products as a basis for competitive advantage has resulted in growing interest and research in NPD and, in particular, in the processes through which new products emerge. Sustainable competitive advantage depends not only on efficiency, but also in constant renewal of product portfolio (Hart & Baker, 1994). As a result, NPD activities, once seen as discrete and confined to a narrow section of the company (Roussel, Saad & Erickson, 1991) have evolved as a process that involves the company as a whole and so, in order to succeed at creating and introducing new products, a clear understanding of the organizational process that leads to their development is required.

This research stands in the tradition of applied social sciences as described by Ulrich (2001) and Bleicher (2004) and attempts to answer the following research question: how are digital information products developed and what are the critical success factors for development? Accordingly, its purpose is to investigate how digital information products are developed and successfully launched. In order to achieve this, the following objectives were defined: to analyze the current NPD process of the AB Online-Marketing GmbH; to identify the critical success factors that impact the success of NPD projects of the AB Online-Marketing GmbH; to propose recommendations to improve the current NPD process of the AB Online-Marketing GmbH.

This research contributes in broadening the understanding of the NPD process of digital information products. Although there is a growing literature on digital information products including product compatibility and standardization, licensing, software versioning and upgrade (Bhargava & Choudhary, 2001; Wu & Chen, 2007), few studies have addressed the issue on information as a product or the NPD process of digital information products in order to understand how to achieve successful development and launch of digital information products (Freiden, Goldsmith, Takacs, & Hofacker, 1998; Bakos & Brynjolfsson, 2000; Rowley, 2016). Developing and launching digital information products is still a relatively new phenomenon, particularly when viewed through the lenses of small companies. Indeed, there is a need to understand and promote appropriate NPD processes, predictable and adaptable to future technological developments and changes in the marketplace. This research therefore is supposed to fill this gap by providing a careful analysis of the NPD process of digital information products. The study also examines the CSFs that must be addressed in the relevant ongoing market changes to build a predictable and replicable framework for digitally-delivered information products.

2 Literature Review

Although the word “product” is frequently used daily, the exact notion of the term is fairly complex, especially in respect to physical and non-physical properties. Therefore, for the purpose of this paper, we build upon the definition of Brockhoff (1999), “a bundle of tangible or intangible properties, features or services, which is offered by a supplier with the intention to fulfil its business goals”.

2.1 Information Products and Digital Information Products

The term “information” has several meanings. Broadly, it may be defined as a set of messages and signals. However, there are different weights on both components depending on the theoretical basis. While in mathematically oriented information theory the signal and its processing are emphasized, in economics it is rather the message and its effect. An intermediate connotation is provided by computer science and business informatics, which considers both data information processing and information logistics, encompassing problems of procurement and preparation of internal and external information (Kotkamp, 2001).

Seiffert (1971: 5) defines information as “present-day and practice-related communication on things that we know at the moment are important”. The content of information may be factual, as suggested by Campbell’s definition: “news, intelligence, facts and ideas that are acquired and passed on as knowledge” (Campbell, 1982: 15). More recently, information has the capacity to be digitized without any loss of content (Gates, 1995). According to Meyer and Zack (1996) the information may be provided in different forms such as print (books, magazines etc.) or electronic forms (email, code, radio etc.).

As for information products, Rowley (2016) defines information products as “any product (either good or service) whose core or primary product is information or knowledge”. Shapiro and Varian (1999: 3) define the term broadly: “anything that can be digitized – encoded as a stream of bits – is information”. According to Shapiro and Varian (1999) information products have positive external consumption effects, in particular in the form of network effects; this means larger the number of consumers in the network, the higher utility a user obtains from the product.

Research on the economics of information distinguishes between search products and experience products (Bloom, 1989). Search products are goods or services for which the most essential attributes can easily be evaluated prior to a purchase and provide a basis for an informed buying decision because consumers can verify claims before purchase (Franke, Huhmann & Mothersbaugh, 2004). Experience products, on the other hand, are goods or services for which the cost to evaluate the most essential attributes is so high that direct experience is often the evaluation method with the lowest costs in terms of time, money, cognitive effort, or other resources (Franke *et al.*, 2004). Information products are experience goods; therefore, consumers cannot directly verify the quality and other attributes like performance, interface, and features of the product previous to an initial purchase. By experiencing the product, consumers are aware of the true fit of the product (Zhang, Craciun & Shin, 2010).

A special form of experience products are digital information products. Choi, Stahl and Winston (1997: 31) define them as anything that one can send and receive over the internet as a potential digital product. In particular, it should be possible to compose digital products out of text, data, video or audio components, as “all aspects of digital communication and processing can be considered to be digital

products". Lopes and Galletta (2002: 1), by their turn, define digital information products as "goods consisting of data, information, and knowledge content, typically with high sunk costs that are traded online at a close-to-zero marginal cost of production." Scupola (2003: 5), however, focuses on the value chain of digital products: "[...] a digital product is defined as a product whose complete value chain can be implemented with the use of electronic networks [...]".

Focusing specifically on digital products, Koiso-Kanttila (2004) proposes the following characteristics of digital information products: information recombination (integration of different types of information in the same system, modularity hypertext functionality), accessibility (electronic proximity of content offered through electronic channels), navigation interaction (how the flow of activities proceeds in an electronic store and when consuming digital products), and speed (The time dimension of the process: fast transactions and the prospect of receiving content instantly).

A final key consideration on digital information products is that both distribution process and the actual commodity acquired are digital (Strader & Shaw 1999); it is important to note that not all information products are digital, and not all digital information products are goods. Based on the contributions related to information products and digital information products, the term "digital information product" will be defined as information and knowledge content which can be sold, transferred and delivered through the internet.

2.2 New Product Development

The field of NPD has been widely researched in both academic and business and in a wide range of disciplines such as technology management, marketing and engineering (Hart & Baker, 1994). Much of the research on NPD has been focused on discovering what organizational, strategic and process-related factors characterize successful NPD; thus, successful NPD has been the subject of several literature reviews (Cooper, 1998; Craig & Hart, 1992; Rothwell, 1977).

The term NPD usually refers to the complete process of introducing a new product in the market (Cooper, 2001); "the set of activities beginning with the perception of market opportunity and ending in the production, sale, and delivery of a product" (Ulrich & Eppinger, 2004); incorporating the strategy factor, Belliveau, Griffin and Somermeyer (2002) define NPD as "the overall process of strategy, organization, concept generation, product and marketing plan creation and evaluation, and commercialization of a new product".

NPD is viewed by some authors as a strategic marketing tool, especially as a way of using strengths in the ever-changing market environment, that is, as a capability or core competence (Goulding, 1983). For companies that are leaders in their industries, new products enable them to create new market opportunities and to revolutionize old markets. For followers, new products provide an opportunity to set new standards in cost and quality and to make minor improvements which may later result in a considerable competitive advantage (Maidique & Zirger, 1984). Furthermore, there appears to be an agreement that NPD can provide companies with protection against competitors (Kotler, 2003). However, this view assumes that new products are innovative and not easily imitated. In some industries, such as manufacturing, this may hold true, but in others such as those involving information, it may be difficult to obtain a competitive advantage through new products once imitation occurs quickly.

Ultimately, the timely development and introduction of new products into targeted markets enable organizations to retain existing customers and potentially attract new ones and so, lead to increasing sales. A best-practices study by Cooper (2001) showed that the top-performing firms gained over 49% of current sales from new products. This same study also showed that of the successful new products assessed, half achieved at least a 33% ROI, half had payback periods of two years or fewer, and half achieved at least 35% of market share.

Building on this foundation the next section discusses specific processes of NPD as represented in the literature.

2.3 New Product Development Process

In general, the NPD process is defined as a sequence of different steps, activities, and decisions during the development of a new product from the initial idea to the commercialization of the final product (Cooper, 1994; Cooper & Kleinschmidt, 1995); it is a “process by which an organization transforms data on market opportunities and technical possibilities into information assets for commercial production” (Clark & Fujimoto, 1991). NPD, therefore, comprises concept generation, product planning, product engineering, but also process engineering; it is more specific and targeted than general research activities (Brockhoff, 1999). However, scholars and researchers of NPD often have very different views on exactly which stages and activities ought to be included or excluded in the NPD process, often mixing different perspectives (essentially marketing and technical perspectives).

NPD process also differ in small and medium-sized enterprises (SMEs) in comparison to larger companies (Supyuenyong, Islam & Kulkarni, 2006; Wong & Aspinwall, 2004; Desouza & Awazu, 2006) and throughout the literature, it displays different arrangements and stages. For example, Urban and Hauser (1993) describe a five-step decision process model while Trott's (2008) NPD process is composed of eight-steps. Crawford and Di Benedetto (2002) present a typical five stage NPD process which consists of (1) Opportunity identification and selection, (2) Concept Generation, (3) Concept/Project Evaluation, (4) Development, and (5) Launch. This model harmonizes with the models presented by Song and Montoya-Weiss (1998) and Urban and Hauser (1993), while Cooper and Kleinschmidt (1986) provide a more detailed model of NPD activities.

From the above, one can state that the NPD process stages differ from industry to industry and from firm to firm depending on the strategy, business environment and products of every single company. Barclay, Dann, and Holroyd (2000: 34) have the opinion that NPD is a “tailored” process; “a company's development environment is unique to that company”, therefore, NPD processes have to be “tailored” to suit the specific circumstances. Otto and Wood (2001) support this by stating that there is no single “best” development process, as the variables product sophistication, competitive environment, the rate of change of technology, among others have direct influence on this process.

3 Methodology

Coherently with most of the literature on NPD, the research strategy chosen for this paper is the case study. According to Yin (2003: 16), “a case study is an empirical inquiry that investigates a contemporary phenomenon within its real-life context, especially when the boundaries between phenomenon and context are not

clearly evident". Case studies usually deploy a combination of data collection methods such as archival searches, interviews, questionnaires and observation (Eisenhardt, 1989). While quantitative data do sometimes form part of case studies, they are largely qualitative. Case studies usually depict an authentic, though summarized record of events, the main players concerned, and other influencing variables, and generally have "an institutional focus" (Eisenhardt & Graebner, 2007; Rosselle, 1996).

In order to construct validity of current research design, multiple sources of evidence were employed during data collection process (Patton & Appelbaum, 2003). Different types of data in a research design facilitates the implementation of one of the most critical requirements to case study research strategy: triangulation. Within this research, data source triangulation was achieved by using interviews, document analysis and participant observation. By focusing on in-depth and detailed study of an individual, program or organization, plenty of information may be revealed which may not have been discovered with other research strategies.

The most significant source of information for this case study were semi-structured interviews with employees at the AB Online-Marketing GmbH in Koblenz, Germany. Conducting interviews is a widely accepted and often used data collection instrument and a primary source of information in qualitative research (Yin, 2003). The interviews conducted with five employees of the AB Online-Marketing GmbH were designed to capture the process, content and context of the current NPD process at the company. All respondents exhibited diverse experience in the research topic (Table 1). The number of interviewees was necessary as to cover enough subjects and secure a certain reliability of the data, and sufficient as it was eventually realized that enough data were collected and a pattern from this could be observed.

Table 1:
Interviewees

Interviewee	Years of Experience	Date of Interview
Chief executive officer	5	February 21, 2017
Product manager	3	February 24, 2017
Sales Manager	3	February 25, 2017
Product Designer	2	February 26, 2017
Head of Marketing	1	February 28, 2017

Note. Source: Research data

Ranging from thirty minutes to two hours, with an average of one hour and fifteen minutes, the interviews were recorded with the permission of each participant. An explanatory e-mail about the study, its purpose as well as a copy of the interview script had been sent to the participants. The script was divided in four parts: profile, NPD strategy, NPD process and CSFs impacting NPD process and the questions were based on the literature review. Interviews were transcribed and subsequently coded and arranged according to the broad themes of inquiry. Each theme was then analyzed in view of the totality of evidence.

Interviews were supplemented with participant observation. As indicated by Guest, Namey and Mitchel (2013), participant observation immerses the researcher into the how's and why's of human behavior and attitude within the context of study and this makes discoveries natural. The observations took place over several weeks

in order to minimize the observer effect (Creswell, 2007). Each firm participant involved with the NPD process was observed on several occasions for several hours in at least three occasions. During the entire observation period, the researcher was present during working hours and participated in small supporting tasks. This gave a distinctive opportunity to perceive the flow of interaction first hand and develop an understanding of what was important to the subjects. In sequence, a descriptive and reflective report was written (Creswell, 2007) and later checked with the subjects to assure observation was consistent with reality.

Table 2:
Observation schedule

Date	Observation period	Position at the company	Location
February 3, 2017	(9am-noon) and (1pm-6pm)	CEO	Koblenz Main Office
February 4, 2017	(9am-noon)	Head of Marketing	Koblenz Main Office
February 6, 2017	(9am-noon) and (6pm-9pm)	Sales Manager	Koblenz Sales Office
February 9, 2017	(1pm-6pm) and (6pm-9pm)	Product manager	Koblenz Main Office
February 13, 2017	(9am-noon) and (6pm-9pm)	CEO	Koblenz Main Office
February 14, 2017	(6pm-9pm)	Product Designer	Koblenz Main Office
February 16, 2017	(9am-noon)	Product manager	Koblenz Main Office
February 17, 2017	(9am-noon) and (1pm-6pm)	CEO	Koblenz Main Office
February 21, 2017	(9am-noon) and (1pm-6pm)	Head of Marketing	Koblenz Main Office
February 24, 2017	(6pm-9pm)	Sales Manager	Koblenz Sales Office
February 25, 2017	(9am-noon) and (1pm-6pm)	Product Designer	Koblenz Main Office
February 27, 2017	(1pm-6pm) and (6pm-9pm)	Product manager	Koblenz Main Office
February 28, 2017	(9am-noon) and (6pm-9pm)	CEO	Koblenz Main Office
March 1, 2017	(6pm-9pm)	Head of Marketing	Koblenz Main Office
March 2, 2017	(9am-noon)	Sales Manager	Koblenz Sales Office

Note. Source: Research data

The primary data collected by means of interviews and observation was further supported by the analysis of a number of the firm's documents (Table 3). Payne and Payne (2004) define document analysis as the techniques used to categorize, investigate, interpret and identify the limitations of physical sources, most commonly written documents. For the purpose of this research, existing plans, charts, documents, and files concerning NPD were analyzed. Further organizational information was obtained by accessing internet pages of the firm. The documents helped in providing a perspective on job structure and roles performed. It also provided a holistic view of the NPD process.

Table 3:

List of company documents for analysis

Company Documents	Period of Analysis
Newsletter	March 3, 2017
Customer list	March 6, 2017
Company strategy overview	March 7, 2017
Launched e-mails	March 10, 2017
Pricing plan	March 10, 2017
Financial records	March 10, 2017
Company website	March 23, 2017
Online terms of use	March 15, 2017
Company products (courses and e-books)	March 20, 2017

Note. Source: Research data

The various data sources needed for the different research purposes are summarized in Figure 1.

Objectives	Methodology
(1) To analyze the current NPD process of the AB Online-Marketing GmbH	Primary data collected from interviews with representatives of the AB Online-Marketing GmbH, direct observation and firm's documents
(2) To identify the critical success factors that impact the success of NPD projects at AB Online-Marketing GmbH	Primary data collected from interviews with representatives of AB Online-Marketing GmbH, direct observation and firm's documents
(3) To propose recommendations to improve the current NPD process of the AB Online-Marketing GmbH	Primary data collected from interviews with representatives of AB Online-Marketing GmbH Secondary data from information available on internet and books

Figure 1. Objectives and methodology alignment

Source: Created by the authors

The following section presents the research results obtained through data analysis from the interviews, participant observation and document analysis.

4 Analysis and Discussion

The findings of this research are divided in four parts: initially, the case study company is presented, then, the underlying NPD process is summarized and analyzed in its components. Further, the identified CSFs impacting the NPD projects are presented and, finally, recommendations for improving the current NPD process at the company are exposed.

4.1 The Case Study Firm: AB Online-Marketing GmbH

AB Online-Marketing GmbH is a small-sized company located in Koblenz, Germany, that sells online-courses and online-marketing consulting services. The company was founded by Andreas Baulig, current CEO, and currently employs six people.

AB Online-Marketing GmbH is a relatively new player in the German online marketing niche developing digital information products. In 2016, the firm experienced an extensive growth due to a market upswing with turnover figures rapidly increasing; it was able to lead its rapid growth by balancing sales and production capacities. As its capacity presents increasing growth, the number of employees has also augmented, as well as management layers between senior management and front-line employees. Such new organizational complexity has demanded new skills and a new management style.

AB Online-Marketing GmbH core business are sales and marketing of digital information products, specifically, of online-courses and marketing consulting services for other companies. The firm sells its digital information products exclusively in the German-speaking online-marketing market at a premium price. The core product of the firm is an extensive online-course called *Coaching & Consulting Masterclass* which is specifically designed for coaches, consultants and service providers who want to generate new leads online and sell their service at a premium price. This product is sold for €5,000 per unit. In the firm's current state, approximately 90% of its revenue is generated from this product. Other products offered by the firm are the Facebook-Ad course and the Webinar-Masterclass, making up the remaining 10% of revenues.

The firm was selected for this study because it is known to have active NPD for a number of years and it had experienced both important successes and failures in their NPD projects. Furthermore, it is one of the leading companies for premium digital information products within the German online-marketing niche.

4.2 An Overview of the NPD Process

Much of NPD literature highlights the importance of a formal NPD process. The overwhelming focus in management literature is that formal processes provide the basis for improvement and that a systematic approach produces more consistent outcomes (Tomkovick & Miller, 2000; Trott, 2008). More specifically, the existence of a "high-quality, rigorous new product process" was found to be one of the strongest drivers of new product profitability (Cooper & Kleinschmidt, 2007).

However, several studies show that small and middle-sized companies have not always matured in their ability to do NPD in a structured fashion. Specifically, small companies often follow a rather unstructured and informal process based on intuition rather than on strategic planning. This realization applies for the case study firm as well.

Observations revealed that the NPD process is rather ad hoc, without a clear structure and highly informal. However, recently, the firm has shown initiatives to have its NPD process more structured and formalized. The CEO provided insights into the evolution of the NPD process throughout a six-month period previous to the interview:

I'd say while we do not formally follow a documented NPD process, we follow a clearly understood path of the tasks to be completed in product development. I guess probably six months ago, it would have been very informal, and we're building up to a stage now where it's somewhere in the middle. I mean, I still think there's lots of things to do before we can call the process formal but surely we progressed in the last couple of months [...] and you'll only know that by going through the existing process every time when developing a new product, and then coming back and saying, 'okay, well, how about we add this in here, or we do this, or we create that as a standard document, or a few things that will help' [...] now, I can see us moving forward in that direction. I just don't think we're at a formal stage yet.

Throughout the observation it became clear that the NPD is in a state of transition from informal to formal, driven by the need to reduce resources and time used to develop new products. The Product Manager described the current NPD

process not in terms of formal, or informal, but as being “responsive” to the needs of the firm.

We’re gradually improving our process. We try not to be too rigid in our NPD approach, so we do provide some level of flexibility, so that we can sort of capitalize on an opportunity that might come along. I would describe our process as responsive, meaning that it is responsive to the resources we have for our NPD (Product Manager).

In general, the NPD process in the firm passes through four distinct stages: idea generation, idea validation, product creation and product launch (Figure 2). The notion that NPD is based on activities and corresponds to a number of distinctive stages has been acknowledged by several scholars such as Cooper (1993, 1999).

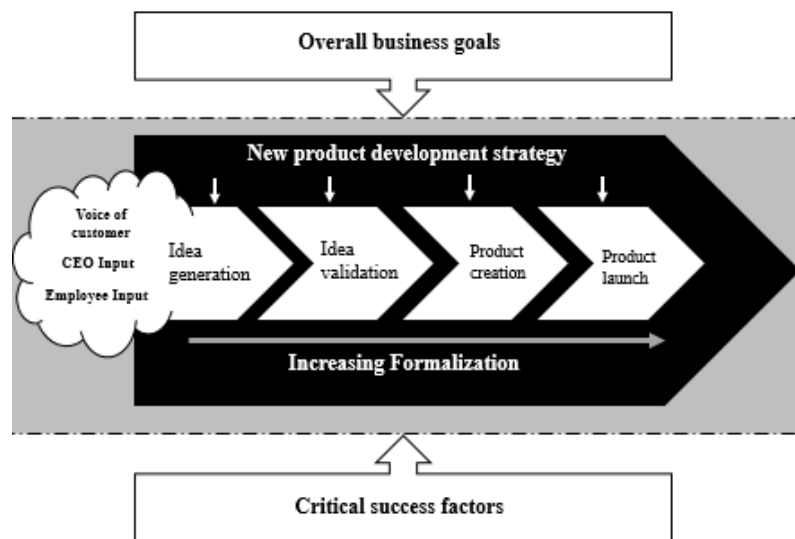


Figure 2. NPD process at AB online-marketing GmbH

Source: Created by the authors based on research data

The NPD process is impacted by the firm’s NPD strategy which is derived from its overall business goals. Interview responses reveal that there is a certain NPD strategy in place at the firm, however this strategy is not written or clearly communicated throughout the whole organization, but rather slightly different in the head of each employee. The NPD strategy was described by the employees as “aggressive”, “growth-oriented”, “market-pulled” and “differentiated to competitors”. In general, NPD is seen as the vehicle for growth and revenue and therefore there is a continued commitment to it. When asked about the importance of NPD for the firm, the CEO replied:

We have to be proactive in new product development, otherwise we will be dead and in short time [...] new product development is one of the most important aspects of our business as it offers the greatest potential for growth.

4.2.1 Idea Generation

The NPD process begins with the definition of a product idea. NPD literature suggests that this stage of identifying and selecting ideas for potential NPD projects is critical for NPD project success (Baxter, 1995; Brown & Eisenhardt, 1995). The

seeds of NPD, in the form of fuzzy product ideas, in this case originate from a variety of sources, from within and without the firm. The CEO is often the most prolific generator of ideas as the Product Manager is accountable for market scanning in order to identify new product ideas, but is also participative in new product ideas with the CEO. At times, customers are taken into account in generating new ideas with their problems and demands:

What often drives our new product development is actually what our consumers want, because at the end of the day it is a consumer who drives any business. Therefore, consumer problems are often a guide to our products. If we provide solutions to their problems in a way that our competitors cannot, we win. It is as easy as this. And so, the basic drive behind our new product development is the consumer and his/her current problem (CEO).

The firm has a close and continuous contact with customers: it continuously scans the market and interacts with its customers in search for new ideas. This constant feedback fuels their creativity.

The idea generation stage in the case study firm is characterized by informal triggers, such as regular coffee meetings and lunch breaks. The literature on NPD and innovation confirms that there is significant amount of informality in the initial stage of innovation process, which tends to become more formal, subsequently (Cooper, 1999; Jolly, 1997). In addition, other scholars promote the idea that the success of NPD is associated with an informal approach, at least in the early stages of the process (Edgett & Parkinson, 1993; John & Snelson, 1988; Syson & Perks, 2004).

According to the Head of Marketing, an excessive formal process could suffocate the very essence of the creative results the firm needs. Therefore, very rarely, formal market research is undertaken to search for new product ideas. Market information is collected via networking, conversations with customers, internet research, and participation in events. Information is often used to aid decision making, but rarely carried out in a systematic way. Somehow the informal process of idea generation seems to work better than formal market research.

Both observation and interviews further provided an unmistakable sense of a need to be constantly looking for new ideas and being entrepreneurial. The notion that one puts a product on the market and do not always want to improve it or think of new products is certainly not applied to this case. On the contrary, it was identified a persistent urge to keep on improving their products' results by searching for ideas on new products which by their turn are capable of replacing or improving existing ones. None of the respondents mentioned that idea generation was an issue for the firm.

4.2.2 Idea Validation

Despite the low costs of digital information product development, the firm does not start a product development before the validation phase, which in this case is a rather simple procedure. In this phase, a research is conducted among national and international companies competing in this niche market and offering similar products. If such companies are identified, the idea is valid.

The CEO describes this approach to idea validation in the following words:

You're in all likelihood not the first person selling your particular product online. Therefore, our first step to validate a product idea is to look to our competition to better understand demand and potential product appeal.

He further elaborates:

Most people think competition is bad – especially if someone else has 'beat you to it' and built and marketed your product before you. Smart entrepreneurs, however, know that competition is a good thing – especially if you find a product like yours before you spend time and money to create it. Why? Because someone else has already spent the time and money to validate that idea for you! Plus, you have an advantage coming in later – not only knowing that there's a market for that product – but also knowing what can be done better.

The idea validation is essentially a very informal stage, as stated by the Product Development Manager:

I'm afraid we're not very formal in that regard. Of course, we do some spilt-testing now and then, but at the end it often comes down to gut feeling.

The gut feeling, however seems to work well as a number of people from diverse functions are involved in the validation process and look at it from a number of perspectives. Apart from being informal, the validation process is also continuous and woven into the daily firm routine. Personnel is regularly communicating about NPD. It was observed that the idea validation, though highly informal, works well as a large number of people from a variety of areas (as well as customer representatives, in the three-stage version) interact continuously, closely scrutinizing potential products from a host of perspectives.

4.2.3 Product Creation

In this phase, the NPD team begins the development of the final product. The team is set up with permanent staff members and displays a cross-functional nature. Both the people responsible for product creation and those affected by it, are involved in the process. The logic of engaging people accountable for NPD is obvious, however keeping on board those impacted by it from the very beginning helps in understanding and sorting out any upcoming troubles that may appear when the product is under development.

We've got inputs from marketing and we've got (it) from accounts, production, technical, and development sides (Product Development Manager).

The product creation stage is characterized by a parallel execution and concurrent workflow. After agreement is reached around the product idea, the content acquisition step and adaption of the necessary contents are performed. This process usually includes the identification of desired elements such as text, images, localization and acquisition of existing elements and, if necessary, the selection of missing parts. The individual parts and the contents are transferred into PowerPoint slides as the "look and feel" of the product is developed and further a "membership area" is created, where the product is accessible to customers.

The making of the products involves intensive and continuous information exchange amongst all NPD team members, as new challenges surface and new

ideas are addressed. Employees who participate in the NPD process, with the exception of the sales manager, have several tasks within the development process. This is commonly referred to as the same role-player wearing different hats (Kahn, 2005) as limited resources require the firm to incorporate all possible internal skills to participate in the process.

For production, extensive and regular information exchange between all members of the NPD team occurs before the final shape is given to the product. The firm seems to understand the costs of product failure and give credibility to the views of all the people no matter what place they have in the firm hierarchy.

Despite such level of consultation, the basic process remains informal.

It's very informal at the moment. We are currently dedicated to internal quality revisions where guidelines are drawn for how to produce a certain product. These quality checks are methods we are currently finding ways to work in, meaning that we have just begun documenting routines. This documentation will not be restricted to a certain product but will be covering all kinds of projects that we work with (CEO).

No product testing or anything prior to product launch was observed. The case study firm does not conduct any market tests to gauge the market potential of its products. The CEO seems convinced that product quality is the most important aspect and that if one can deliver good quality at an affordable price, the product is a "sure sell", and thus, no market research is needed to point this.

Despite the informal process and the several tasks performed by personnel at the same time, the firm has developed a highly efficient yet intuitive method of converting ideas into new products. Product creation speed is high and therefore the firm is able to place products in the market in a relatively short period. Usually the product creation stage is completed within two months at the most and in most cases in less than one month.

During the course of this investigation, a wide variety of products that the firm successfully introduced was noticed. It was discovered that the firm's new products are often superior variants of already existing digital information products, which are mainly premium online-courses that are mostly sold to self-employed coaches, consultants and service providers. In product creation, the underlying idea is not to be merely different but to offer superior quality to what is already available. The method has been to look at the offers, contemplate what they lack and then use the expertise they have to create a superior version in terms of quality.

Over the years, the firm seems to have developed an ability of creating new products by understanding what to take from competitor products and what to add from its own expertise as well as where to look for new ideas without plagiarizing. This product creation process is possible mainly due to the transformability of information. In particular, digital information is characterized by the fact that it is not only easy to be copied but it can also be changed and simply reused in a different way. In the simplest case, objects can be easily transferred from one information product to another. This enables the firm on the one hand to have a high degree of customization and, on the other hand, it allows recombination of information to new products without great effort.

4.2.4 Product Launch

The last stage of the NPD process is product launch. Even though the launch is the last step in the NPD process it is rather intense. The firm uses a well-planned product launch-strategy which consists of three main parts: (1) pre-launch series, (2) launch series, (3) post-launch-series.

The product launch-strategy is heavily based on e-mail marketing, which means that prospects are exclusively contacted via e-mail during product launch. For this, the firm uses a CRM system, allowing automatic emails to the prospects and interaction tracking. The system can process more than 5,000 mails at a time and is described as an important tool for the firm.

The CEO explained that the e-mail collecting process is very important for any launch:

Because these e-mail subscribers joined our email list from our website and verified their identity by clicking on a link, what is called double-option, they are extremely interested in what we have to offer. [...] in our business, e-mail lists get ten times higher conversions than social media campaigns. This makes sense if you think about the big advantage of email as a communication channel: people read e-mail in the privacy of their inbox. The message is not on a public timeline or a newsfeed. They can ask you questions directly in private with confidence. This helps build trust and a relationship.

A trusted relationship is a big issue for launching a digital information product successfully as explained by the Product Manager. Since digital information products are experience goods, buyers cannot directly verify the product previous to the purchase. Therefore, trust and credibility are decisive factors for the purchase of a digital information product. According to the interviews, it's enough to have high-quality information product, but this product must be presented in a fashionable manner so that it is also credible to the customer. In this way, each step of the product launch-strategy should be conducted aiming at gaining customer trust. Trust is key in a market with few opportunities for differentiation.

4.3 Critical Success Factors of the NPD Process

CSFs are characteristics, conditions, determinants or variables that when properly sustained, maintained, or managed, may have a significant impact on the success of an NPD project. Montoya-Weiss and Calantone (1994) provide a comprehensive analysis of research into NPD and defined eighteen variables in four product categories that have been identified as CSFs. The categories are: Strategic Factors, Development Process Factors, Market Environment Factors, and Organizational Factors.

During the research it was found that the market environment factors do not play a relevant role in the firm's NPD projects.

Brown and Eisenhardt (1995) found that product advantage is positively related to new product performance, suggesting that product benefits and the superiority over competitors' products are some of the main reasons why customers purchase the new product. This argument is supported by other scholars. Cooper (1999) points to product superiority or advantage that is the advantage of the product in the eyes of the customer, as the most important key to new product success.

One thing that came out repeatedly in this investigation, was the importance of high-quality products bringing a product advantage. The firm placed emphasis on high-quality products consistent with their name and image in product development.

Motivation for me is to make sure that we make a product that's a value for our name and our brand and (we) keep coming up with products that people enjoy [...]. I like it [...] I get a kick when I see (customer's) reactions and get their feedback and how the markets have been dragged into the gutter by poor products over the decades and how we can get over that (Product Designer).

The firm is confident that its rigid quality policy (although mostly informal) leads to a product advantage over competitors. The final product goes through a checking system involving three different employees to assure that quality is not just acceptable but appealing to the customer. Thus, one may conclude that firm is intentionally searching for higher-quality products to be positioned at towards a higher-end market. This allows the firm to charge a premium price and constitute NPD both rewarding and profitable. Charging a premium price, however, is not feasible with spurious quality and so genuine high quality becomes an integral part of the product development strategy at AB Online-Marketing. The CEO personality is that of a perfectionist, correcting spelling mistakes and small design details by himself. Such involvement is positive since it ensures a high-quality product and as well as a symbolic approach towards quality, however, it often leads to intense discussion over details which may eventually set back the NPD process. The firm's CSFs under strategic factors are in this way market orientation and entrepreneurial spirit; under development process factors, speed to market, top management support expertise in marketing activities and infrastructure; and, under organizational factors, innovative climate and culture, a high-quality cross-functional NPD team, and networking.

Market orientation was observable throughout the whole NPD process. The firm showed a notable ability to understand the market and its dynamics; it tried to attain a good fit between market needs and firm's resources, undertaking competitive analysis, demonstrating market experience (5 years) and exhibiting a thorough understanding of customer needs and user circumstances. The firm is focused on understanding customer needs and creating products to suit them.

Though a small firm in the online-marketing niche, it is considered to be one of the market leaders due to its market-orientation. However, it does not carry out market research nor deploys market tests; the absence of some market orientation indicators does not necessarily mean that it is less market oriented; on the contrary, it has been able to market successfully its digital information products even without market research or market tests.

Observations provided a clear picture of entrepreneurial spirit as a CSF. At the firm, the continuous development of ideas and products may be interpreted as a way of life. Currently, the company strategy is to focus on the development of new products and ideas to grow and increase its customer base. This, in combination with a fast production speed, gives the company a competitive advantage; according to the CEO there are not uncertainties regarding competitors since a big part of the firm's advantage lies in the speed of implementation which, according to his words, are "impossible to beat". Moreover, according to the Product Manager, fast NPD allows the company to grasp greater opportunities of market access while improving

the likelihood that the company's new product will become the standard go-to-product within the online marketing niche. Also, shorter NPD cycles allows the company to use new or improved tools for their digital information products more readily.

While the support of top management has been identified as an NPD success factor in several empirical studies (Kleinschmidt & Cooper, 1995; Swink, 2000), owner/manager skills and support seem to be more important in small firms, such as the one in this study. This makes sense for a small firm due to a smaller organizational structure, and thus, to take on an NPD project without the support of top management is almost impossible (Maidique & Zirger, 1984). Throughout the investigation it became clear that senior management in the person of the CEO is strongly committed to new products and to the product development process. The interview provided clear messages about the importance of new product development to him:

We have to be proactive in new product development, without it we would be dead and in a short time [...] new product development is one of the most important aspects of our business as it offers the greatest potential for growth.

In addition to the CEO's steady dedication to NPD, it was also observed his resolute control of the daily work. Displaying a fairly democratic and "hands-on" style, all major decisions throughout the NPD process are centralized on him; he controls the direction of the NPD effort, releasing strong opinions of which products the company should be offering to the market and how the brand should be managed. Such opinions are presumably based on the personal knowledge of the market combined with intuition. Ultimately, the CEO is seen as the "face" of the firm, connecting personally with customers, creating partnerships and proactively networking. Employees clearly respect and admire him for this and overall, this clearly indicates the beneficial effects of a dedicated and skilled CEO in fostering successful product development.

4.3.1 Expertise in marketing activities

Past research has shown that the proficiency in NPD activities is a fundamental requirement for successful new product performance (Maidique & Zirger, 1984). Likewise, results showed that the firm's proficiency on marketing activities is clearly a main factor for the high success rates of the new products. During participant observation, it was perceived that the company showed solid competencies in evaluating consumers' needs as well as competitors, and in determining market characteristics and trends, and executing product launches. Together with the findings of NPD literature this study shows evidence that proficiency in launch activities is a key requirement for new product success when developing and launching digital information products.

4.3.2 Infrastructure

It was also verified that infrastructure is an important CSF for the NPD process of digital information products. In particular, broadband internet connection with its decentralized structure, open standards, and the possibility of many-to-many communication is of significant relevance for the firm. Furthermore, electronic services such as payment processing (e.g. Digistore24.), customer relationship management and data processing, e-mail communication (e.g. CRM system

Infusionsoft) and tracking of user data (e.g. Facebook Pixel) are critical for the NPD project success. Although these services, in the true sense, do not create their own value, they are nevertheless indispensable prerequisite for all other activities (capabilities).

4.2.3 Organizational factors

It was observed a positive relationship between climate and culture for NPD; the CEO actively supports NPD with words, actions and resource commitments, and the NPD team members are engaged in the decision-making process accordingly. The AB Online-Marketing has a very informal company culture which is typical for small-sized companies (Suppyuenyong *et al.*, 2006; Wong & Aspinwall, 2004). Such a culture fosters a high degree of trust, which in turn encourages staff members to show tolerance for mistakes, agility, risk-taking and commitment towards the organization (Desouza & Awazu, 2006). Further, it was observed that the firm seems to succeed in rubbing off their passion for developing and selling great online courses.

There is great passion here [...] if we come to work and if we are stopped being paid, we may not come next week so I cannot say that it is not about money. Of course it is, but if you come only for money my view is that you will run out of steam very quickly. So, you need to have a passion (CEO).

Another important feature related to innovative climate and culture is working environment; in this matter, the firm is also engaged in fostering a friendly working environment which helps motivating personnel perform and at the same time enjoy being at work and molding a desirable organizational culture. Wiklund (1998) claims that culture in a small firm is relatively homogenous, which definitely holds valid in the case of AB Online-Marketing. There is trust between the CEO and employees as demonstrated by the full access granted to office employees even in their spare time; such symbolic practice indicates a well-functioning working atmosphere in which culture has become a soft control as described by Bruzelius and Skärvad (2000). The firm's spirit to solve emerging problems along with a general "can-do" attitude, provides it with a flexibility which Ahrens (1992) claims as important for a growing organization to have.

Further, the case study firm has only two organizational levels: the CEO, who owns the firm, and the employees. Employees are thus close to the CEO and able to communicate with each other freely. The atmosphere encourages productivity effectively which in turn leads to open communication and good information distribution. A flexible company where direct contact with the CEO is possible to employees, where information channels are short, and where information is easily available, is key to successful growth.

In terms of NPD team performance, it was mentioned several times throughout the interviews that the NPD team itself is a CSF of NPD projects. Indeed, the firm demonstrated many aspects of a high-quality NPD team described in NPD literature:

- a) Product Manager was fully dedicated to a single NPD project (as opposed to trying to lead many projects, or having various other assignments) and devoting adequate effort to the project;
- b) The team interacted and communicated expansively and often, with frequent project update meetings, weekly progress reviews, and problem

resolution sessions. This ensured that the entire team was committed to speed;

- c) The team embraced a true team approach to NPD: there is a sense of effectiveness in the team, institutional support (especially resources), and the existence of cross-functional teams, including members from different departments, all accountable for the results. It was observed that the whole team shares information and makes consensual decisions about product, processes, and production. The knowledge achieved with a diverse team composition promotes effective collaboration.

Due to the physical proximity of departments, NPD team members are given an opportunity for face-to-face interactions. In this case, all employees excluding the Sales Manager operate in the same office. This leads to actual cross-functional teams with positive internal cooperation and communication, a factor frequently cited as key to both increased speed to market and higher success rates in NPD (Cooper, 1999; 2001). The advantage of physical proximity was emphasized by the product manager:

In my old firm when I wanted to talk to a certain employee in Marketing, I had to telephone and request a meeting. It was troublesome and exhausting. Here, when I need to talk with someone, all I have to do is go to his desk and that's it.

The rather short lines of communication, relatively informal decision making and the interfaces between departments give the case study firm an advantage for rapid NPD.

Since the online-marketing niche is a relatively new niche in Germany with fast changing market opportunities, it is critical for the case study firm to keep in touch with current market movements in order not to miss one of those opportunities. Therefore, in the case study firm networking is regarded a key to NPD success. The CEO at one stage of the interview pointed out to one of his products and said,

The guy from another firm has actually developed or launched a similar product that we are planning to create. So, I would be stupid not to ask [...] We give them what we know...they come around and give us what they know. It is a win-win situation.

It was observed that the CEO is in contact with other online-marketers talking about recent developments, opportunities and changes within the market. Several times throughout the observation period the CEO met with those marketers and discussed best practices as well as new ideas to implement during the NPD process. This regular knowledge-exchange gives the firm according to the product manager a comparative advantage in NPD projects.

In general, the CSFs mentioned in the interviews and evaluated in the observation phase of the research were associated with the CSFs mentioned in literature, with the exception of "infrastructure", identified in the research. It is a notion that could be found indistinctly in the existing literature but it was emphasized several times throughout the interviews.

Interestingly according to the interviews, these CSFs apply for almost all companies in the online-marketing niche equally. They may be specific for developing and launching digital information products in general, although further research would be required to prove this.

5 Conclusion

This research aimed at investigating the NPD of digital information products. As no previous work was found in this area, in addition to direct access to the firm, primary a single case study was undertaken with multiple data sources.

Regarding the first research objective, it was found that the current NPD process at AB passes through four distinct stages: idea generation, idea validation, product creation and product launch. Data analysis showed that idea generation is a fertile stage in the process: not only the CEO is the most prolific generator of ideas in the business, but other members of the NPD team often contribute effectively with this task, as well as costumers, in an indirect way, by presenting problems and issues with products. There is no evidence of a formal idea generation process and market research is rarely undertaken as means for searching new product ideas. Instead, the firm displays an intense contact with customers whose constant feedback fuels its creativity and “improving spirit”. Observing the market is the most used approach by the investigated firm for idea generation.

As for the idea validation stage, it is carried out by screening similar product launches by competitors as a way of signaling risks and market acceptance. Although highly informal, this process works well as a large number of people, representing a variety of internal functions (as well as customer representatives) interact continuously, closely scrutinizing potential products from a number of perspectives. The validation process further appears seamless and woven into the daily routine.

Product creation stage may be characterized as concurrent and cross-functional. It involves intensive information exchange between the NPD team members and customers assume the role of coaches, consultants or service providers though they are not involved in the product creation process from the outset. The firm lacks customer integration within its NPD process although the rate of success of new products is high and product placement is executed in a relatively short period. A key reason for such success rate despite little or no market research is continuous analysis of customer reactions immediately after product launch. The firm is able to make changes even as the online product has already been sold as early customer reactions continue to influence product changes until the firm provides an ultimate version. Overall, the underlying idea is not merely to be different but also to offer superior quality to what is currently available in the market. Similar to Financial Engineering, in which basic products are made into new financial products, one could speak here of information engineering.

In terms of product launch, and in opposition of the former phases, the firm uses a structured three-phase plan. It is heavily based on e-mail marketing, meaning that prospects are exclusively contacted via e-mail. A major finding of this last stage is that a prerequisite for success for selling digital information products is relationship commitment with the potential buyer. Due to the fact that digital information products are experiences goods, which cannot be evaluated prior to the purchase, and the Internet is a seemingly chaotic market environment, there is a high uncertainty among consumers. Therefore, an important issue to be considered is earning greater trust among customer than competitors.

The second objective of this thesis was to identify the CSFs of NPD. Those factors were defined within this study as those characteristics, conditions, or variables that when properly sustained, maintained, or managed may have a significant impact on the success of NPD. In total ten of these CSFs were found and

were further organized in three categories, namely strategic and market success factors, development process and organizational factors. The case study firm displays three strategic and market factors: product advantage, market orientation and infrastructure. The development process factors were top management support/skill, proficiency of marketing activities, flexibility and speed to market. The organizational factors impacting the success of NPD projects were found in a high-quality, cross-functional team, an innovative climate and culture and intense networking.

In respect of actions to improve the NPD process at the case study firm, four recommendations may be listed: first, the implementation of an idea evaluation “gate” in order to filter poor ideas and thus increase the percentage of promising product ideas to be considered. Second, the implementation of a product definition stage before the product idea moves on to the product creation stage as a way of lessening confusion and waste of time and resources that currently occurs due to a lack of product framing. Further, it is suggested an implementation of a “go to creating” gate where the whole NPD team including the CEO meet and discuss this decision. Lastly, it is suggested the implementation of a post-launch stage as a last stage within the NPD process in the form of an audit so that the probability of success may be assessed by means of a project database and further predictive analysis. In this way, the firm may foster continuous learning and improvement of the NPD process.

In view of the above, one may infer that although the focus of this research is on the NPD of one firm in one industry, it is likely that most of the results may be applied to the entire NPD context within other industries where digital information products are sold. The main contributions to knowledge by this research include the crystallization of the NPD practices for digital information products within a small-sized firm in the online-marketing niche, highlighting the difference between physical goods, services and digital information products, the development of a new conceptual process within which all findings for developing and launching digital information products can be accommodated, a comprehensive list of CSFs influencing the success rate of the development of digital information products.

The limitations of this study arise most notably from its qualitative nature which does not allow generalizations. The credibility issue for qualitative inquiry depends on rigorous techniques and methods for gathering high-quality data which was carefully done throughout the work with attention to validity, reliability and triangulation. For a deeper research, the NPD process of digital information products in several other markets (i.e., fitness market, dating market or lifestyle market) could be studied. NPD processes from larger firms in the same industry could be examined. Therefore, some generalizations could be drawn from the results if there would be similar NPD practices between different markets. On the other hand, it would be an enriching aspect to keep track of how the NPD process matures in one specific firm or in group of related firms. Another possible way of research could be a comparison of NPD practices between the case study firm and any other online-marketing firm from another country. Such cross-national comparison of NPD could reveal differences related to national features of handling the NPD of digital information products.

6 References

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