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Stefan Hielscher und Till Vennemann

Harnessing CSR for the Innovation Capacity of the Capitalistic Firm:A Conceptual Approach for How to Use CSR in and for Innovation Management

Diskussionspapier Nr. 2013-10

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Kurzfassung

In den letzten Jahren hat die Diskussion über strategische Corporate Social Responsibility (CSR) verstärkt die Innovationsfunktion der Unternehmen und ihre Rolle als Agenten der "free market innovation machine" in den Blick genommen. Aufbauend auf dem Theorieangebot der Ordonomik, zeigt dieser Artikel, wie die Übernahme gesellschaftlicher Verantwortung den Innovationsprozess innerhalb von Unternehmen gezielt verbessern kann. Unsere Hauptthese lautet: CSR kann die Innovationskraft der kapitalistischen Unternehmung insbesondere dann stärken, wenn CSR als Strategie moralischer Bindungen verstanden und angewandt wird. Aus dieser Perspektive lassen sich vier Wege identifizieren, wie Unternehmen die Kooperation mit wichtigen Stakeholdern innerhalb des Innovationsprozesses stärken, bzw. allererst ermöglichen können.

Schlüsselwörter: Corporate Social Responsibility, Strategische CSR, Innovationsmanagement, Innovationsprozess, Risikomanagement

Abstract

In recent years, the debate over strategic corporate social responsibility (CSR) has shifted focus to become more concerned with the innovation capacity of the business firm as the prime agent of the "free market innovation machine." Drawing on the ordonomic approach, this article demonstrates how taking responsibility for social challenges can help strengthen the process of corporate innovation. Our main thesis is that CSR can foster the innovation capacity of the capitalistic firm if it is developed as a strategy of moral commitments. More specifically, we believe that this ordonomic perspective is especially useful because it identifies four ways how companies can use CSR to improve innovation by enabling and strengthening cooperation with important innovation partners.

Key words: Corporate Social Responsibility, Strategic CSR, Innovation Management, Innovation Process, Risk Management

Harnessing CSR for the Innovation Capacity of the Capitalistic Firm: A Conceptual Approach for How to Use CSR in and for Innovation Management

von Stefan Hielscher und Till Vennemann

Capitalism is often criticized as an unsustainable system based on numerous ongoing and recurring crises such as degradation of the environment, water shortages, social inequality, mass unemployment, and the north-south divide, as well as food and financial crises. Corporations, as the main actors of capitalism, receive a great deal of this criticism. Somewhat paradoxically, however, not only are they regarded as part of the problem, but they are also expected to be part of the solution. Companies try to meet these expectations by increasingly taking on corporate responsibility for solving fundamental societal challenges.

Corporate responsibility is more than just traditional philanthropy; indeed, it is increasingly seen as a type of strategic management.¹ Numerous scholars delve into the question as to how corporations can apply their value creation processes to solving societal problems. More recently, the focus of this work has shifted toward the innovation capacity of the business firm as the prime agent of the "free market innovation machine"². This field of research encompasses various types of and terms for innovation, including eco innovations³, green innovations⁴, sustainability-oriented innovations⁵, and corporate social innovations⁶. As Hockerts et al. (2009) note, this trend is a "break-through discipline for innovation"⁷ a "key driver for innovation"⁸, the "way to the next industrial revolution"⁹, or, from a Schumpeterian perspective, the "creative destruction of industries"¹⁰.

This article turns the current focus of the literature on its head by asking how taking on corporate responsibility (CSR) for social challenges can strengthen the corporate innovation process. Using the ordonomic approach to corporate social responsibility introduced by Pies, Hielscher, and Beckmann (2009) and Pies, Beckmann, and Hielscher (2010, 2011), our main thesis is that CSR can foster the innovation capacity of the capitalistic firm if it is developed as a strategy of moral commitments. More specifically, we believe that this ordonomic perspective is especially useful for innovation management because it identifies four ways of companies can use CSR to improve the process of innovation by enabling and strengthening cooperation with their innovation partners.

¹ Cf. Porter and Kramer (2002) as well as Porter and Kramer (2006) and Porter and Kramer (2011). ² Baumol (2002).

³ See, for example, Carrillo-Hermosilla, Del Rio Gonzales, and Konnola (2009), Fussler and James (1996), OECD (2009) or Rennings (2000).

⁴ See, for example, Chen, Lai, and Wen (2006) or Chen (2008).

⁵ See, for example, Hansen and Grosse-Dunker (2013).

⁶ See, for example, Als et al. (2010), Hockerts et al. (2009) and Kanter (1999).

⁷ Fussler and James (1996).

⁸ Nidumolu, Prahalad, and Rangaswami (2009).

⁹ Senge and Carstedt (2001).

¹⁰ Hart and Milstein (1999).

We develop this argument in four steps. The first step is a literature review of work focusing on how CSR can contribute to each stage of the innovation process. The second step introduces the ordonomic approach to corporate social responsibility (CSR) as a way of calling attention to the importance of social dilemma situations for the identification of win-win outcomes of social cooperation. The third step illustrates the ordonomic idea of how CSR can be harnessed to improve innovation management by engaging in a strategy of moral commitments. The fourth step shows that CSR, understood as a corporate strategy of moral commitments, not only strengthens the process of corporate innovation qualitatively but also quantitatively. The article ends with a concluding summary.

1. CSR as Part of the Innovation Process: A Systematic Literature Review

In both innovation management research and day-to-day business practice, a variety of models are applied to structure the process of innovation.¹¹ Such models are valuable not only in systematically mapping the innovation process but, most importantly, in standardizing and streamlining the innovation process within the corporation. To illustrate the idea of CSR-supported innovation management, we use a linear model of the innovation process as illustrated in Figure 1.¹²

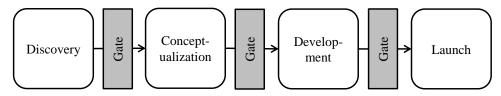


Fig. 1: A linear model of the innovation process¹³

The process model of innovation as presented in Figure 1 is inspired by the "fast-track" version of the stage-gate model developed by Cooper (2001; p. 145–147), which, in its original form, contains six stages, including a discovery stage (Cooper, 2001; p. 129–141). In contrast to Cooper's standard six-staged model, this model has only four stages—(a) discovery, (b) conceptualization, (c) development, and (d) launch. In the following section, we review the literature using this four-stage model to show how CSR can contribute to each stage of the innovation process. Although there is very little research that deals specifically with CSR and management of the innovation process, a variety of studies address single phases of the innovation process, since each stage has direct connections to specific management fields such as marketing or business models.

(a) The discovery stage is the starting point for any innovation project. In line with Koen et al. (2001), Cooper (2001; p. 154–177) points out that opportunity identification is key for idea generation and requires the interweaving of perception, analysis, and

¹¹ Cf. Forrest (1991), Hobday (2005), Rothwell (1994), Tidd (2006), as well as Verworn and Herstatt (2002).

¹² Admittedly, linear models such as the early versions of stage-gate models are not realistic portrayals of the innovation process. As critics such as Hobday (2005:127–128) legitimately point out, the scope of such models is necessarily limited. For our purposes, however, the stage-gate model is a valuable tool for structuring the innovation process because it allows identifying the key starting points for the use of CSR within the process of innovation.

¹³ Source: Own representation based on Cooper (2001; p. 145–147).

strategy. Cooper (2001; p. 154–177) stresses that the sources of ideas can be found inside or outside the firm. Key ways of "harvesting" these ideas include scenario generation, fundamental research, and making contact with stakeholders, for example, through lead-user integration¹⁴.

Many aspects of the discovery stage have obvious connections to CSR and it is not surprising that scholars identify CSR as a driver for the first phase of innovation. Several authors emphasize the role of CSR in identifying new markets and opportunities by changing or broadening the way the company views its value creation process. Therefore, scholars such as Clausen and Loew (2009; p. 83), Porter and Kramer (2006, 2011), and Vandekerckhove and Dentchev (2005) argue that CSR can be systematically integrated into corporate strategy and the corporate vision. With regard to interacting and communicating with stakeholders, Ayuso, Rodríguez, and Ricart (2006), Clausen and Loew (2009; p. 84), and Hall and Vredenburg (2003), as well as Hart and Sharma (2004), underline the role of stakeholder dialogue in generating new ideas and thereby point out, how CSR can be part of the trend towards open innovation¹⁵.

(b) The second stage—conceptualization—together with the discovery stage is referred to as the fuzzy front-end of innovation¹⁶. According to the "fast-track" version of Cooper's stage-gate model, conceptualization involves determining the scope of, and then building a good business case for, innovative ideas¹⁷, which requires three components: product or project definition including a strategy and value proposition, project justification, and project plan¹⁸. According to Cooper (2001; p. 178–212), this phase between discovery and development is particularly crucial because it is the last step before substantial expense will be incurred.

With regard to developing a business case, the literature discusses possible connections to CSR or CSR-related aspects such as sustainability mainly in terms of challenges that must be overcome in the case of CSR-based innovations. Regardless of whether the business case addresses social, environmental, sustainability or base-of-the-pyramid issues, CSR-based innovations often need to be radical or systemic.¹⁹ Drawing on Christensen and Overdorf (2000), such innovations can also be classified as disruptive. Unlike sustaining innovations, disruptive innovations challenge companies in two distinct ways: First, CSR-based innovations may have a later break-even point than sustaining innovations. Second, CSR-based innovations may require business firms to either create new organizational structures within the company, spin out independent organizations, or even cooperate with other organizations to acquire required resources and values.²⁰ The need for new capabilities and changed structures becomes particularly clear when considering base-of-the-pyramid innovations (BOP innovations). The four power, improving access, shaping aspirations and tailoring local solutions"-highlight that BOP innovations require a more complex implementation process and often also the willingness to cooperate with new partners, such as governmental or nongovern-

¹⁴ Cf. von Hippel (1988).

¹⁵ Cf. Gassmann, Enkel, and Chesbrough (2010).

¹⁶ Cf. Cooper (2001; p. 178–179) and Koen et al. (2001).

¹⁷ Cf. Cooper (2001; p. 147).

¹⁸ Cf. Cooper (2001; p. 184 et seq.).

¹⁹ Cf. Boons et al. (2012; p. 1).

²⁰ Cf. Christensen and Overdorf (2000; p. 6–10).

mental organizations. Similar arguments are put forward by Kanter (1999) for the case of corporate social innovation and by Rennings (2000) for the case of eco innovations.

Against this backdrop, a dynamic debate is underway about how to develop suitable business models that foster sustainable innovation.²¹ Boons and Lüdecke-Freund (2012; p. 4–5) develop normative criteria for business models for sustainable innovations; Schaltegger, Lüdecke-Freund, and Hansen (2011; p. 21–22) argue that business models need to be adapted to the sustainability strategy. To this end, Schaltegger, Lüdecke-Freund, and Hansen (2011) develop a framework that integrates sustainability strategy, the degree of business model innovation, and the business case drivers for sustainability.

(c) As in the "fast-track" version of Cooper's model of innovation, the third stage of our model contains not only development but also testing and validation. The primary purpose of development is to physically develop an alpha-tested prototype and begin implementing the project plan. Testing and validation, however, are aimed at achieving final and total validation of the entire project.²²

Prototype development is a chiefly a technical process.²³ Specific competences may be called for if the innovation is to address aspects of CSR, for example, environmental issues or new target groups and markets. The extant CSR literature concentrates on aspects related to resources. Accordingly, companies might consider cooperating with external stakeholders so as to acquire or pool resources, for example, with NGOs. Austin (2000), as well as Brugmann and Prahalad (2007; p. 87–88), highlight that resources need to be complementary in order to create synergy effects when for-profit organizations and not-for-profit organizations cooperate. In the case of eco innovations, pooling resources and/or risks plays an even bigger role. Due to path dependencies and the problem of double externality, eco innovations need to be addressed with systemic solutions.²⁴ Not surprisingly, Fichter and Arnold (2003; p. 32–33) show that eco innovations are mainly the result of R&D cooperations.

With regard to testing, the literature identifies CSR-based inputs on two levels. On the first level, CSR-related criteria can be part of the tests. According to a study conducted by Clausen and Loew (2009; p. 78–79), this is particularly important if the innovation is marketed with respect to these criteria, for example, eco efficiency. This type of test is often referred to as life cycle assessment and as such they address different CSR-related aspects: environmental issues²⁵, social criteria²⁶, or broader aspects of sustainability²⁷. With regard to broader sustainability, Hansen, Grosse-Dunker, and Reichwald (2009) develop a framework to evaluate sustainability-oriented innovations that combines the three dimensions of lifecycle, target, and innovation type. In general, many CSR-enriched tests are closely linked to existing environmental management systems that are also part of ISO/TR 14062.

²¹ Cf. Boons et al. (2012), Boons and Lüdecke-Freund (2012) as well s Schaltegger, Lüdeke-Freund, and Hansen (2011).

²² Cf. Cooper (2001; p. 252–278).

²³ Cf. Cooper (2001; p. 139).

²⁴ Cf. Rennings (2000).

²⁵ Cf. Nissinen et al. (2007).

²⁶ Cf. Jørgensen et al. (2008).

²⁷ Cf. Gauthier (2005)

On the second level, CSR can be used as a beta site for innovation. The CSR literature shows that this can work not only for social sector innovation²⁸, but also for the BOP market²⁹. According to Prahalad and Hart (2002), BOP approaches can be a strategy both to circumvent fierce competition in traditional markets and to test alternative business ideas in developing countries. After the "beta" testing, successful innovations can be transferred back and create new business opportunities in Western markets, too.

(d) The fourth stage—launch—is the last major element of the innovation process. Launch involves taking the innovation to the customer. This last stage is critical in the sense that all prior stages, including all planning and preparation, should be aligned to the marketing launch plan.³⁰ In fact, CSR-related topics are frequently found in marketing research and vice versa. Marketing scholars even go so far as to refer to sustainability marketing as the "third age of green marketing"³¹ or as "marketing in the 21st century"³². As a result, there is a rich body of literature that deals with this stage.

In general, the literature differentiates between two CSR-related marketing strategies: sustainability-oriented marketing strategies for ordinary products, for example, cause-related marketing³³, and marketing strategies for products that meet sustainability criteria, for example, the design of labels and certificates³⁴. Cause-related marketing can be engaged in for products and services that are not necessarily CSR related; certificates and labels serve to promote special product features. According to many marketing scholars, employing CSR for both types of marketing can be effective not only for a single product but for the company as a whole. However, there is also a great deal of skepticism among consumers due to fact that some companies misuse CSR-related marketing, for example, by engaging in "green washing". As a consequence, several studies argue that important stakeholder relations can be seriously jeopardized if there is no credible fit between the CSR-related marketing strategy and the product quality or the company's behavior.³⁵ To avoid charges of "green washing," Cronin et al. (2011) argue that marketing strategy needs to take a stakeholder perspective when bringing a substantial green innovation to market.

Our review demonstrates that the literature contains some promising starting points for using CSR in the innovation process (cf. Figure 2). However, as a quantitative study of more than 8,000 publications conducted by Schiederig, Tietze, and Herstatt (2012; p. 189) discovers, most research still focuses on the meso or macro level of innovation and not on the firm level. In addition, very little research is conducted on the managerial level, which covers the whole innovation process. Rare exceptions are the studies conducted by WBSCD (2002) and Clausen and Loew (2009), which use a process model of innovation. However, these studies use a stage-gate model in a cursory manner only to illustrate their research findings on CSR and innovation.³⁶ In the following sections, we

- ³³ Cf. Bronn and Vrioni (2001).
- ³⁴ Cf. Belz (2006) or Horne (2009).

²⁸ Cf. Kanter (1999).

²⁹ Cf. Prahalad and Hart (2002; p. 61-65).

³⁰ Cf. Cooper (2001; p. 279–309).

³¹ Peattie (2001).

³² Belz (2006; p. 139)

³⁵ Cf. Becker-Olsen, Cudmore, and Hill (2006), Bhattacharya and Sen (2007), Bronn and Vrioni (2001) and van de Ven (2008).

³⁶ WBSCD (2002) primarily collects best practices for how to use CSR-based activities to foster innovation; Clausen and Loew (2009) conduct a research project financed by the German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU). Analyzing the link between CSR and

take up this idea and systematically scrutinize the whole innovation process from an ordonomic perspective. In doing so, we provide a comprehensive understanding of how to use CSR in innovation management that goes beyond the current state of the literature.

Development Launch	GateAcquiring and pooling resources with stakeholders:Acquiring and pooling resources with stakeholders:Austin (2000)Brugmann and Prahalad (2007)Brugmann and Prahalad (2007)Fichter and Arnhold (2003)Fichter and Arnhold (2003)Social LCA: Jørgensen et al.CSR-related tests:Hill (2006)Brutacharya and Sen (2007)assessment (LCA): Nissinen et al.(2008)Social LCA: Jørgensen et al.(2009)Sustainable innovation cube:Hansen, Grosse-Duncker and
<u> </u>	Gate
Conceptualization	 Business model development together with stakeholders: BOP-Market: Prahalad and Hart (2002) Eco-innovation: Rennings (2000) Corporate social innovations (Kanter 1999, Hockerts et al. 2009) Social business model innovation: Boons et al. (2012) Boons and Lüdecke-Freund (2012) Schaltegger, Lüdecke-Freund and Hansen (2012)
	Gate
Discovery	Broadening perception: Porter and Kramer (2006) (2011) Vanderkerkhove and Dentchev (2015) Clausen and Loew (2009) Ayuso, Rodriguez and Ricart (2006), Auso, Rodriguez and Ricart (2006), Hall and Vredenburg (2003) Hart and Sharma (2004)

Fig. 2: Literature overview: Starting points of using CSR in the innovation process

innovation, their study concludes that CSR can be a real driver of the innovation process. In doing so, Clausen and Loew focus on corporate culture and innovation champions and use the stage-gate model only to illustrate their findings.

2. The Ordonomic Approach to the Role of Business in Society

The classic liberal argument against companies being socially responsible is that put forward by Milton Friedman (1970; p. 122), who argues that companies best fulfill their social responsibility by maximizing their profits. This might be true in a world of "perfect" markets. In the "real" world, however, companies have to deal with systematic incompleteness—that is, with an incomplete institutional order of competitive markets and with incomplete contracts for market transactions.³⁷

Against this "real world" backdrop, the ordonomic approach focuses on how corporate actors can use moral commitments to create a functional framework for win-win cooperation with their stakeholders-that is, with their customers, employees, suppliers, and financiers-and also with civil society organizations, politicians, and the media. According to Schelling (1960; p. 4 et passim), however, social cooperation is nearly always antagonistic cooperation because it involves not only common interests but also conflicting interests. Take the stakeholder relationship between a company and its investors.³⁸ Managers prefer to work for a successful market leader; investors want a high return on their investment. Hence, both parties have a common interest in value creation. Yet, they also have conflicting interests. Managers are risk averse and tend to engage in mainly low-risk projects with a certain value added; investors would like to see managers invest in high-risk projects that yield higher-although more uncertainexpected returns. Successful cooperation between managers and shareholders thus requires an institutional arrangement that reduces the impact of conflicting interests and emphasizes the benefits of cooperation. Indeed, the whole system of corporate governance is an attempt to institutionally establish and maintain the precarious relationship between management and shareholders.

From an ordonomic perspective, the simultaneous presence of common and conflicting interests can be understood as a social dilemma.³⁹ The defining feature of a social dilemma is that it is a situation of collective self-damage, a situation in which a win-win solution cannot be realized due to an incentive structure that makes it difficult (if not impossible) for rational actors to behave in a mutually beneficial way even though it would be in their common interest to do so. The ordonomic approach distinguishes between two types of collective self-damage: one-sided dilemma structures and manysided dilemma structures. Analogously, there are two ways of overcoming situations of collective self-damage: individual commitments in one-sided dilemma situations and collective commitments in many-sided dilemma situations.

As a consequence, companies can use moral commitments—that is, institutional arrangements for overcoming one-sided or many-sided social dilemmas—as a systematic "factor of production"⁴⁰. The underlying idea is that prudent moral commitments can lead to a win-win outcome for the company by convincing its stakeholders of its reliability as an interaction partner and inducing them into productive cooperation that would not be possible in the absence of such trust. Thus, moral commitments can be a

³⁷ Cf. Pies, Beckmann, and Hielscher (2011; p. 177–178).

³⁸ Cf. Hielscher (2011; p. 120).

³⁹ Cf. Hielscher (2011; 121).

⁴⁰ Pies (2009) and Hielscher (2011; p. 121).

factor of production in that they signal that the firm is interested in and considerate of others, a signal that can be immensely important to value creation.⁴¹

In the following section, we apply this ordonomic approach to the process of innovation. In doing so, we show how CSR can be used to strengthen the role of corporations as agents of societal innovation.

3. CSR in the Process of Innovation: A Case Illustration of Four Innovation Stages

Following the general understanding of van de Ven (1986), we interpret the process of innovation primarily as an interaction process in which the company needs to cooperate with a variety of stakeholders in order to reap the full benefits of corporate innovation. We now illustrate from an ordonomic perspective how CSR can be harnessed to foster the process of innovation management. The following four subsections discuss potential sources of conflict at each stage of the four stages of innovation—(a) discovery, (b) conceptualization, (c) development and (d) launch—and how the ordonomic approach to CSR can overcome these conflicts by the using a strategy of moral commitments.

(a) According to theory, the starting point of any innovation is discovering a new idea. However, contrary to comic book representation, ideas do not just appear as light bulbs above one's head. Successful ideation requires not only the broadening of perception and communication with stakeholders but also, and most importantly, creativity.

There are several specific techniques for enhancing creativity, such as checklists, mind mapping, or brainstorming⁴², but within corporations, enhancing creativity is often viewed as a tradeoff between rules and routines and freedom and flexibility. Böhle (2011; p. 21), for example, argues that certain rules do negatively affect the creativity of the workforce. From an ordonomic perspective, however, this is not necessarily true. While there might be a conflict between rules and creativity in some cases, in many other cases rules and behavioral norms are the very prerequisites for creativity.⁴³ Without win-win-oriented rules that enable cooperation, creativity is limited or even impossible. Sometimes, inappropriate or a lack of rules can even lead to ethical problems, such as inter-organizational conflict or bootlegging.⁴⁴

As van de Ven (1986; p. 591) stressed more than 25 years ago, being creative in an organization is difficult because "people and their organizations are largely designed to focus on, harvest and protect existing practices rather than pay attention to developing new ideas." Thus, Creativity demands resources and effort above and beyond those necessary to complete daily routines. Furthermore, generating new ideas is a high-risk activity because, compared to routines, there is little or no experience in estimating the possible outcome of creative work and the value of resulting ideas. As a result, employees who act strategically—that is, who act depending on the behavior of their colleagues—will probably refrain from engaging in creative work. This phenomenon is represented by the well-known prisoner's dilemma in Figure 3(a).

⁴¹ Cf. Pies, Beckmann, and Hielscher (2011; 178).

⁴² Cf. McAdam and McClelland (2002).

⁴³ Cf. Beckmann and Pies (2007).

⁴⁴ Cf. Knight (1967) or Augsdorfer (2004).

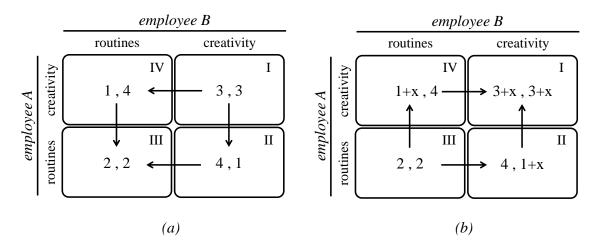


Fig 3: The "creativity" dilemma as a many-sided prisoners' dilemma (pay offs are ordinally scaled)

Figure 3(a) represents a many-sided social dilemma similar to the social dilemma discussed by Pies, Hielscher, and Beckmann (2009; p. 384). In such a situation of collective self-damage, two representative team members A and B have two strategies. They can either do business as usual and follow well-known organizational routines, or they can invest time and resources in generating new ideas (creativity). Assuming rational actors, this dilemma is easily solved: regardless of what strategy Employee B engages in, Employee A is better off by sticking with the routine. If Employee B invests in creativity, Employee A can profit from the ideas generated by B without investing time and resources himself. As a consequence, the individual cost-benefit analysis shows 4 > 3. However, if Employee B is doing business as usual, A is also better off staying with the routine because generating ideas is a high-risk activity and involves incurring costs such as time and resources for which the employee will be uncompensated, seeing as all work time is used in fulfilling his routines. As a consequence, the individual costbenefit analysis shows 2 > 1. Because this is a symmetric game, the same cost-benefit analysis also holds true for Employee B. Because investing in creativity is exploitable, both actors find it individually rational not to do so (Box III). Without innovative ideas, however, the company will become less competitive. Therefore, the individually rational behavior of each actor will result in a situation of collective self-damage (Box III). All employees could be better off if they collectively invested in the creative process of idea generation (Box I).

According to the ordonomic perspective presented by Pies, Hielscher, and Beckmann (2009; p. 384), a many-sided social dilemma can be solved either by a collective self-commitment of all actors involved or by collective self-commitment services offered to the actors by a third party. Both commitment technologies have the same goal of putting in place a formal or informal rule that either incentivizes cooperative behavior or sanctions uncooperative behavior. Applied to the problem of team creativity, the solution is either to reward creativity or to sanction engaging in routines.

The 3M Corporation provides an excellent case study for illustrating the ordonomic perspective. First, the case illustrates how CSR-based rules or, to use an alternative term, CSR-based institutions, can help manage team production in such a way as to set free, instead of hamper, creativity. Second, the case shows that the creativity stage of

the innovation process can profit from CSR if CSR is interpreted as a strategy of moral commitment that strengthens the company's role as agent of societal innovation.

3M offers a service for collective self-binding to its employees that involves formal and informal commitments to reward creativity, resulting in a culture of innovation. On the one hand, 3M promises that management will be fault-tolerant and will refrain from sanctioning ill-conceived ideas. On the other hand, 3M permits "bootlegging" by allowing its researches to spend 15 percent of their office hours in discretionary experimentation. Moreover, 3M awards good ideas with "Genesis Grants" to encourage investing in creativity⁴⁵ and issues reports and publications that include in-house success stories⁴⁶. From an ordonomic perspective, all these provisions can be interpreted as formal and informal rules that discourage mutual exploitation and reward creativity. In Figure 3(b), 3M's services for the collective self-commitment of its employees are displayed by the reward "x"; if 3 + x > 4 and 1 + x > 2, the Pareto-superior equilibrium in Box I can be reached. Under these conditions, a win-win situation of cooperative value creation is the result. In short, 3M's institutional arrangements result in out-of-the-box-thinking and creativity among its employees and, not incidentally, more profit for 3M.

(b) As discussed in Section 1, a central driver of developing CSR-based business concepts or ideas is cooperation between diverse stakeholders. To illustrate how CSR can help to develop innovative business concepts, we now turn to the case of Grundfos.

Grundfos, the world's leading pump manufacturer, was experiencing stunted growth in its domestic markets in Europe. To circumvent high competition and poor growth in its traditional markets, Grundfos began to break into new and emerging markets so as to reap the benefits of their higher growth potential.⁴⁷ In some of these markets, Grundfos operates a project called LIFELINK, which addresses water scarcity in rural areas. While there is a huge need and also a willingness to pay for drinking water and the necessary infrastructure, such as wells and pumps, private investment in well drilling and pumps is scarce and public or aid-funded projects suffer from a lack of service, spare parts, skills, and ongoing finance.⁴⁸

From an ordonomic viewpoint, the lack of private funds and financial services in rural areas is due to a one-side prisoner's dilemma as displayed in Figure 4(a). According to Pies, Hielscher and Beckmann (2009; p. 383), in such a situation of collective selfdamage two players are involved. In our case, actor A represents the creditor (financier) of a well-drilling project and actor B the debtor, the rural village community.

In contrast to a many-sided social dilemma, a one-sided prisoners' dilemma is characterized by an asymmetric threat of exploitation in which B can exploit A, but not vice versa. Player A has two strategy options. The financier, typically a bank, can lend money for well drilling (cooperate) or she can refrain from doing so. If the bank offers the credit, the village community B also has two strategy options. The village community can either exploit the bank by not repaying the credit or by spending the money in an inefficient way or it can cooperate with A and get off the bank's books after some time. Unlike developed countries, this dilemma is still widespread in many developing countries' rural areas due to weak rule of law. Assuming rational actors, this game can easily be solved by backward induction. Because B can easily trick A, primarily because the

⁴⁵ Cf. 3M (2002; p. 21–22 and 36) as well as 3M (2010).

⁴⁶ Cf. 3M (2002), 3M (2010) and 3M (2011; p. 46–48).

⁴⁷ Cf. Grundfos (2011; p. 5–6) and Kvistgaard (2009; p. 32).

⁴⁸ Cf. Grundfos (n.d.; p. 1).

debtor does not fear the law, he has a strong incentive to exploit the bank. The payoffs indicate 2 > 1. As A anticipates B's exploitive behavior, she will also choose to defect in order to be on the safe side (0 > -1). As a consequence, the whole game ends up in a Pareto-inferior equilibrium (0, 0) in which the bank does not provide the loan.

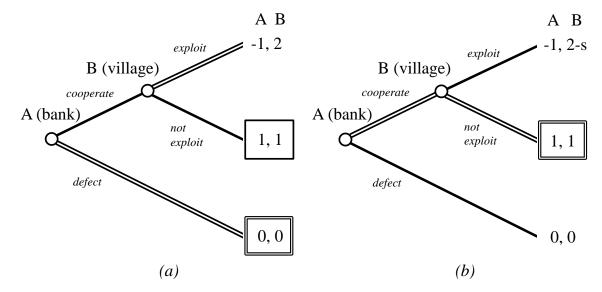


Fig. 4: The "credit" dilemma as a one-sided prisoners' dilemma (payoffs are ordinally scaled)

How did Grundfos solve this one-sided dilemma? One essential element of its solution is its partnership with the telecommunication company Safrikom. In Kenya, where LIFELINK was tested as a pilot project, Safrikom provides a service called M-Pesa, which involves cash-free payment via mobile phones. As is typical of many developing countries, mobile phones are widespread in Kenya, even among the rural population, and are often used with pre-paid cards. Grundfos takes advantage of M-Pesa's mobile clearing system to exclude non-payers from using its pump infrastructure. The water pump's tapping units are equipped with smart card readers. As a result, people can only tap water if they transfer money to their smart cards via M-Pesa prior to tapping. The generated revenues are used to repay the loan as well as to pay for service and maintenance.⁴⁹ This institutional arrangement makes exploitation impossible because the village community cannot tap water without paying for it. A comparison of Actor B's payoffs in Figure 4(b) reveals 1 > 2-s. The modified incentive structure convinces financiers that it is safe to make loans for investment in pumping infrastructure, that is, both parties can reach the Pareto-superior equilibrium of (1,1). From the viewpoint of the villagers, LIFELINK offered a service that helped them credibly bind themselves to the promise to pay for water use. In ordonomic terms, this self-commitment service to the village communities is a CSR-based institutional innovation that Grundfos organized with its partners that helped it adapt its business model to emerging and developing markets. Not surprisingly, LIFELINK is now so successful that Grundfos is currently expanding this project to other developing countries, planning to provide access to drinking water for more than 1.5 million people in 2015.⁵⁰

⁴⁹ Cf. Grundfos (n.d.) and FORA (2010; p. 10–11).

⁵⁰ Cf. FORA 2010; p. 11).

(c) In our modified process model of innovation, the development stage comprises development, testing, and validation. The primary purpose of this stage is to develop a prototype that can be tested on the market. Because they are so relevant in CSR-related discussions, we focus here on eco innovations.

Eco innovations typically suffer from path dependency and double externalities that result in many-sided social dilemmas. In short, companies will not invest in the development of a new technology due to collective action problems. Similar to the case of 3M, the situation is characterized by a symmetric threat of mutual exploitation. Path dependencies render developing technologies highly risky and cost intensive because established technologies profit from transaction cost advantages, economies of scale, learning curves, and the complementary fit between an established technology and its environment, for example, lifestyles, other technologies, infrastructures, or networks.⁵¹ If one company unilaterally tries to impose a new technology, it runs the risk of competitive disadvantage due to higher costs and a possible lack of consumer acceptance. Furthermore, eco innovations pose the danger of symmetric exploitation because of a double externality. The first externality is common to all innovations because other companies can also use new knowledge due to spill-over effects. The second externality is specific to eco innovations because they produce positive external effects, for example, by decreasing greenhouse-gas emissions. In sum, the problem of double externality aggravates the free-rider problem typically suffered by innovations.

As indicated by the CSR literature, eco innovations that are more than merely incremental improvements require external cooperation. The Energy Technologies Institute (ETI) provides a good example of how to accomplish this. ETI was founded in 2007 after Great Britain passed the Climate Change Act, by which the British government committed itself to reduce the country's greenhouse-gas emissions by 80 percent by 2050. The government was aware that it would need radical innovation in electric mobility, carbon capture or carbon storage, and renewable energies. To achieve such groundbreaking innovations, the government entered into a dialogue with major British companies and established ETI as a public-private partnership to tackle the problem of underinvestment.

ETI was founded and funded not by the British government alone but in conjunction with six multinational corporations. Each member of the partnership is entitled to a seat on the board of directors. The board has the authority to approve the general strategy and make the final decision about whether to invest in a particular innovation project. In addition to joint funding, which reduces the financial risk of each participant, the ETI has also introduced specific intellectual property principles. On the one hand, according to these principles, project-related intellectual property (IP) and patents must be made available to the research consortium for the duration of the project, even if participants leave the partnership earlier. On the other hand, the intellectual property principles provide that members who actively participate over the whole project period can use IP and patents derived from that project royalty-free as long as they do not sublicense them to third parties.⁵² Together with joint funding, this arrangement creates a strong incentive to engage in innovation projects and thereby to jointly develop new technologies. As ETI was found voluntarily by companies in partnership with the British government, its governance structure can be interpreted from an ordonomic perspective as a collective

⁵¹ Cf. Rennings (2000; p. 328-329).

⁵² Cf. ETI (n.d.a) and ETI (n.d.b).

self-commitment to overcome the threat of mutual exploitation and to establish cooperation in developing new eco-efficient technologies.

(d) The fourth and final stage of the innovation process, and the one all the other stages have been aimed at, is launch. From an ordonomic perspective, CSR can be used to reduce relationship-based risks at this stage. The source of much of this risk is the supplier's information advantage as to the quality of the good. Innovative goods are typically characterized by new features and qualities that the consumer can discover only by experience, that is, by buying and using the product (experience goods). If the product has specific CSR-relevant features, consumers may not even be able to evaluate these product qualities during normal usage because the individual cost of acquiring the needed information is prohibitively high (credence goods).⁵³ As a result, customers may not be able to find out or be sure of whether a product, for example, is really green or just greenwashed. Note that these risks are not unique to innovative CSR-related goods but are inherent in CSR strategy as a whole, as both often feature experience or credence qualities.

Such risks typically result in a one-sided dilemma between supplier and demander of an innovation. Interpreted as a one-sided dilemma structure as presented in Figure 4, Supplier B has an information advantage over Customer A who buys that product and trusts in its CSR features. As shown above, A can exploit B and maintain higher prices without incurring the higher costs of greener production. As Akerlof's famous (1970) analysis shows, markets rife with this pattern of interaction can easily fail. However, Akerlof also discusses how specifically tailored institutions can help overcome such dilemmatic situations. In the case of experience issues, reputation or warranties are appropriate institutions for overcoming the dilemma, but the same is not true in the case of credence issues, for example, sustainable production standards. Since the customer cannot evaluate this sort of quality by product use, the corporation cannot make a credible commitment on its own. Here, third parties are required to provide a credible monitoring function.

Henkel's use of palm oil as a raw material for detergents is an illustration of how to successfully deal with experience and credence issues. In the 1990s, Henkel began to shift its detergent production process from one based on fossil resources to one employing renewable and sustainable resources such as palm oil.⁵⁴ Henkel immediately began promoting its new products as sustainable detergents but the innovation failed even though the demand for sustainable products was on the rise. The problem was that although the new detergents were biodegradable, the coconut and palm oil production was not sustainable from a triple-bottom-line perspective. As soon as the media and several NGOs started to report critically on the poor labor conditions present in the production process⁵⁵, the new detergents lost ground and were withdrawn from the market.⁵⁶ In 2008, Henkel reentered the sustainable detergents market, but this time, the company made its self-commitment credible by submitting itself for certification to an institution that monitor palm oil production with a focus on sustainability. Since 2003, Henkel has been associated with the Roundtable of Sustainable Palm Oil (RSPO) and became a member in 2008. Since then, Henkel has taken advantage of the RSPO certificate trad-

⁵³ The concept of experience goods and credence goods go back to Nelson (1970) and Darby and Karni (1973).

⁵⁴ Cf. Henkel (1993).

⁵⁵ Cf. White Pepper Filmproduction (n.d) and Windauer and Breitkopf (1995).

⁵⁶ Cf. WBSCD (2008; p. 26).

ing system called "Book&Claim" and labels its product as being made of sustainable palm oil.⁵⁷ The combined solution of using a label and a certificate trading system helps convince customers that the product is based on sustainable palm oil production because renowned RSPO members such as the Worldwide Fund for Nature (WWF), Oxfam, and the National Wildlife Federation are co-creators of RSPO principles and monitor them. Furthermore, the certification principles and the "Book&Claim" trading system, organized by GreenPalm, guarantees that palm oil plantations have an incentive to produce palm oil sustainably. From an ordonomic perspective, Henkel's initiative to support the RSPO, including the use of the certificate trading system, communication of its engagement via different publications, and the labeling of its products can be interpreted as a self-commitment that created important cooperation with its customers and made for a successful launch of its sustainable product innovation.

(e) Based on this ordonomic analysis, we propose a conceptual framework for classifying CSR-based contributions to the process of innovation. Looking through the ordonomic lens in an attempt to discover those CSR activities that contain the potential for win-win solutions⁵⁸, we distinguish between different types of dilemma structures as well as between alternative commitment technologies. First, the framework differentiates between an individual and a collective commitment to solve a one-sided or a many-sided dilemma, respectively. Second, the framework distinguishes between self-binding commitments and commitment services that help other actors to bind themselves, individually or collectively. Combining these four cases yields a two-by-two matrix, as illustrated in Figure 5. This management matrix of moral commitments identifies four ways companies can use CSR to improve the process of innovation by changing the rules for cooperation with their innovation partners:

- Box I represents the case where companies offer an institutional arrangement for a collective commitment as a service to their innovation partners. A practical example is the 3M Corporation: the company offers a service for collective self-commitment to its employees in order to enhance team creativity in R&D departments. These formal and informal rules establish a win-win environment of cooperation among team members, resulting in a culture of creativity and *discovery* at 3M.
- Box II represents those cases where firms offer a mechanism for individual selfcommitment as a service to their innovation partners. An example of this is LIFELINK: Grundfos helps the villagers to credibly bind themselves to the promise to pay for water use. In turn, this service for individual self-commitment helped *conceptualize* a business model for developing countries characterized by weak rule of law in rural areas.
- Box III represents the case where companies use a collective self-commitment to solve the problem of unproductive competition. Companies might fear further investment into the *development* of a new technology due to problems of free riding, path-dependency and (double) externalities. In such cases, a competition-neutral strategy, such as that engaged in by ETI, can solve the collective action problem

⁵⁷ Cf. Henkel (n.d.).

⁵⁸ Cf. Pies, Hielscher, and Beckmann (2009; p. 389).

by providing for shared ex-ante costs and by making ex-post exploitation avoidable.

• Box IV represents the case where the company binds itself. An interesting example is the case of Henkel's initiative to commit itself to the use of sustainable palm oil for its detergents. Henkel's further actions, including gaining the support of the RSPO, using the certificate trading system, and effective product labeling, made this promise credible and helped establish important cooperation with its customers, thus resulting in a successful *launch* of its sustainable product line.

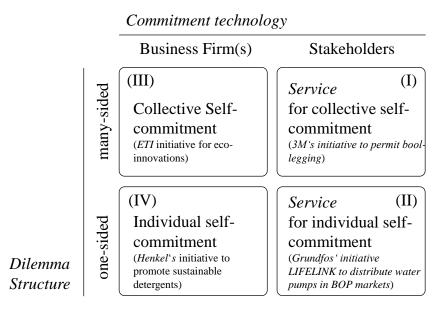


Fig. 5: A strategy matrix for using CSR in innovation management⁵⁹

Importantly, this ordonomic framework for harnessing CSR in the process of innovation is not rigid, but highly flexible. Specifically, the strategy of providing a service for collective self-commitment does not exclusively apply to the phase of discovery, nor is the strategy of individual self-commitment restricted to the launch phase, and so forth. Instead, the ordonomic contribution to innovation management is that *each of the four strategies* can be an option at *each stage* of the innovation process. Therefore, we suggest interpreting this ordonomic strategy matrix as a *heuristic* for identifying yet untapped win-win-potential at each stage of the process.

4. Harnessing CSR for the Innovative Capitalistic Firm: An Insurance Perspective

This paper might be read as an argument for using CSR to reduce the risk associated with cooperation during the value creation process. In fact, the general argument that CSR can be used as a risk management tool is not alien to the literature. As Godfrey (2005), Kytle and Ruggie (2005), and Hielscher (2010, 2011) argue, companies can use CSR to reduce relationship-based risks in the process of corporate value creation if the CSR has insurance-like properties. These scholars even go so far as to explain the growing importance of CSR due to a fundamental change in the nature of risk in the corporate environment. Due to market changes induced by increasing globalization, firms

⁵⁹ The idea of a 2x2 strategy matrix is absed on Pies, Hielscher and Beckmann (2009; p. 388-394).

today are confronted with not only market-based, technological, and (geo)political risks, but also, and increasingly with the social risks. Stakeholders other than and in addition to the traditional ones (e.g., consumers, suppliers, investors, and employees), such as communities, NGOs, and the media, are becoming of increasing importance to the success and, sometimes, the very survival of corporations. As a result, a cooperative relationship with these new stakeholders is an increasingly critical factor in corporate value creation. In this section, we show that CSR, understood as a corporate strategy of moral commitments and commitment services, not only strengthens the process of corporate innovation *qualitatively* but also *quantitatively*.

To develop this argument, we apply the insurance model originated by Sinn (1982) and Sinn (1986) to the process of corporate innovation, as illustrated in Figure 6.

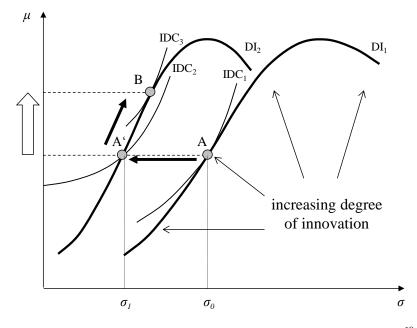


Fig. 6: The effect of insurance-like commitments for innovation⁶⁰

Figure 6 illustrates our argument with an insurance model where μ represents the expected value of return (i.e., the profit) and σ the standard deviation of the income distribution (i.e., the risk) from the perspective of the insurance holder. The model has two distinct elements. First, assuming risk-averse corporate decision makers, the company's risk preference can be displayed by the three convex indifference curves IDC1, IDC2, and IDC3. The indifference curves map the tradeoff between risk and profit from the perspective of the company, which will be willing to take a higher risk only if it is compensated with a higher return. Furthermore, a movement between one to another indifference curves in the southeastern direction is associated with a reduction in overall utility, whereas a movement in the northeastern direction increases utility. Second, the DI curves represent management's options to choose between different degrees of innovation. The DI curves' U-shape is based on an analysis by Hauschildt and Salomo (2005) that was conducted to determine the "optimal degree of innovation." First, a higher degree of innovation leads to pioneer advantages and yields higher expected profits due to a lower threat of imitation. Second, the marginal expected value of return declines be-

⁶⁰ The graphical representation is based on Sinn (1988; p. 18).

cause a higher degree of innovation leads to more complexity and, hence, greater expense incurred for dealing with related risks. Therefore, according to Hauschildt and Salomo (2005), financial success becomes less and less likely, which translates into a U-shaped innovation function. Assuming a rational actor, the company will choose a degree of innovation at point A where the objective possibility to trade profit for risk (innovation curve DI1) equals the subjective willingness to trade profit for risk (indifference curve IDC1).

Now assume that a company applies a strategy of moral commitments and commitment services to insure against the relationship-based risks inherent in the process of innovation. For example, a company that uses a certificate to make more credible its promise to produce sustainably might be able to reduce the risk of losing customers due to a loss of trust. Moreover, a collective self-commitment to pool resources for the development of a new eco-efficient technology might reduce the risk of being exploited by competitors. If such institutional arrangements can reduce the risks of social cooperation in each step of the innovation process, each point on DI1, the innovation possibility curve prior to using commitment strategies, in Figure 6 shifts to the right and constitutes the new innovation possibility curve DI2. This shift means that each degree of innovation can be realized with the same expected profit μ_0 but with a lower associated risk, represented by a move from σ_0 to σ_1 .⁶¹ By introducing insurance-like commitments, a company could easily reach point A' instead of A. This point, however, would not be an optimal choice because in A' the indifference curve IDC2 intersects with DI2. More optimal would be point B, where the higher indifference IDC3 is tangential to DI2 whereas the higher utility in point B is caused by a disproportionately higher increase in expected returns compared to the increase in the deviation of income distribution.

The above analysis supports the view found in the literature that innovation is a high-risk and uncertain process that requires risk management. In accordance with the literature, we hold that CSR can play an important role in identifying and reducing core business risks. However, we argue that CSR, understood as a strategy of moral commitments and commitment services, not only helps reduce business risks, but enables the company to take even higher risks regarding innovation, resulting in a higher degree of innovation. To sum up, our analysis offers a way of using CSR to open up new production and innovation possibilities that enhance the innovative capacity of the capitalistic firm.

Conclusion

Based on the ordonomic notion that companies can use CSR as a strategy of moral commitment and commitment services, this paper inquired into the question of how CSR can be connected to the company's role as an agent of societal innovation. We believe that our approach allows new insight into how companies can use CSR to enhance their innovation management. We are confident that we make an interesting contribution to the evolving literature on CSR and innovation, as our approach generates new insights and also suggests several new research ideas.

⁶¹ We assume in this analysis that insurance-like commitments are free of additional cost. More realistically, introducing costs of insurance-like commitments would mean that a shift of the innovation possibility curve also reduces the expected return.

- First, an important insight is that although the literature contains promising starting points for how to use CSR in the process of innovation, most of this work lacks a firm-level analysis. Reviewing the literature, we see great potential for further research applying a comprehensive managerial view of how to use CSR in innovation management.
- Second, our article addresses this research agenda and introduces an ordonomic approach to corporate responsibility. Drawing on this perspective, we show how CSR, understood as a strategy of moral commitment, can be harnessed to strengthen the innovation capacity of the capitalistic firm. More specifically, we introduce a CSR-related strategy matrix for innovation management.
- Third, with regard to innovation management, the ordonomic approach develops two arguments in favor of CSR's importance to the innovation process. First, we support the literature's view that CSR can help reduce relationship-based risks within the innovation process. Second, and beyond the literature, we argue that insurance-like commitments of CSR enable the company not only to reduce core business risks, but also to take even higher productive risks in regard to innovation, resulting in a higher degree of innovation.
- Finally, our ordonomic analysis opens up new production and innovation possibilities for enhancing the innovation capacity of the capitalistic firm. Thus, we believe that our approach will be particularly helpful in enabling companies to more successfully address the urgent societal crises that fundamentally challenge capitalism.

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