Master Thesis

Co-Creation in Development Processes:

An Emerging Paradigm for Successful Competition

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June 2016

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ABSTRACT

Competition is clearly increasing in the future, but how can firms stay competitive? Innovation is surely the main response, but there are many more. Collaboration with the customer as well as integrating the customer in development processes is essential for firms moving into a successful and beneficial future. This thesis examines the emerging co-creation paradigm. Co-creation sets new rules in development processes and helps firms either to strengthen their position in the market or enable a successful entering in new markets.

Co-creation processes are dynamic and complex. Firms, which want to initiate and apply co-creation in their daily operations, face difficulties because it requires a totally new mindset. For enabling co-creation processes, it is relevant to understand the philosophy behind co-creation. Similar paradigms, like co-production, open innovation, mass customization, lead user method, user-generated content, etc., all describe the significance of integrating firm-outside sources into innovation and development processes. But the main distinction to co-creation represents the relevance of transforming customer interaction into a sustainable customer experience.

The content of this thesis shows a definition of co-creation, which was elaborated through an extant literature review. Cases illustrate examples, where co-creation is applied in practice. The author created especially for these cases a matrix ("Co-Creation Check") for determining the quality of the co-creation processes. Already existing co-creation concepts highlight the progress of research relating to this field, including its usability in practice. Due to the surprisingly little amount of existing concepts, a conceptual framework was created ("Co-Creation Square") that should give guidance for how to apply co-creation properly. Thus, different opinions exist about limitations of the co-creation paradigm, but, in general, the main limitations are technological limits. Anyway, co-creation is often misinterpreted according to its original formulation.

Moreover, interviews with experts in development processes give an insight in firms' daily operations dealing with the customer and underline the importance of the co-creation philosophy, its usage in practice, difficulties by integrating customers, and the experts' experiences with the co-creation paradigm, which is widely very limited.

The findings demonstrate that significant characteristics of the co-creation paradigm exist more in theory than in practice. Hence, successful application of co-creation requires additional and systematic enlightenment.

DECLARATION OF ORGINIALITY

I declare that I have authored this thesis independently, that I have not used other than the declared sources, that I have explicitly marked all material which has been quoted either literally or by content from the used sources, and that I have not submitted this thesis either in the domestic territory or somewhere else. Furthermore, I declare that the electronically submitted version is concurring with the printed version.

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Lukas Nadvornik, BSc Graz, 1st of June 2016

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ABBRIEVIATIONS

AG	Aktiengesellschaft	(similar to “Corporation”)
B2B	Business-to-Business	
B2C	Business-to-Customer	
CEO	Chief Executive Officer	
EUR	Euro	
et al.	et alii	
FEE	Fuzzy Front End	
FP	Foundational Premise	
G-D	Goods-Dominant	
GmbH	Gesellschaft mit beschränkter Haftung	(company with limited liabilities)
KISS	Keep It Simple and Stupid	
MPS	Managed Print System	
NPD	New Product Development	
OEM	Original equipment manufacturer	
P&G	The Procter & Gamble Company	
RP	Rapid Prototyping	
S-D	Service-Dominant	
SMART	Specific, Measurable, Assignable, Realistic, Time-based	
SUV	Sport utility vehicle	

1 Introduction

1.1 Background

The development of new technologies had always been connected to the progress of mankind. Before mass production started about 100 years ago, it was common to produce specifically to customer needs due to the prevalent craft businesses. This has changed with the beginning of industrial mass production, where quantity became the predominant factor. Significant for this paradigm is that customers' needs have to be identified in an early stage and only little changes can be undertaken after the start of production. However, such kind of technology changes take place when there is a considerable potential for increasing performance detected, compared to a current technology. The thereby caused substitution of technologies leads to discontinuities and technology leaps (Vorbach 2011), what, in turn, creates opportunities for firms to relocate themselves within a market or – even more important – to enter new markets in order to enable new growth.

Historically speaking, there had already been a lot of such changes in technologies. It had always been the same that each predominant technology was decisive for product variety and product volume per variant (Koren 2010), which was available to customers. Nevertheless, relevant technologies for the future tend to aim once again more to the specific customer needs; Figure 1-1 is visualizing that with a timeline of momentary paradigms for manufacturing. In this context it is important to mention that parallel to production industry, services arise as a crucial part of offerings to customers in order to meet the customers' needs as close as possible. Hence, this, which is also an expression of increasing competition, allows differentiating offerings given to customers in products and services.

Several reasons have led to a complete shift in production and service industry at the end of the last century. The starting point marked primarily the globalization together with emerging technologies, but more essential was the changing role of consumers, who are nowadays, due to the Internet, absolutely aware of the products or services that they want to consume.

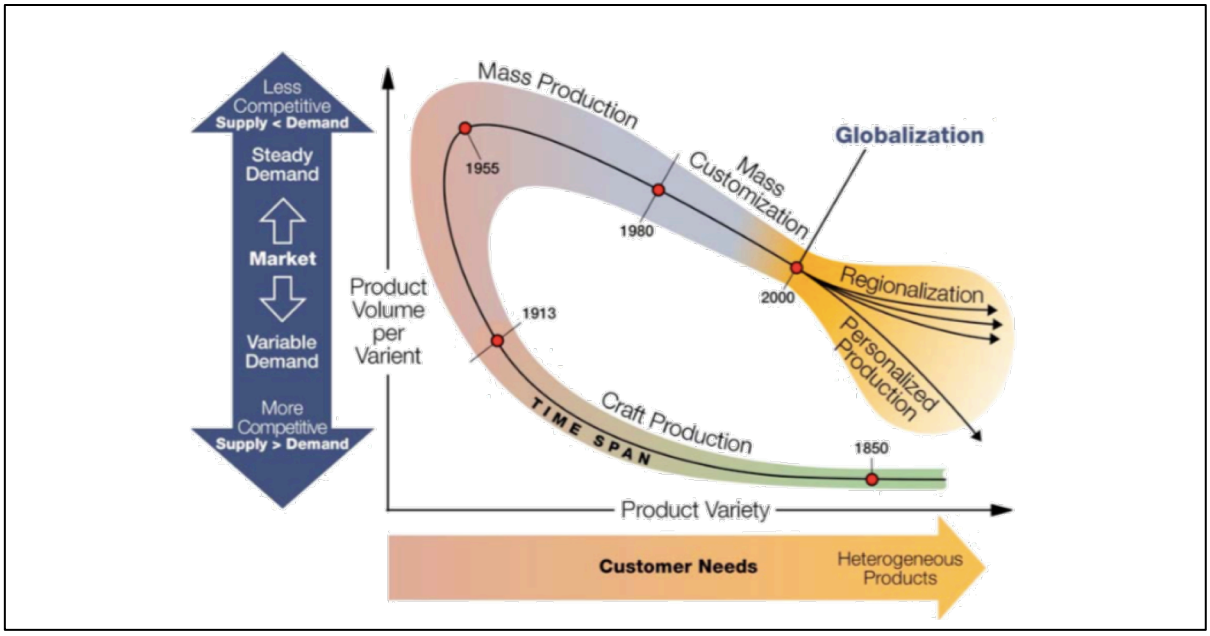
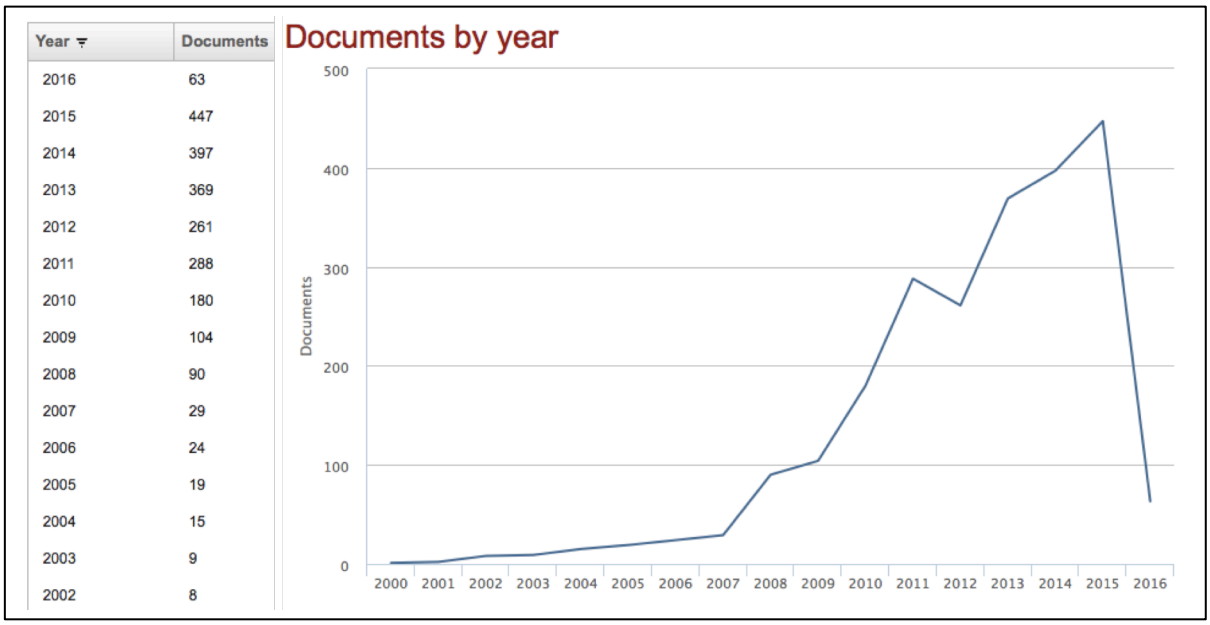


FIGURE 1-1 The driver of paradigms are market and society needs (Koren 2010)

To meet and exceed the consumers' expectations, firms have to adapt to this new approach in order to stay competitive. Another factor that should not easily be forgotten is the most severe and still ongoing crisis since the Great Depression starting in the late 1920s. All those and more factors shaped the consumers' minds in a sustainable way. Hence, consumers will not easily accept anymore what firms would offer to them. "Product variety has not necessarily resulted in better consumer experiences" (Prahalad & Ramaswamy 2004c, p.1), but it is exactly the ***consumer experience*** that determines what is essential for competition in the future. Therefore, firms have to put their consumers regardless in the center of their activities.

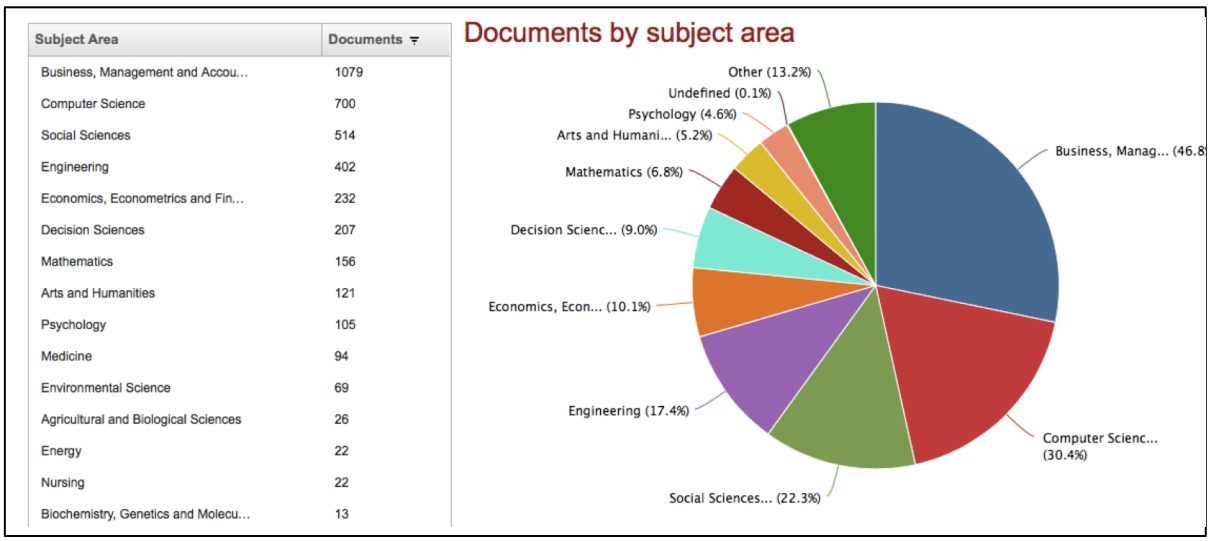
This changed mindset of consumers thinking can be summarized in the paradigm of "Co-creation", which was coined by Prahalad & Ramaswamy in 2004. Since then scholars from all over the world picked up co-creation for purposes of continuing research. Further contribution to the dissemination of the co-creation paradigm was also achieved by Vargo & Lusch with their publications to the "Service-Dominant Logic in Marketing" (Vargo & Lusch 2004; Lusch & Vargo 2006), which also additionally represents the foundation of the co-creation paradigm. The number of articles referring to co-creation is still growing and reached the peak in 2015 with 447 documents that can be found in the well-known abstracts and citations database *Scopus* (Scopus 2016) – see Figure 1-2. However, co-creation is a paradigm that is relevant to a variety of disciplines. Hence, co-creation can be found in topics about

Business, Management, and Accounting, Computer Science, Social Sciences, Economics, Engineering, Mathematics, etc. Figure 1-3 underlines this and gives thereto a detailed overview.



Year	Documents
2016	63
2015	447
2014	397
2013	369
2012	261
2011	288
2010	180
2009	104
2008	90
2007	29
2006	24
2005	19
2004	15
2003	9
2002	8

FIGURE 1-2 Evolution of documents concerning co-creation (Scopus 2016)



Subject Area	Documents
Business, Management and Accou…	1079
Computer Science	700
Social Sciences	514
Engineering	402
Economics, Econometrics and Fin…	232
Decision Sciences	207
Mathematics	156
Arts and Humanities	121
Psychology	105
Medicine	94
Environmental Science	69
Agricultural and Biological Sciences	26
Energy	22
Nursing	22
Biochemistry, Genetics and Molecu…	13

FIGURE 1-3 Disciplines concerning co-creation (Scopus 2016)

1.2 Motivation

A lot of effort was made by scholars to investigate and research around the topic of co-creation. But nevertheless, extent literature review on the co-creation topic showed that there is still big uncertainty in structuring co-creation processes as well as a lack of frameworks, wherewith one could apply co-creation in a proper manner. Facing this situation, it is the declared aim of this thesis to diminish the identified gap in research. Questions, which could be posed regarding this matter, might be:

"What is the relation between theory and practice regarding the co-creation paradigm?"

"Do firms know about the co-creation paradigm and its benefits?"

"How can firms appropriately apply co-creation within development processes by facing a competitive environment?"

"What are issues firms have to approach for implementing co-creation successfully?"

A number of objectives were set in order to elaborate a tangible solution. Each objective represents one of the chapters. Hence, the following chapters comprise the steps to achieve the aim of this thesis. Firstly, chapter 2 gives an understanding of the new paradigm as well as the philosophy of co-creation and defines it. Chapter 3 mentions existing concepts of co-creation. Subsequently, chapter 4 highlights the fields of applications of co-creation through the presentation of various cases: Co-creation is born and it is growing. In chapter 5, selected experts assess the relevance of the co-creation paradigm and its appearance in practice. Moreover, chapter 6 emphasizes on the development of an own conceptual framework, which can help firms and individuals to initiate a co-creation process. Chapter 7 rounds out the journey in the world of co-creation by facing (current) limitations of an auspicious emerging paradigm for successful future competition. Finally, chapter 8 summarizes the co-creation paradigm and gives an outlook to the reader, whereto the journey of co-creation is heading.

2 Defining Co-Creation

2.1 Distinction of Terms Related to Co-Creation

In order to define and in order to understand the “co-creation” paradigm and its influence within innovation processes or development processes, it is necessary to define some related paradigms, concepts, and terms beforehand that have a crucial impact for understanding co-creation processes.

2.1.1 Definition of Customer and Consumer

In this section, 4 fundamental questions should be answered**.** First of all, ***why do we want to know who a customer is?*** Secondly, *who is the customer?* Next, *what does the customer want or require?* At last, *what is the relation between the customer and the consumer?*

Since the beginning of globalization, competition throughout the whole world had dramatically increased and was brought to a whole new level. The key of survival for organizations in this demanding environment is placing their customers in the center of their belongings and activities.

Over the past decades, a lot of different approaches emerged that defined and described who one’s customers may be. As different as those approaches were, as versatile their fields of use also were. But clearly, the trend for firms is to consider everyone as a customer who is interacting with them in a direct manner.

For further topics it is most useful to distinguish between an internal and an external customer. Thus, it will be important to know where to locate and how to locate the right customer in the right time of a creation process.

An **internal customer** can either be a customer, a process or an employee or also someone who is intensely connected to the organization, like a stakeholder. Although these internal customers often don’t have a direct influence to strategy or operational control, they do have an important influence on a business success. In contradiction thereto is the **external customer,** who is not directly connected to the organization’s processes in any way. External customers can be divided into groups of two: *not-customers* and *non-customers*. Not-customers

receive the product or service from a competitor whereas the non-customers receive a differing product or service, but it satisfies the same specific need. The classical and likeliest recognizable external customer is the consumer of the product or service. (Tennant 2001)

In many cases the terms “customer” and “consumer” are interchangeable, but in some certain cases it is important to differentiate between those two. While the consumer *uses* products, the customer buys them. Hence, consumers may be customers, and customers may be consumers, but this is not necessarily the case. (Joseph n.d.)

Furthermore, the terms “firm” and “company” are also (in this thesis) interchangeable.

Hence, it is important to know for firms to figure out who the customers and the consumers are. Only due to that information, it is possible to learn about customers’ as well as consumers’ needs, and thus to facilitate the appropriate amount of customer participation in the co-creation process.

2.1.2 Goods-Dominant Logic and Service-Dominant Logic

The co-creation paradigm was not created from scratch. On the contrary, the co-creation paradigm arises throughout an evolution in marketing sciences. As the pivotal role is dedicated to the two scholars Stephan Vargo and Robert Lusch, who published “Evolving to a New Dominant Logic for Marketing” in 2004 in the *Journal of Marketing*. Since then they started a still ongoing academic discourse, in which the foundations of marketing were explicitly reshaped. That article has been quoted over 8,100 times since 2004 and is also one of the most cited papers in marketing research (Google Scholar 2016).

In order to understand the significance of the Service-Dominant Logic, it is necessary and also crucial to mention a few parts about the historical evolution of research in marketing. On this spirit, before 1960, commodities were the center of a firm’s value creation. This traditional view on marketing, which is now called “Goods-Dominant logic” (short G-D logic), describes the matter of products and their connection to marketing. According to the G-D logic, the value of products is created in firms and products are priced with their value-in-exchange. Marketing is considered as a mechanism that supports the transfer of the ownership of goods, and moreover their physical distribution (Savitt 1990). After the manufacture of products,

products are distributed to the market, where the exchange is executed through the exchange of other goods or money (Vargo et al. 2008).

One could say, marketing research used to focus traditionally on creation and exchange of physical goods and almost never on the creation or the delivery of services, like marketing literature research is distinctly showing. In case “services” are mentioned, they are seen as an aid that is given additionally to goods only. With beginning of the 1960s, Service Marketing started to expose and the debate related to “Goods vs. Services” was launched for the very first time. (Fisk et al. 1993; Vargo & Lusch 2004)

That debate resulted in a new logic in marketing and in a radical shift from the goods-centered view to a service-centered view, which entitles in contradiction to the goods-centered view a higher priority to customer needs. Table 2-1 presents the postulations of each view. As one can see in later sections, a remarkable difference to co-creation is that the S-D logic sees customers as those who are in charge of the value creation process. Only if the firm adopts provider service logic and establishes interactions between the supplier and the customer, then value is co-created – what can be considered more exceptional than being the case. (Saarijärvi & Kannan 2013)

Anyways, consumer-centricity is standing in opposition to firm-centricity. Putting the customer in center of a firm’s activity means to approach one firm to deliver a unique experience to the customer. Furthermore, there is also an interchangeability of the terms “product” and “service” in most of the cases. In general, products and services can be combined to “offerings”, but in many cases services are also meant when speaking about products.

GOODS-CENTERED VIEW
1. The **purpose of economic activity** is to make and **distribute things that can be sold**. 2. To be sold, these **things** must be embedded with **utility** and **value during** the **production** and distribution processes and must offer to the consumer superior value in relation to competitors' offerings. 3. The firm should set all decision variables at a level that enables it to **maximize the profit from the sale of output**. 4. For both maximum production control and efficiency, the **good should be standardized** and produced away from the market. 5. The good can then be **inventoried** until it is demanded and then delivered to the consumer at a profit.
SERVICE-CENTERED VIEW
1. Identify or develop **core competences**, the fundamental knowledge and skills of an economic entity that represent **potential competitive advantage**. 2. Identify other **entities** (potential customers) that **could benefit** from these competences. 3. **Cultivate relationships** that **involve** the **customers** in developing customized, competitively compelling value propositions to **meet specific needs**. 4. Gauge marketplace feedback by analyzing financial performance from exchange to **learn how** to **improve** the firm's **offering** to customers and improve firm performance.

TABLE 2-1: Proposes on goods-centered and service-centered view (Vargo & Lusch 2004)

PREMISE NUMBER	FOUNDATIONAL PREMISE
FP1	Service is the fundamental basis of exchange.
FP2	Indirect exchange masks the fundamental basis of exchange.
FP3	Goods are a distribution mechanism for service provision.
FP4	Operant resources are the fundamental source of competitive advantage.
FP5	All economies are service economies.
FP6	The customer is always a co-creator of value.
FP7	The enterprise can not deliver value, but only offer value propositions.
FP8	A service-centered view is inherently customer oriented and relational.
FP9	All social and economic actors are resource integrators.
FP10	Value is always uniquely and phenomenologically determined by the beneficiary.

TABLE 2-2 Foundational premises of S-D logic (Vargo et al. 2008)

FP6 is protruding for this thesis and is the pronounced connection between S-D logic and co-creation. It sets the customer always as the co-creator of value. FP6 is also that premise, which Prahalad & Ramaswamy picked up in order to make it to the center of the co-creation theory (Prahalad & Ramaswamy 2004b).

In conclusion, the main statement of the S-D logic is that creating a product in the firm itself does not create value, but value is (and should be) always co-created with the customer instead. Alluding to the significant difference between the Value-in-exchange and the Value-in-use, there is no value created until an offering is used – experience and perception are essential to value determination, referring to Vargo & Lusch (2006). Firms create services to their customers by using their own knowledge. Thus, their finished products are only vehicles that deliver those services to customers. In the end, the customers compensate the firm for the undertaken efforts with services in form of resources, which is of course mostly money that the firm can use for its own value-creating activities again (Vargo et al. 2008).

Table 2-3 is presented for gaining a good overview and more pivotal to summarize the differences between G-D and S-D logic.

PRINCIPLE	G-D LOGIC	S-D LOGIC
Value driver	Value-in-exchange	Value-in-use or value in context
Creator of value	Firm, often with input from firms in a supply chain	Firm, network partners, and customers
Process of value creation	Firms embed value in ‘‘goods’’ or ‘‘services’’, value is ‘added’ by enhancing or increasing attributes	Firms propose value through market offerings, customers continue value-creation process through use
Purpose of value	Increase wealth for the firm	Increase adaptability, survivability, and system wellbeing through service (applied knowledge and skills) of others
Measurement of value	The amount of nominal value, price received in exchange Primarily	The adaptability and survivability of the beneficiary system
Resources used	Primarily operand resources	Primarily operant resources, sometimes transferred by embedding them in operand resources-goods
Role of firm	Produce and distribute value	Propose and co-create value, provide service
Role of goods	Units of output, operand resources that are embedded with value	Vehicle for operant resources, enables access to benefits of firm competences
Role of customers	To ‘use up’ or ‘destroy’ value created by the fir	Co-create value through the integration of firm- provided resources with other private and public resources

TABLE 2-3 G-D logic vs. S-D logic on value creation (Vargo et al. 2008)

The following example should finish the comparison between the traditional G-D logic and the contemporary S-D logic:

A firm, which is specialized in sporting vehicles, fabricates a mountain bike including high-end technology. Such sophisticated sporting devices use carbon frames, disc breaks, advanced bearings, electronics etc. from latest generations. These high-end bicycles can be up to more than EUR 10,000 (Loibl 2014).

According to S-D logic, the firm creates service for the customer with manufacturing a mountain bike (with using its knowledge, skills, etc.) in order to allow the customer to do extreme sports in mountains. In return, the customer then contributes to the firm with own resources (money). The exchange of services is therefore completed.

2.1.3 Innovation Processes

Innovation becomes more and more important to firms for competing successfully in the future. Main drivers for product innovation are technology advances, changing customer needs, shortening product life cycles, and of course increased global competition (Cooper 2001). Co-creation is an answer for keep being on track with competitors and even to overtake them. Moreover, not only literature studies point out that "co-creation" is a process with high involvement of customer participation in order to customize a product or service exactly to the customer-specific idiosyncratic needs. Hence, organizations collaborate intensively with customers for purposes of innovation (Chathoth et al. 2013; Kristensson et al. 2008). Therefore, innovation processes are of the highest relevance to co-creation processes.

An entire innovation process can be divided into 3 main phases (Koen et al. 2002). Figuratively, it represents a funnel where ideas go in and finished products come out – see Figure 2-1. According to Koen, those three main phases are:

1. Fuzzy front end (FFE),
2. New product development (NPD), and
3. Commercialization.

One of those phases within the innovation process may mark the beginning of the collaboration within the ***co-creation process*** between initiator and participants. In order to understand (later) in which phases the co-creation process (should) take place, it seems more convenient to describe the three stages of the innovation process.

Noteworthy is that the Fuzzy Front End and the New Product Development process do not have, in many cases, a clear sharp border that is separating them. This is due to technology development activities, which are pursued at the intersection.

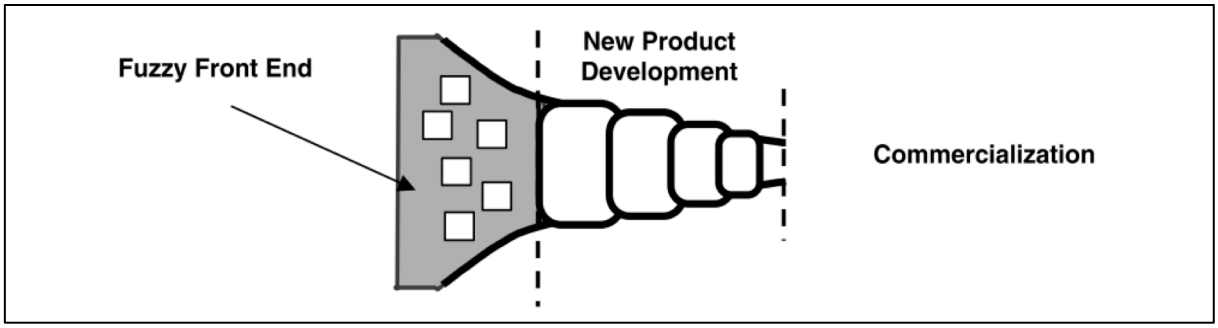


FIGURE 2-1 The 3 Parts of an Innovation Process (Koen et al. 2002)

2.1.3.1 Fuzzy Front End

The Fuzzy Front End (FEE) represents the first of the 3 parts in the innovation process. It is described as an iterative and complex process, which is not dividable into a sequential process model, as for example the NPD process could be. Methods, tools and techniques, which are used during the FFE, are most likely determined from best practices. Because the FFE has no clear structure, its process is usually visualized as a continuous back and forth during the opportunity identification and idea creation process. Figure 2-2 exposes this spiral behavior.

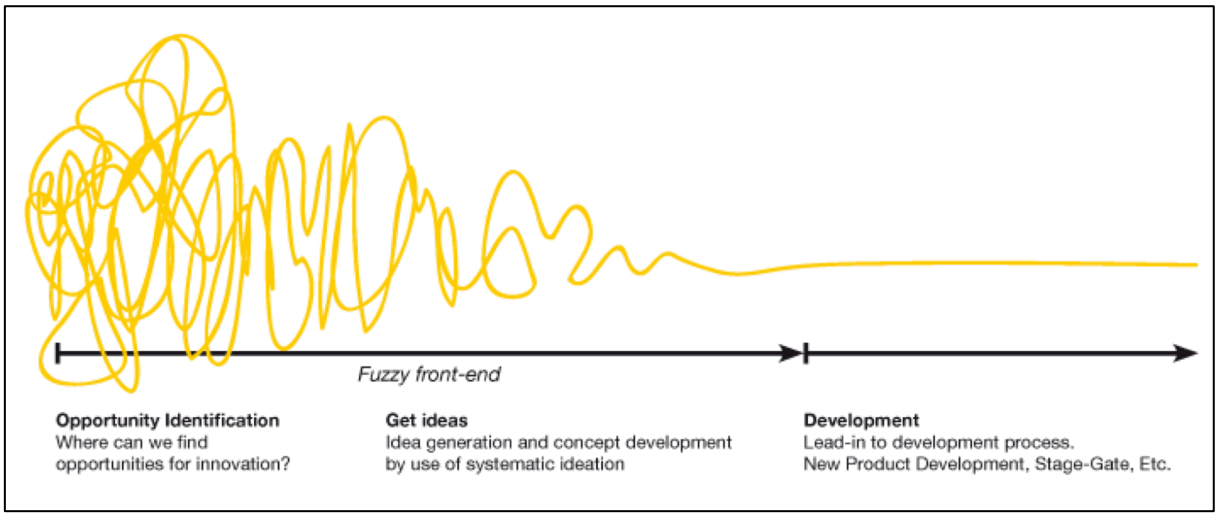


FIGURE 2-2 Visualization of a typical Fuzzy Front End (SPUTNiK5 2015)

Koen et al. (2002) define “opportunity” as a business or technology gap, which captures a competitive advantage. An “idea” represents the most embryonic form of a new product or service, which could lead to solve the problem that is the basis of the opportunity. Thus, a

"concept" contains already a well-defined form in order to make customers understand what the benefits are and the technology that is needed.

2.1.3.2 New Product Development

The "New Product Development" (NPD) process is a categorization scheme that approaches managing product development processes in a specific way, originally published by the consultancy firm Booz, Allen & Hamilton, which became now standard in new product development (Crawford & Di Benedetto 2011). Therefore, the 7 stages are: New Product Strategy Development, Idea Generation, Screening & Evaluation, Business Analysis, Development, Testing and Commercialization (Booz, Allen & Hamilton 1982). Thus, Booz, Allen & Hamilton (1982) figured out that companies that launched new products more successfully, were usually following these stages in their product development process.

Robert G. Cooper undertook further development of this approach. Well known is the "Stage-Gate™ Process for Innovation" in this context (Cooper 2006). According to independent research studies, between 70-85% of the leading U.S. use the Stage-Gate process to drive new products to the market (Product Development Institute Inc. 2016). It is a model that exists in many versatile variations due to different fields of applications and its continuous development. Its core elements are always stages and gates, which are sequentially structured. It is recommended to start a stage (new set of activities) only when the previous gate (which marks a decision point) was completed. Rating techniques show the applicant how necessary tasks were finished.

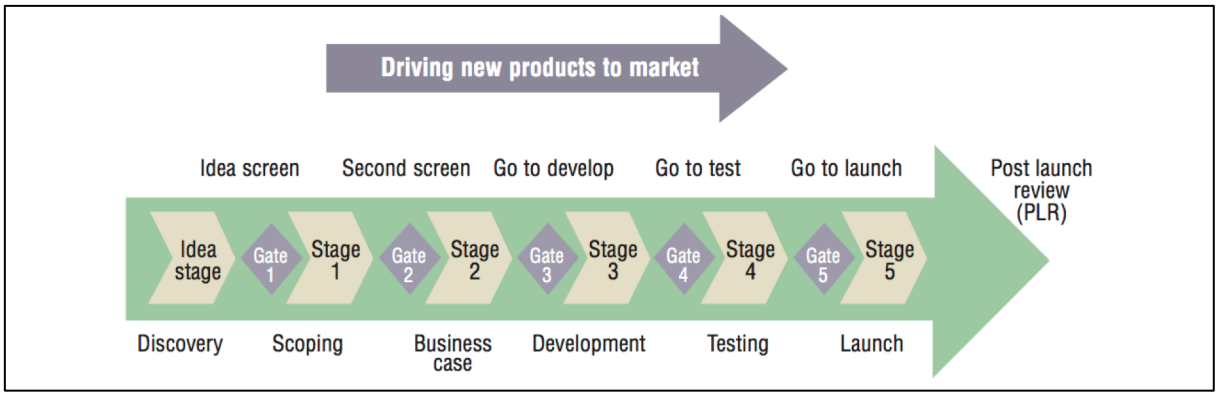


FIGURE 2-3 A five-stage, five-gate framework for significant new products projects (Cooper 2006)

Figure 2-3 reveals a typical Stage-Gate process. This specific one is called the "NexGen Stage-Gate", also developed by Robert G. Cooper (Cooper 2006). Table 2–4 gives a brief explanation of each individual stage.

Together with the FFE, the NPD process is very relevant to co-creation processes because it is important for successfully generating a new product and it also eases ways to describe, where collaborations can take place. The "Co-Creation Check" – which is introduced in section 4.2 – is going to refer to these different phases in the FFE and NPD.

Although topics of "innovation" and "innovation processes" are extremely relevant to co-creation processes, a further description of the NPD process will not be discussed in this thesis because it will not really distribute a better way of understanding of this thesis' context.

EXPLANATION OF THE STAGES WITHIN THE STAGE-GATE™ PROCESS	
Stage 0: **Discovery**	Activities designed to discover opportunities and to generate new product ideas. (Compare to chapter 2.1.3.1)
Stage 1: **Scoping**	A quick and inexpensive assessment of the technical merits of the project and its market prospects.
Stage 2: **Build Business Case**	This is the critical homework stage - the one that makes or breaks the project. Technical, marketing and business feasibility are accessed resulting in a business case which has three main components: product and project definition; project justification; and project plan.
Stage 3: **Development**	Plans are translated into concrete deliverables. The actual design and development of the new product occurs, the manufacturing or operations plan is mapped out, the marketing launch and operating plans are developed, and the test plans for the next stage are defined.
Stage 4: **Testing & Validation**	The purpose of this stage is to provide validation of the entire project: the product itself, the production/manufacturing process, customer acceptance, and the economics of the project.
Stage 5: **Launch**	Full commercialization of the product - the beginning of full production and commercial launch.

TABLE 2-4 Explanation of the stages within the Stage-Gate™ Process (Product Development Institute Inc. 2016)

2.1.3.3 Commercialization

Commercialization marks the third and last point of the innovation process. It starts with the launch of the product in order to bring it to the market (Koen et al. 2002; Cooper 2006). Thus, full production is undertaken and no further changes can be made. Hence, this part in the innovation process is not relevant for the topic of this thesis. Therefore, it will not be further discussed.

To sum up, Figure 2-4 shows different perspectives for generating new products, once it comes to co-creation process. This figure will give the reader of this thesis a good impression, where the co-creation process could take place, where benefits and risks are located, and that limitations are unpreventable. This education of the reader is from high relevance for understanding the capabilities of the co-creation paradigm.

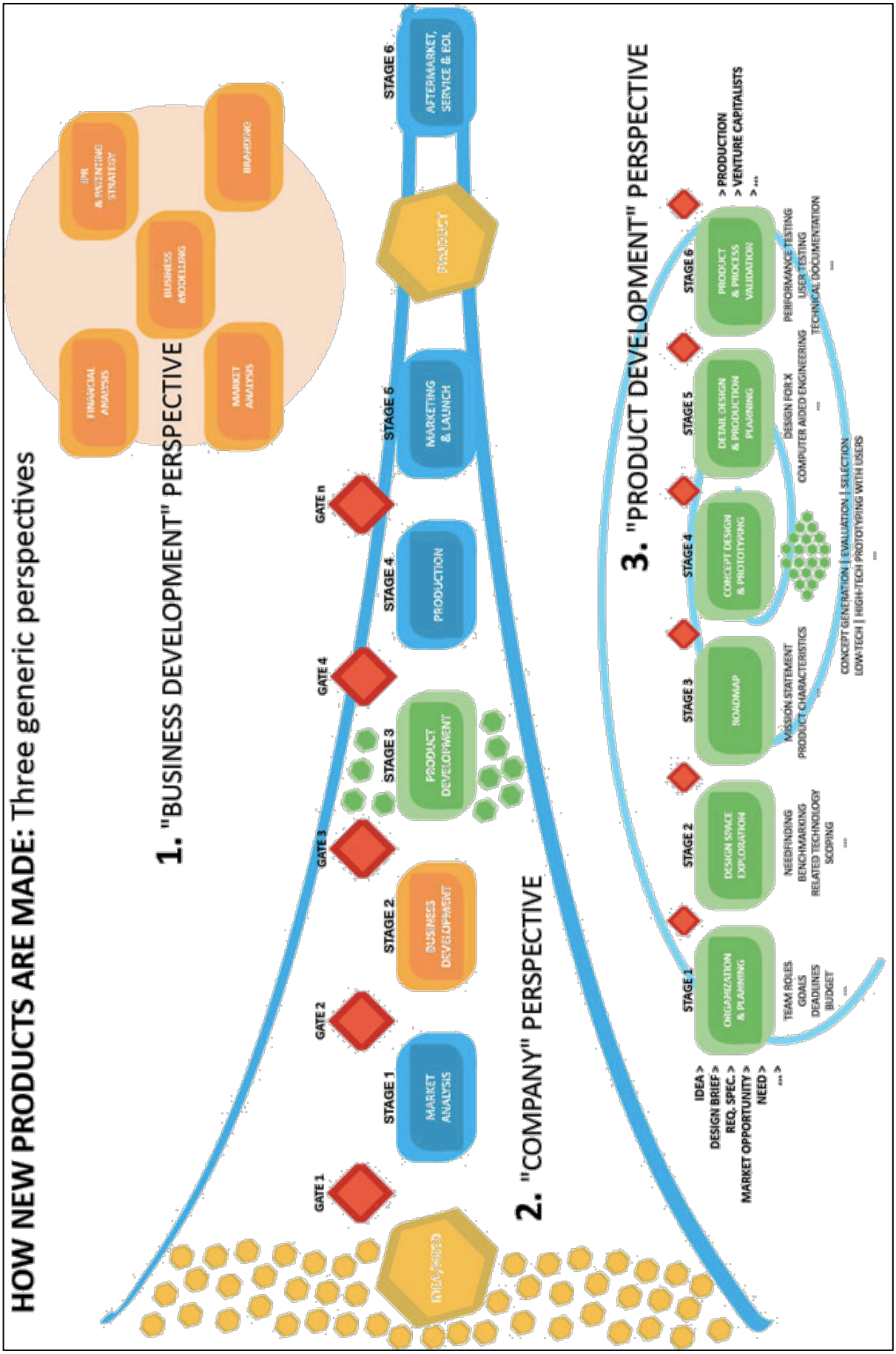


FIGURE 2-4 How New Products Are Made (Larsson 2011)

2.2 Definitions of Co-Creation

As already mentioned in the introduction of this thesis, Prahalad & Ramaswamy introduced the co-creation paradigm in 2004 to other scholars and to the public by publishing their book "The Future of Competition: Co-Creating Unique Value with Customers". Afterwards, many other scholars picked the term "co-creation" up and did their own research in this field. Table 2–5 lists different definitions and understandings of co-creation from various scholars.

AUTHOR (YEAR)	DEFINITION
Prahalad & Ramaswamy (2004a)	Co-Creation are high-quality interactions that enable an individual customer to co-create unique experiences with the company are the key to unlocking new sources of competitive advantage. Value will have to be jointly created by both the firm and the consumer. *Key phrases: high-quality interactions, unique experiences, joint value creation*
Sawhney *et al.* (2005)	Co-Creation is a customer centric perspective that enrolls the customer to be a partner in the innovation process. It's facilitates a continuously on-going dialogue with the customer which focus lies on the social and experimental knowledge of customers, while having a direct as well as mediated interactions with prospects and potential customers. *Key phrases: customer centric perspective, partner in innovation process, continuously on-going dialogue*
Roser *et al.* (2009)	Co-creation is an active, creative and social process based on collaboration between producers and users, that is initiated by the firm to generate value for customers. *Key phrases: active process, collaboration between producers and users, initiated by the firm, generate value for customer*
Pater (2009)	Co-creation is the practice of collaborative product or service development: developers and stake-holders working together. Co-creation is a form of Open Innovation: ideas are shared, rather than keep it to oneself, it is closely connected to 'user-generated content' and 'mass customization'. *Key phrases: collaborative, shared ideas, Open Innovation, Mass Customization*

Ramaswamy & Gouillart (2010a)	Co-Creation creates value by constantly enhancing experiences for all stakeholders. Co-creation uses the initial strategic goal as a starting point and lets the full strategy emerge over time. Co-creation focuses on the interests of all stakeholders and how the ecosystem can maximize the size of the pie; maximizing the share of value captured by the firm is secondary. Co-Creation achieves advantage through the increased engagement of stakeholders and by continually building new interactions and experiences, which lead to higher productivity, higher creativity, and lower costs and risks. *Key phrases: enhancing experiences, maximize the size of the pie, firm is second, continually building new interactions*
Stern (2011)	Co-creation involves working on new product and service ideas together with the customers who are going (you hope) to buy them. It turns "market research" into a far more dynamic and creative process. *Key phrases: together with the customer, dynamic and creative process*
Piller *et al.* (2011) and Piller (2014)	Customer co-creation, in short, is open innovation with customers. It is a product (or service) development approach where users and customers are actively involved and take part in the design of a new offering. Customer co-creation denotes an active, creative and social collaboration process between producers (retailers) and customers (users), facilitated by the company. Customers become active participants in an open innovation process of a firm and take part in the development of new products or services. *Key phrases: open innovation, customer actively involved, collaboration process between producers and customers, facilitated by the company*
Benson (2013)	Co-creation means involving a community outside the company in the ideation phase of the new product or service development. With co-creation, the participants – which may include customers, suppliers or the general population – are made aware that they are contributing towards the development of ideas and concepts. Through a series of steps, people are invited to contribute, evaluate, and refine ideas and concepts. *Key phrases: community involvement, idea contribution, open company to the outside*
Ostermann *et al.* (2013)	Co-creation is ultimately about increasing value through innovative dialogue and partnerships. Co-creation can make a significant impact on

	relationships across the entire value chain. *Key phrases: increasing value, innovative dialogue and partnerships, impact on relationships*
Martini *et al.* (2014)	'Customer co-creation' defines an approach to innovation via which customers take an active part in designing new offerings. *Key phrases: innovation, active part*
Ramaswamy & Ozcan (2014)	Co-creation is joint creation and evolution of value with the stakeholding individuals, intensified and enacted through platforms of engagements, virtualized and emergent from ecosystems of capabilities, and actualized and embodied in domains of experiences, expanding wealth-welfare-wellbeing. *Key phrases: joint creation, platforms of engagement, experiences, expanding wealth-welfare-wellbeing*

TABLE 2-5 Definitions of Co-Creation

As seen from the definitions in Table 2-5, the co-creation paradigm is very wide-ranged and scholars have different points of view because it refers to where co-creation is used and if it is described either in theory or as a conceptual framework with a toolkit character.

Analyzing these definitions in five certain points concludes similarities. Therefore, co-creation

- allows an active exchange with the customer,
- opens a new basis for innovation,
- is a process that is initiated by the firm,
- facilitates a win-win situation for both the customer and the firm, and
- establishes a stronger and sustainable relationship between the customer and the firm.

Dependently on the scope of co-creation, the degrees of customer participation, innovation and shaping a relationship between customer and firm may consequently vary. It is especially interesting to see that actually only publications where Prahalad or Ramaswarmy (or both) were co-authoring are paying attention to the consumer experience (that is resulting in co-creation experience) on a high level.

Co-creation targets – and this is actually also the core if this logic – are to create an environment in which a unique personalized experience for the individual customer can be

created (Prahalad & Ramaswamy 2004a). A precise explanation to this will be given in following sections, also by distributing examples. Now it is more crucial to understand what co-creation is ***not***, in order to be capable to determine its approach completely. That will be done by both, describing concepts that aim in the same direction, and with a simple confrontation.

2.2.1 Distinction to Similar Paradigms

Engaging in co-creation means also researching the connected paradigms. Therefore, Figure 2–5 presents a two-dimensional matrix with paradigms that have an impact on co-creation. On the one axis (x-axis) we can see the degree of how much a product is personalized to the customer. On the other axis (y-axis) it is shown if the creation process is either led by customer or by the firm.

Due to two dimensions, similar concepts are listed like they are related to co-creation. Those are: Mass Production, Mass Collaboration, User Generated Content, Co-Production, Personalization and Mass Customization. Of course, there are additional ones as well, but those are the approaches, which are more closely connected and also “surround” co-creation in a well presentable and describable way.

The paradigms, which are mentioned in Figure 2-5, and also some additional paradigms are described in the following sections.

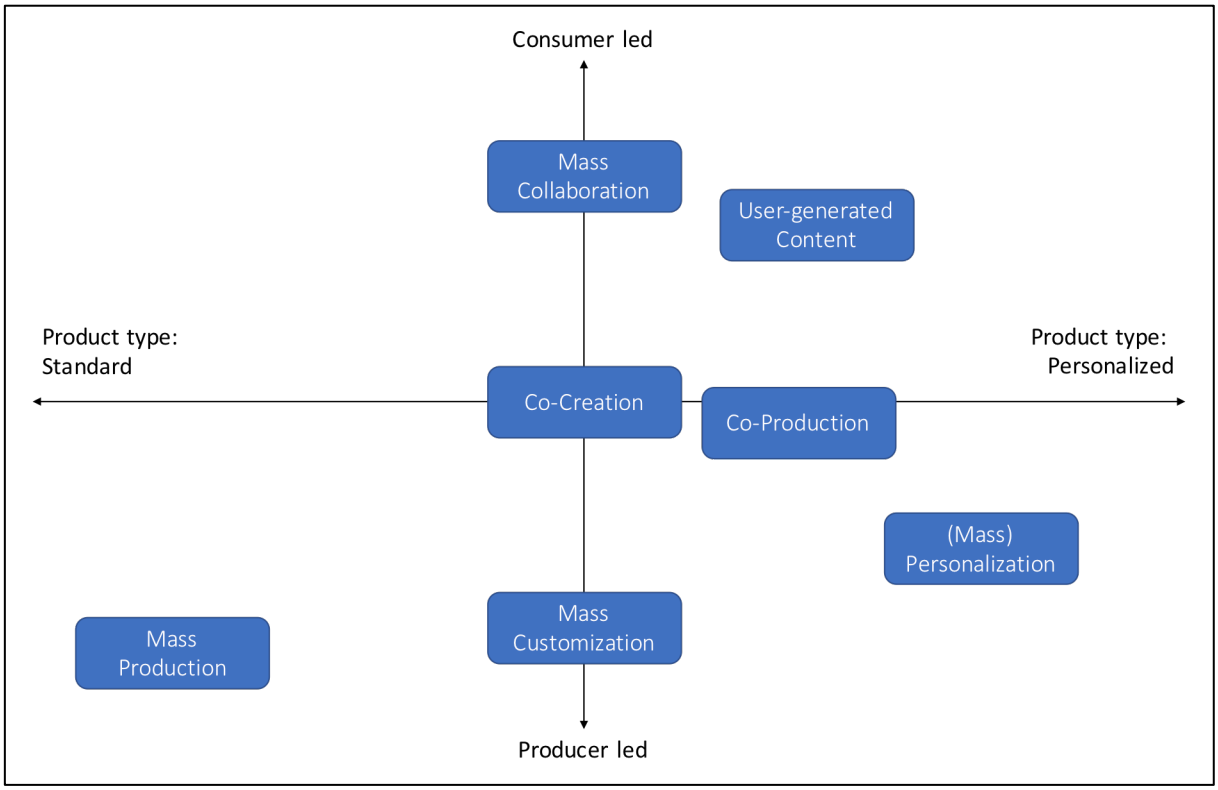


FIGURE 2-5 Co-Creation Matrix (Roser et al. 2009)

2.2.1.1 Mass Production

Mass production is a strategy in production, where customer's interaction during the creation process is not considered. Production is traditionally held in a bureaucratic and hierarchical manner. Workers repeat narrowly defined under close supervision tasks repetitiously. The results of their work are low-costs, standard goods and services. (Pine II & Victor 1993)

Mass production became popular because of the production of the Ford Model T by Ford Motor Company in the late 1910s and 1920s (Hounshell 1984).

Mass production is not a similar concept to co-creation, but it is s mentioned due to better understanding and visualization of other (related) concepts.

2.2.1.2 Mass Customization

Stan Davis coined the term “mass customization” in his book “Future Perfect” in 1987. It is an oxymoron of *mass production* and *customization*. Mass customization turned out to become a new business model, which was originally used by start-ups that wanted to enter a mature market (Piller 2004). Although in general, the goal of mass customization is not to reach a niche or differentiated market, but the mass market, which is of course way more difficult. However, mass customization needs flexibility and quick responsiveness. In an ever-changing environment, people and processes have to always be reconfigured to give the customers exactly what they want (Pine II & Victor 1993). The challenge hereby is to handle costs in such a manner, that competition is still reachable. With fulfilling this task, companies can benefit by gaining a special status in the market, such as an innovation leader.

A common way to achieve mass customization is modularization of capabilities. Therefore, it doesn’t matter if it is a physical product, an intangible service, or a memorable experience (Pine II 2011). But a clear difference between mass customization and co-creation marks the degree of customer involvement (Kristensson et al. 2008). Every kind of configurator can serve as an example of this concept. Hereto, consider car configurators, computer and hardware configurators, shoe configurator (e.g. NIKEiD), et cetera.

NIKEiD is an online configurator provided by NIKE, Inc. that allows customers to customize products by themselves. Afterwards, the customized product will be distributed to the individual customer directly. (NIKE Inc. 2013)

By offering these opportunities to customers, companies can also benefit by getting closer to the customer and gathering more accurate customer-related data in a more direct and faster way than market studies would deliver. Moreover, customer retention is also increasing by offering customized products. Anyways, attention should be paid to a proper balance between the amount and possible choices given to the customer. Customers might struggle because of an overwhelming number of different options.

2.2.1.3 (Mass) Personalization

Personalization (sometimes also called “tailor-made”) is a paradigm that is more or less followed by mass customization (Koren 2010). Together with mass customization, personalization has currently become the leading idea in the last decade in reaching the

customer's needs at the highest level (Piller et al. 2011). In mass customization, the customer has the ability of choosing out of different variants to create his demanded product or service. (Mass) Personalization goes definitely beyond that. Modularity is extended by wider range of selection. Consequently, the integration of the customer in the creation and design process is higher than in mass customization and also than in mass production of course – therefore see Figure 2-6. Integration of customers is provided in earlier stages, compared to mass production and mass customization. So is the "Make" phase as well as the "Personalized design" phase implemented after contacting customers.

IKEA's kitchen planner application may serve hereto as an example. The customers are able to design an individual kitchen on the computer in 3D, either online or in IKEA stores (IKEA 2014). IKEA modularized the design of kitchens so far in a manner that customers can get an individual product which feels to them as it would be unique, due to the implementation of individual desires.

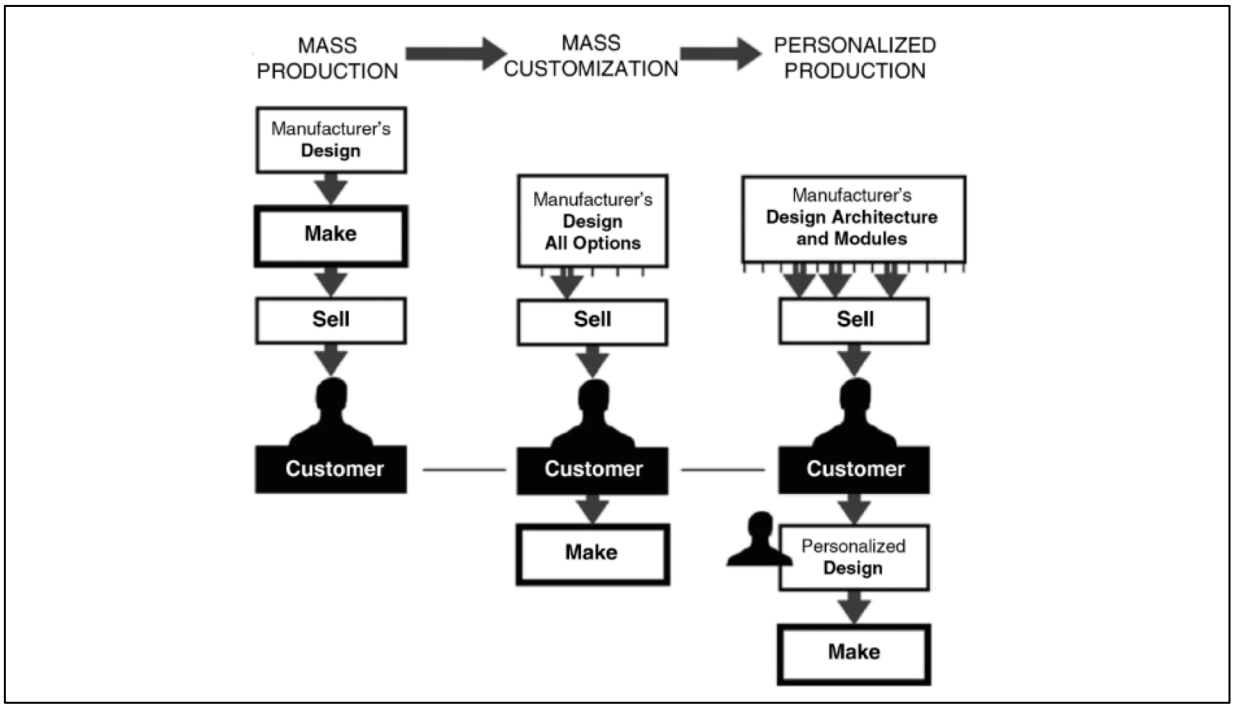


FIGURE 2-6 Customer's role in the paradigms (Koren 2010)

2.2.1.4 Lead User Method

Suitable solutions to real-world problems can only be provided when the solver is accurately aware of the real-world problems. So, marketing research is bound to user experience whenever it wants to conquer real-world problems. Therefore, it became essential to find the so-called lead users in order to implement their experience in marketing research process. Eric von Hippel established in "Lead users: An Important Source of Novel Product Concepts" (1986) the term “lead user”. He described the “lead user” in the following way:

Lead users represent a group of people that show either one or both of the following characteristics, which are

1. identifying needs month or years earlier than the majority of people, or
2. benefiting significantly by obtaining a solution to those needs.

For utilizing lead users in marketing research, Eric von Hippel (1986) suggests a four-step process, which is given in Table 2-6.

UTILIZATION OF LEAD USERS IN MARKETING RESEARCH
1. Identify an important market or technological trend
2. Identify lead users who lead a trend in terms of
a. experience
b. intensity of need
3. Analyze lead user need data
4. Project lead user data onto general market of interest

TABLE 2-6 Lead User Method: A four-step process (von Hippel 1986)

A distinction to co-creation is integrating the collaborator in an early stage, where the normal consumer is not aware of needs yet. This requires a specific kind of customers, who go ahead of the early adopters. Furthermore, the lead user method is not addressed to enhance consumer collaboration, although a new product is co-created, but it is not co-created with the consumer.

2.2.1.5 Co-Production

Co-production was first conceptualized by an academic team of Indiana University in the 1970s, which described a lack of recognition of service users in service delivery (Realpe & Wallace 2010). The central idea of co-production in this context is that people who use services are hidden resources, and not drains on the system. Thus, only services that use those resources can become efficient (Boyle & Harris 2009).

In contrast to its origin, the approach of co-production in this thesis understands co-production in the context of co-producing goods (and services). Moreover, the concept of co-production represents a subordinate concept to that of the co-creation of value (Lusch & Vargo 2006). Basically, co-production can be considered as engaging consumers in the production process in order to produce their own goods or services. Hence, co-production can be viewed as an expansion of choices facing consumers (Etgar 2008).

A recurring problem in co-production is that only a specific kind of consumers is capable to participate in the co-production process. So in order to implement the consumer in the production process successfully, the company has to have an expectation, that the consumer is a rational decision maker and highly acquainted with the production process (Etgar 2008). But finding consumers who bring sophisticated knowledge to the process are not the general case. Therefore, co-production of services is widely more common. According to Jacob & Rettinger (2011), the most possible form of co-production is “self-service”, where customers perform activities entirely by themselves by using own assets, or tools, facilities, and systems provided by the firm.

However, co-production represents a concept, which highly influenced the co-creation paradigm and it is also directly liked to customization – which is discussed in section 2.2.1.2.

Examples of co-production are:

- Self-service at gasoline stations
- Withdrawing money at Automated Teller Machines (ATMs)
- Automated hotel check-out
- Banking over the Internet

2.2.1.6 Open innovation

The term “open innovation” and its concept was presented by Henry Chesbrough in his book “Open Innovation: The New Imperative in for Creating and Profiting from Technology” (Chesbrough 2003a). The origins are founded by increased globalization and shorter product life cycles (PLC), which result in increasing competitive pressure consequently.

Anyways, Chesbrough describes an ongoing shift from the logic of closed innovation to the emerging open innovation logic.

Traditional: Closed Innovation Model

Research and Development (R&D) is considered in industrial corporations as an area that is not shared with the outside from company borders. Firms feel self-reliant for their R&D, which has mostly also been working out fine throughout almost the entire 20th century. Firms try to invest more in their R&D than their competitors do, as well as to hire only the best and brightest people. These investments usually disbursed and thanks to them new ideas, and products could be generated. A big part of the profits, generated in this manner, was again returned to R&D for starting this cycle again. The early demise of closed innovation started towards the ending of the 20th century, when high numbers and mobility of highly educated people eroded the underpinnings of this concept. Additionally, growing availability of private venture capital also supported the rise of start-ups that came up with substituting and innovative products and services. (Chesbrough 2003b)

Emerging: Open Innovation Model

Open innovation is defined as “combining internal and external ideas as well as internal and external paths to market to advance the development of new technologies” (Chesbrough 2003a, What is Open Innovation?). Thus, the objective is to access external information in order to reduce uncertainties in an innovation project (Piller et al. 2011). Hence, no organization has in general a monopoly on good ideas, and moreover, not all ideas are further developed within the boundaries of the firm itself. So open innovation goes beyond

conventional contractual arrangements of organizing collaborative value creation (Piller et al. 2011).

All in all, the open innovation model describes how to include many parties in the innovation process. It doesn't matter if it is done through customer integration or through advanced partnerships or even special alliances. However, the cooperation of external parties adds greater value to new developed products, services or technologies. Thus, the customer moves now also in the center of every innovation process.

A role model for open innovation and corporate social responsibility is Procter & Gamble, which tries to move its own innovations to the outside. Recently, the company instituted a policy stating that any idea that originates in its labs, will be offered to outside firms – even to direct competitors – if an internal business does not use the idea within three years time (Chesbrough 2003b).

Anyways, horizontal and vertical networks of companies, universities, suppliers, and competitors characterize the coordination of open innovation processes. Within that, companies are obliged to use external ideas as well as those from their own R&D departments, and both internal and external paths to the market in order to advance their technologies. (Piller et al. 2011)

Common techniques in open innovation processes are e.g. crowdsourcing, establishing user communities, cross-border work, and sharing of information (Bundesministerium für Wissenschaft Forschung und Wirtschaft 2015).

Open innovation paradigm is often mentioned as very close related to the co-creation paradigm because both paradigms show big similarities to each other, e.g. opening up the innovation process, moving the consumer in the center of the innovation process.

2.2.1.7 User-generated Content

Regular people create user-generated content by voluntarily contributing data, information, or media to a platform where others can access it. Platforms, which store and present this data, information, or media, do this mostly in an entertaining way and on the Web. But usually the platform itself cannot be significantly changed by contributors itself (Krumm et al.

2008). Starting shot for user-generated content came with the introduction of Web 2.0, as Tim O'Reilly mentioned in his publication "What is Web 2.0" in 2004. Moreover, Krumm et al. (2008) additionally identified four different categories of pervasive user-generated content and applications, which are:

1. **Data Gathering**

   Collected data is edited, annotated, and visualized and presented. OpenStreetMap is here an example. It is a free and open data road map that is based on volunteers who provide GPS data.

2. **Pattern Recognition**

   Answers to difficult questions can sometimes be given by finding an appropriate pattern. Digital Footprinting: Uncovering Tourists with user-generated content is accomplished by showing mobility patterns of tourists who visit a city by geotags of pictures they took. Analysis can show how tourists explore a city. Furthermore, differences between different nationalities can also be analyzed.

3. **Community Building**

   Community Building is enabled if a platform combines both categories data gathering and pattern recognition and additionally creates an environment where groups among locals and neighbors can be formed.

4. **Public Art**

   Artists willingly tend do incorporate user-generated content into their projects. It is a way they can let outsiders participate on their work or even become a part of their work.

User-generated content is a young idea with extremely high growth rates. The most influencing factor hereby is, without doubt, the integration of the use of the smartphone in everyday life. Further, famous examples are: social networks (e.g. Facebook), video platforms (e.g. YouTube), picture platforms (e.g. Flickr), podcasts (e.g. Podcast.com), and blogs.

2.2.1.8 Mass Collaboration

Mass Collaboration is a phenomenon that emerged with appearance of Internet technologies. Individuals work in groups in a decentralized manner, where they create products and services together. Thereby, large numbers of participants work individually without being organized in a traditional hierarchy. Moreover, authorities and control even harm the working environment and reduce the efficiency and effectiveness. However, a collaborator can contribute content without discussing it with other collaborators, direct social interaction moves in the background and is not important for the outcome anymore. (Ghazawneh 2008)

Furthermore, specialized web-based collaboration tools and Social-Software are used to support the mass collaboration process. The emergence of this new trend has also potential for economics and for guiding new business models. Both of concepts are termed and summarized in “Wikinomics”. (Taoscott & Williams 2007)

Examples of mass collaborations are:

- **Wikipedia.org**
  Over 26 million registered editors (and around 128.000 active editors) collaborate over the Web to create a free-to-use encyclopedia, that has currently over 37 million articles in more than 250 languages (Wikipedia 2015).

- **InnoCentive, Inc.**
  InnoCentive is a company that offers crowd-sourced and innovative solutions to existing and predefined problems. Therefore, over 365.000 “registered solvers” are coping with challenges from business, social, policy, scientific, and technical areas. Besides the challenge itself, a reward motivates to find a suitable solution. More than 65% of the problem solvers hold a PhD. However, InnoCentive mentions that it takes in average 3 days until problem solvers come up with a solution, which usually takes in companies in contradiction from half a year to up to two years. Moreover, InnoCentive claims that success rate of an innovation project lies by about 50%, which is remarkably higher than when companies do the innovation process by themselves (success rate of 30%). (InnoCentive 2015)

2.2.1.9 *Chronological Emerging of Mentioned Paradigms*

Summing up, the author of this thesis combined all described paradigms and presents them in Figure 2-7 in a chronological order. Additionally, second dimension is introduced to the timeline for showing the "relative uniqueness" of the selected paradigms. The relative uniqueness shows the uniqueness of products or services that can be reached, compared to the uniqueness that is reachable by using pre-existing paradigms. Thus, the results presented in Figure 2-7 should be considered as having a qualitative nature.

Co-creation, with its introduction to public in 2004, is not mentioned in this figure. Anyways, first application of co-creation started running not earlier than the late 2000s, but therefore for more see chapter 4.

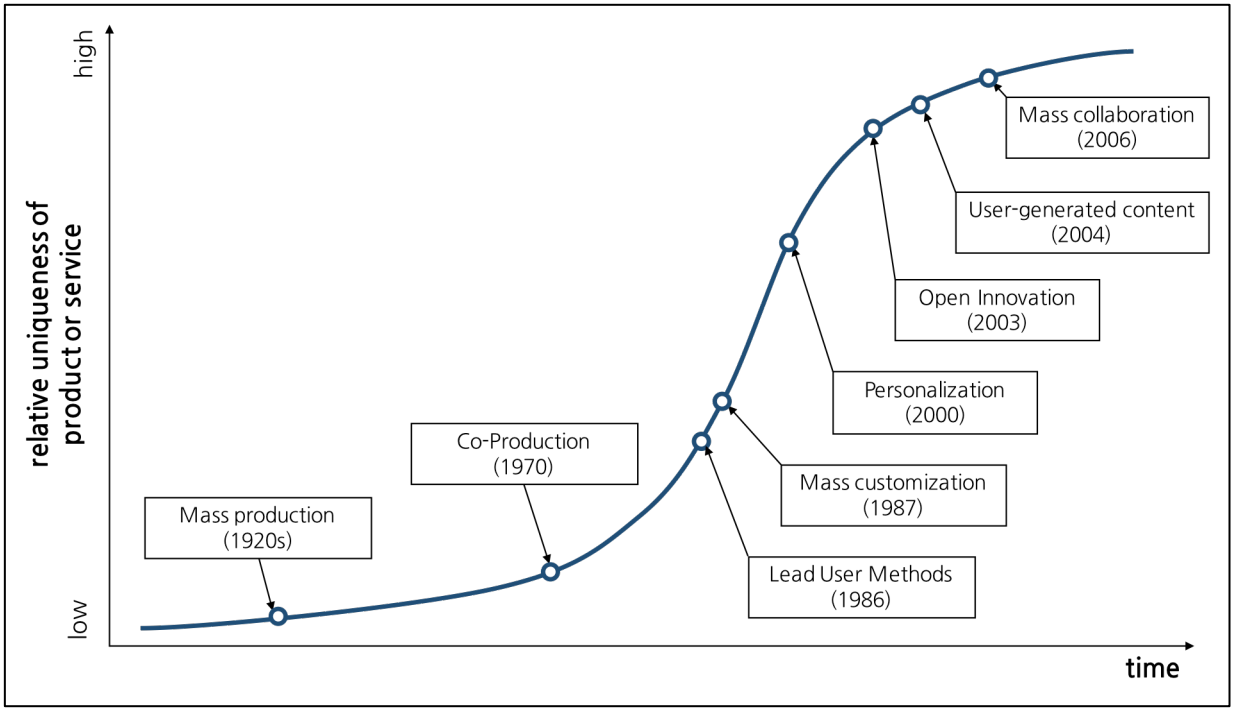


FIGURE 2-7 Emergence of selected paradigms displayed with relative uniqueness of product or service

2.2.2 Contrasting

A distinction of co-creation to similar paradigms and concepts is not always easy because borders tend to be blurred. In order to set the borders of co-creation's paradigms clearer, the following section describes what co-creation is *not*.

Table 2–7 shows key points of co-creation to avoid misunderstandings where the borders may lie. It was published in the article "Co-creation experiences: The next step practice in value creation" by Prahalad & Ramaswamy in 2004, where they also faced the situation that readers might struggle with understanding the philosophy of co-creation due to the blurred borders.

THE CONCEPT OF CO-CREATION	
WHAT CO-CREATION IS NOT	WHAT CO-CREATION IS
○ Customer focus ○ Customer is king or customer is always right	○ Co-creation is about *joint* creation of value by the company and the customer. It is not the firm trying to please the customer
○ Delivering good customer service or pampering the customer with lavish customer service	○ Allowing the customer to co-construct the service experience to suit her context
○ Mass customization of offerings that suit the industry's supply chain	○ Joint problem definition and solving
○ Transfer of activities from the firm to the customer as in self-service	○ Creating an experience environment in which consumers have active dialogue and co-construct personalized experiences; product may be the same (e.g., Lego Mindstorms) but customers can construct different experiences
○ Product variety	○ Experience variety
○ Meticulous Market research	○ Experiencing the business as consumers do in real time ○ Continuous dialogue
○ Staging experiences	○ Co-constructing personalized experiences
○ Demand-side innovation for new products and services	○ Innovation experience environments for new co-creation experiences

TABLE 2-7 The Concept of Co-Creation (Prahalad & Ramaswamy 2004a)

2.3 Essence of Co-Creation: The Co-Creation Experience

2.3.1 The Changing Role of the Consumer

With the emergence of the Web 2.0, the role of a typical customer has been enormously changed. The result was a complete transition of relationships between firms and customers (Prahalad & Ramaswamy 2004a). Thus, easy and massive availability of content provided by the Internet developed the consumer from "isolated" to **"connected"**, from "unaware" to **"informed"**, and from passive to **"active"**. According to Prahalad & Ramaswamy (2004c), the impact of these attributes are manifest, especially in four particular ways: ***information access***, ***global view***, ***networking***, ***experimentation*** **and** ***activism***.

Information Access

Customers became, due to easy access to Internet, an equal partner in a dialogue, concerning specifications and price for a product or service. The fact that informed customers don't need to rely on the information given by a firm only, allows them now to question and negotiate more aggressively about the conditions of any agreements with a firm.

Global View

Information can get accessed among consumers and companies throughout the whole world with almost no geographical limits.

Networking

Grouping up with other individuals that share common interests is the natural human habit. Thus, part of it is setting up communities where consumers and firms can connect and exchange with one another. A community for almost every possible interest exists. Consumers share ideas and feelings within these communities without regard for geographical or social barriers.

Experimentation

Consumers can exchange their experiences about mistakes they made and ways for improvements. The diversity of informed customers can be huge and espouses a wide base for skills, sophistication, and interests.

Activism

Consumers and firms are aware of consumers who actively report their experiences with products and services. Reviews of every kind inform potential consumers beforehand about products and services. Especially critique about bad experiences or mistakes of the firm can put firms under additional (social) pressure.

The contemporary customer who is active, connected, and informed pushes firms to reconsider the relationship between the customer and the firm. Hence, the consumer-company interactions have and will be changing progressively.

2.3.2 Building Blocks of Interactions for Co-Creation of Value

The co-creation process needs to be set up in a certain manner. Aim of every co-creation process is reaching the goal of accomplishing total co-creation experience. Thus, the co-creation experience is also a specific milestone, where value is located and generated for both, consumer and firms. Therefore, Prahalad & Ramaswamy formulated namely the DART-Model (Dialogue, Access, Risk-benefit, Transparency) (Prahalad & Ramaswamy 2004a; Prahalad & Ramaswamy 2004b; Prahalad & Ramaswamy 2004c). DART founds the basis of any co-creation process and represents its key building blocks. Its purpose is the co-creation of value guided through a well-shaped and beneficial consumer-company interaction (Prahalad & Ramaswamy 2004c).

Dialogue

Firms need to see their customers more as an equal partner in problem solving. Common interests should be discussed in a therefore created forum. Interactivity, deep engagement, and empathic understanding are as crucial as the ability and willingness of acting on both sides. Consumers are from now on equal partners in dialogue and they are together with the firm equal and joint problem solvers.

Access

The traditional approach was creating and transferring ownership from firms to customer.

Now the intangible access to desirable experiences is replacing this approach. Consequently, ownership is not necessarily needed anymore.

Risk-benefit

It was the firm and its managers that traditionally determined what high potential risks were and that could harm consumers. Simultaneously with the emergence of the informed consumer, a debate about risk and the trade-off between risks and benefits started. And as it turns out, consumers want to be those who are ultimately in charge of deciding the balance by themselves.

Transparency

Information asymmetry between the consumer and the firm is no longer seen as an advantage for the firm. In contradiction, it is seen now more likely as a disadvantage. The informed customer demands transparency, no matter if it is about products, technologies or business systems.

Combining the building blocks of co-creation of value enables companies to engage customers better as collaborators and co-creators of value. Although an advanced consumer-company dialogue is only facilitated by implication of access, risk-benefits and transparency, none of those four building blocks is less important. All those blocks combined make a strong fundament for the co-creation experience. DART is remarkable and crucial difference to all other closely related paradigms. Customer experience is the result of application of DART. As Figure 2-8 symbolizes, each single block itself is influencing and correlating with all the others.

In order to evoke advantages, it is especially useful in certain fields to focus on combining two building blocks. The coupling of two certain building blocks leverages:

- **Dialogue and Access**: development and maintenance of thematic communities
- **Access and Transparency**: informed decision making
- **Transparency and Risk-benefits**: co-development of trust
- **Risk-benefits and Dialogue**: debate and co-development of public and private policy choices

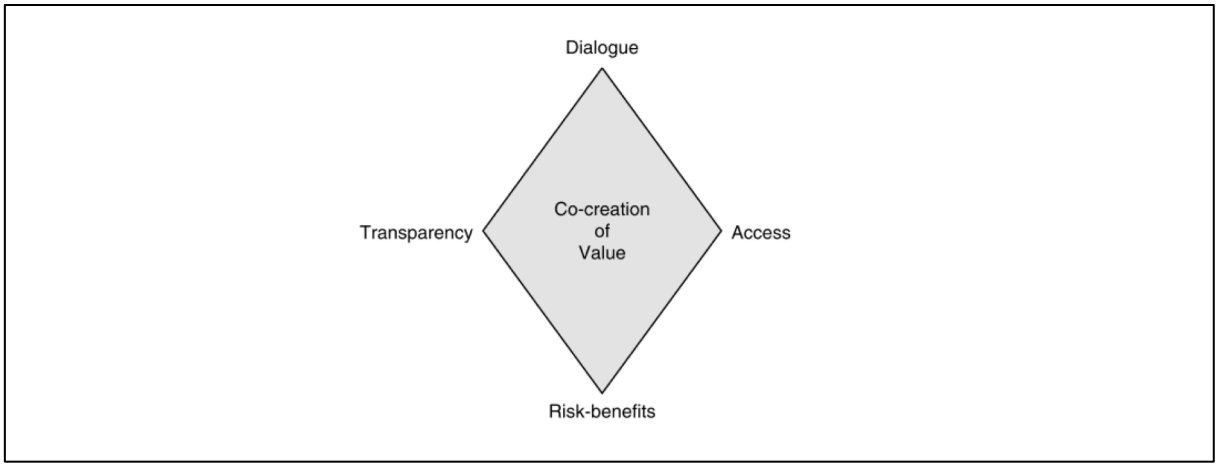


FIGURE 2-8 Building Blocks of Interactions for Co-Creation of Value (Prahalad & Ramaswamy 2004a)

2.3.3 Dimension of Choice in Consumer-Company Interaction

Mentioning the DART-Model alone is not sufficient for doing co-creation. Co-creation also aims to evoke deep consumer experience. Therefore, Prahalad & Ramaswamy (2004b; 2004c) identified four dimensions of choice in consumer-company interaction that condition the co-creation experience as well as they determine the quality of the co-creation experience.

Table 2–8 lists all these ***dimensions of choice***. While DART explains the way of communication with customers, the dimensions of choice symbolize the architecture of the relationship to customers. However, It is depending on every single co-creation process how high the degree of each dimension is designed.

CO-CREATION ACROSS MULTIPLE CHANNELS
○ Consumers want the freedom of choice to interact with the firm through a range of experience gateways. ○ Therefore, the firm must focus on the co-creation experience through *multiple channels*.
CO-CREATION THROUGH OPTIONS
○ Consumers want to define choices in a manner that reflects their view of value. ○ Therefore, the firm must provide experience-centric *options* that reflect consumer desires.
CO-CREATION THROUGH TRANSACTIONS
○ Consumers want to interact and transact in heir preferred language and style. They want quick, easy, convenient, and safe access to experiences. ○ Therefore, in consummating individual choices, the firm must also focus on the co-creation experience through *transactions*.
THE PRICE-EXPERIENCE RELATIONSHIP IN CO-CREATION
○ Consumers want to associate choice with the experience they are willing to pay for. They want the price of these experiences to be fair. ○ Therefore, the firm must focus on the totality of the *price-experience relationship* in co-creation.

TABLE 2-8 Dimensions of choice in consumer-company interaction (Prahalad & Ramaswamy 2004b)

2.3.4 The Co-Creation Experience

What is ***co-creation experience*** and why is it so important? It is certainly a question the reader of this thesis has to face. Co-creation experiences (sometimes also consumer experiences) are – according to the author of this thesis – the **pivotal element** of co-creation. One can only understand the philosophy of co-creation, if one can also understand the relevance of the co-creation experiences.

The co-creation experience is what the co-creation paradigm is centrally focusing on. This is what it gives its uniqueness, and mainly what it differs from the other (already mentioned in sections from 2.2.1.1 to 2.2.1.8) paradigms. Co-creation experience is created when companies foster on experience environments. Those experience environments have to fulfill, on one hand, the conditions regarding the DART-model, and on the other hand facilitating the dimensions of choice in consumer-company interaction. Furthermore, the co-creation experience is – as the core of co-creation – crucial for future competitiveness. Companies can

only generate sustainable profit by staying competitive in their businesses. The co-creation paradigm, as the basis of future competiveness, dismisses the traditional approach of company thinking and sees the consumer in its focus of interest. (Prahalad & Ramaswamy 2004c)

Traditionally value extraction was the goal of every customer interaction. Now the goal of interaction becomes twofold: value extraction as well as value ***creation***. The locus of interaction is hereby not anymore only the *end* of value chain activities, no, it can and shall take place ***repeatedly, anywhere,*** *and* ***anytime*** in the system (Prahalad & Ramaswamy 2004b). However, the big tension lies in shifting from the traditional approach to the emerging co-creation approach. This dramatically different way in thinking is unfamiliar to many managers and the adoption to this new co-creation paradigm constitutes a huge challenge. Gouillart suggests a way to design new customer experiences as an organized process of experimentation, where customers and companies progressively evolve existing offerings into new ones (Gouillart 2011).

However, the more or less theoretical explanation is now rounded out with an example, which should point out exactly those key elements of consumer-company interaction. Therefore, the doctor-patient example is commonly used by Prahalad & Ramaswamy. Traditionally, doctors diagnose their patients according to their complaints. Subsequently, doctors choose the treatments for their patients autonomously. With the evolvement of the Internet, patients' approach has fundamentally changed. Nowadays, patients connect with others who have similar complaints, inform themselves about causes for their complaints and about treatments of potential illnesses all before they conduct a doctor (therefore see also section 2.3.1). This is the main reason why patients require now a different way of doctor-patient encounter. Patients evolved now to partners for co-creating treatments, which are individually suiting to the patient. In addition, patients feel more convinced about their method of treatment, which also creates stronger commitment and – especially in this case – higher chances for successful cure.

3 Existing Concepts

This chapter shows existing concepts of co-creation, which should allow the application of this new paradigm to practical problems. Although research on the field of co-creation is going on since 2004, frameworks, that can tell how co-creation can be implemented in development processes, surprisingly barely exist.

However, systematic literature research shows several streams in value co-creation, which can be diversified into five different key directions of co-creation research: i) general management perspective; ii) new product development and innovation; iii) virtual customer environments; iv) service science and service-dominant logic (S-D Logic) of marketing; and v) international markets and entrepreneurship (Seppä & Tanev 2011). Another undertaken systematic literature research shows, that value co-creation can be clustered in two groups, such as *theory of co-creation* and *collaborative innovation in new product development* (Dalli 2014). Both systematic literature reviews analyze the mentioned fields, but both of them couldn't point out concrete models for practical application. Moreover, scholars even try to reduce the complex nature of value co-creation in order to allow practical implication (Saarijärvi & Kannan 2013). Hence, Seppä & Tanev (2011) emphasize that there is relatively little research on the specific groups of activities that should be undertaken in order to enable the value co-creation process, although literature provides multiple examples of firms that have adopted co-creation principles. But the lack of work directed at providing frameworks to help organizations manage the co-creation process, is nevertheless surprising; extent literature gives firms an insight into *what* needs to be addressed, but there is relatively little direction on *how* this process should be undertaken (Payne et al. 2008).

Since years fundamental questions remain unanswered, such as how to keep the large and diverse set of participants engaged, how to share the risks and value of innovation, how to manage complexity of this system without laying out too many constraints, and how to manage flow of information and activity across the boundaries where the degree of trust is yet to be established (Kukkuru 2011). And since 2011, no big step into this direction could be accomplished.

That leads me to the conclusion that undertaken research in the field of co-creation isn't aiming in a direction, where the goal is – so far – to elaborate structural models and advanced techniques, or mechanisms, which allow that co-creation can be applied in an accurate as well

as simple manner to practical problems. Mostly it is the philosophy behind the paradigm that is presented to readers, but not how the paradigm can be applied to practical problems.

Merely consultants, who picked up co-creation, found a more practical access to the co-creation paradigm. I selected those, which seem most useful for actual implementation and described them in the following paragraphs. They deal with the problems in an accurate manner. Due to the complexity of co-creation processes (Saarijärvi & Kannan 2013), it is understandable that there is no step-by-step guidance existing.

3.1 DART and Dimensions of Choice

The DART-Model (Dialogue, Accessibility, Risk-benefit, Transparency), together with the 4 Dimensions of Choice, represents the initial model of shaping a co-creation process. Respecting the DART-Model, it defines how the co-creation initiator deals with the participant(s), whereas the Dimensions of Choice formulate how the customer can interact with the initiator. Taken both, the DART-Model and the Dimension of Choice together, and doing the process right, the customer gains the co-creation experience, which tells, if the co-creation process was successful.

Prahalad & Ramaswamy (2004c) formed also a model according to their approach. But more relevant is that they created a starting point in order to communicate the co-creation paradigm and its requirements. It shall be the foundation for further research.

A detailed description and explanation of the DART-Model and the Dimensions of Choice is given in section 2.3.2 and section 2.3.3.

3.2 Managing the Co-creation of Value

Payne *et al.* (2008) developed a conceptual framework, which was progressively refined by three workshops and interviews with senior managers.

The outcome should meet the needs for a practical and robust process-based framework for value co-creation. Therefore, the conceptual framework has 3 main components:

1. **Customer value creating processes**

   Value proposition exists in order to facilitate the co-creation experiences, which is a process that has more a relationship-approach, than the products-approach. It involves focusing on “value-in-use” instead of mere product features.

   Customer value creation is therefore not to be considered in the old traditional “engineering” sense, but as dynamic, interactive, non-linear, and often unconscious processes.

2. **Supplier value creating processes**

   It involves a review of co-creation opportunities, planning, testing and prototyping value co-creation opportunities with customers, implementing customer solutions and managing customer encounters, and also developing metrics to assess whether the enterprise is making appropriate value propositions.

   A key issue during these processes is to ensure the diverse elements of existing customer knowledge, which should also be captured and utilized to improve knowledge management and its impact on co-creation.

3. **Encounter processes**

   The customer and the supplier meet in a series of two-way interaction, which represents the encounter process. Those encounters can be considered as exchange practices in which the parties exchange resources, like money, products work, information, and time. But there are also collaborative practices, in which the parties perform activities in a joint manner.

Figure 3-1 visualizes the conceptual framework of Payne *et al.* (2008).

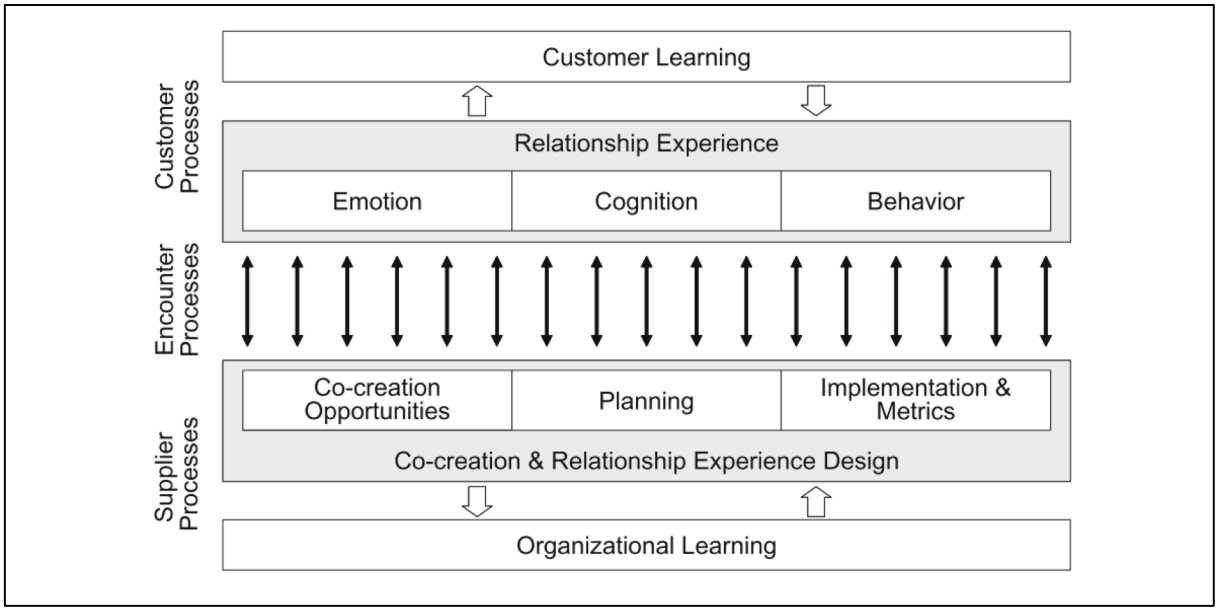


FIGURE 3-1 A conceptual framework for value co-creation (Payne et al. 2008)

3.3 Co-Creation's 5 Guiding Principles

Martijn Pater, who is partner at *Fronteer Strategy* (located in Amsterdam, The Netherlands), discusses in his white paper from 2009 the following topics:

- **4 Types of Co-creation**
- **5 Guiding Principles in Co-creation**
- **4 Areas of Value in Co-creation**

Thereby he wants the reader to understand what successful co-creation consists of, while he also presents examples how companies are already applying co-creation in a successful manner.

The 4 Types of Co-creation

The central starting point is that there is always one initiator, i.e. the part that decides to start the initiative (that can be a company or a single person). People who are joining the co-creation process are called contributors. Thus, the initiator determines the quantity of contributors, the conditions under what contributors can join as well as the rights of

contributors during the co-creation process. Moreover, Prater (2009) identified two central dimensions (Open-ness, Ownership), that also lead to 4 Types of Co-creation (Club of experts, Crowd of people, Coalition of parties, Community of kindred spirits) – see Figure 3-1.

The question that arises now is, when to use which type. Pater describes this in his whitepaper in more detail and illustrates it with examples; a brief summary should give a good overview of each type.

Club of Experts: very specific, time-pressured challenges that demand expertise and breakthrough ideas

Crowd of People: also “Crowdsourcing”; all about the Rule of Big Numbers: anyone can join; the challenge is to find the one bright idea that needs to be considered

Coalition of Parties: certain complex situations, where parties team up to share ideas and investments; each party brings a specific asset or skill

Community of kindred spirits: developing something for greater good by groups of people with similar interests and goals; mostly used for software development (e.g. open source software Linux)

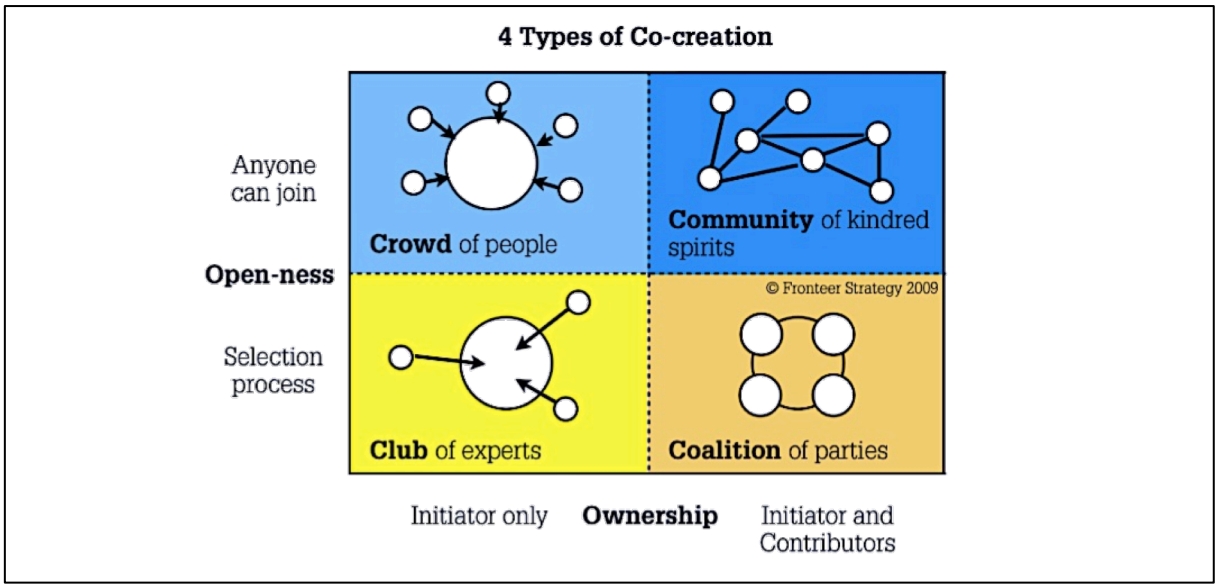


FIGURE 3-2 The 4 Types of Co-creation (Pater 2009)

The 5 Guiding Principles in Co-creation

Pater mentioned that he empirically came to the result that co-creation initiatives tend to have a certain number of characteristics in common. Those can be summarized or grouped up into the "5 Guiding Principles of Co-creation". Figure 3-3 presents them in a graphical manner.

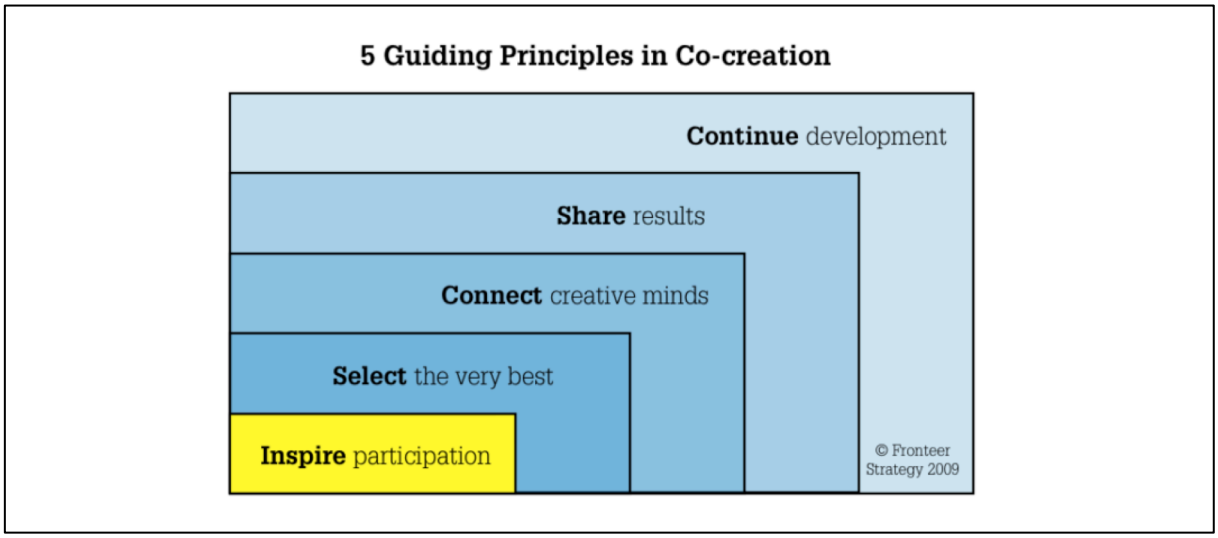


FIGURE 3-3 The 5 Guiding Principles in Co-creation (Pater 2009)

The following guiding principles can be considered as a sequence of steps of an exemplary co-creation process. Thus, each step is briefly summarized in its significance.

1. **Inspire participation:**
   Trigger people to join your challenge; open up and show what is offered to them.
2. **Select the very best:**
   You need the best ideas and the best people to deal with today's complex issues.
3. **Connect creative minds:**
   Enable bright people to work together and find that 'spark'.
4. **Share results:**
   'Giving back' is crucial – as well as 'how you do it'.
5. **Continue development:**
   Co-creation only delivers when it is a longer-term engagement; preferably part of structured process that involves parties from in- and outside your company.

The 4 Areas of Value in Co-creation

Pater, as a partner of “Fronteer Strategy”, gets often asked what are some concrete examples of return on investments in co-creation? He sees value is created in different areas, which can be divided into parts of 4: direct and future results, direct and future spinoffs.

Direct results can be measured in terms of economic values, which are generated through the introduction of the new co-created products or services.

Direct spinoffs are results that cannot be measured in terms of profit, but they create enormous value through the acquisition, which are made during the co-creation process, e.g. contacts made during process, participants who become brand ambassadors, and starting point of word-of-mouth marketing.

Future results are results that can be achieved if an introduction of a new product or service has been successful. It can be followed up by extensions or it can lead to an introduction of a new family of products.

Because co-creation is a process with an unpredictable outcome, it makes it also the starting point of **future spinoffs**, which cannot be foreseen at the beginning of the process, but can have far-reaching effects. For example, an invention can lead to further – even game changing – inventions.

3.4 Managing Your Co-creation Mix

Thorsten Roser, founder of the *London Research and Consulting Group*, undertook, together with his colleagues Robert DeFillippi and Alain Samson, an extensive literature review in order to derive dimensions for a reference model for synchronizing co-creation onto the value chain. Their results were published in the *European Business Review* (Roser et al. 2013).

Roser *et al.* count 6 dimensions, which are

- **Co-creator type**. Who will be involved?
- **Purpose**. What is the purpose of co-creating?
- **Locus**. Where in the innovation process should it occur?
- **Intimacy**. How much involvement should there be?
- **Time**. How long should co-creators be involved?
- **Incentives**. How should co-creators be motivated?

and they represent decision making areas any organization would face, when implementing and managing co-creation. Using all 6 dimensions for co-creator involvement leads to a reference model, which is presented in Figure 3-4.

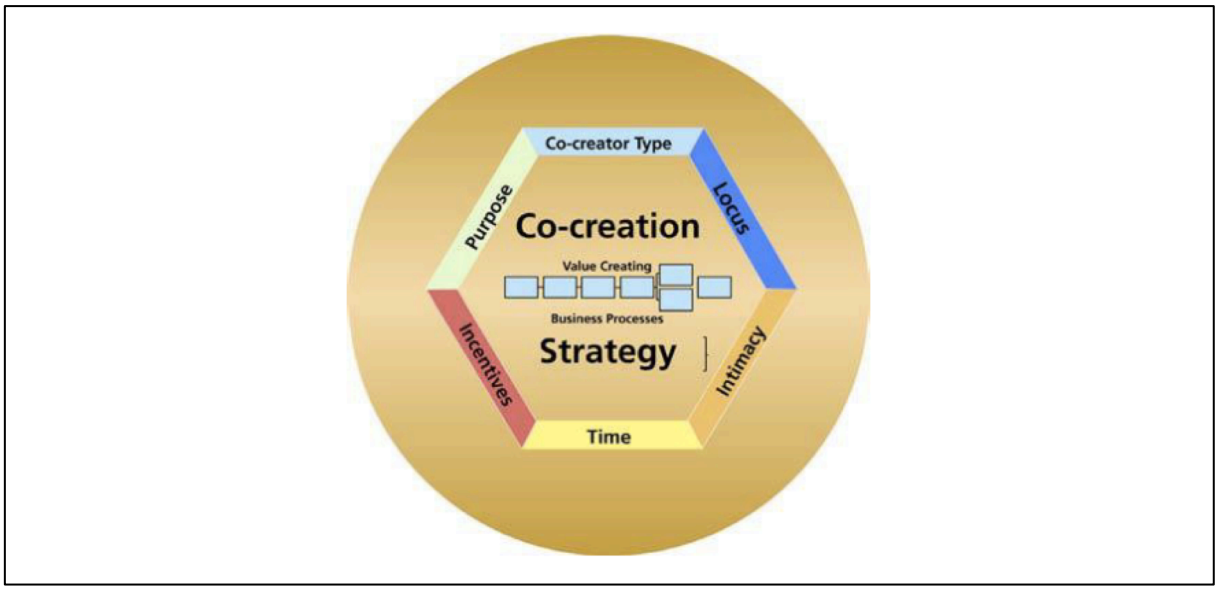


FIGURE 3-4 A reference model – co-creation as synchronized onto the value creating business processes and embedded in a dynamic co-creation environment (Roser et al. 2013)

Hence, regarding to Roser *et al.*, co-creation ventures are governed by a variety of mechanisms that reflect each of the 3 forms of governance (such as market-based governance, hierarchical governance, and relational or bilateral governance; all represents forms of coordination) in a particular way.

In order to understand what Roser *et al.* mean with "governance", it is necessary to know, that governance encompasses initiation, termination and ongoing relationship maintenance between a set of two parties (Heide 1994). Thereby it can be further distinguished between: market governance, on the one hand, which is associated with discrete types of exchange, hierarchical governance, on the other hand, which deals with parties where one of the two party has the right to impose conditions to the other one, and relational or bilateral governance means a more open-ended relationship.

By reviewing the types of co-creation ventures, which are presented either in a B2B or B2C context, a tendency can be allocated.

B2B co-creation ventures are more likely to emphasize **hierarchical forms** of co-creation governance. Co-creation ventures of this type are also most likely to be steered by committees of representatives from both organizations, which govern the co-creation process.

B2C co-creation activities are more likely to emphasize **market-like forms** of co-creation governance because this kind of co-creation ventures is creating solutions to specific challenges within the market.

Moreover, ventures in B2B and B2C context can be either crowd-sourced or non-crowd-sourced. The combination of those two creates a matrix, where 4 different purposes of co-creation ventures can be discriminated. Table 3-1 presents those.

	B2B	B2C
crowd-sourced	Problem solving	Search, develop buy & buzz
non-crowed sourced	Co-innovation	Validate & improve

TABLE 3-1 Purposes of crowd-sourced and non-crowd-sourced co-creation in B2B versus B2C contexts

Applying the principle of overlaying B2B and B2C contexts by means of participation source (either crowd or no crowd) to all other (already mentioned) dimensions, results in a circle with different choices across B2B and B2C contexts. However, this is called the “Co-Creation Mix”.

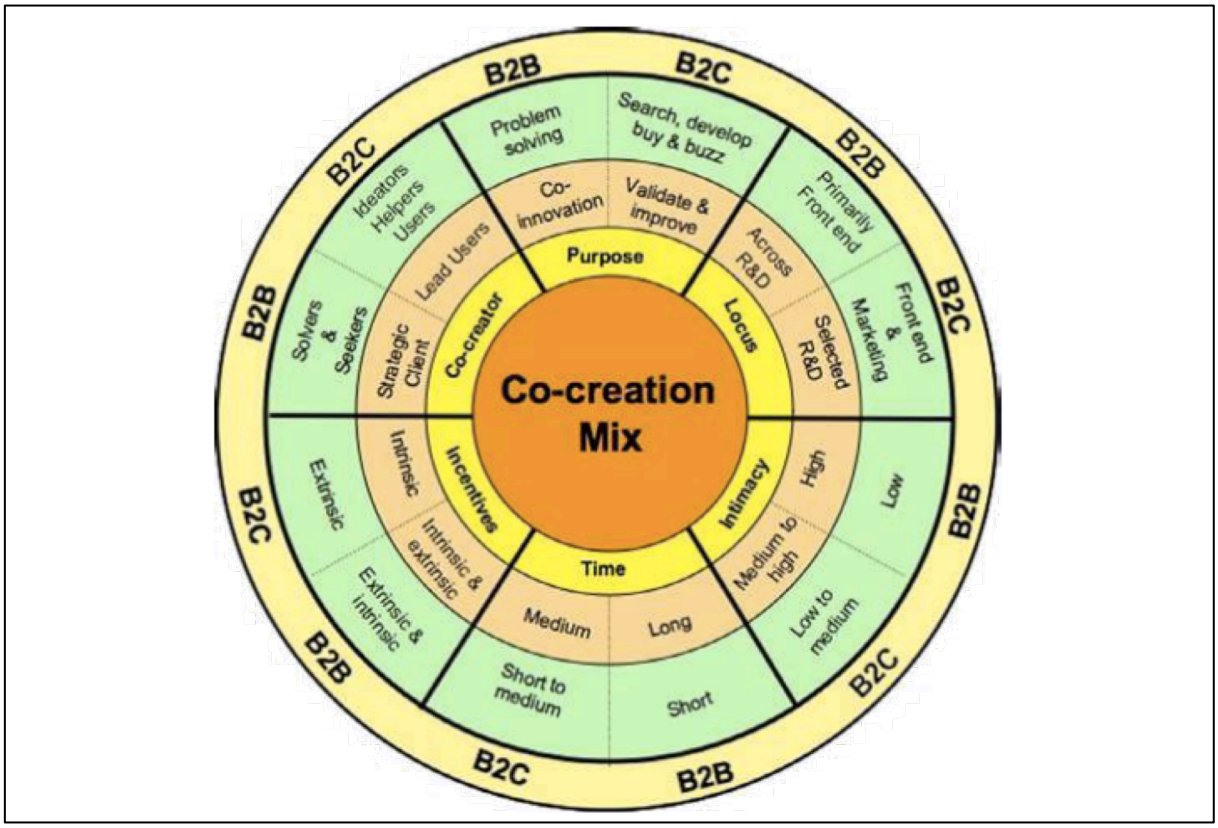


FIGURE 3-5 Differences in co-creation choices across B2B and B2C contexts using crowd-sourced (green) and non-crowd-sourced (red) approaches (Roser et al. 2013)

Well, the “Co-Creation Mix” represents therefore a framework, which gives a good orientation, when it comes to applying co-creation to practical problems. Initiators of co-creation processes should be aware of the patterns, which are mentioned in the “Co-Creation Mix” because they show – based on extensive literature research undertaken by Roser *et al.* – a pathway how co-creation processes can be implemented in a successful manner.

3.5 The 6 Tips for Running a Co-creation Project

Lena Lam is Senior Research Manager at Vision Critical, a cloud-based customer intelligence platform located in Toronto, that also develops co-creation solutions (VisionCritical 2013). During her co-creation related projects, she found 6 fundamental key points, which should be absolutely taken into account when one plans to co-create with customers (Lam 2013):

1. **Set clear (but not too restrictive) objectives.**
   Clear research objectives can ease the creative flow, but it is a tricky balance. Of course you want to offer as much information as possible, but too much information might stifle people.

2. **Prepare for some "bad data" and outliers.**
   It is not unusual to have outliers because some people are notably different from the average participant. They might either interpret ideas uniquely, or bring ideas with too many details in the ideation process. The host of the co-creation process should have a plan for monitoring and dealing with these cases.
   Note that great ideas could come from outliers, but be also aware of the fact that they could ruin the process.

3. **Recruit the right mix of people.**
   In order to find the right ideas, it is necessary to have participants who are excited to be a part of the co-creation process. These people can be more or less easily found in any kind of community. Thereby it is not always essential to engage people, who can come up with ideas independently. Some people are great in continuing developing others' ideas.
   Further, participants with a lot experience in a certain field might bring high-quality ideas to the co-creation. But participants without experience in this certain field that you want to work in might bring fresh, non-biased ideas.

4. **Offer appropriate incentives.**
   People in innovation communities are tend to long for appreciation for their efforts during the process. Hence, it is crucial to give both, extrinsic and intrinsic

recognition to participants. Dependently on the participant's effort, the reward should be in an appropriate amount.

5. **Get buy-in from other stakeholders.**
   Interdisciplinary is a foundation stone in co-creation processes. Every department has to be engaged early enough in order to prevent the wasted effort. Failing here can lead to a complete failure of the entire co-creation project. Consequently, this point can become the one of the biggest roadblocks.

6. **Have a plan of action for what happens after the co-creation project.**
   During the project, it should be already agreed on some key decision-maker in order to avoid wasting time and effort after the project. Moreover, a report should document the data, which is generated during the process.

Stephen Benson, who was a former team leader of co-creation projects at Vision Critical, elaborates further, that co-creation is best applied to businesses that are looking for *new product ideas*, *service concepts*, *brand development ideas*, and *promotional ideas* (Benson 2013).

4 Fields of Application and Cases

4.1 Co-Creation for Innovation, Technology and Business Models

For this master thesis, the aspects of *innovation*, *technology*, and *business models* for co-creation in development processes were especially selected as topics of high interest. However, the capabilities of the co-creation paradigm are huge as well as the fields where co-creation can be applied in. The idea of integrating the customer in the development process itself is not new – but what is new *is*: the way, purpose, and frequency how it becomes convenient to integrate the customer. That is all because the role of the customer – as already mentioned in section 2.3.1 – has dramatically changed.

However, the manner *how* companies apply the co-creation paradigm depends on the individual case. Co-creation and its implemented approach was a "new land" to companies, so previously companies tended to experiment with the co-creation paradigm in order to gain some experience. This seems now to come to an end. Subsequently, it is turning into a transaction where patterns between several co-creation activities and ventures are built up and getting implemented in daily operations. But since the beginning of the paradigm shift, every example had and still has the same co-creation spirit in common.

Co-Creation for Innovation

Co-creation is mainly used for innovation purposes. Innovation is crucial for enterprises to maintain their outstanding position in the market. Therefore, enterprises all over the world try to find new and faster ways for innovation of products, services, processes, and accessible technology.

Differences in theoretical definitions between closely related paradigms highlight the single specifications of each paradigm. But those differences and borders of one's approach tend to blur when theory is applied to real-life problems and cases. So it can happen that e.g. the closely related "Open Innovation" paradigm intertwines with the co-creation paradigm in concerns to innovation.

However, investigated cases (see section 4.2) will show that innovation, technology and business models do have crucial impact to co-creation, whereas a different intensity can be determined. Clearly, innovation through co-creation can be considered as the most relevant application for co-creation. Thus, innovation through co-creation is in addition most commonly the starting point and purpose for applying the co-creation paradigm. Thereby special focus lies especially on new product development processes – product and service are here again interchangeable terms.

Co-Creation for Technology and Business Models

Although the aspect of innovation in co-creation is overwhelming when it comes to co-creation of technology and business models, co-creating technology or business models takes place, but empirically it cannot be found as *the* purpose of applying co-creation. A new business model is sometimes created within an innovation process for a new product or service, which was originally not considered as an initial priority. But the new co-created business model is then leveraging the chances for successful market implementation. Moreover, innovative business models, which are made under these circumstances, are important by-products that can play a crucial role for firms in order to improve their competitiveness, especially for future markets.

4.2 Cases

In order to present cases in a well-structured way, I introduce two repeating tables for each individual case: One at the beginning that gives an overview what the case discusses; and second one, after the case description, that presents and serves the crucial information at a single glance. The title of the second table is “Co-Creation Check” and its purpose is to determine the quality of the co-creation process. Firstly, **purpose**, **co-creators**, **platform**, **locus & time-phase**, and **degree of involvement** give an insight in the co-creation process. Variable answers are possible, but is does not rate the co-creation process yet. Next, **co-creation type** shows the relation of the persons involved. Furthermore, essential for a successful co-creation process are the implementation of the **DART-Model** and the enabling of the **co-creation experience**, which should of course be as strong as possible. Another hint for the reader is to look at individual letters of “DART”. They are written in different sizes and represent the correlation to one another. To sum up, attention should be paid to every part of the co-creation process in order to leverage the outcome. The “Co-Creation Check” is presented in Table 4-1, where also the range of answers is given.

The following cases deal with innovation, but they should also be considered from the historical point of view. Some examples might seem nowadays totally familiar and convenient, but all of them were notably innovative in their time context. Also, the cases were selected out of different industries in order to present a versatile variety of different situation where co-creation can be applied. Although one might believe that co-creation is bound to industries that work in high-tech branches, co-creation can actually cover several different branches.

CO-CREATION CHECK SAMPLE				
Purpose	Why was the co-creation process initiated? Formulate the purpose.			
Co-creators	Who are the participants in the co-creation process? Name the participants.			
Platform	Where do the co-creators interact?			
	Internet website	Electronic meetings	Face-to-face	…
Locus & Time-phase	Where in the innovation process takes the co-creation process place? Mention the stage in the NPD process. Mostly not easy to assign accurately. How long does the co-creation process take? This is usually equal to the duration of the related stage.			
Degree of involvement	With which degree is the customer involved in the co-creation process?			
	low	low to medium	medium to high	high
Co-creation type	Which type of co-creation was applied to the process?			
	Club of Experts	Crowd of People	Coalition of Parties	Community of Kindred Sprits
DART-Model	How were Dialogue, Accessibility, Risk-benefit, and Transparency met?			**DART**
Co-creation experience	Could the “Co-creation experience” be achieved? How strong was it?			e.g. strong

TABLE 4-1 Sample of the “Co-Creation Check”

4.2.1 Dell IdeaStorm

The "Dell IdeaStorm" case represents a co-creation example where it becomes crucial to give customers a platform and engage them in an active dialogue with the company. Listening to the customer's problems automatically gives companies opportunities for innovations. Table 4-2 gives a brief overview about what will be discussed afterwards. An overview about the portion of co-creation is shown in Table 4-3.

Case: **Dell IdeaStorm**	Source: (Ramaswamy & Gouillart 2010b)	
Summary: An insufficient dialogue with customers shapes a community with bad experiences. Giving customers a platform and engaging them in an active dialogue leads to better customer experiences. This creates a strong basis for an ongoing innovation process.		
Classification: **Service Innovation**	Process: Company-led	Type: B2C

TABLE 4-2 Case description: Dell IdeaStorm

Background

Especially in 2006, Dell's clients suffered from insufficient customer service. Customers spent many hours in call centers, where they were redirected, in average, seven times, so that in the end customer's satisfaction was dramatically reduced. Customers, who encountered problems with their products, felt left alone with their problems and therefore they sought help on online platforms that were not hosted or managed by Dell itself. Most of the problems were recurring problems, which had no individual character.

Michel Dell, CEO and founder of Dell, decided that he would rather wants to have this discussion in his living room, than in someone else's (Ramaswamy & Gouillart 2010b). In order to stop or even turn around an on Internet platforms on-going storm of indignation against Dell (Ebner et al. 2015), he created the online platform Dell IdeaStorm.

Co-Creation Phase

Dell IdeaStorm website was launched in February 2007, and it was designed as a platform where users could post their ideas and give votes to them. Specially trained staff was in continuous dialogue with the users.

Dell IdeaStorm received more than 15.000 suggestions within five years and made out 500 refinements based on them. The platform counted temporarily more than one million members. Issues were not only product-focused, customers also complained about service problems, e.g. the call center issue. (Israel 2012).

On this platform users can discuss problems about Dell Products among each other, give solutions and the innovative ideas for future products, which Dell can pick up without the permission of the inventors.

CO-CREATION CHECK				
Co-Creators	Process is open to everyone who wants to engage.			
Purpose	Collaboration with customers in order to prevent problems before they occur; get customer experience in-house.			
Platform	Internet website			
Locus & Time-phase	Fuzzy Front End			
Degree of involvement	Low; ideas of user are considered without their knowledge in not transparent processes.			
Co-creation type	Club of Experts	Crowd of People	Coalition of Parties	Community of Kindred Spirits
DART-Model	Dialogue is active and strong. Customers have no access to information; Risk-benefiting and Transparency are not given.			DART
Co-creation experience can be considered as compulsorily created. Created as from a platform in order to prevent complaints, it emerged to an innovation platform for Dell and its customers.				MEDIUM

TABLE 4-3 Co-Creation Check: Dell IdeaStorm

4.2.2 Volvo XC90

The "Volvo XC90 case" represents a co-creation example that identifies that the customer integration is critical for the successful launch of the Volvo XC90. Representatives at Volvo Cars understood the importance of the customer's role and it's opinion during the development process. Table 4-4 gives a brief overview about what will be discussed afterwards. An overview about the portion of co-creation is shown in Table 4-5.

Case: **Volvo XC90**	Source: (Dahlsten 2004)	
Summary: Volvo Cars struggles in extending their car portfolio. Therefore, Volvo Cars starts integrating the target customer group in the development process in order to successfully launch the Volvo XC90.		
Classification: **Product Co-Innovation**	Process: Company-led	Type: B2C

TABLE 4-4 Case description: Volvo XC90

Background

In 1999, Volvo started a NPD, which should result in a SUV designed for the American car market. After numerous concept studies of SUV's had been undertaken, (which all had failed to reach the market) Volvo Cars experimented with a new concept of customer integration. The goal was to launch the XC90 in three years time.

Due to technology uncertainty, Volvo Cars executives decided that the new XC90 has to be based on an already existing product platform, which was one of the few constraints the project management team had. Market analyzes showed, that in the USA increasing numbers of woman were driving SUVs – the reason was uncertain and could not be explained by the project team. Therefore, the female customer group was identified and as target group selected.

Although some of the older members of the project team had strong concerns, the project team decided eventually to meet the customer group face-to-face for complementing the normal market studies.

Co-Creation Phase

A former female manager of Volvo Cars, who knew the NPD process at Volvo, was chosen to become the moderator for the up-coming development process. She was ideal for this task because she had the required knowledge and she lived also in Hollywood, where she had a huge network to the representative customer target group. She was the one who chose those 24 women, who were co-creating the XC90 with the project team for the next 3 years.

The first meeting was held in March 1999 and was set as an informal dinner, where also Volvo Car executives were present. This sign gave a strong sense of seriousness to the subject. More and more meetings were hold, always at locations that fit best to the content. However, a virtual model, a plastic full-scale model, and a fully functional prototype were displayed to female customer group. In February 2002 they met for the last time and the female customer group could drive the final version of the XC90. In total, 7 meetings were hold during the entire development process, starting at the Fuzzy Front End until the start of production. 16 women out of the 24 followed the project for the entire time of 3 years.

As a compensation for the female customer group's expanses, Volvo Car paid USD 50 for each meeting. This was more symbolic rather than the actual cover of expanses precisely because the female customer group consisted of affluent successful Southern Californian woman.

When the final version of the XC90 was presented to the female customer group, the women were impressed. Moreover, they could identify the features and specification, which they suggested. One of them even said that she was surprised that the project team was listening to them so carefully.

CO-CREATION CHECK				
Purpose	Reach the target customer group more precisely			
Co-creators	Affluent successful Southern Californian women (as lead users), project team from Volvo Cars			
Platform	Face-to-face meetings			
Locus & Time-phase	Development stage until Start of Production			
Degree of involvement	Medium-high, engineers were co-creating the specification and features, what the female customer group asked for			
Co-creation type	Club of Experts	Crowd of People	Coalition of Parties	Community of Kindred Spirits
DART-Model	Dialogue was continuously through all development stages. Accessibility as well as Risk-benefiting was weak. Transparency was given.			DART
Co-creation experience was valuable and strong. The co-creators developed a good relationship to each other, which had co-creation experiences as its basis.				STRONG

TABLE 4-5 Co-Creation Check: Volvo XC90

Remark

The case of Volvo XC90 started its co-creation phase in 1999. Because Prahalad & Ramaswamy (2004c) coined the term and the according paradigm to it in 2004 for the first time, it is obvious and comprehensible that Fredrik Dahlsten, the author of this case, did not formulated this case as a co-creation example per se. However, recent literature understands the described case as suiting well to the co-creation paradigm (Roser et al. 2009; Roser et al. 2013; IdeaConnection n.d.).

4.2.3 LEGO Mindstorms

The “LEGO Mindstorms” case represents a co-creation example that identifies the shaping of a community without direct control of the company. Strong customer commitment portrays the high co-creation experience. Table 4-6 gives a brief overview about what is discussed afterwards. An overview about the portion of co-creation is shown in Table 4-7.

Case: **LEGO Mindstorms**	Source: (Ramaswamy & Gouillart 2010b; Prahalad & Ramaswamy 2004c)	
Summary: Enthusiasts create own solutions. LEGO supplies them with fundamental parts that consumers can arrange in a way of their own purposes. This creates a great basis for strong customer commitment and high co-creation experiences. Further, a company that hosts a platform (e.g. LEGO Mindstorms website) is not always forced to control it.		
Classification: **Product Co-Innovation**	Process: Consumer-led	Type: B2C

TABLE 4-6 Case description: LEGO Mindstorms

Background

LEGO is a role model in co-creation processes. Many of LEGO's products emphasize the collaboration with consumers. The core alone of an ordinary LEGO product represents the co-creation paradigm: the customer experiences as the essence of the co-creation paradigm, which is only limited by one's own imagination or creativity.

LEGO Mindstorms is one of the co-creation initiatives of LEGO. In the latest version (EV3), users can take existing LEGO bricks and combine them with sensors (e.g. ultrasonic sensors, color sensors, touch sensors, etc.) and a control unit. Additionally, users can program logic controllers and remote control them in order to create their own robot.

The first version of Mindstorms (1.0) was released in 1998 and it inspired not only children: adults were that fascinated by LEGO Mindstorms, so that half of the consumers had become adults, although features were very limited.

Co-Creation Phase

Enthusiastic Mindstorms user created independent platforms on the Web and exchanged concepts for advanced robot solutions. LEGO recognized that new capabilities could be generated for the second generation of LEGO Mindstorms (NXT), when LEGO opens up its design to enthusiasts. Even a selected group of engineers with advanced degrees in robotics participated in the co-creation process – it seemed that adults had even more fun with Mindstorms than the children themselves.

The co-creators shaped a new user interface, introduced programmable “intelligent bricks” and sensors for motion and touch. An engagement platform, hosted by LEGO, supports the Mindstorms fans by sharing their ideas among them. LEGO encourages the community to evolve beyond the firm’s control, while still being in creative conjunction with the employees of LEGO.

Together they co-created the latest version of LEGO Mindstorms EV3, which is even richer in features and more adoptable to the user’s imagination and creativity. Moreover, LEGO releases regularly new products that are based on the ideas of users who shared them with the online community.

CO-CREATION CHECK				
Co-Creators	Enthusiasts (among professionals) and LEGO employees			
Purpose	Continuous improvement of features and extending product range			
Platform	Online platforms and meetings			
Locus & Time-phase	Entire innovation process			
Degree of involvement	High			
Co-creation type	Club of Experts	Crowd of People	Coalition of Parties	Community of Kindred Spirits
DART-Model	Dialogue is open from company-side, but consumers tend to share their ideas more among each other, LEGO accesses to certain ideas together with the consumers, Risk-Benefiting is not considered, involved customers are participating in the co-creation process in a transparent way.			DART
Co-creation experience is very high as well as customer commitment.				HIGH

TABLE 4-7 Co-Creation Check: LEGO MindStorms

4.2.4 Sumerset Houseboats

The "Sumerset Houseboats" case represents a co-creation example that identifies the integration of the customer during the entire development phase as a crucial step for creating a unique value for the customer throughout the co-creation experience. Table 4-8 gives a brief overview about what is discussed afterwards. An overview about the portion of co-creation is shown in Table 4-9.

Case: **Sumerset Houseboats**	Source: (Prahalad & Ramaswamy 2004c) (Sumerset 2015) (Thoroughbred 2015)	
Summary: Sumerset Houseboats co-creates houseboats for their customers. Each of them is fitting to the individual wishes and need of one customer. Sumerset implemented the integration of the customer deep into their development process.		
Classification: **Process Innovation**	Process: Consumer-led	Type: B2C

TABLE 4-8 Case description: Sumerset Houseboats

Background

Sumerset is a company from Kentucky, USA, which builds houseboats for its customers. It has an over 40-year long history and had manufactured already more than 4,000 houseboats. The brand Sumerset is well known in the houseboat industry and stands for a high quality and a customer satisfaction. Since 2013 Sumerset belongs to "Thoroughbred Houseboats", but houseboats are still sold under the Sumerset brand. Sumerset Houseboats claims to be at the first place in innovation, in design, and the production of aluminum hull houseboats. Furthermore, Sumerset has built its business by co-creating with its customers, whereby many innovations also resulted from.

Co-Creation Phase

Sumerset invites their customers to co-create their future houseboat. Customers can contact the Sumerset development group and discuss ideas for the future boat, no matter the size, furnishings, amenities, special features, and the budget. Drafts are delivered to the customer, which are basis for more detailed discussions.

During the manufacturing process the customer can follow the status of his future houseboat through the company website. Sumerset displays continuously through pictures the progress of the creation of the boat. So in each process step, the customer is aware of the progress and could step in in case of any concerns. Sumerset started undertaking this process already before 2004. In the final stage, customers get the unique houseboats coming of their dreams, which represents the value co-creation.

CO-CREATION CHECK				
Co-Creators	Customers and Sumerset development team			
Purpose	Co-creating unique value through an individual solution for each customer			
Platform	Face-to-face meetings, electronic meetings			
Locus & Time-phase	Starting with NPD process until completion of product			
Degree of involvement	Medium-high, basic structure is given, rest up to customer			
Co-creation type	Club of Experts	Crowd of People	Coalition of Parties	Community of Kindred Spirits
DART-Model	Intense Dialogue starts with the start of the project. Sumerset offers Accessibility throughout the entire co-creation process. The relation Risk-benefit could be stronger. Transparency is high.			DART
Co-creation experience is very strong. Customers are continuously involved in the co-creation process and the completed product is co-created directly to the customer's wishes.				**STRONG**

TABLE 4-9 Co-Creation Check: Sumerset Houseboats

4.2.5 Xerox and P&G Managed Print System

The "Xerox and P&G Managed Print System" case represents a co-creation example that identifies a strong partnership as a crucial element for effective co-creation and co-innovation. Dialogue, accessibility, risk-benefit and transparency (DART) are the core elements of this co-creation example. Table 4-10 gives a brief overview about what is discussed afterwards. An overview about the quality of co-creation is shown in Table 4-11.

Case: **Xerox and P&G Managed Print System**	Source: (DeFillippi et al. 2014) (Roser et al. 2013)	
Summary: Xerox and P&G formed a partnership in 2008 in order to reach 2 significant goals: First, make the printing system more efficient and environmental friendly as well as, second, simplifying global printing structures.		
Classification: **Service Co-Innovation**	Process: Consumer-led	Type: B2B

TABLE 4-10 Case description: Xerox and P&G Managed Print System

Background

Xerox, which is the worldwide market leader in copiers and printing machines, has always been considered as an innovative company since the 1960s. Its innovations had always been, in general, engineering- and technology-driven. In the last decade Xerox managed to shift to customer-led innovation, where the focus is put more on the customer's input and knowledge. Therefore, Xerox set up the so-called "Dreaming Sessions", where Xerox employees think together with the customer about ideal solutions.

Traditionally, companies were buying printing, copying, faxing, etc. devices, since the 1990s, especially the more efficient multifunctional devices, which were quite expansive. It was usual, that different departments from different companies bought devices from again different vendors. This all led to a huge inefficiency and waste creation. In order to reduce such problems, Xerox changed their business model from not selling devices anymore, rather leasing them within a service contract.

Within a few years, companies could be more effective in using their copiers, printers, faxes, etc. due to the Xerox's model and Xerox was benefiting from sustainably supplying companies with toner and other consumption material. But there were still gaps that could be closed.

Procter and Gamble (P&G), with 135,000 employees in 80 countries, was looking for a new concept to organize its documents. Millions of documents get printed annually at more than two hundred P&G sites. In early 2008, those documents came from 45,000 individual devices, which included copiers, printers, scanners, and fax machines. Therefore, that means in average about three employees per device. This is the result that each P&C facility was independent for getting its own devices from suppliers of their wishes. This led to high inefficiency in physical resources as well as wasted time of employees concerning print- and

output-related issues. Therefore, P&G was looking for an innovative Managed Print System (MPS) in order to reduce devices, increase efficiency, support digitalization of documents, leverage secure printing, and focus on environmental friendly and sustainable operations.

Co-Creation Phase

In April 2009 Xerox and P&G announced their partnership to manage P&G's global print operations with the aim to cut costs by 20 to 25 percent. Xerox started to build up a good relationship from the beginning with its "dreaming sessions". P&G representatives visited Xerox's Research Centre Europe in Grenoble, France, where a set of innovative projects had been set. In order to put dreams/plans into practice, Xerox created an "innovation Council". That group consisted of representatives from both companies that meets and prioritizes innovation opportunities that make sense or P&G. Xerox chose its representatives from all across the entire the value of chain. Commitment to this partnership were from both sides very high, P&G made the MPS project even to a company priority, supplied with appropriate resources – including upper management personnel.

The outcome was minimizing the copy fleet from 45,000 devices to 10,000. Printing costs, paper consumption, saved time for operating and energy consumption were reduced between 21 and 30%.

CO-CREATION CHECK				
Co-Creators	A-Team of Xerox and P&G, Innovation council			
Purpose	main goals: reduce costs, sustainability and becoming more innovative			
Platform	Dreaming Sessions, Innovation Council and regular meetings			
Locus & Time-phase	starting with FFE			
Degree of involvement	high, P&G and Xerox both collaborate intensively			
Co-creation type	Club of Experts	Crowd of People	Coalition of Parties	Community of Kindred Spirits
DART-Model	Partnership supports each point of DART in a strong manner.			**DART**
Co-creation experience is high through continuous interaction between both partners.				**STRONG**

TABLE 4-11 Co-Creation check: Xerox and P&G Managed Print System

4.2.6 Apple's App Store

The "Apple's App Store" case represents a co-creation example that identifies how collaboration can create a new business model. A platform enables the co-creation process between business-to-business environments. Table 4-12 gives a brief overview about what is discussed afterwards. An overview about the portion of co-creation is shown in Table 4-13.

Case: **Apple's App Store**	Source: (Hein 2013)	
Summary: Introducing a centralized marketplace (App Store) for mobile devices enabled collaboration platform, where external developers can add and sell their own applications. In order to create them, developers use Apple's iOS Software Development Kit.		
Classification: **Business Model Co-Innovation**	Process: Company-led	Type: B2B

TABLE 4-12 Case description: Apple's App Store

Background

Apple's mobile devices are run by Apple's own operating system for mobile devices "iOS". With the launch of the iPhone 3G (2nd iPhone generation) in 2008, Apple also updated it's

operating system iOS to version 2.0. With this update, Apple introduced the App Store and opened its operating system for external individual developers. The App Store represents a centralized marketplace, where external developers can offer applications (short: apps), but they are still maintained by Apple.

Co-Creation Phase

Apple's App Store is the link, which allows independent developers to participate in the development of Apple products. The applications, which one can download from the App Store, are co-created by Apple and individual developers. Apple offers the so-called iOS SDK, which is a software development kit for mobile Apple devices (e.g. iPhone, iPad, AppleWatch requires the similar "WatchKit") that enables collaboration between Apple and individual developers that can use iOS SDK in order to create Apps based on their ideas.

By opening up Apple's operating system for mobile devices to independent developers, Apple created also a new business model. The disposal of Apps lets Apple as well as independent developers, benefit. Moreover, independent developers create the absolute majority of available content and Apple serves the platform for it.

As Apple regularly releases new devices, it also launches software updates. The platform basically stays the same, but new features are continuously added, which can be adopted by the independent developers. Furthermore, developers can get into a face-to-face dialogue with Apple during the Worldwide Developer Conference, which takes place every year. At the beginning of this conference, Apple is holding a "Keynote", where Apple is presenting new products.

Summarized, consumers of Apple devices benefit from large range of available applications, which Apple could presumably not cover by itself. Apple's spirit of unification limits the degree of involvement of the independent developers, which are more or less bound to Apple's iOS SDK. It could not be found out in what extent Apple includes developers for updates on its iOS SDK.

CO-CREATION CHECK				
Co-Creators	Apple and independent developers			
Purpose	Sharing revenue (70% for developers, 30% for Apple) and enrich iOS user			
Platform	Special software solution (iOS SDK), WWDC (Wordwide Developer Conference)			
Locus & Time-phase	Commercialization			
Degree of involvement	Low, Apple and developers are co-creating value for consumers, but Apple and developers do their development isolated from each other			
Co-creation type	Club of Experts	Crowd of People	Coalition of Parties	Community of Kindred Spirits
DART-Model	Dialogue does exist, but Apple dominates it. Accessibility is restricted, but everything necessary is distributed. Risk-benefit is clear. Transparency is weak.			**DARt**
Co-creation experience is strong due to Apple's skills to inspire people.				**STRONG**

Table 4-13 Co-Creation Check: Apple's App Store

4.2.7 Local Motors

The "Local Motors" case represents a co-creation example that shows that co-creation is already possible in automotive industry, although only under certain technological restrictions. Advanced technologies enable delivering consumer-specific wishes through the set-up of an ongoing co-creation process. Table 4-14 gives a brief overview about what is discussed afterwards. An overview about the portion of co-creation is shown in Table 4-15.

Case: **Local Motors**	Source: (Buhse et al. 2011)	
Summary: Local Motors revolutionizes car manufacturing through implementing advanced technologies, especially Rapid Prototyping technologies. Customers co-create together with engineers of Local Motors customer-specific cars. Both parties share the work of assembling cars in the Local Motors Microfabrics.		
Classification: **Co-Innovation**	Process: Company-led	Type: B2C

TABLE 4-14 Case description: Local Motors Case

Background

OEMs facilitate car specifications to customer through car configurators. Those can be accessed either through the Internet or through consulting a sales advisor directly at OEM retail stores. Although one might think that choosing from many different options is co-creating, it is actually closer related to mass customization. Versatile variations do satisfy the wishes of the customer, but customer steps in too late in the production process and eventually produced cars are not unique. Local Motors is an American car manufacturer that calls itself the “Next Generation American Car Company”. Local Motors’ approach is to integrate the customer *during* the development process. Products of Local Motors are developed over the Internet. Then customers can assemble their cars at a local retailer in Microfactories (combination of assembly hall and retail store) together in assistance of Local Motors staff on two extended weekends – the “Local Motors Built Experience”. However, Local Motors development strategy is openness, which also represents the basis of Local Motor’s business model. Whether its vehicle concepts, detailed plans, assembly groups, production, or service, Local Motors seizes all success factors of co-creation throughout all stages of value creation, especially in the product development.

Co-Creation Phase

Products of Local Motors are co-created with many stakeholders. Designer, engineers and car enthusiasts develop together concepts for new products over the Internet. For example, engineers from Local Motors develop a chassis as basis for community-specific designs. The same applies to engine, steering column, and gearbox. New technologies, like Rapid Prototyping (RP), support these development steps.

The co-creation process at Local Motors includes 4 main steps: (1) Create it!, an online-community and brings in and discusses sketches. Monthly design competitions are the core element of this stage and ambitions members of the community get rewarded. At the end, a winner is selected. (2) Develop it!, detailed concepts are created. Aim is to develop a production-ready prototype. Open-source CAD-files of parts serve as a basis. (3) Built it!, now customers can make their cars unique. Therefore, they can formulate their wishes and, additionally, concepts can get crowdsourced; (4) Mod it!, all parts of the vehicle are available

to the community and can be modified by it. RP technologies allow a feasible and cost-efficient production of nearly all components.

The development process can also be transferred to an own vehicle concept. Individual projects are also open to the community. Therefore, Local Motors introduced the “FLYPmode”. Local Motors claims that is possible to generate a production-ready prototype within 150 days.

Moreover, Local Motors plans not only to co-create customer-specific cars, but also to acquire business partners who want to co-create a fleet of vehicles shaped directly to the business partner’s needs.

CO-CREATION CHECK				
Co-Creators	Local Motors and consumers			
Purpose	Co-creating community-specific cars			
Platform	Internet, Mircofabrics			
Locus	NPD			
Degree of involvement	high			
Co-creation type	Club of Experts	Crowd of People	Coalition of Parties	Community of Kindred Spirits
DART-Model	Local Motors puts strong emphasis on all parts of DART, besides Risk-benefit may be constrained through legal reglementation.			DART
Co-creation experience is very strong through ultimate customer integration.				VERY STRONG

TABLE 4-15 Co-Creation Check: Local Motors

4.3 Discussion of Cases

Since the co-creation paradigm had been introduced, more and more cases from real-life problems have been described and merged with the co-creation term. Depending on the individual case, emphasis is placed on different points of co-creation tools. So e.g. engagement platforms need a stronger dialogue than personalized services, where transparency is more crucial for needed insights. Moreover, cost-intensive market studies are becoming almost obsolete, once co-creation is used for product and service innovation. Co-creation even complements an area that market studies can never reach, regarding personalized products and services.

However, the co-creation paradigm is applicable in several ways. Its paragon is to identify the customer's needs and meet them gapless. This can be considered as the simplest application of co-creation. But it is suggested to go further. It should address the end-customer in a more direct way. For purposes of B2C, it is the goal to achieve large-scale co-creation methods for personalized products and services; for B2B applications, the direction of co-creation is heading in a direction of how to find the perfect product, service, process, technology or business model through collaborative co-creation techniques.

Anyways, each described case in section 4.2 has an individual table ("Co-Creation Check"), where the characteristics of each co-creation process are described. The described cases are picked out of various industries. Hence, co-creation can be applied in any other industry as well, but of course under specific constraints. While the purpose of customer integration represents a crucial premise, is the locus & time-phase responsible for adequate collaboration, which determines the outcome the most. Failing by offering the proper relation of the DART-Model as well as dimensions of choice leads automatically to failing the entire co-creation process. But generally, using state-of-the-art technologies eases the application of co-creation. In order to maintain the co-creation process, the co-creation initiator decides whether either the firm or the customer leads the process. Nevertheless, B2B or B2C relations do not have an influence, if the co-creation process is customer-led or company-led. Whereas, it is more the fact of who wants to be in control of the outcomes, which decides whether the process is customer-led or company-led.

5 Interviews

5.1 Approach

Theoretical approaches of co-creation are described in the previous chapters. Cases mentioned in section 4.2 highlight the importance of co-creation in development processes. Nevertheless, another objective of this thesis is to gather field experience from experts who are facing situations, which co-creation is trying to encounter. Therefore, interviews were hold with 6 experts from different industries. All of those experts are closely familiar with development processes within their firms. The selected branches have a strong approach to innovations anyway. Moreover, all the selected firms have an outstanding position within the market and extraordinarily emphasize on innovations even within their daily operations. Summarizing, the selected firms can be considered for managing the shift towards a future in the sense of co-creation as a role model. Only young start-ups could manage this complete shift away from common practices faster due to their exceptional flexibility, as the elaboration of the interviews additionally shows. But start-ups do not represent the majority of business landscape and, therefore, start-ups are not representing the center of these investigations.

Interview questions were standardized. So, every interview had to contain the same questions in the same sequence in order to facilitate better comparableness. The 10 questions can be divided into 3 blocks: what are the customer needs (Block 1), development process and evaluation (Block 2), and the co-creation paradigm (Block 3). Every single question targets on a specific element of co-creation. Until question 9, the author of this thesis gets an insight and understanding of how the firms treat their customers and how the firms facilitate their development processes. While block 1 determines if the customer-firm relationship allows co-creation at all, is block 2 figuring out if or at least in which degree co-creation is in use already. Collaboration and integration of customers in development process do not automatically lead to fulfilling the demands of a proper co-creation application. Block 3 – which is equal to question 10 – asks precisely about the co-creation paradigm. Table 5-1 lists the standardized questions that were used during the interviews.

INTERVIEW QUESTIONS	
1) Is collaboration with the customer important for your firm?	NEEDS/DEMANDS
2) Where do you see the value of your products located in? Do you consider your firm more customer-centric or company-centric orientated?	
3) Considering a NPD process in your firm: How do you find out, what your customer wants/desires/demands?	
4) Are you letting the customer integrate in the product (or service) development process? If yes, how do you integrate the customer in the development process? (Remark: Consider locus/platform, degree of involvement, time-phase)	PROCESS / PROCESS EVALUATION
5) Could you integrate the customer even more in development process? If yes, what stops/limits you?	
6) Do you maintain the relationship to your customers during the development process? If yes, how?	
7) Do you consider the development process as a sustainable experience for your customers? If yes, why?	
8) Risks for firms during the development processes are commonly known. But do you see also risks for the customer?	
9) Is there a way in which you can evaluate, if you have met your customer's needs/demands?	
10) Collaboration with the customer will strongly influence prospective competitiveness. Recent research to this topic points out a paradigm which scholars commonly call "co-creation". Have you ever heard about this term, and the "co-creation paradigm" itself?	CO-CREATION

TABLE 5-1 Standardized Interview Questions

5.2 Findings

Findings in block 1 were that the collaboration with the customer is essential for all companies. All of the interviewed firms consider their offerings as conveyors of value, but the actual value lies in the relationship with the customer. Products and services are directly addressed to customers and are shaped to customer-specific needs. Every firm considers itself as customer-centric, although in one case the shift is not yet entirely completed due to firm size and thereby linked inertia. Ongoing and constant dialogue, as well as the accessibility of information shapes a relationship to the customer, which allows all interviewed firms

permanently being aware of the customer needs, demands and wishes. Furthermore, firms emphasize on intense project clearings at the beginning of the collaboration.

Findings in block 2 were more versatile than findings in block 1. Whereas all experts mention unanimously a clear “Yes” for customer integration in the development process, it is not always clear if customers can be integrated even more, according to question 5. The spectrum of answer here is wide. While some experts see a lot of possibilities for the improvement, other experts see their firms already reaching an explicit limit where no further customer integration is possible. Overall, issues about intellectual property and single sourcing are common problems. Thereto, a detailed analysis of limitations for firms is given in section 7.2. All firms also see their customer relationship continuously maintained throughout the entire development process. In addition to the collaboration between the development teams, also the commercial managers of the firms keep in contact. Special departments, like e.g. business development departments, exist also in order to maintain the customer-firm relation. However, concrete steps generally depend on the individual customer.

Moreover, question 7 marks an especially important question, which is targeting on the co-creation experience. The experts had little difficulties in talking about ***the*** co-creation experience and pointing out its components directly. Questioning about a sustainable experience for customers marked a turning point in approaching co-creation. Maybe there is too less attention paid for addressing the customer experiences in an even more direct way. However, the author considers customer experience as crucial and of top priority on the road map for complete co-creation.

Block 3 was mentioning the co-creation paradigm for the very first time to the interviewee. It was expected that even experts with many year’s experience do not know about co-creation, which turned out to be true. Not a single interviewee was capable of foundational knowledge about the co-creation paradigm.

Pending was a detailed description of the customer integration in development processes. Perhaps this is depending on the individual case of application. However, surprising was also that avoiding danger of uncompleted products could play a highly important role in collaboration processes.

In conclusion, firms are aware of the relevance of customer integration within their development processes. One can also say, that they are heading towards co-creation, but they

are not completely there yet. The essence of co-creation – the co-creation experience – is not yet in the mindset. Some of them shaped already such co-creation experiences, but probably more as a side product. Thus, experiences are difficult to describe and evaluate. A trustful and long-term partnership can only be shaped if co-creation experiences are facilitated – despite the fact if it happens on purpose or by coincidence.

Anyways, every interview made can be found with additional company information in Appendix A.

6 Co-Creation Conceptual Framework

6.1 Objectives to the Conceptual Framework

As already mentioned in chapter 3, an extant literature review had shown that there is only little research considering the elaboration of co-creation models, concepts, techniques, methods, or frameworks. Further, one can say the transaction of co-creation into the conference rooms of companies is difficult because of the lack of applicable co-creation frameworks. In this chapter, the author introduces the "Co-creation Square", which was developed especially for this thesis for supporting the closure or at least minoring the fundamental gap between theory and practice.

The application of the co-creation paradigm is less about completing a sequence of tasks in order to reach specific outcomes, but more about understanding a philosophy and transferring it into a more or less structured process, which reflects this certain philosophy in a proper manner. As already pointed out, the co-creation process is dynamic and a lot of variables can influence the process unpredictably; it is important to identify the core elements of the co-creation paradigm and apply them appropriately.

The conceptual framework – presented in section 5.2 – is created for purposes of closing a research gap, which is the pronounced aim of this master thesis. I could develop deep and fundamental knowledge about the emerging co-creation paradigm due to my studies dealing with the co-creation paradigm for several months. Intensive analysis of existing frameworks (as in chapter 3 mentioned) as well as real-life and concrete cases (as in section 4.2 mentioned), were also an important part of that. Therefore, the author of this thesis could gain the needed capabilities in order to transfer his knowledge and experience, as well as the gained knowledge in interviews with experts, into a conceptual framework. In this context the author of this thesis wants to mention once again that his conceptual framework "Co-Creation Square" was especially influenced by Prahalad & Ramaswamy (2004a; 2004b; 2004c), Cooper (2006), Roser *et al.* (2009), Pater (2009), Ramaswamy & Gouillart (2010b) Roser *et al.* (2013), Lam (2013), and Product Development Institute Inc. (2016).

However, the conceptual framework "Co-Creation Square" is especially addressed to individuals and firms, who are interested in co-creation and its benefits, but are not familiar with practicing it.

6.2 Presentation and Discussion of Co-Creation Square

The co-creation framework, which I elaborated and named “Co-creation Square” consists of 4 main phases: 1) preparation phase; 2) planning phase; 3) action phase; and 4) evaluation phase. All of those phases mark different stages in which a specific task should be completed before entering a new stage. Due to demand of simplicity, I will not implement additional gates, like the Stage-Gate (see section 2.1.3) exhibits.

Co-Creation Square

The framework “Co-creation Square” is built out of 4 equal relevant phases, that gives the co-creation paradigm different faces. Altogether they reflect the co-creation paradigm and give a guide to users through showing the challenges of co-creation in order to apply co-creation successfully.

Phases 1 and 2 are the phases, which are especially addressed to the initiator of the co-creation phase; phases 3 and 4 are addressed to both, the initiator and the co-creator.

1. Preparation Phase

In order to apply co-creation in a co-creation process, it is necessary to understand the philosophy behind it. Conceiving the core elements of the philosophy is to determine how co-creation applicants will practice co-creation and whether the co-creation process will turn out successful.

Due to no repetition of what was already described, it is referred at this point that the core elements of the co-creation are mentioned in the sections 2.3.1 to 2.3.3.

2. Planning Phase

After the initiator understands the co-creation paradigm, it is crucial to determine the purpose and the objectives of the upcoming co-creation process. Here, it is especially recommended to

set them in a manner that following stages can evaluate if those, purpose and objectives, had been failed, met, or even exceeded.

Techniques like KISS (Keep it Simple and Stupid) and SMART criteria (Specific, Measurable, Assignable, Realistic, Time-bound) should be used in this phase in order clarify tasks and to prevent confusion.

A purpose can be e.g. innovating a new product or service, creating a new business model for existing products, solving a certain problem, which causes limits to performance, reaching a specific target group, etc.

In section 4.2, the “Co-creation check” is introduced. It displays 5 objectives (Co-creators, Platform, Locus, Time-phase, Degree of involvement), and further, the “Co-creation type” (which is either Club of Experts, Crowd of People, Coalition of Parties, Community of kindred spirits), which all should be defined in this planning phase.

3. Action Phase

This is the first phase when the co-creation process is opened up and the co-creator from the outside of the organization can enter the stage. It comes to an encounter between the co-creators. Creating and maintaining a relationship between the co-creators is dominating in this phase. This might sound very trivial, but this part of the framework is actually the most critical. Mistakes in this phase can easily lead to a complete failure of the co-creation process. In order to prevent this scenario, it is strongly recommended to rely on the DART-Model (Dialogue, Accessibility, Risk-benefit, Transparency), which is described in section 3.1. Dependently on purpose and co-creator (type), special emphasis should be put on certain points of the DART-Model. For example, different types of co-creators require a specific characterization of the single elements considering dialogue, accessibility, risk-benefit, and transparency.

Objectives, which were set in the planning phase, determine the goals during the encounter with the customers.

Encounters of the co-creators shall be organized in a manner, that the participants can open up and express themselves freely. Further, it is crucial to give adequate recognition to the

participants, as well as sufficient rewards. Only with enough motivation, it is possible to keep the co-creation process performing. It could be helpful if one can find out more about the incentives of the participants in order to find out the proper means.

The essence of the co-creation process is the “co-creation experience” of the participants. Especially section 2.3.4 gives thereto a detailed explanation. It is strongly recommended to observe constantly and continuously whether the relation stays strong enough.

4. Evaluation Phase

Co-creation processes can bring a lot of new and unexpected outcomes, which should be summarized into reports, as well as the “normal” procedure. Using these reports for evaluation leads to progressive learning and also to improving the quality of ongoing as well as the future of co-creation projects.

Knowledge about the organization of co-creation processes in practice can be considered as important assets for firms. With this knowledge, co-creation processes will have a better performance and are more likely to be successful.

Hence, the “Co-Creation Check” – introduced in section 4.2 – can be easily used to create a summary of all co-creation activities as well as a good overview about the process itself.

6.3 Visualization of Co-Creation Square

Figure 6-1 visualizes the framework in manner of the “Co-Creation Square”.

Especially to point out in “Co-Creation Square” is a quality instance for current and future co-creation projects, which was not mentioned in any other existing conceptual framework before. Although some scholar mentioned that co-creation is a dynamic process with a complex nature (Saarijärvi & Kannan 2013), the author of this believes that “Co-Creation Square” could simplify that and highlight the most important tasks during a co-creation project.

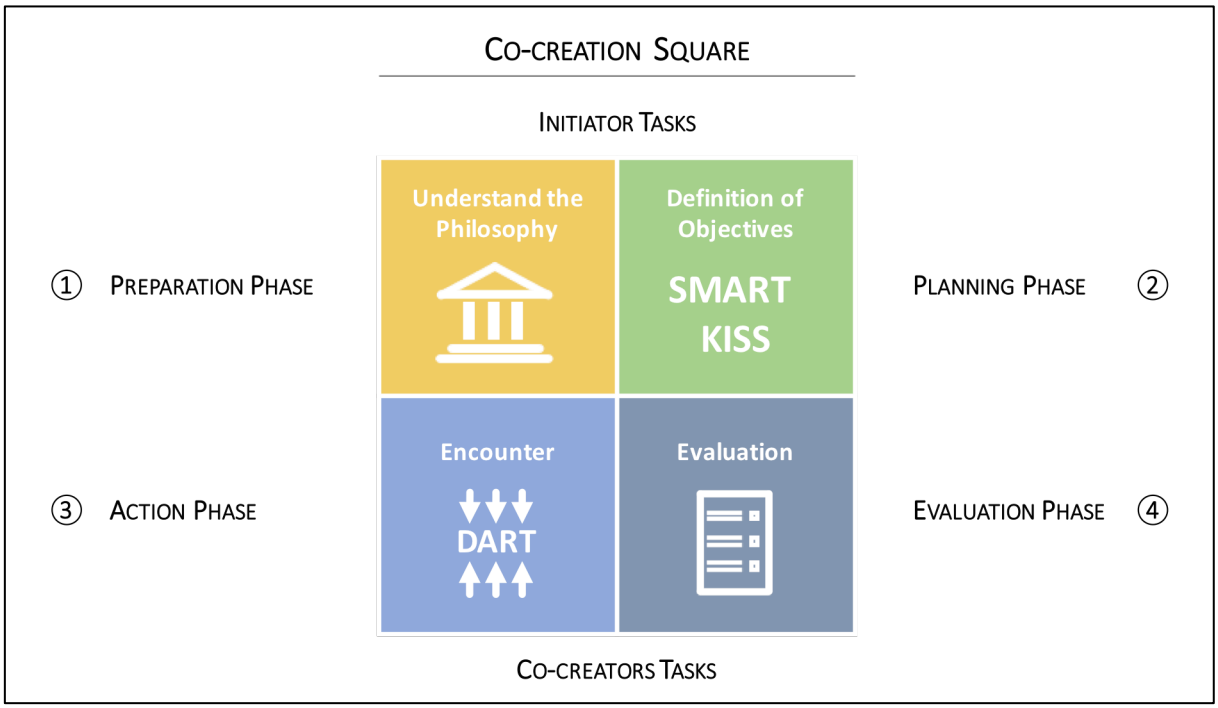


FIGURE 6-1 A conceptual framework: “Co-Creation Square”

7 Limits of Co-Creation

7.1 Limitations According to Literature

The range of different opinions about limitations and possibilities of co-creation is wide. Reviewing literature to this topic shows that there is no definitive conclusion. One can say, that everybody who is familiar with co-creation has his or her own opinion about capabilities but also constraining factors. On the one hand, for example, consultant David Firth (2010) states that co-creation has no limits at all due to the boundaryless environment that we all live in. Prahalad & Ramaswamy describe "the possibility are endless, particularly if we gravitate toward innovating 'experience environments' that accommodate heterogeneous consumers who seek to interact in a multitude of ways" (Prahalad & Ramaswamy 2004c, p.50). On the other hand, other scholars mention co-creation has despite its significant potential, also theoretical and practical limits (Mrácek et al. 2012).

Nevertheless, when analyzing variable inputs and versatile outputs of co-creation processes, of course, limiting factors can be found. For example, Nordeman & Visser (2012) undertook a test, where students had to find out the limits and possibilities of co-creation in Rotterdam, by using a non-commercial and non web-only environment – expanding the co-creation channels. During the co-creation process, the research group noticed that the channel, that was chosen for the co-creation process, determines the efficiency of the co-creation process. The participation of co-creators in Rotterdam, which is a city with many young people and the only city in the Netherlands where the average age of its inhabitants doesn't increase, was much stronger in the web-based approach. As a result, it can be considered that the channel, with which the participants are addressed, has a huge impact on the co-creation process and therefore its success.

In topics of researching limiting factors, scholars describe fruitless outcomes of co-creation as "value co-destruction" (Roth 2011). Co-destruction is defined as "an interactional process between service systems' well being" (Plé & Cáceres 2010, p.431). Thereby it is problematical in case of failed co-creation processes, which may have been integrated in an innovation process, both, co-creation initiator and participant loose their entire investment. So not only money and time can be lost, but also the image of a firm or a brand could suffer of mistakes during the co-creation processes. Responsible key stones for co-destruction are misuse of resources or misalignment of processes (Lefebvre & Plé 2011). However, research was

undertaken with service providers and product manufacturer. Results present that co-creation is “limited in terms of the degree to which industry and relationship-specific inferences can be drawn” (Payne et al. 2008, p.94).

7.2 Limitations According to Practice

Despite the assumption of no restrictions in the co-creation philosophy, restrictions do clearly exist in practice. Boundaries of co-creation in practical situations were especially pointed out by the interviewees when talking about risks and limitations of customer integration in their development processes. There are risks arising also for both the firm and the customers. Nevertheless, limitations of customer integration in the development process consist due to natural boundaries and are additionally leveraged by artificial ones. Hence, either a **natural** or an **artificial boundary** is limiting the co-creation process.

Natural constraints can be, on the one hand, an available technology. Best practice cases of co-creation processes bring the customer as earliest as possible in the development process. But then the technological feasibility in production, where the customer could step in, marks the border. Flexibility in manufacturing is truly increasing and will reach a new peak after the ongoing revolution towards Industry 4.0. On the other hand, if the mindset of participating people is not appropriate to the co-creation philosophy, co-creation can only be applied in a slimmed manner. Therefore, service industry is naturally bound to the customer’s mindset and cannot go beyond that. Furthermore, customers also have to commit to collaboration processes. For monitoring progress, firms should softly push the customer in the demanded direction by continuously improving and extending the offerings. Moreover, an often forgotten point is the prevailing culture in the initiating firm. Not only the mindset of customers has to be shaped according to co-creation, also employees of firms have to have the same one. Maintaining a dialogue to customers requires an empathically listening counterpart.

In contradiction thereto, **artificial constraints** are adjustable. They represent basically a relation between two parameters and can be balanced in either way. Primarily, an artificial constraint is the *cost-benefit relation*. At a certain point costs rise too high and outcomes become neither beneficial for the firm, nor the customers anymore. Secondly, *intellectual*

property (IP) rights are another artificial constraint. During the co-creation process – which has clearly also the status of an innovation process – inventions will be made for sure. Some of them may turn valuable and worth protecting from imitators (who are mostly competitors). The exclaiming question now is who would obtain these IP rights – either the firm or the customer. Thirdly, *risks for firms* occur because of too deep integration of the customer. Secret knowledge may be exchanged between firm and customer. Non-disclosure agreements might help to find a proper balance in order not to hinder the integration. Moreover, the customer also might have the impression that the solution has to be elaborated without the firms' support. Collaboration for the customer with the firm would be in this case obsolete. Subsequently, *risks for customers* occur as well. Relying too much on one supplier (here: our firm) brings the customer into a dangerous position in means of dependability. Either the supplier could fall apart or it can happen that only one single firm can provide the solution to the customer's problem. Another topic is how the initiator should open up the co-creation process to the participants. An appropriate offer with means of the *DART-Model* (which puts dialogue, accessibility, risk-benefit, and transparency into relation to each other) has to be made to all participants. A not suiting co-creation environment would therefore hinder co-creators during the process. To sum up, in the end it will still depend on the participants' willingness and incentives for collaboration.

8 Summary and Outlook

Economical crisis has a tendency to lead to new ways of thinking. Low economic growth and high unemployment rates create opportunities for entrepreneurs, who use state-of-the-art technologies, and companies have to find new growth opportunities. The main response is approaching customers in a more direct way. Co-creating products or services together allows bot parties to detect market failures quicker and find creative ways to address customers and places co-creation applicants ahead of the curve (Ashoka 2014). Thus, co-creation is most likely used for innovation purposes. Innovation is crucial for companies to keep their outstanding position on the market. Therefore, companies all over the world try to find new and also faster ways to innovate products, services, processes and accessible technology. Thereby, new business models or even new markets can emerge. However, future competition will be defined by shaping co-creation experiences (Prahalad & Ramaswamy 2004a).

There are many definitions of co-creation from various scholars existing. Those definitions have basically in common that co-creation is a process, which allows an active exchange with the customer, opens a new basis for innovation, is initiated by the firm, facilitates a win-win situation for both, the customer and the firm, and establishes a stronger and sustainable relationship between the customer and the firm. Similar and related concepts of co-creation, like co-production, open innovation, mass customization, lead user method, et cetera, are aiming in the same direction, but forget about pointing out personalized consumer experiences. This is, on the one hand, the pivot element of co-creation, and, on the other hand, the main delimitation to related concepts. In this spirit, co-creation is about “consumers co-constructing their own experiences” (Prahalad & Ramaswamy 2004c, p.50). To accomplish this, firms need to build up an experience environment, which is a framework that allows firms to facilitate a variety of co-creation experiences with millions of consumers (Prahalad & Ramaswamy 2004b). However, offering exactly those frameworks is problematically because they barely exist in literature yet. The most effort that had been made by scholars was describing the co-creation paradigm in various contexts.

The mentioned cases give a good insight in practical application of co-creation. Co-creation processes have different characteristics, dependently on the individual application. The purpose of the collaboration mostly gives co-creation its face of appearance. Moreover, it is important to find the proper platform, where the co-creation process can take place.

Subsequently, locus & time-phase of co-creation processes should be in an adequate relation to the degree of involvement. An early stage co-creation process requires, therefore, a higher degree of involvement as on the back end. This is due to more capabilities, which result in more versatile outcomes.

Interviews with experts in development processes underline the necessity of co-creation processes, although co-creation as a paradigm is not familiar to people in industry. Many firms have already applied co-creation-alike processes within their firm. Intense collaboration with the customer is always crucial for all conducted firms during their daily operations, but there is mostly too little attention paid to co-construct unique co-creation experiences. Especially interesting are the elaborated limitations. Despite the fact that the co-creation philosophy does not contain any boundaries, constraints clearly exist in practice. These can be either natural or artificial constraints. While natural constraints are not changeable, artificial constraints are adjustable by the co-creation participants.

However, applying the co-creation paradigm in a proper manner requires an understanding of its philosophy beforehand. The initiator of the process has to deal with the setup of the prospective process. A systematical and clear structure helps forming a controlled collaboration of customer and firm. The encounter of co-creation participants and initiator should have models implemented, which facilitate all levels that are necessary for translating co-creation into action. Because co-creation processes contain massive learning by doing, a sophisticated evaluation phase is from a high relevance. The author of this thesis summarizes all these findings in the self-developed “Co-Creation Square”. The “Co-Creation Square” represents a guideline for firms that want to apply co-creation.

Co-creation practices depend strongly on constraints. Natural constraints, as e.g. technology, customer mindset, will continuously develop. Following this trend, new capabilities for co-creation will appear. Hence, co-creation will go beyond the customer. Reaching suppliers marks only one part of the expenditure of the co-creation paradigm. Co-creation has the potential to reshape with virtually all internal and external stakeholders (Ostermann et al. 2013). The locus of co-creation process are now development processes, but prospective co-creation processes will also contain stages, that are following the production stage, but especially the after-sales stage. In conclusion, “products can be customized but co-creation experiences cannot be” (Prahalad & Ramaswamy 2004a, p.9).

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Appendix A – Interviews

Interview 1: March 20, 2016

The interviewee was Dr. Gernot Steinlesberger. He is Vice President at OSRAM AG, where he is responsible for International Projects and Global Key Account Management. OSRAM is operating in light industry and its business relations are considered to be mainly B2B.

1) Is collaboration with the customer important for your firm?

This has to be the most important for every firm. The customer has to be always in the center of every activity. Thereby it doesn't matter in which function the customer is integrated, we talk about a selling organization. It could be either an early stage, like product development, or also at the end, like sales.

2) Where do you see the value of your products located in? Do you consider your firm more customer-centric or company-centric orientated?

OSRAM tends nowadays still to be more company-centric, or product-centric. In the last three to five years, OSRAM is transforming more and more to the customer-centric mindset. This transformation is mainly caused due to the change in the lighting industry, driven by LED technology. This is a key reason why customer-centricity is becoming more and more important to OSRAM. Furthermore, OSRAM is heading into the lighting solution sector, where the solution for the customer itself is getting more complex and thus, the most important asset. The value of our offerings in the past used to be mainly related to products, in our case lighting components like the well-known light bulbs. The shift of the value of the offering nowadays to lighting solutions is putting the single product in the background; service topics are becoming more important, and this is also leading to a complete change in sales channels and ways how to approach customers. You can see this by the push and pull market system. Traditionally, it was convenient in the lighting industry to push all products into the market. Solution-orientated thinking reflects therefore the pull system. If OSRAM would still only be interested in traditionally selling lamps and luminaires, than we would not be competitive anymore because customers require nowadays consulting, energy audits, lightning concepts, lightning calculations, installations, commission of the installations, after

sales services, and also financing methods. Less energy consuming lighting solutions can compensate the switch to the new technologies and the costs involved. Often it is important to consult the customer about financing and payback times during the very first meeting in order to set up a business contract. But to sum up, OSRAM is moving away from a pure-play retail and wholesale trade, and is heading towards lighting solutions for end-customers in the professional lighting area, especially where luminaires, the corresponding system and solution, are making a difference.

3) Considering a NPD process in your firm: How do you find out, what your customer wants/desires/demands?

Voice of the Customer is crucial for that and we are also taking it very serious. Building up a dialogue with customers as well as integrating them into the organization is part of that, but unfortunately, it is not always possible that everyone in the organization can participate. Therefore, a member of the sales team is responsible to keep the ear in the customer's direction; it is called "key account management". Speaking only with the customer is also not sufficient; it is necessary to implement all stakeholders, like external consultants of the customer, who may participate in projects. We face our projects at OSRAM with a 360 degrees analysis, where we put the customer in the center of it. Summing up, it is the most crucial to understand what the customer really wants, because sometimes a whole new product development process is not even necessary in order to fulfill the customer's demands. Typical tools that we apply are e.g. workshops, Voice of the Customer, Net Promoter Score metric, and aimed surveys, interviews, and queries directly at the customer's site, because we want to find out how the customer is thinking about us. These tools can be applied for products and services equally. Furthermore, the key account manager is also playing an important role here, targeting to become the trusted advisor for the customer

4) Are you letting the customer integrate in the product (or service) development process? If yes, how do you integrate the customer in the development process?

Yes, this is possible and this is our goal. There is nothing better for us than integrating the customer in the process. But at one point, clear legal conditions become important, which are facilitated through a non-disclosure agreement for both sides and contractual division of potential outcomes. Another issue is that if customers are integrated too much and too

proactive, customers may get the feeling that they have to come up with a solution all by themselves.

In general, the development team works together with customers in order to find the best and most suitable solution. But the topic of intellectual property comes automatically along within the product development processes. It is a sensitive issue giving new ideas and content of patents to customers. Therefore, it can be more recommended to co-create applicable solutions.

Anyways, modern technologies like the Internet created new opportunities for customer integration. But nevertheless, the platform, which you offer to customers, is important. Sometimes customers still prefer a more traditional platform (like e.g. printed product catalogues). It is obvious that this will be an area where thing will change drastically in the coming years.

5) Could you integrate the customer even more in development process? If yes, what stops/limits you?

The more I can integrate the customer in development processes, the better. But what is hindering me is the purchase department of the customer. They don't feel comfortable if their team is engaging too much with OSRAM in development processes because it is shifting them into dependence. The multi-source strategy of the customer's purchase department cannot be applied anymore if the solution can only be achieved with OSRAM all alone. While this situation creates a disadvantage for the customer, it does create an advantage for OSRAM.

6) Do you maintain the relationship to your customers during the development process? If yes, how?

The relationship to customers has to be maintained in a specific way, in order to exploit full potential. The customer has to be integrated all the time, be structured, and guided.

7) Do you consider the development process as a sustainable experience for your customers? If yes, why?

Today, development processes with customers haven't created a sustainable experience yet, because the customer is still not integrated enough. Customization is a big topic for us, but is not well-shaped enough yet that the customer would feel a sustainable experience. I can

imagine that we have to let the customers create more parts by themselves in order to maintain experiences in a stronger manner. Results-orientation versus activity-orientation describes the situation at OSRAM very well. Now results-orientation is clearly dominating, but of course, we want to reach an activity-orientated process. A sustainable customer experience can be achieved when the customer would say after the creation process, that the path to the solution was gone together and it was co-created through collaboration, although perhaps the path was actually predefined by you. But clearly, customers have to feel, that they found the way. This is an example for customer centricity.

8) Risks for firms during the development processes are commonly known. But do you see also risks for the customer?

As already mentioned in question 5, the multi-source strategy is a limit in customer integration and, therefore, too intense collaboration causes a risk for the customer. Single sourcing creates a dependency for the customer due to reliability on the solution that you created. Furthermore, if customers are coming too close to you, they may fear that you might steer them. So, therefore, finding the right balance is crucial.

9) Is there a way in which you can evaluate, if you have met your customer's needs/demands?

Common practices are Net Promoter Score and surveys. Another way to evaluate during the development process is to be proactive during the dialogue between you and the customer, when you both face the current situation and the intended goal. Setting milestones beforehand is guiding the path to the solution. Reviews at each point give a good feedback if you hit your intended goal. It is a continuous listening and feedback process. And of course, you have been successful if you win a deal or a job and the customer is happy, even years after selling.

10) Collaboration with the customer will strongly influence prospective competitiveness. Recent research to this topic points out a paradigm which scholars commonly call "co-creation". Have you ever heard about this term, and the "co-creation paradigm" itself?

The term "co-creation" is not familiar to me. But of course, I do know the philosophy behind the co-creation paradigm. Due to my personal experience I can approve the relevance of this concept and I can also say that this becomes more and more important in the future of competition. (Remark: The author of this thesis explained the co-creation paradigm before the interview started.)

Interview 2: March 21, 2016

The interviewee is an expert in product marketing in an Austrian company, which is listed on the Austrian Stock Exchange. Business relations are considered as mostly B2B. Furthermore, customers tend to have buying center character. In special cases, products are also sold to consumers (private persons) directly. (Remark: It was restricted due to company-intern regulations to name the interviewee, the company as well as the branch.)

1) Is collaboration with the customer important for your firm?

Yes, indeed it is very important. We sell very customized products (project-business) and they are often manufactured according to the needs and requirements of the customers, and thus the customer is involved very much. The products are being proposed to customers individually, so a careful and accurate request, and accordance with the customer is needed - at the beginning of the relationship with the customer as well as during the whole purchasing process. Even after the act of buying is over, it is essential to keep up the relation with the customer, in order to manage any measures of service or maybe even generate future transactions, and of course, to get feedback from the customer.

2) Where do you see the value of your products located in? Do you consider your firm more customer-centric or company-centric orientated?

This is difficult to answer due to the variety of products. Mostly our business is project-based, so every customer gets an individual product with unique characteristics. Therefore I would rather say that customer-centric is more likely. Of course other products are more standardized, however there are mostly always features the customer can chose individually.

3) Considering a NPD process in your firm: How do you find out, what your customer wants/desires/demands?

Concerning product development: there are different ways how new products are developed or existing products are being improved / developed further. There are departments, which have the task to optimize and develop products; many innovations are developed this way. The ideas often come from customers or the sales teams of the different markets, but often also from employees (or technicians) themselves. Some of the customer's demands can be

found out by questionnaires (after-sales), by talking to customers and/or potential customers of different markets (trade fairs are a good opportunity to get in contact with (potential) customers and talk about their expectations). Our company also does trend research, in order to find out about future trends and be able to act proactive.

4) Are you letting the customer integrate in the product (or service) development process? If yes, how do you integrate the customer in the development process? (Remark: Consider locus/platform, degree of involvement, time-phase)

Concerning new product development: Yes, however, as far as I know there are only a few standardized instruments or measures how the customer is integrated in this process in use. It seems to be mostly in the beginning of the product development phase, and that customer's needs and feedback and future expectations are considered.

Concerning the development of a product / solution for a customer, the customer is of course involved very much in the beginning of the process. Here, also very special solutions for customers are developed and if they prove of value, these solutions may go into series production (also for standardized products). During the whole buying process, there are usually several meetings held with the customer to clarify the product plans (construction plans, pre-construction meeting). Sometimes in these stages, the product is slightly adapted, if any needs of the customers have changed or the one or other solution turns out to be less practicable as expected, etc.

5) Could you integrate the customer even more in development process? If yes, what stops/limits you?

Yes, it would be possible to integrate the customer even more. However, official standards, norms (mostly country-specific) or technical reasons limit the possibility to fulfill all the needs of the customer. It is also dependent on the awareness of the sales staff (the employees who have direct contact with the customer) to communicate the customer's wishes, needs, feedback, ideas etc. Also, more standardized measures (questionnaires, market research on a regular basis) would be beneficial in order to learn more about the customers and the markets.

6) Do you maintain the relationship to your customers during the development process? If yes, how?

This is maintained through personal contact, contact per mail, via dealers and business partners. This depends strongly on how the sales & distribution in the different country's markets is organized.

7) Do you consider the development process as a sustainable experience for your customers? If yes, why?

Yes, the customer's involvement is higher and thus also the identification with the product / company. The customer also has the feeling to be "heard" and that his opinion counts.

8) Risks for firms during the development processes are commonly known. But do you see also risks for the customer?

According to me, it is essential that the company provides the highest possible security and technical standards and also to make sure that all norms and official standards are met. These factors have to be discussed in advance or as early as possible in the product development phase, so that the customer is not disappointed if certain limitations are given. However, the company also has to give its best to offer the best possible product solution for the customer. Some new and revolutionary product ideas are being developed when the company finds the balance between customers' needs/wishes and possible realizable results.

9) Is there a way in which you can evaluate, if you have met your customer's needs/demands?

An evaluation is undertaken through after-sales contact or questionnaires during the whole customer relationship, and particularly also after sales. This way, new demands can be also identified and product improvements can be triggered.

10) Collaboration with the customer will strongly influence prospective competitiveness. Recent research to this topic points out a paradigm which scholars commonly call "co-creation". Have you ever heard about this term, and the "co-creation paradigm" itself?

I have heard about it in a course of "key account management", but only very briefly.

Interview 3: April 5, 2016

The interviewee was Dr. Michael Wratschko, who is CFO of WILD GmbH. WILD is mid-sized Austrian company in medical technology and optical technology industry, and is a contract manufacturer for B2B purposes (WILD does not have its own products). A high equity ratio (>50%) features WILD a solid standing and characterizes WILD as a stable partner for long-term partnerships. Furthermore, WILD emphases on a strong customer service, which leads in average to cooperation with clients for more than 8 years.

1) Is collaboration with the customer important for your firm?

Yes indeed, this is very important to WILD and it also gets more and more important in the future. We were founded right from the beginning as a contract manufacturer. But when we became independent from our former mother company in 1995, we had a shortage of customers. Moving customers in the center of our activities was the strategy for acquiring new customers, in order to grow and enable a stable position within the market. In our branch it is very important to partnership with customers as early as possible. Usually it takes one to one and a half years until business bears fruits with customers, but then partnerships usually stay existing for many years. Trust is essential in our branch. Our longest partnership with a customer exists now for more than 30 years.

2) Where do you see the value of your products located in? Do you consider your firm more customer-centric or company-centric orientated?

First of all, we offer to our customers everything: starting with the product idea to the after-sale service. A tendency is emerging where our customers concentrate on legal issues and product development, but we do production and after sales because legal reglementations are increasing in our branch and cause a lot of investment to meet them. As already mentioned in question 1, we are clearly customer-centric organized.

3) Considering a NPD process in your firm: How do you find out, what your customer wants/desires/demands?

We have a “project leader of sales” (who is mainly a key account manager), who is responsible for ongoing dialogue with the customer, doesn’t matter if it is about technical

issues or financing, etc.. Customers are continuously at our sites and in interaction with us. This permanently allows us to know about every concern. Quarterly meetings support us to keep on track. Fairs do also help. Additionally, our business development department is regularly screening the market.

4) Are you letting the customer integrate in the product (or service) development process? If yes, how do you integrate the customer in the development process? (Remark: Consider locus/platform, degree of involvement, time-phase)

This is a prerequisite in order to be successful as a contract manufacturer. We move the customer in almost every case in the center, but of course there are some borders. Dr. Trattnig, who is responsible for development processes, can give you a better insight in this (therefore: see Interview 4). But the earlier we can integrate the customer, the higher is the value-added share. WILD has the advantage of a wide-ranged spectrum of engineering departments, which can meet all the demands of the customers in-house. In means of production, we have a one-stop shop, where only one employee is assembling the product alone, which is necessary due to regulations in the medical technology branch. Furthermore, complete documentation thereto is also required.

5) Could you integrate the customer even more in development process? If yes, what stops/limits you?

This depends on the customers. At this point I want to refer to the interview with Dr. Trattnig, who is responsible for development processes (therefore: see Interview 4).

6) Do you maintain the relationship to your customers during the development process? If yes, how?

Trust is crucial for our partnerships with customers. In order to be always up-to-date, quarterly meetings take place twice at the customer's site, and twice at our site. At these meetings, not only the development team gathers, but also the commercial directors meet up. Because we want to know who is a good contact person in which concerns, our business development department is handling a "management information system", where relevant information with customer interaction is registered.

7) Do you consider the development process as a sustainable experience for your customers? If yes, why?

Yes, I think that the customer has that experience with us. I can see that experience especially when the outcome of our partnership turns beneficial for both of us. Sometimes, customers encounter us with very vague ideas because they seek in us a counterpart in order to formulate a concept. These processes lead to high potential customer experiences. Moreover, when customer wishes e.g. some adjustments in pricing, we do our best to fulfill the customer's wish. After all that, the customer has a nice experience with us.

8) Risks for firms during the development processes are commonly known. But do you see also risks for the customer?

Because usually the customer comes with ideas to us, it is the customer who is dealing with the patent issues. For us, patents mark only a minor concern. Some of our customers try to avoid single sourcing. Therefore, we try to show our customers the reliability of WILD. The customer knows that we are not part of a huge corporation, which would us not allow so fast ways for decisions that we can maintain. Sometimes we also open up parts of our pricing calculations to customers. Another risk marks security of digital data. We store in our system also sensible data of customers, which we protected with state-of-the-art security mechanisms.

9) Is there a way in which you can evaluate, if you have met your customer's needs/demands?

We regularly meet our customers, where we also talk about progresses. In our branch it is common that acting persons know each other. Personification of companies is a circumstance that we face. This goes also along with reducing formalities between the acting people as well as paying attention to personal interaction, where the Internet plays only a minor role.

10) Collaboration with the customer will strongly influence prospective competitiveness. Recent research to this topic points out a paradigm which scholars commonly call "co-creation". Have you ever heard about this term, and the "co-creation paradigm" itself?

In an uncertain way, I would say, that I heard about it, but I'm not familiar with details.

Interview 4: April 5, 2016

The interviewee was Dr. Roman Trattnig, who is responsible for development processes at WILD GmbH. WILD is mid-sized Austrian company in medical technology and optical technology industry, and is a contract manufacturer for B2B purposes (WILD does not have its own products). A high equity ratio (>50%) features WILD a solid standing and characterizes WILD as a stable partner for long-term partnerships. Furthermore, WILD emphases on a strong customer service, which leads in average to cooperation with clients for more than 8 years.

1) Is collaboration with the customer important for your firm?

Collaboration with the customer is not only important – it is essential. Especially when I consider WILD, which is a contract developer and a contract manufacturer, it's our main priority.

2) Where do you see the value of your products located in? Do you consider your firm more customer-centric or company-centric orientated?

Without doubt, WILD is surely customer-centric orientated. Our customers come from different segments and all have different requirements. We can only meet those requirements if we put each single customer in the center, like if he was the only one. It is important to us that the customer feels safe and secure as well as supported in every possible manner. We are not only solving our customers problems, we additionally support and guide them to a point, where they have added value. We, as WILD, want to be the most trusted partner for our customers in every way. So the value doesn't lie in our products per se, it is more the entire process for the customer, which results in finished products.

3) Considering a NPD process in your firm: How do you find out, what your customer wants/desires/demands?

This is a question, which is not always easy to answer. On the one hand, we may get a request from a customer and then we try to think, what is the actual idea behind this request. On the other hand, we have to ask ourselves why is the customer coming especially to WILD. So what

is that, what is stressing our customer the most? In order to find that out, we have a lot of conversations with the customer right at the beginning of our collaboration.

4) Are you letting the customer integrate in the product (or service) development process? If yes, how do you integrate the customer in the development process? (Remark: Consider locus/platform, degree of involvement, time-phase)

It totally depends on what the customer desires. Some of our customers don't really want to participate within the development process. They just set a framework at the beginning and then they are interested about the result – but of course, with means of milestones and intermediate results. In contradiction thereto, some other customers are interested to engage more actively in the development process, where they are also in control of decision-making. In general, we deal with all platforms to fulfill our customers' desires; it doesn't matter if it is a telephone conference, a personal meeting at one's site, workshops, new media etc.

5) Could you integrate the customer even more in development process? If yes, what stops/limits you?

IP is in general not a big issue, which could hinder us to implement the customer closer. But a problem could rise when a customer sends a request and we see that we already work with one of his competitors. Some customers would not consider that as a problem, but others surely do. They may fear that we learn about some features from e.g. customer A and use them then in products for customer B, who is in competition with customer A. A customer-specific project clearing at the start of collaboration is dealing with this issue. We usually know who stands in competition with whom, but, in fact, we cannot tell to customers who our clients are.

6) Do you maintain the relationship to your customers during the development process? If yes, how?

This also depends on the individual customer. We can maintain a continuous dialogue to customers, but we find the degree of intensiveness when we look after the wishes of our customers. So this is surely very customer-specific.

7) Do you consider the development process as a sustainable experience for your customers? If yes, why?

After completing a project for a customer, we are of course interested in that the customer wants to engage us again with new projects or even recommend us to others. It is important for us that customers feel safe and secure, that they can rely on us easily, and that they get everything they desire. This is our goal and one of our drivers as well as it is a part of the company philosophy and culture.

8) Risks for firms during the development processes are commonly known. But do you see also risks for the customer?

Single sourcing marks always a risk for customers. Yet, it is a calculable risk for the customer, because they can have an insight in our company numbers and data. Furthermore, the customer is always able to complete the project after a little reevaluation somewhere else. Anyways, we try to maintain that risks for customers don't exist.

9) Is there a way in which you can evaluate, if you have met your customer's needs/demands?

There are several possibilities how to check on that. Usually, we can evaluate directly during the development process due to the intense collaboration with the customer where we always get feedback. We also use methods of lessons learned; our business development department is constantly monitoring our relation to the customer.

10) Collaboration with the customer will strongly influence prospective competitiveness. Recent research to this topic points out a paradigm which scholars commonly call "co-creation". Have you ever heard about this term, and the "co-creation paradigm" itself?

I have to confess that I'm not familiar with that wording.

Interview 5: April 8, 2016

The interviewee was Kurt Ziegleder, who is executive director for technology and business administration at PRIVATBRAUEREI FRITZ EGGER GmbH & Co OG as well as executive technical director at RADLBERGER GETRÄNKE GmbH & Co KG. As beverage companies, EGGER and RADLBEGER sell their products to the domestic and international food retail industry. Bot companies are located at the same site in Lower Austria, as well as both firms have own products, but offer their development department and production to private labels and as a contract filler to clients. Especially the machine park of RADLBERGER facilitates an outstanding position within the market.

1) Is collaboration with the customer important for your firm?

This is actually the most important for our firm. We sell our products to domestic and international food retailers, who are usually big food retail chains. Because only a few players dominate the branch of food retailing, loosing one customer has a big impact on revenues.

2) Where do you see the value of your products located in? Do you consider your firm more customer-centric or company-centric orientated?

We usually don't have an added value by our beverages. But we know that this is important and we try to figure out where we can find an added value. We are customer-centric, but we are not servile to customers. So in general we always want to find a compromise, and it doesn't matter if it is about pricing, products, etc. We don't have only our own brands, we can also produce for trade brands. The retailer comes to us, either with an own recipe or asks us to develop one, and then we are producing it for that retailer. We do that for almost every retailer in Austria.

A big part of our business is mixing different components and bottling. Our competence in this manner is mixing and bottling. In general, customer could go to our competitors, but facilitating those needed machines requires a lot of investment and only a few competitors have those machines. More precisely, if customers, who have that bargaining power, require a price reduction, we try to meet their expectations.

3) Considering a NPD process in your firm: How do you find out, what your customer wants/desires/demands?

When a customer approaches us in the development of a new product, a lot of tastings are hold together with the customer. We offer a variety of different patterns of taste and together we try to find a suitable one. The same is applicable not only to tastes, but also to shapes of bottles and bottle tops, etc.

We have sales representatives, who are traveling to other countries for finding new trends that could come to Austria. Another way is conducting the beverage machines industry. For example, they can tell you that they build up machines in China that can add fruit pieces into the beverage. Moreover, the raw material manufacturer is another source from where we get information about new trends in tastes. Furthermore, we have a team in-house that is holding regularly co-called "Production Innovation Meetings". This is a diversified team, that either tries to find new trends as well as innovate new products. A leveraging advantage thereto is very fast decision-making due to organizational structure.

4) Are you letting the customer integrate in the product (or service) development process? If yes, how do you integrate the customer in the development process? (Remark: Consider locus/platform, degree of involvement, time-phase)

Yes, of course. In general, we have to conduct our customers about new developments and products, although the big retailer would have a lot of information about buying behavior of consumers. Pricing together with a certain quality is probably the biggest issue. Labeling is usually a topic where we speak with the customers only in some cases. Another strategy of us is to develop pur own products and show them as a sample to our customers. When retailers see the success of one of our products, they also generally want a similar product under their own label.

5) Could you integrate the customer even more in development process? If yes, what stops/limits you?

Considering the development of a new bottle, we prefer when the customer chooses a standardized shape. In case something very special is required, we would get new tools and machines if the customer is willing to support the investment. We try to offer a very

differentiated product to customers – technical restrictions are constraining as well as too little quantity.

Intellectual property is also an issue in cases of contract filling. Recipes and bottles belong to them. In some cases it could also happen that the client is investing money in our machine park.

6) Do you maintain the relationship to your customers during the development process? If yes, how?

Continuous contact is therefore required. Keeping the customer always updated about new products, maintains and strengthens the relationship to the customer. The sales department, especially the key account manager, is mainly doing that, mostly for the retail trading. In cases of contract filling, engineers are in dialogue with each other.

7) Do you consider the development process as a sustainable experience for your customers? If yes, why?

We have with some of our customers an ongoing collaboration since many years. Developing shapes together a special partnership that can last for very long. Generally, it's hard to form such partnership with customers who are only interesting in low prices, but it works better with customers that look for a good compromise between costs and quality. Trust is a good prohibition against fluctuation. Sometimes the change in staff at the customer's purchase department can also cause a loose of one's partnership.

8) Risks for firms during the development processes are commonly known. But do you see also risks for the customer?

It strongly depends on the customer, so e.g. some customers have a multi sourcing approach, while others don't. In general, there are no downtimes, but it happens sometimes, that in peak seasons, some vendors cannot produce for some days due to resource scarcity. But this is not considered as a problem because inventory levels then are high enough. A common problem is that some clients are afraid that we could transfer some of their knowledge to their competitors. But of course, we strongly separate and don't do that because it would be also against our interests. Therefore, trust from both sides is crucial, but as I can remember, there has never been one single case in our branch, where this trust was violated once.

9) Is there a way in which you can evaluate, if you have met your customer's needs/demands?

Usually we can see that when the product becomes a market success. Of course, this depends on many factors, but we can distinguish. Our contacts also give a honest feedback and distribute an open communication. Furthermore, we can also see that once the customer stays with us. Summing up, it's mostly the market success that determines if the collaboration was successful.

10) Collaboration with the customer will strongly influence prospective competitiveness. Recent research to this topic points out a paradigm which scholars commonly call "co-creation". Have you ever heard about this term, and the "co-creation paradigm" itself?

Personally, I haven't heard anything about co-creation yet.

Interview 6: April 12, 2016

The interviewee was Klaus Schmied, who was the former CEO of SILHOUETTE AG, which is an internationally operating company for eyewear design and manufacturing. Now he is CEO of the start-up BERNSTEIN INNOVATION GmbH, which he founded together with his son Jabob. BERNSTEIN INNOVATION's declared goal is to bring products created by 3D printing technologies to mass market. ZWEIKAMPF is the first own product that shows the competences of BERNSTEIN INNOVATION.

Klaus Schmied answers the questions sometimes separately, according to his experience either at SILHOUETTE or BERNSTEIN INNOVATION.

1) Is collaboration with the customer important for your firm?

At SILHOUETTE, we usually had to deal with an intermediary. Nevertheless, we also produced for ADIDAS skiing and sports glasses. There it was very important for us to directly integrate the consumer – here: athletes – and shape the product specifically according to his or her needs. Generally, we had over 50 years of experience in designing and producing SILHOUETTE eyewear and therefore it was not that crucial to collaborate with the customer.

BERNSTEIN INNOVATION strongly emphasizes on paying attention to individual athletes and their needs. We collaborate with our athletes by producing prototypes and handing them over to the professionals.

2) Where do you see the value of your products located in? Do you consider your firm more customer-centric or company-centric orientated?

For both companies, SILHOUETTE and BERNSTEIN INNOVATION, we put our customer in the center. Considering ZWEIKAMPF, we want to create and distribute a product to customers, that is clearly improved in comparison to products from competitors. 3D printing nowadays is still underestimated and only a few companies understand the capabilities of it. ZWEIKAMPF is the first shin guard that is produced with 3D printing technologies. We believe that we can create a better product for consumers with new technologies, like it was possible with traditional manufacturing methods. While the original purpose or function of the

product steps more in the background, it is the features of the product that characterizes our products.

3) Considering a NPD process in your firm: How do you find out, what your customer wants/desires/demands?

Consumers have to be asked in a proper manner. Considering athletes again, successful collaboration with the consumer can only be granted if we speak their language. We shaped our product ZWEIKAMPF according to the needs of athletes. Checklists were useful instruments in order to get a good feedback. Problematic are topics about fashion, because there are way too many tastes.

4) Are you letting the customer integrate in the product (or service) development process? If yes, how do you integrate the customer in the development process? (Remark: Consider locus/platform, degree of involvement, time-phase)

It is more about function, design, and usability and less about technical specifications, because our customer is not interested about e.g. the latest material composition. Basic elements describe expectations as well as means of durability, etc. Continuously getting feedback is important and finding out why the feedback was given. But it is even better if you additionally have already consumers in-house. My son, Jakob, studied Sport management and is therefore also a professional. Feedback loops are important, especially when feedback can be given from a neutral, extern or age gap perspective.

5) Could you integrate the customer even more in development process? If yes, what stops/limits you?

I think that we already found a very deep-going solution. Employees are familiar with the sport as well extern collaborators develop our product ZWEIKAMPF hand in hand. Additionally, we plan for the future that a personalization of every individual product can be facilitated in the future.

6) Do you maintain the relationship to your customers during the development process? If yes, how?

We give our product away for testing at certain organizations and institutions. After that, we figure out a systematic feedback analysis for improvements. We try to think about every

option about how you can use or misuse our product, but sometimes we just don't know all the traits athletes have and therefore we need feedback.

7) Do you consider the development process as a sustainable experience for your customers? If yes, why?

Yes of course, it is a experience for customers. I think it flatters everybody, including us, when you can be part of something new and innovative. People appreciate if they get asked about their opinion and if they can participate in a development process. Furthermore, people get excited through subsequent word-of-mouth advertising, which can help a successful market implementation.

8) Risks for firms during the development processes are commonly known. But do you see also risks for the customer?

Uncompleted products or prototypes could be dangerous for collaborators. A potential misuse of our product what we haven't thought about yet, might harm one of our testers. Customers should not be guinea pigs for firms.

9) Is there a way in which you can evaluate, if you have met your customer's needs/demands?

We reached now the testing phase with ZWEIKAMPF, where evaluations are pretty manageable. Mainly, we listen to responses of our testers in a systematic manner. After the next stage we will expand our evaluation about how the product meets the customer's expectations. Many people would have already ordered it, only because of ZWEIKAMPF's appearance, which is clearly a good sign. But also here again: systematics!

10) Collaboration with the customer will strongly influence prospective competitiveness. Recent research to this topic points out a paradigm which scholars commonly call "co-creation". Have you ever heard about this term, and the "co-creation paradigm" itself?

Yes, I heard about it and I assume that we have applied it without even knowing it.