Volker Wittke, Heidemarie Hanekop (Eds.)

New Forms of Collaborative Innovation and Production on the Internet

8

Prosuming, or when customers turn collaborators: coordination and motivation of customer contribution

Birgit Blättel-Mink, Raphael Menez, Dirk Dalichau and
Daniel Kahnert[1]

Abstract

This article investigates the phenomenon of increasing integration of customers and users into the organizational creation of value, focusing primarily on the dissolving boundaries between production and consumption. Concepts such as "prosuming", the "working customer", "produsing" and "interactive value creation" have been used to describe this phenomenon. Within the framework of a research project at the Goethe-University Frankfurt/Main, this debate was investigated theoretically as well as empirically in three case studies. The research question is as follows: Why do customers participate in "new types of prosuming" or "interactive value creation" and how are these processes coordinated by the firms? The results show a considerable range of motives and forms of coordination: The customers' primary motives to voluntarily assume tasks and activities were both intrinsic and extrinsic in nature. The organizational models identified range from strategies of rationalization to prosuming as a basic business model to the collaborative and interactive value creation between the company and the web-community.

Introduction

Today, according to a prominent sociological hypotheses, significant changes in the relationship between work and consumption are taking place. While in the industrialized society the line between production and consumption was clearly defined, now the phenomenon of the "working customer" dissolves this boundary: Companies are systematically diverting to consumers activities and organizational tasks previously performed internally. At the same time, consumers increasingly perform productive activities which provide tangible benefits to other participants in the market and which prove to be a real contribution to the added value of the companies (Kleemann, Voß and Rieder 2008). The Internet and Web 2.0 also contribute to new options for the inclusion of users in the production process and to extending the reach of the co-produced goods and services (Hanekop and Wittke 2008). This development, often described as do-it-yourself, prosuming, co-production or McDonaldization, is now surpassed by the phenomenon of crowd-sourcing, in which companies "...delegate previously internally completed tasks to outsiders in the form of open calls for submission, on web-based platforms. for the production or use of a product" (Kleemann, Voß and Rieder 2008:29).

Relevant questions in this context, which so far have rarely been investigated from a sociological perspective, are the following: What are the reasons for companies to increasingly transfer value-creating activities to customers, what are the motives of the customers to work voluntarily and without payment for a company, and what options do companies use to coordinate and control the integration of the customer?

Within the framework of a research project at the Goethe-University in Frankfurt/Main[2], current phenomena from prosuming to crowdsourcing have been both theoretically and empirically investigated, and the following research questions were developed: Why do customers participate in "new types of prosuming" or in "interactive value creation" and how are these processes coordinated by the firms? The theoretical context of the research project is the approach derived from theories of the sociology of work concerning the "working customer" (Voß and Rieder 2005), the sociological view of consumption discussing "prosuming" (Toffler 1980, Blättel-Mink and Hellmann 2010) and the "new type of prosuming" (Hanekop and Wittke 2008), the economic model of "interactive value creation" (Reichwald and Piller 2009), and the theoretical concepts of "crowdsourcing" (Howe 2006) and "produsing" (Bruns 2009) both of which originated from the research on Web 2.0 issues. At the centre of the empirical research are three companies: Deutsche Bahn AG, the Swedish furniture company IKEA and a German developer of computer games, Crytek. This selection offers a differentiated view on the parameters and characteristics of the phenomenon under investigation.

---

[2] See also the website of the research project: http://www.gesellschaftswissenschaften.uni-frankfurt.de/index.pl/prosuming.

Both the perspective of the customer or user and the perspective of the company are analyzed. Methods range from content analysis of relevant texts to semi-structured expert interviews with representatives of the companies to standardized written surveys of customers and users.

The theoretical and empirical aspects of the integration of customers and users in the process of value creation are explored in the section immediately following. Then the research question is presented and the methodology explained, followed by the results of the three case studies, with main emphasis on Crytek. In the end, a critical evaluation of the research findings is given.

1.   Theoretical considerations for understanding the phenomenon of customer integration into the value creation process

The sociology of work considers consumption as primarily being an area in which labor-power is reproduced. Work and consumption occurred in two separated social spheres. G. Günther Voß and Kerstin Rieder (2005) start their analysis with the following conclusion "… there are dramatic changes in the societal form and function of private consumption, the societal relationship between productive work within a company and the active utilization of goods outside of the producing organization" (Voß and Rieder 2005:14). They relate such changes to the fact that companies are increasingly and systematically outsourcing previously internally provided tasks to their customers and the fact that consumers are increasingly providing services that used to be provided by the companies. The "buying customer", formerly a consumer of finished products, turns into a "working customer" who not only plays the role of a consumer but also acts as an uncompensated worker for the companies, by adopting the role of a co-producer. "…its main characteristic is its expanded productivity - based on active services - which in many cases is explicitly controlled and used by the company" (Voß and Rieder 2005:16). The authors assume that particularly the companies' rationalization efforts are a primary reason for the extensive inclusion of the customers.

Since the advent of the Web 2.0 phenomenon, Alvin W. Toffler's (1980) concept of the "prosumer", who is at the same time producer and consumer, has been gaining new recognition (see the articles in Blättel-Mink and Hellmann 2010). Toffler anticipated that the spheres of consumption and production, which had been structurally distinct since the industrial revolution, would move closer together again in the Third Wave (the Service Society). The so-called prosumer economy bridges the historical gap between consumption and production and is divided into two sectors. Sector A involves the concept of "production for use": " […] unpaid work done directly by people for themselves, their families, or their communities" (Toffler 1980:266)., Whereas sector B stands for the concept of "production for exchange": "[…] the production of goods or services for sale or swap through the exchange network or market" (Toffler 1980:266). According to Toffler, sector B

was dominant during the second wave. Then, however, a shift takes place in the third wave, since more activity is moved from sector B (market) to sector A (prosumption). Toffler also anticipated the spread of self-help groups, the do-it-yourself movement or the spread of self-service in grocery stores. He points to the rise of new technologies that enable these developments: "In this system the prosumer, who dominated in first wave societies, is brought back into the center of economic action – but on the third wave, high-technology basis" (Toffler 1980:275).

An extended analysis of Toffler's concept was presented by Kai-Uwe Hellmann (2010). For him, prosumption takes place whenever "…a contribution is provided without which the production process would have remained unfinished in the development of a product or service that is predominantly meant for personal use and thereby gains its practical value independently of whether the service must be paid for or not" (Hellmann 2010:36). In this definition, he makes a distinction between the "production for exchange" and the personal use of the service, as well as distinguishing "active consumption" from a process of production that cannot be completed without a contribution provided by the prosumer.

Heidi Hanekop, Andres Tasch and Volker Wittke (2001) introduce a further development of Toffler's prosumer concept, the "new type of prosumer". According to them, this new type resembles (in competencies and tasks) forms of professional knowledge work[3]. Therefore this can be related to discussions about the dissolving boundaries of work in the fields of industrial sociology and sociology of work. In other publications on collaborative web-based production and innovation processes (Hanekop and Wittke 2008 and 2010) the authors describe a new quality of prosuming and co-production which differs from Toffler's concept. The typical characteristics of co-production are radicalized when self-service is used online, even though the co-producing customers are not physically on the company's premises nor within its domain, but instead enter it from home or any other place that has Internet access. The new online forms of co-production take on a new quality through mass cooperation among users and effectively go beyond the private domain, as seen in Wikipedia and open source software (OSS)" (Hanekop and Wittke 2010:101). On the one hand, they agree with Toffler's conclusion that "production for use", which is not marketable, is constitutive for prosuming. On the other hand, they show that collaborative processes of value creation through active work and by personal initiative can take place outside of marketable modes of "production for exchange".

Ralf Reichwald and Frank Piller presented an economic approach of "interactive value creation" in 2006. They conceptualize the relationship between customers and companies as a win-win situation and stress the factor of voluntarism, as well as the involved actors' competence for interaction. The point of departure for

---

[3] Toffler considers personal initiative or do-it-yourself to be "manual work".

the analysis is the identification of two central problems within the conventional arrangement of value creation: First, the customer is seen by the company as a "passive receiver of value" and his or her 'average' needs are analyzed using market research. Second, the "problem of searching locally" clearly confines the capabilities of the company to innovate, because only known solutions and approaches can be applied. In order to clarify these two problems, the authors introduce the concepts "needs information" and "solution information". "... Needs information relates to the needs and preferences of the customers or users: This can be information on explicit as well as latent needs [...].Solution information is (technical) knowledge on how to solve problems or fulfill needs through special product specifications or with a service" (Reichwald and Piller 2009:47). According to the authors, both are important input factors for the companies. While needs information assures higher effectiveness during the value creation value process, because it allows the fulfillment of the customers desires, solution information focuses on efficiency in the creation of value, because new solutions can be developed faster and more economically.

The approach of interactive value creation stresses the voluntarism and reciprocity of the relationship between customer and company. The authors consider this concept to be an extension of the classic economic models: "This supplements the two classic forms of coordination (hierarchy and market) by adding a third alternative: the self-selection and self-organization of tasks by (highly) specialized actors, who are mainly motivated by their own usage of the cooperatively accomplished achievements, as well as a multitude of other social, intrinsic and extrinsic motives" (Piller, Reichwald and Ihl 2007:91).

Reichwald and Piller distinguish two other constitutive phenomena within the interactive value creation: "open innovation"[4] and "mass customization". The first "… describes all activities that take place between the manufacturing company and its external partners that are based on the innovation process and thus target the development of new products for a larger circle of consumers. Open innovation provides new methods and approaches to better access information on needs and problem solving and to increase the effectiveness and efficiency of the innovation process" (Reichwald and Piller 2009:53). Open innovation offers an open space for solutions[5] that is extended and modified collectively together with external partners. On the other hand, mass customization "… is the cooperation between companies and customers that is concerned with the value creation activities dur-

---

[4] Reichwald and Piller reference the research of Eric von Hippel (von Hippel 2005; Baldwin and von Hippel 2009; Harhoff, Henkel and von Hippel 2003). Henry Chesbrough (2003) takes a slightly different perspective on open innovation: In his approach, open innovation is mainly understood as a flexible and open handling of different business models, while including the companies' external partners.

[5] The authors define solution space as the "… sum of all solutions that a company is able to offer at the moment, on the basis of its existing product architecture and the pertinent production and distribution processes" (Reichwald and Piller 2009:53).

ing the operational production process and is also aimed at the development of individualized products for the consumers. The goal is to gain access to needs information by integrating the customers and in doing so being able to better fulfill the specific desires of individual consumers within a heterogeneous market" (ibid.).

Axel Bruns (2009) investigates the impact of Web 2.0. He argues that the web enables novel forms of cooperation and collaboration between users of certain products and services. The division between customer and company can be overcome because web users creating collaborative content are independent of any organizational connection to a company and their work has little in common with traditional forms of production. Instead of using the term "production," Bruns suggests the term "produsage" and for the actors, the producing web users, the term "produser": "The creation of common content takes place in a well networked participative environment. Produsers don't participate in a conventional form of content production, they participate in the produsage of content: a collaborative and continuous development and expansion of existing content, focused on quality improvements" (Bruns 2010:199). Thus, the formerly clearly defined roles of producer and consumer break down because produsers are, according to Bruns, active editors and users at the same time and therefore, they assume the "… role of a hybrid user/producer where both forms of contribution are inseparably intertwined with each other" (ibid.).

Along with the rejection of the concept of production in this context, for Bruns, the idea is that products created in this way are not traditional products to be traded as tangible goods on the market. He calls them unfinished artifacts accessible free of charge to anyone. The typical example of a prodused artifact is the free online encyclopedia Wikipedia: an ever unfinished artifact in a state of constant change. In produsing, crowds of networked users contribute to the process of content creation, very much in contrast to the process of industrial production, in which an individual producer or production teams create a product. Within a produsing community the roles of individual users can change as well. The focus of their contribution can shift within a given project, it can shift to other projects entirely or the users can increase or decrease their influence on the community at will. The status of a produser in the community depends on the resources and competencies contributed by him or her, most importantly knowledge, skills and the amount of time given to the project. Accordingly, Bruns describes the rank and order in a community as a changeable heterarchy or as an ad-hoc-meritocracy (Bruns 2010:201). The question of ownership in the context of produsing is not entirely resolved. In most cases, a prodused artifact will be freely available under a "creative commons" license[6]. This type of license can permit further alterations to

---

[6] "Creative Commons licenses are several copyright licenses that allow the distribution of copyrighted works. The licenses differ by several combinations that condition the terms of distribution. They were initially released on December 16, 2002 by Creative Commons, a U.S. non-profit corporation founded in 2001." (http://en.wikipedia.org/wiki/Creative_Commons_licenses)

the product and non-commercial use. The motivation factor for individuals to join a produsing community and to be active in one is not the expectation of monetary rewards, it is - next to the original benefit of using the artifact - primarily the recognition in the community. Communities frequently offer merit scores that document individual accomplishments and make them recognizable to others (Bruns: 2007:4).

Yet communal produsing and commercial activities are not mutually exclusive because the commercial viability of a project can have a decisive influence on the long-term stability of such a project. Therefore, Bruns describes the value chain in the context of produsing as networked communal processes that have a multitude of input and output (Bruns 2009).

2.   Research question and methodological design

The above description of the theoretical approaches that have been decisively determining the discussion of the changes in consumption, production and innovation, shows the following: The bandwidth and perspectives of the discussed approaches may be heterogeneous, however they come to an agreement in their diagnosis that there has been a dissolution of previous boundaries and the allocation of roles within the social relation of consumption, production and innovation.

Following this diagnosis, two questions are particularly of interest that have rarely been researched from a sociological perspective and that make up the core of this project: 1. Why do customers engage in the creation of value without gaining financial reimbursement, and 2. How do companies coordinate the involvement of the customers?

One of the goals of this research project was to describe the process of the increase in prosuming, which is marked by the fact that, first of all, there is more "work" done by the customers or users and second, that the companies boundaries are broadened by the increased use of technology such as the Internet. Therefore, companies that cover the whole bandwidth, from rationalizing to collaboration, are empirically interesting cases.

A first case encompasses companies that practice the outsourcing of services that were formerly performed internally by the company to the customers, as a result of a rationalization process. Deutsche Bahn AG, for example, asks its customers to do more and more work during ticket buying, from the basic service orientation at the counter to automated ticket machines to online ticket buying. A second case encompasses companies that have always relied on their customers collaboration – if only in offline areas – such as IKEA, by applying the possibilities of new information and communication technologies to intensify the cooperation of their customers. This is visible in the increasing introduction of self check out cashiers. Lastly companies are of interest that cooperate with user communities rather than customers. These users produce products that are initially concretized

and further developed by produsage. For this example the computer gaming manufacturer Crytek was chosen, which turns users into "modders" who can bring in their own ideas and modify games as they please.

This project's specific research question is: Why do customers take part in processes such as "new types of prosuming" and "interactive value creation" and how are these processes coordinated by the firms? To find an answer to these questions the three above mentioned companies were analyzed from both customer and company perspectives. For this research project, six student work groups were given the task of studying the empirical phenomena in depth, specifying the research questions for their case and developing an appropriate theoretical framework. Subsequently, a methodological design was developed which provided a basis for the case studies.

The following chapter describes the results of the surveys.

3.   Deutsche Bahn and IKEA

Deutsche Bahn AG: Rationalization and the work of customers

Deutsche Bahn was chosen as a company of interest on the one hand because the company presents itself as a customer-oriented service provider with a high concern for its customers' input; on the other hand because it has increasingly been eliminating service features and has instead – in the course of economization measures - been placing more emphasis on the work of its customers. This has become especially evident in ticket buying. The standard ticket buying procedure no longer takes place at the ticket counter but has shifted to sales at automated ticket machines and online ticketing. Therefore, the survey closely examined ticket buying behavior. In addition, six semi-structured expert interviews were conducted with Deutsche Bahn employees who had knowledge in the field of online sales to explore the company's coordination of the customers' work.

The survey's findings[7] at Deutsche Bahn clearly show distinct tendencies. On the one hand, customers strongly value the possibilities the Internet or web gives them in order to search for information and buy tickets online, however at the same time the conventional distribution and information channels are not ignored. A factor analysis revealed a service factor that represents the answering behavior of a group of customers that still value conventional delivery of services. It can be determined nevertheless that a large proportion of Deutsche Bahn's customers are prepared to turn into working customers because they regard participation as being easy and convenient, whereas another proportion of customers still request assistance and service and are not engaged in this development and therefore will re-

---

[7] The data collection was conducted in May 2010; the questionnaire was available online for two weeks. Within this period, 936 respondents completed the questionnaires (N=936).

main merely buying customers. The motivation of the respondents identified as working customers is not intrinsic. They do not participate because they enjoy the task itself, but because they hope to save time and expect to gain more independence from external factors such as business hours, long lines at the service counter or reliability of the information provided by Deutsche Bahn's service employees. The tasks that are outsourced to Deutsche Bahn's customers in particular involve highly standardized procedures that do not leave much room for distinct ideas and creative capacities.

The interviews with Deutsche Bahn's employees demonstrate that Deutsche Bahn does not apply systematic customer interface management. Deutsche Bahn coordinates the involvement of customer participation through highly standardized gateways, such as the online ticketing interface, the automated ticket machines or online contact forms. Although further customer information is collected and partially processed, the most rudimentary deliberate and strategic actions are only taken by the customer advisory committee. It is this advisory committee that gives specific recommendations, formulates them and passes them on. In all, it is not possible to conclude that Deutsche Bahn conducts customer inclusion and value creation based on the division of labor in the sense of interactive value creation. The possibilities of creating value by strategically using the customers creative capacities and knowledge has not gained much significance yet. The customer is seen as the receiver of services, rather than as a partner in the process of value creation. Conventional means such as market research are trusted and are used to collect information from and about customers. Nevertheless – and this points towards a prosumptive future at Deutsche Bahn AG – an organizational unit is being restructured in order to improve the processing of customer information in the future: *"In principle we are establishing the whole issue of further development at the moment: What information do we get from the customers? Yes, as a team we are relatively new here. Yes, one colleague who was here before the restructuring is still in this department. All of the others are new. In principle we are establishing the whole thing to the point where we are able to say, yes, what information do we receive from the customers and how do we pass it on"* (DB 2).

IKEA: Prosuming as business model and possibilities for its expansion

A look at IKEA offers a typical example of a company using the classic (manual, offline-based) forms of prosumption. The company has distinct elements of a do-it-yourself concept: In most cases, shopping at IKEA means selecting products without the help of a salesperson or any kind of assistance, and as of recently, in certain IKEA locations items have to be paid for at the self check-out stations. The question in the IKEA analysis was: How do customers use, and how are they motivated to use, new forms of collaboration? Therefore the analysis focused on self check-out stations as a new paying concept in addition to the classical cashier-operated checkout stations.

Both the people who had already used the self check-out stations and those who had not were asked to describe their attitude towards this new method of payment[8]. The results show very clearly that the involvement of customers is viewed as self-evident and a natural everyday occurrence, both by consumers at IKEA and by the company. The customers are involved in different contexts at IKEA: they are do-it-yourself prosumers during the transportation and assembly of furniture in their homes, working customers in regard to their involvement at the furniture store and in certain situations also a new type of prosumers, when using the scan-it-yourself checkout, which requires more mental engagement. Customers especially view these new types of prosumption with a certain degree of scepticism, but they are reaching some acceptance and at least are utilized. It is not surprising to discover that users of new forms of involvement see such novelties in a more positive light than non-users, who are much more sceptical. In addition, there are groups of customers who evaluate new forms of customer involvement not only in the subjective light of advantages or disadvantages for themselves but question them in a general social context. They are concerned about the consequences for IKEA's employees. "New type prosumers" are motivated by their perception of increased self-directedness by actively contributing as well as by the "discovery of something new" and the experience of "fun".

Otherwise, the integration of customers at IKEA seems to be taken for granted and there is no need for additional coordination on the side of the company to further motivate the customers, as long as it is an involvement typical of IKEA. The subject is not explicitly addressed, as the involvement of the customers is always implicitly contextualized as the norm in the analyzed company communication materials. The topic of collaboration, prosuming or working customership is raised on a side note, usually in the context of additional services or as an extension of the various possibilities a visit at IKEA has to offer to its customers. According to the company's communication, work done by their customers is described as something beneficial to the customer on three dimensions: experience, variety and cost-benefits. The material shows that the dimension of variety is considered to be the variety of possibilities. Even completely new tasks such as self checkout do not need any special motivational offers, as long as they stay in line with the core business of IKEA. Only in areas outside of the core business, such as marketing activities like a photo event in which customers take pictures of their personal home environment and supply the images to IKEA in order to acquire an authentic and accurate idea of how IKEA furniture would look in the home of the customer, does the need for focused coordination arise in order to motivate customers to cooperate.

---

[8] The field research on the customer perspective was carried out analogously to the other two case studies: a standardized online survey with a return of 361 completed questionnaires distributed via online forums about furnishing and decorating, and in part by using a mailing list of students.

4.   Crytek: Interactive value creation and collaboration of the modder community

The Crytek company, located in Frankfurt, is one of the largest German developers of computer games. In international comparison, Crytek is considered to be one of the most innovative companies in the sector. The company was founded 1999 in Coburg (Germany) and has today about 600 employees distributed internationally in five developing studios and two distribution centers. Games developed by the company are all categorized as first-person-shooter[9] (Far Cry, Crysis and Crysis2) and have earned multiple international prizes. "Cryengine" is considered to be very powerful and flexible developer software that is licensed by other companies for various applications such as for the development of architectural simulations with sophisticated graphics (Kanning 2010).

In the context of the present research project, Crytek is considered to be paradigmatic for a company that is a pioneer in applying the web-based collaboration of customers and users. The business model of Crytek is based on the process of interactive value creation together with external actors. In particular customers are being integrated in all processes of quality control, product adjustment, development and innovation. A flat hierarchy and the particular importance of the coordination of customer interface systems are central features of Crytek. The open boundaries of the company not only facilitate the exchange of information, knowledge and ideas, they also allow the fast recruitment and incorporation of external experts into the structure of the company. Crytek also offers the platform for two major web-based communities which together have about 110,000 active members (www.mycrisis.com and www.crymod.com)[10]. The platform also cooperates with numerous external fan-based communities.

The research project focuses on the interaction between Crytek and the modding community, investigating two research questions: 1. Why would gamers voluntarily contribute as modders to the development of computer games without pay? 2. How does Crytek coordinate the exchange between the community and especially with the modders? The approach of the interactive value creation described by Reichwald and Piller (2009) is used to develop the concept of interaction and coordination between the company and the modders. This theoretical perspective is particularly useful to identify the information on the side of the

---

[9] "First-person shooter (FPS) is a video game genre which centers the gameplay around gun and projectile weapon-based combat through the first person perspective; i.e., the player experiences the action through the eyes of a protagonist. Generally speaking, the first-person shooter shares common traits with other shooter games, which in turn fall under the heading "action game". From the genre's inception, advanced 3D or pseudo-3D graphics elements have challenged hardware development, and multiplayer gaming has been integral." http://en.wikipedia.org/wiki/First_person_shooter

[10] Exact figures on the distribution of the members in both communities are not available. The major proportion of registered users are at mycrisis.com, while crymod.com as a pure modding portal is mostly frequented by game modders and has far fewer members.

modders concerning needs and solutions relevant to the company and to analyze the integration of such solutions into its value chain. The working hypothesis has been that the openness of the product and the open organization structure enables a collaborative value creation between the company and the modders. The concept of the "produser" by Bruns (2008) is applied to understand the work of the modders as the process of "produsing". The modder as a produser is producer, distributor and consumer at the same time. He or she is not generating finished products but artifacts of content that remain continuously unfinished and undergo an almost evolutionary development. The basic hypothesis has been that modders are above all intrinsically motivated to mod and distribute their mods over the Internet.

The research method is as follows: 1. an online survey with a standardized questionnaire was administered at crymod.com, targeting modders. In all, 195 respondents completed the questionnaire; 2. A case study was conducted at Crytek with five semi-structured interviews with experts: two community mangers, a project manager, a game designer and a public relation manager.

First insights

The web-based collaboration between Crytek and their customers and users differentiates between three types of target markets, where each is approached and later integrated in a different way: The "casual gamers" constitute the largest group of 'normal' computer game players. They are the classic paying customers and are approached through conventional marketing strategies using editorials in pertinent magazines and/or the use of social networks such as Facebook and Twitter. "Hardcore gamers" have been involved in the company for many years, have formed a loyal fan community, know all the Crytek games inside out, because they play them multiple times, each time under different conditions (e.g. different levels, different equipment, single or multiplayer modus). The latter group of customers is particularly important for quality control as well as feedback and has their own separate community on the mycrisis.com platform. Finally, the "modders" are gamers that have the special status of distinguished experts with special qualifications that enable them to modify the games. They are able to modify the software in such a way that the flow of the game, the graphics or individual elements of the game are changed. Such modifications, called "mods", are then distributed to the gamers and made available at no cost over the web (Jeppesen 2004; Postigo 2007; Sotamaa 2007; Behr 2008). Crytek offers this target group an exclusive platform on crymod.com. There, the modders can not only develop their mods and make them available to the community of gamers, the platform is also used to coordinate and facilitate the entire exchange among the modders themselves, between the modders and the company as well as between the entire international modding community. In addition, Crytek supplies special tools to the modders that allow to

modify individual games. Such Software Development Kits (SDK)[11] are essentially a light version of the tools that the developers employed at Crytek are using to program and design the games (see figure 1).
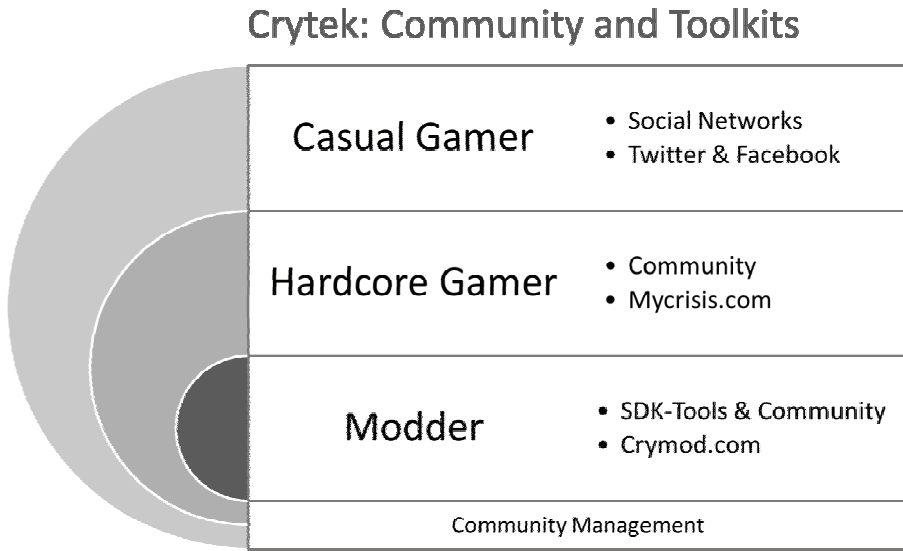
Crytek: Community and Toolkits

Figure 1:   **Crytek-related communities and toolkits**

Customer perspective

All of the modders responding to the survey are male. 61 percent are between 15 and 19 years old[12], many are still attending school (47 percent), 30 percent have a high school diploma. 77 percent of the responding modders come from countries other than Germany. 42 percent live in Europe, 24 percent in North America. Interviewees from the semi-structured interview sessions described the multicultural make up of the modding community and the problems stemming from language barriers: *"Sometimes we have issues with the language-barrier. Not everyone from our community speaks English as a first, second or third language. So we have to try and facilitate that as well. We have a lot of Turkish guys on the forums, Americans, French, Germans, Spanish guys, some of them are from Afghanistan, someone from Iraq and a couple of Chinese guys. So it really is multicultural." (Cry 2)*

---

[11] A software development kit (SDK or "devkit") is typically a set of development tools that allows the creation of applications for a certain software package, software framework, hardware platform, computer system, video game console, operating system, or similar platform. http://en.wikipedia.org/wiki/Software_Development_Kit

[12] The youngest of the modders at crymod.com is now 12 years old but started modding two years ago. Because of his unusually young age and because of his special talent, he is already a well known in the community.

Concerning the question as to why modders agree to contribute voluntarily to the improvements, development or remodeling of the computer games and make the modifications available to the community free of charge, it has been observed that three types of motives played a major role for the responding modders: Figure 2 shows that intrinsic, extrinsic and social motivation are estimated almost equally on a rather high level.[13]
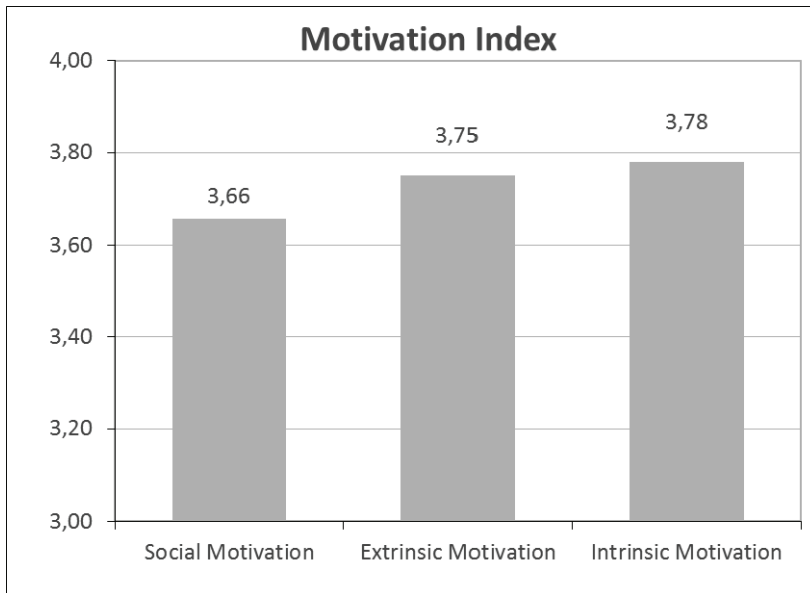

Figure 2: **Motivation Index**

The reason for investigating social motives was to analyze the importance of the role of the community. Modding is similar to open-source projects, because it takes place as long term projects in teams, where individual tasks are partitioned in a modular way and meritocratic structures develop. Accordingly, the responding modders indicated that helping each other in the community was the most important issue: to receive help from others (87.4 percent) and to help other modders (77 percent); followed by the possibility to pursue interesting discussions (80 percent), to communicate with other modders (72 percent) or to exchange information about technical aspects of the mods (68 percent). The "fun" factor (76 percent) is another very important reason to engage in the community. Less important to the respondents is the possibility to establish friendships with others or to discuss personal issues with other members of the community.

---

[13] The motivation index was generated on the basis of 13 to 16 items, explored with a scale of five. Tests of reliability of the indices showed a high Cronbachs Alpha of 0.741 for intrinsic motives, 0.834 for extrinsic motives and 0.842 for social motives.

When asked what their reason for modding is and what type of meaning modding had for them, the respondents mentioned primarily intrinsic motives, namely incentives born out of the activity itself: Creativity (93 percent) and creative design (91 percent), the experience of achievement (90 percent), mastery of a challenge (85 percent) and the possibility of self-fulfillment (74 percent). Less important aspects were intrinsic motives such as passing one's time, escapism and flow.

However, extrinsic motives for modding were mentioned as well. Almost 70 percent of the respondents agreed with the statement that they plan to apply their modding capabilities in their professional career. The respondents also want to use their modding experience to increase their technical know how and abilities (90 percent). In response to the question of which type of competencies are most enhanced by modding, the respondents primarily mentioned aspects of team-building. The items reaching the highest level of agreement were: learning to accept criticism (85 percent), to be able to voice constructive criticism (81 percent), the ability to work in teams (81 percent) and to increase one's sense of responsibility (75 percent)

The results allow a surprising conclusion: The responding modders who perform their modding activity in their free time do so not only do because modding is an end in itself. They do so with the intention to improve their social and technical competence in order to apply the acquired skills in a professional context at a later time.[14] For many modders, direct full-time employment at Crytek seems to be a very desirable option, as two respondents expressed[15]: "*I am able to learn more on modding / programming, and may even get a future job at Crytek or other great developers.*" and "*I want to work for Crytek in the future. Learning their tools in and out seems like the best way to accomplish this.*"

Company perspective

Indeed, the semi-structured interviews with selected experts at Crytek supported the fact that the modders' career aspirations would not remain dreams, but rather, they represent a quite realistic career path. Recruiting personnel from the community of modders is common practice at Crytek - presently, about 30 to 40 former members of the modding community hold positions at Crytek: "*..that we frequently get people from the modding community has the simple reason that they do such a good job, they are so professional, that we say: 'They are good enough'. We should not waste such talent and therefore, we take them on. Meanwhile, we have about 30 or 40 people from the modding com-*

---

[14] Initial multivariate analyses point in this direction: An explorative factor analysis to structure the data identified six factors with a total explained variance of 70 percent. The largest factors are loading on performance (leadership, teamwork, sense of responsibility and discipline) as well as on technical competence (editing, image processing, removal of bugs).

[15] Open response to the question: "Why did you decide to join the Crymod community?"

munity, of course, accumulated after all those years, starting with Far Cry and so on and now they work at Crytek worldwide, in all our studios" (Cry1).

The clear advantage for Crytek is the fact that the modders are already trained even though they have not worked in the company yet and have acquired their competencies and abilities independently through the community: *"It's a natural byproduct of running a site such as Crymod.com. It benefits us and it benefits them, when we have guys sitting on our forum who have been using our product for 3-4 years. A lot of the times it is beneficial for us, it saves us time training people up on our engine. It is very beneficial for us to get these guys on board, as soon as possible. They really have a good idea of what our engine does, what Crytek is, what our games are. These guys really understand our community and our products inside and out" (Cry2).*
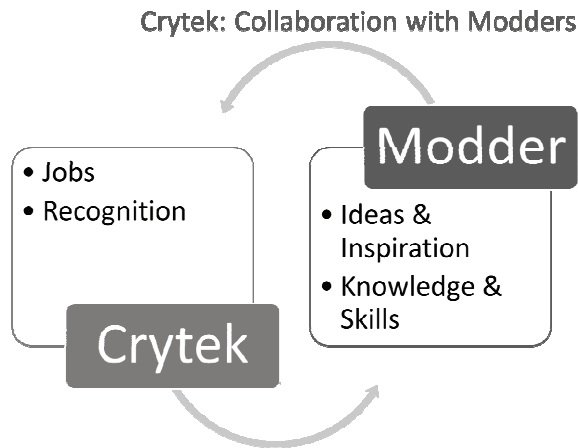

Figure 3: **Collaboration between Crytek and the modders**

The idea of creating a modding portal at Crytek came up during the development of the first game, Far Cry. It was an idea born out of hardship, because game development took up all the resources and Crytek no longer had the capacity to make the most out of their game engine. Therefore, input from the "wisdom of the crowds" (Surowiecki 2004) was appreciated. *"But somehow, we had the feeling that we should be doing something in the direction of modding, because even at this early time, we had such a powerful engine and we knew we could bring out so much more with this. We don't have the time to do that, because we are working on FarCry but we can give the tools and all that stuff to the community and see what they come up with...and then we realized: Wow; this is really unbelievable, the type of stuff that people are able to produce" (Cry1).*

Now, how can Crytek profit from its modding community? As the expert interviews reveal, Crytek employees benefit particularly from all the suggestions and ideas the modding community provides. Direct copying or a one-to-one takeover of an artefact created by a modder however, is not acceptable - instead the modder in question will be recruited and integrated into the team: *" ...but copying directly, no,*

something like that would never happen. If anything, we would hire the person. If someone were to create the mod of the century right now and it would be the best idea ever available in a game, I believe, this person would here faster than he could [blink]" (Cry3).

In the interview the game designer explains the reasons why direct copying is not an option. It is related to his work ethic: "...one-to-one takeover is not possible because there is always the problem that one wants to achieve something. I would feel very uneasy, if I were to copy something from somebody else, well, because it would simply not be mine. For me, personally that would not work and I certainly know quite a few people who think the same way, because, you know, many want to show off, want to prove themselves and they want to be able to put their name on something" (Cry3).

Instead, there are many ways in which something can be developed together with the community: be it a patch or bug fix that is developed cooperatively, the exchange of ideas and further developments at community meetings or competitions and challenges that are issued by Crytek to solve particular problems or to implement certain ideas. "...*for example, we developed a patch for FarCry together with the community. That means we got the most talented artists from the community together and said "Ok, this and that is our wish-list. Do you feel like working with us on this and then publishing the complete community patch?" And that was the first collaboration of Crytek and the community for such a general patch" (Cry1).*

It was apparent during the interviews that the experts' identification with the community was quite high and that there was a sense of connectedness and mutual esteem on both sides: "*And if you talk directly with the people, you can see immediately how strong the emotions are, how they are all hot for the whole thing and this is absolutely great for us, just watching, because without them this entire community would not work. Really, it is that simple...the fan-sites and so on are, all these people are so unbelievably important and that's why we try and invite then as often as possible and start such events" (Cry1).*

This connectedness is not only celebrated at certain events, but is part of everyday life in the Crytek community. Every Crytek employee has a forum account and can communicate with the users and modders in the different communities. Some employees even switch roles, become free-time modders and join a modding team after work. One of these modding teams received the award for "Mod of the year 2009"[16]. "That was truly sensational! We had hoped for it, we had wished for it, but when it really happened it was awesome. ModDB is the No. 1 modding site for the whole of the modding scene and we had been nominated! I say "we" because this is our community and we feel part of it. … Later on we recruited two of the modders. They simply were that good. So we said: "Join us and work for us" *(Cry1).*

---

[16] In 2009 both the "Editor's Choice" and the "Gamer's Choice" awards went to the Crysis-Mod "MechWarrior: Living Legends" (http://www.mechlivinglegends.net).

In order to keep the interaction between Crytek and the community working as fast and as smoothly as possible, Crytek engages so-called community managers, who take on the position of gatekeepers and are often recruited directly from the community. Community managers see themselves as speakers for the community within the company and as a link between the company and the active web-users. Because of the differences between the target markets of the various Crytek-communities, the type of work of the community managers is also different for each of them: *"As far as crymod.com goes, we're quite a lot keen in the way that they almost motivate themselves. I mean we tried to make sure that we offer them all of the tools, that they require and facilitate everything that they want to do, but I mean pretty much that whole website is run by people that are enthusiastic about creating games and creating their work, so the input from our side is actually fairly minimal in terms of keeping them going, because they love doing it. So we do try to offer at least competitions to give them a kind of award and a thank-you for being there and for doing it all, but for the most part they're self-sustaining. Mycrisis.com on the other hand is pretty much where people go for the latest information and to meet other gamers and to do things like that. So from our side keeping people interested in that site is a lot more work, because we need to include lots and lots of news-updates …". (Cry4)*

In contrast to the impact of the gaming community, the impact of the modding community for Crytek is based on the fact that this is where the true hard core of self-motivated and very competent users is located. This type of user has the status of a highly specialized expert and on a social level identifies strongly with the company. So much so, that the company can eliminate certain common market risks when incorporating external knowledge or recruiting external experts by using the route over the community.

Crytek: Collaboration with customers

Casual Gamer	• Marketing • Promotion
Hardcore Gamer	• Quality Control • Bugreports and Bugfixes
Modder	• Modification & Customization • Innovation

Figure 4: Levels of Collaboration with the customers

Results for the Crytek case

The part of the project concerning Crytek has discovered a new species of customers: the modders, self-motivated and often sharing the work on modifications of computer games in highly complex team structures, be it by providing changes to the game concept, the game design or the game construction. Just as described in the theoretical concept of Bruns, modders can be understood as produsers who combine several roles and generate artifacts of content in a hybrid process between production, distribution and consumption. Here, modders have the status of experts and for companies such as Crytek they can transmit information concerning their needs as well as the solution to those needs. Because the average gamer also provides information on his or her needs, modders are particularly valued for their ability to develop new ideas or applications using the tools provided by Crytek in a new and creative way and thereby extending the solution space offered by the Cryengine. The relationship between Crytek and the modders has been described as one of interactive value creation. Interactive, because the company and the members of the community collaborate in developing modifications on existing products and innovations using the help of Web 2.0 technology and SDK tools. This has an effect on the creation of value of Crytek, since the company receives information from the community about the needs and problems as well as information concerning the solution to those needs and problems. Therefore, the scope of possible solutions provided by the Cryengine can continuously be extended. An additional result concerns the recruitment of personnel. Modders active in the community are extrinsically motivated in regard to their professional aspirations and through modding, they acquire important skills, especially technical and social competencies. These competencies match the requirements of skills and abilities of the workforce at Crytek perfectly. Thus, Crytek not only benefits from the ideas of the modders, they also follow the strategy to recruit talent from the community and integrate them into the team in order to profit from their expert knowledge and creativity.

5.   Conclusion

The phenomenon of customer or user involvement in the value creation of companies is central to this research project. The review of the existing literature revealed clear distinctions between the materiality of the phenomenon, its specifications, its evaluation and its varying foci. The original sociological approach of the "working customer" predicts a rise in the companies' dominance over the customers, as well as an increasing economization and capitalistic takeover of the private realm. In contrast, researchers investigating innovation and the internet assume there will be a loss of relevance of the private company as an institution and an increase in relevance of collaborative community building. The economists cited here – and also some sociologists studying consumption – take up an intermediate

position between these two extremes: They assume that companies as well as customers or user communities will be able to benefit from each other and will create a win-win situation for all participants.

The current state of research leaves questions regarding the companies' coordination of these processes and the motivation of the customers unanswered. The research team used the multitude of these approaches constructively by posing the following research question: Why do customers participate in processes of "new types of prosuming" or in "interactive value creation" and how are these processes coordinated by the firms?

Three cases were chosen to serve as examples for the diversity of the phenomena: Deutsche Bahn AG, whose main product is a service that was formerly carried out without collaboration or the working customer, has started to rely on it within the past few years: offline at the ticket machine, online or by mobile phone. IKEA is a company whose business model is based on prosuming and the working customer. Furthermore, the technical possibilities allow the customer to carry more and more of the work load. The newest example for this development are the scan-it-yourself checkouts. Lastly, Crytek is a very successful developer of computer games that relies on collaboration and systematically integrates customers and users into the processes of quality control, product modification, product development and innovation. In order to answer the research question, the inquiry was adapted to the three case studies and an appropriate theoretical approach was chosen for each. In all cases the dependent variable was a "new type of prosuming" which is web-based and involves a (quantitative and qualitative) increase in collaboration in contrast to former concepts of prosumption.

In the case of Deutsche Bahn AG the results showed that not only a large group of customers use the internet to buy tickets, it is also very frequently used to search for information before traveling. Both sides agree that the "interactivity" factor of the customers' involvement in value creation is limited. The representatives at the company's customer interfaces are very selective in the handling of the customer information and the impression arises that the company's strategies are based more on the monitoring of customers with the intention to maximize profits, rather than being based on interactive collaboration.

For the analysis of IKEA the customers' "collaboration" is so deeply anchored in the company's business model and self-concept that it is fully taken for granted and is no longer questioned by either side. At IKEA prosumption has been institutionalized. Only when trying to involve the customers in "new types of prosumption" does the company have to persuade the customers to participate. The customers are generally motivated by self-determination and fun, as well as by monetary benefits.

For Crytek the intrinsic (creativity), extrinsic (impact on career aspirations), but also social (recognition by the community, fun in the community) motives are relevant to the modders. The analysis of the company perspective shows how im-

portant the modders' knowledge is for the development of the games – and therefore to the company's success. The company's objective is to actively support modders and eventually hire them as employees. Looking at the interaction between Crytek and its customers you notice that both sides have a good fit of needs and solutions based on a high level of commitment on both sides. As such Crytek is looked at as an open, innovative company with fluid boundaries to its external community. This fluidity is maintained purposefully and is part of the company's operating strategy.

All in all, the customers in the cases discussed generally appreciate their involvement in the process of value creation, rather than disapprove of this development. Only in the case of the Deutsche Bahn does there seem to be a dissonance between the customers' and the company's perspective, which most likely is caused by the fact that the customers' willingness to collaborate is not adequately considered by the Deutsche Bahn. In the case of the two other companies there seems to be a general consensus in regard to customer concerns and the capitalist logic of the companies' activities. Combinations of the three types of motives for collaboration become evident in each case study, depending however on the kind of need information and solution information that are looked for by the particular company, as well as on the collaboration space that is offered. Given a huge space for working together, as is the case with Crytek, broad collaboration can succeed. It can be fun to enjoy a service, but it is even more fun to be creative. Receiving social and material recognition can establish a certain kind of commitment to the company.

Collaborative practices show up as a rich field for future research: Living in an age in which individuals show an increasing willingness to offer their skills to companies without a financial reimbursement – but are still full of personal motivation – seems to become a regular pattern with considerable reach. In terms of the theoretical approaches it can be said that they have all been validated within their specific context. Nevertheless, in the future theoretical approaches need to be developed that allow for a better understanding of the reciprocity of the relationship between customers and companies.

References

Baldwin, C. Y. and Eric von Hippel. (2009). "Modeling a Paradigm Shift: From Producer Innovation to User and Open Collaborative Innovation." Ín: *MIT Sloan School of Management Working Paper* No. 4764-09. Cambridge: MIT.

Behr, K.-M. (2008). "Kreative Spiel(weiter)entwicklung. Modding als Sonderform des Umgangs mit Computerspielen." In: Quandt, T., Wimmer, J. and Jens Wolling. *Die Computerspieler: Studien zur Nutzung von Computergames.* Wiesbaden: VS Verlag, pp. 193-207.

Blättel-Mink, B. and Kai-Uwe Hellmann. (2010) (eds.). *Prosumer Revisited: Zur Aktualität einer Debatte.* Wiesbaden: VS Verlag für Sozialwissenschaften.

Bruns, A. (2007). The Future Is User-Led: The Path towards Widespread Produsage. Paper presented at Perth DAC conference, Perth, Western Australia, 15.-18. Sep. 2007.

Bruns, A. (2008). *Blogs, Wikipedia, Second Life, and Beyond: From Production to Produsage.* New York: Peter Lang Publishing.

Bruns, A. (2009). "Anyone Can Edit: Vom Nutzer zum Produtzer." In: *kommunikation@gesellschaft* 10. http://www.sowiport.de/tomcat/journals/text/K.G/10/B3_2009_Bruns.pdf.

Bruns, A. (2010). "Vom Prosumenten zum Produtzer." In: Blättel-Mink, B. and Kai-Uwe Hellmann (eds.), *Prosumer Revisited: Zur Aktualität einer Debatte.* Wiesbaden: VS Verlag für Sozialwissenschaften, pp. 191-206.

Bryman, A. (2004). *The Disneyization of Society.* London: Sage Publications Ltd.

Chesbrough, H. (2003). *Open Innovation: The New Imperative for Creating and Profiting from Technology.* Harvard Business School Press.

Hanekop, H. and Volker Wittke. (2008). "Die neue Rolle der Anwender in internetbasierten Innovationsprozessen." In: *AIS-Studien*, 1(1): pp. 7-28.

Hanekop, H. and Volker Wittke. (2010). "Kollaboration der Prosumenten. Die vernachlässigte Dimension des Prosuming-Konzepts." In: Blättel-Mink, B. and Kai-Uwe Hellmann (eds.), *Prosumer Revisited. Zur Aktualität einer Debatte.* Wiesbaden: VS Verlag für Sozialwissenschaften, pp. 96-113.

Hanekop, H., Tasch, A. and Volker Wittke. (2001). "New Economy und Dienstleistungsqualität: Verschiebung der Produzenten- und Konsumentenrolle bei digitalen Dienstleistungen." In: *SOFI-Mitteilungen* 29/2001: pp. 73-91. Online-Document http://webdoc.sub.gwdg.de/edoc/le/sofi/2001_29/hanekop-wittke.pdf.

Harhoff, D., Henkel, J. and Eric von Hippel. (2003). Profiting From Voluntary Information Spillovers: How Users Benefit by Freely Revealing Their Innovations. http://userinnovation.mit.edu/papers/3.pdf.

Hellmann, K-U. (2010). "Prosumer Revisited: Zur Aktualität einer Debatte. Eine Einführung." In: Blättel-Mink, B. and Kai-Uwe Hellmann (eds.), *Prosumer Revisited. Zur Aktualität einer Debatte.* Wiesbaden: VS Verlag für Sozialwissenschaften, pp. 13-48.

Howe, J. (2006). "The Rise of Crowdsourcing." In: *Wired,* June 2006. http://www.wired.com/wired/archive/14.06/crowds.html.

Jeppesen, L. B. (2004). "Profiting From Innovative User Communities: How Firms Organize the Production of User Modifications in the Computer Games Industry." In: København Center for Strategic Management and Globalization.

http://research.cbs.dk/da/publications/profiting-from-innovative-user-communities(6ea9f480-c020-11db-9769-000ea68e967b).html.

Kanning, T. (2010). "Spieleentwickler Crytek. Die intelligentesten Aliens kommen aus Fechenheim." In: *FAZ* vom 01.09.2010. http://www.faz.net/s/RubBEFA4EA6A59441D98AC2EC17C392932A/Doc~E2A27075D84884CF8BFE388A63208F8F6~ATpl~Ecommon~Scontent.html (abgerufen am 22.11.10).

Kleemann, F., Voß, G. G. and Kerstin Rieder. (2008). "Crowdsourcing und der Arbeitende Konsument." In: *Arbeits- und Industriesoziologische Studien*, 1(1): pp. 29-44.

Luhmann, N. (1964). *Funktionen und Folgen formaler Organisation.* Berlin: Duncker & Humblot.

Piller, F., Reichwald, R. and Christopher Ihl. (2007). "Interaktive Wertschöpfung – Produktion nach Open-Source-Prinzipien." In *Open Source Jahrbuch 2007*, pp. 87-102.

Postigo, H. (2007). "Of Mods and Modders. Chasing Down the Value of Fan-Based Digital Game Modifications." In: *Games and Culture* 2(4): 300-313.

Reichwald R., Ihl, C., and Sascha Seifert. (2004). "Kundenbeteiligung an unternehmerischen Innovationsvorhaben. Psychologische Determinanten der Innovationsentscheidung." In: Arbeitsbericht Nr. 40 (Juni 2004) des Lehrstuhls für Betriebswirtschaftslehre - Information, Organisation und Management der Technischen Universität München.

Reichwald, R. amd Frank Piller. (2009). *Interaktive Wertschöpfung: Open Innovation, Individualisierung und neue Formen der Arbeitsteilung.* 2., komplett überarbeitete und aktualisierte Auflage. Wiesbaden: Gabler.

Sotamaa, O. (2007). "On Modder Labour, Commodification of Play, and Mod Competitions." In: *First Monday* 12/9: http://www.uic.edu/htbin/cgiwrap/bin/ojs/index.php/fm/article/view/2006/1881.

Steinecke, A. (2000). "Tourismus und neue Konsumkultur: Orientierungen – Schauplätze – Werthaltungen." In: Steinecke, A., *Erlebnis- und Konsumwelten.* München et al.: Oldenbourg.

Surowiecki, J. (2004). *The Wisdom of Crowds: Why the Many Are Smarter Than the Few and How Collective Wisdom Shapes Business, Economies, Societies and Nations.* New York: Doubleday.

Tacke, V. (1997). "Systemrationalisierung an ihren Grenzen – Organisationsgrenzen und Funktionen von Grenzstellen in Wirtschaftsorganisationen." In: Schreyögg, G. and Jörg Sydow (eds.), *Managementforschung 7. Gestaltung von Organisationsgrenzen.* Berlin: de Gruyter, pp. 2-44.

Toffler, A. (1980). *The Third Wave.* New York: Morrow.

von Hippel, E. (2005). *Democratizing Innovation.* MIT Press.
    http://web.mit.edu/evhippel/www/-democ1.htm.

Voß, G. G. and Kerstin Rieder. (2005). *Der arbeitende Kunde. Wenn Konsumenten zu
    unbezahlten Mitarbeitern werden.* Frankfurt: Campus.