Integrating Multiple Stakeholder Issues in New Product Development: An Exploration

Paul H. Driessen
Radboud University Nijmegen
Institute for Management Research
Nijmegen, The Netherlands
p.driessen@fm.ru.nl

Bas Hillebrand
Radboud University Nijmegen
Institute for Management Research
Nijmegen, The Netherlands
b.hillebrand@fm.ru.nl

This preprint has been published as

The authors thank Robert Kok, Kyriakos Kyriakopoulos, Jurriaan Nijholt, Edwin Nijssen, Jaideep Prabhu, Jagdip Singh, and Theo Verhallen for valuable comments on earlier versions of this article. They gratefully acknowledge the assistance of John Bogmans in transcribing the interviews.
Dr. Paul H. Driessen is assistant professor of Marketing at the Nijmegen School of Management, Institute for Management Research of the Radboud University Nijmegen, the Netherlands. He studied business administration at Tilburg University and holds a PhD from the Center for Economic Research at Tilburg University. His research interests include stakeholder theory, product innovation management and corporate social responsibility.

Dr. Bas Hillebrand is associate professor of Marketing at the Nijmegen School of Management, Institute for Management Research of the Radboud University Nijmegen, the Netherlands. He studied business administration at Tilburg University and holds a PhD from the University of Groningen. His research interests include new product management and stakeholder management. He published in several journals, including *Journal of Product Innovation Management, International Journal of Research in Marketing, Organization Studies, Industrial Marketing Management, Journal of Service Management, Journal of Business & Industrial Marketing*, and *Journal of Business Research*. 
Integrating Multiple Stakeholder Issues in New Product Development: An Exploration

Abstract

Addressing the interests of a wide set of stakeholders is important because it may have positive effects on financial performance. At the same time, however, it is also very complex because managers may face conflicting stakeholder issues, much more so than organizations that listen to only one stakeholder. Little is known about how multiple stakeholder issues are dealt with in the context of new product development (NPD). The objective of this study is to delineate the elements of stakeholder integration in the context of NPD. A combination of insights from stakeholder theory and market information processing serves as a theoretical perspective to guide the empirical exploration in this study. The authors take the development of green (ecological) products as an empirical context for their qualitative multiple-case study. Specifically, they selected four case studies with different expected levels of stakeholder integration, based on literature about green NPD. Data was collected through in-depth interviews with key informants, collecting documents, and obtaining artifacts. In total 28 informants from various domains were interviewed. Transcribed interviews were coded using qualitative analysis software. The results show that a distinction needs to be made between market and nonmarket stakeholders, and that not all organizations are equally capable of identifying issues that are important to both categories of stakeholders. Organizations that identify issues that are relevant to both market stakeholders and nonmarket stakeholders are more likely to face tensions between stakeholder issues in NPD. Organizations manage these tensions by using several, sometimes redundant, coordination mechanisms and by using multiple prioritization principles in conjunction. Based on the results, the authors conceptualize stakeholder integration capability in an NPD context as
the combination of stakeholder issue identification techniques, coordination mechanisms and prioritization principles. They propose that stakeholder integration capability is the result of a learning process. Moreover, they propose that proactivity of environmental management and environmental impact of the industry help to explain why stakeholder issue identification techniques are developed, and that the identification of more stakeholder issues leads organizations to develop coordination mechanisms and prioritization principles. Finally, the authors propose that stakeholder integration capability leads to competitive advantage through organizational identification by stakeholders. The study implies that integrating multiple stakeholder issues is not just a matter of feeding additional information into NPD processes, but of changing the nature of these NPD processes.

**Keywords:** Social Responsibility; New Product Development; Stakeholders; Green NPD; Case-study analysis
Integrating Multiple Stakeholder Issues in New Product Development: An Exploration

Observations from praxis suggest that stakeholders other than customers or competitors constitute factors to be reckoned with in the context of new product development (NPD) (Baron, 2006). Legislators and government agencies can have a significant impact on the development and acceptance of new products. Likewise, special interest groups (SIGs) such as environmental pressure groups and consumer associations can mobilize public interest against an organization or its products. Through these and other stakeholders, a wide variety of societal issues is brought to the fore. In this complex arena, managers face decisions about which stakeholder issues to respond to and how to integrate multiple stakeholder issues in NPD processes (Wind and Mahajan, 1997; Lehmann, 2006).

Meta-analytic results suggest that integrating multiple stakeholder issues in management decisions is important because it has a positive effect on financial performance (Orlitzky et al., 2003). Also in the field of NPD it has been suggested that firms that take into account multiple stakeholders in their NPD activities show better results (Wind and Mahajan, 1987; Urban and Hauser, 1993; Talke and Hultink, 2010). However, addressing the interests of multiple stakeholders in NPD is complex because managers may face conflicting stakeholder issues, much more so than organizations that listen to only one stakeholder (e.g., customers) (Hill and Jones, 1992; Kaler, 2006). For example, while customers may prefer a product that is easy to use, a SIG like Greenpeace may stress the reduction of ingredients that harm the environment but at the same time improve the ease of use.

Despite the importance of integrating multiple stakeholder issues in NPD and the fact that it poses managers to complex decisions, little is known about how multiple stakeholder issues are dealt with in NPD. The concept of stakeholder integration has been proposed in stakeholder theory, and is defined as the degree in which the voice of stakeholders is incorporated in the
organization’s decision processes (Hart, 1995). However, stakeholder integration has not been formally conceptualized nor empirically studied in the context of NPD. Therefore, this study aims to delineate the elements of stakeholder integration in the context of NPD.

This study contributes to the extant literature in two ways. First, it contributes to the NPD literature. While the NPD literature has paid ample attention to incorporating information about consumer issues and other market issues into NPD (Moorman, 1995; Adams et al., 1998; Kahn, 2001), it has paid little attention to the inclusion of a wider set of stakeholder issues, including societal issues. As a consequence, it has neglected the tensions that result from including multiple stakeholder issues. This study shows what stakeholder integration entails in the context of this complex arena of multiple and conflicting stakeholder issues.

Second, this study contributes to stakeholder theory. Stakeholder theory has acknowledged that integration of multiple stakeholder issues may result in tensions (Hill and Jones, 1992), but it has paid little attention to how organizations deal with such tensions. In particular, stakeholder theory has been quite silent in explaining how multiple stakeholder issues can be included in specific organizational processes such as NPD. This study shows where tensions originate and how organizations manage these tensions by using coordination mechanisms and prioritization principles. Furthermore, this study presents evidence to suggest that a stakeholder integration capability in NPD exists and discusses the elements of this capability.

In this article, stakeholder theory and literature on market information processing in NPD is synthesized to guide an exploration of how multiple stakeholder issues are integrated in NPD. This study uses green NPD as an empirical context for the exploration, and uses literature about this empirical context to build a multiple case-study design. Based on the results, a conceptualization of stakeholder integration capability is developed and a set of propositions that may be studied in future research formulated.
Theoretical Background

The theoretical background for this study is formed by (1) stakeholder theory, as it advances a framework for incorporating issues tied to a wide range of actors into an organization’s management, and (2) the literature on market information processing, as it provides insights on how NPD is affected by addressing the interests of specific stakeholders in the market. The two literature streams are synthesized to provide a theoretical perspective to guide the empirical exploration.

Stakeholder Theory

Stakeholder theory has been forwarded as a framework for managing the relationships with a wide array of actors in an increasingly complex environment (Freeman, 1984). It describes and advocates “simultaneous attention to the legitimate interests of all appropriate stakeholders” (Donaldson and Preston, 1995, p. 67). Stakeholders are defined as “any group or individual who can affect or is affected by the achievement of the organization’s objectives” (Freeman, 1984, p. 46), implying that the organization’s stakeholders are not restricted to its markets but may also include actors such as shareholders, employees and SIGs. The ‘stake’ that stakeholders have is that they stand to gain or lose something from the organization’s success. Managers are also stakeholders, according to many stakeholder theorists, albeit a rather unique sort of stakeholder: managers have a ‘stake’ in the organization but are also responsible for identifying all other stakeholders (Donaldson and Preston, 1995; Maignan and Ferrell, 2004).

Stakeholder theory stipulates that organizations do not manage relationships with society as an abstract entity, but with stakeholders instead (Clarkson, 1995). Stakeholders are inextricably linked to stakeholder issues: stakeholders have issues that they bring into the organization’s environment, and all issues in the organization’s environment originate from stakeholders (Wood, 1991). Stakeholder theory has primarily addressed the incorporation of societal issues...
into management (Freeman and McVea, 2001), such as resource depletion, greenhouse gas emissions and consumer safety. However, stakeholder issues may also refer to more ‘traditional’ management issues such as product quality, price, and profitability (Clarkson, 1995).

Stakeholder issues, given their wide variety of origins, are often in conflict with each other, thus increasing the need to balance the interests of various stakeholders (Hill and Jones, 1992). Although decision support tools for balancing conflicting stakeholder issues have been proposed (Winn and Keller, 2001), research addressing how organizations deal with conflicting stakeholder issues in practice is scarce (Kaler, 2006).

Managers collect information about stakeholder issues and take these issues into account in order to manage the various stakeholder relationships in a coherent fashion (Freeman and Evan, 1990). Therefore, the concept of stakeholder integration has been proposed, referring to the degree in which the voice of stakeholders is incorporated in the organization’s decision processes, and is proposed to be especially relevant for NPD (Hart, 1995). However, empirical research into stakeholder theory that shows how stakeholder integration manifests itself in NPD is scarce.

**Market Information Processing in NPD**

Whereas the literature on stakeholder theory is largely silent on how information about stakeholders affects NPD, other literature (e.g., on market orientation) has identified how processing information about the market has a major impact on NPD. Meta-analyses have found a positive relationship between market orientation and organizational performance (Rodriguez Cano et al., 2004; Kirca et al., 2005), and further research has identified innovation (including NPD) as one of the key mechanisms responsible for this positive relationship (Han et al., 1998; Atuahene-Gima et al., 2005; Baker and Sinkula, 2005). Also, several studies have shown that
market orientation has a positive impact on NPD performance (Langerak et al., 2004; Narver et al., 2004; Atuahene-Gima et al., 2005; Baker and Sinkula, 2005).

Studies that have taken an organizational learning perspective in the context of NPD point to three organizational-learning constructs that represent market information processing: acquisition of, dissemination of, and responding to market information (Sinkula, 1994; Moorman, 1995; Adams et al., 1998; Frishammar and Hörte, 2005). Market information acquisition is a process of environmental scanning and involves primary and secondary information sources such as market surveys, concept tests, focus groups and competitive market data (Adams et al., 1998). Through environmental scanning, market developments that are relevant for NPD are identified, such as the current and future needs and behaviors of customers and competitors (Li and Calantone, 1998). Environmental scanning can be narrow or broad, in the sense that the range of fields that is monitored can vary greatly between organizations (Howell and Shea, 2001). Market information dissemination involves communication of relevant information among different users, departments, or business functions (De Luca and Atuahene-Gima, 2007). As such, market information dissemination relies on coordination mechanisms, which ensure that the people involved in NPD have the relevant information (Griffin and Hauser, 1996; De Luca and Atuahene-Gima, 2007). Responding to market information involves the evaluation and use of information by NPD team members in the decision-making process (Adams et al., 1998; Frishammar and Hörte, 2005). NPD teams’ responsiveness to market information varies because teams do not weight every piece of information equally in decision-making processes. For instance, market information that has been acquired and disseminated may not be used because it disconfirms strongly held beliefs (Adams et al., 1998).
Synthesis

From a stakeholder theoretical perspective, the market information processing literature has adopted a simplified view of the external environment by mainly considering the market and not other elements of the external environment. The market information processing literature can, however, enhance stakeholder theory by its more detailed focus on how information is integrated in the context of NPD. Therefore, an information processing perspective has been applied in the context of stakeholder theory (Greenley and Foxall, 1998; Maignan and Ferrell, 2004). Information processing about stakeholders includes the generation of information about all relevant stakeholders and their issues, dissemination of this information, and responsiveness to this information (Maignan and Ferrell, 2004). Although there is some evidence to suggest that organizations that process information about a broad set of stakeholders have higher organizational performance (Greenley and Foxall, 1998), little is known about stakeholder information processing in NPD.

Empirical Context

Green NPD is very suitable as an empirical context to study the integration of multiple stakeholder issues in NPD, because it involves a wide variety of stakeholders and, as a result, involves multiple stakeholder issues to be taken into account (Hart, 1995; Polonsky and Ottman, 1998). In this study, green NPD is defined as the development of products that have some improvement on a green attribute compared to competing or conventional products. An improvement on a green attribute means that, in some way, the ecological impact of the product is reduced, e.g. through less emissions, less material used, improved energy efficiency, or reduced toxicity (Samli, 1998; Chen, 2001). Green NPD has become a corporate reality, as 84% of the companies surveyed in a recent Forrester study said they have green or socially responsible products in development or on the market (Forrester Research, 2009).
Green NPD can be viewed as an element of an environmental management strategy (Hart, 1995) (note 1). Environmental management strategies can be characterized by their degree of proactivity, ranging from ‘reactive’, where environmental management is absent or minimal, to ‘proactive’, where the company has developed a long-term vision to becoming a leader in environmental management (Carroll, 1979; Hunt and Auster, 1990; Roome, 1992), with more attention for green NPD (Winn and Roome, 1993; Noci and Verganti, 1999). Organizations with proactive environmental strategies are likely to attach importance to a larger set of stakeholders than other organizations (Henriques and Sadorsky, 1999; Buysse and Verbeke, 2003). Also, organizations with proactive environmental strategies are sensitive to the combined pressure from all stakeholders, and translate this sensitivity into attention for green issues in their business processes (Murillo-Luna et al., 2008). This suggests that proactivity in environmental management is a pivotal construct in understanding how organizations deal with stakeholders within the empirical context of this study. Organizations that are proactive in environmental management are much more likely to integrate multiple stakeholder issues in NPD, resulting in green NPD. Earlier research has identified eight stakeholder groups that are potentially relevant for green NPD: top management, customers, competitors, employees, regulators, owners/stockholders, SIGs, and suppliers (Polonsky and Ottman, 1998).

Existing literature on environmental management shows that the role that green issues play in management is highly industry-specific (Russo and Fouts, 1997; Banerjee et al., 2003). Green innovation occurs much more in some industries than in others (Lanjouw and Mody, 1996; Jaffe and Palmer, 1997), because industries differ dramatically in the level of pollution that is caused by the industry and the level of public concern an industry evokes (Banerjee et al., 2003). Therefore, the environmental impact of the industry is another important construct in understanding green NPD.
Methods

Theory about stakeholder integration in NPD is nascent, as indicated earlier. In situations where theory is nascent and the phenomenon is poorly understood and contemporary, a qualitative approach is most suitable (Yin, 1994; Edmondson and McManus, 2007). Therefore, a multiple-case study approach was used, with NPD projects as the smallest units of analysis.

Case Selection

Theoretical sampling was used to select cases (Eisenhardt, 1989; Yin, 1994). More specifically, two constructs were used for selecting cases, based on literature about the empirical context of this study: proactivity of environmental management and environmental impact of the industry (see Table 1). By selecting organizations with varying levels of proactivity of environmental management and in industries with varying levels of environmental impact, it was more likely to include organizations in the study with different levels of stakeholder integration in NPD. In selecting the cases, an embedded design was deployed (Yin, 1994) by first selecting an industry, then an organization, and finally a focal NPD project for each organization. Cases were selected in The Netherlands and Belgium.

The food industry was selected as an industry with moderate environmental impact, whereas the chemical industry was selected as an industry with high environmental impact. The environmental impact of an industry can be assessed through data on the Pollution Abatement and Control Expenditures (PACE), an indicator of the efforts required to comply with environmental regulation, calculated by national statistics offices throughout the world (e.g., Lanjouw and Mody, 1996; Jaffe and Palmer, 1997). PACE statistics for The Netherlands show that the two selected industries represent varying levels of environmental impact. PACE amounts to 2.22 per cent of the added value generated in the food industry, compared to 6.84 per cent in...
the chemical industry. The classification of the food industry as a moderate environmental impact industry, and the chemical industry as a high environmental impact industry corresponds with classifications based on U.S. data (Banerjee et al., 2003).

Within each industry, one organization was selected with high proactivity in environmental management, and one organization with moderate proactivity in environmental management (organizations with low proactivity are unlikely to undertake any green NPD activities at all). Although proactivity in environmental management is difficult to assess a priori (i.e., from secondary data), it was possible to identify a proactive organization in each industry based on recognition through awards, certifications, and academic sources. In this manner, CleanCompany (all case labels are fictitious) was selected in the chemical industry, because it has earned more than five awards for ecological achievements over the last ten years and received a Corporate Conscience Award for environmental stewardship by the Council of Economic Priorities (source: European Commission Responsible Entrepreneurship Good Practice Database). Similarly, in the food industry, BeerCompany was selected because it received a national award for corporate social responsibility, and a provincial award for sustainability (source: Netherlands Ministry of Agriculture, Nature, and Food Quality press release). PaintCompany was selected using a benchmarking study in the Dutch chemical industry, placing it in the middle tier (source: Tilburg University unpublished benchmarking study “Corporate Responsibility of Dutch Companies”). MusselCompany was selected in the food industry, as desk research revealed no indication of proactivity, but no indication of the opposite either. In the latter case, proactivity in environmental management was assessed during the onset of the fieldwork and confirmed to be moderate.

Within each organization, one focal NPD project was selected in consultation with a key informant (see Table 1). For each focal NPD project, a third-party assessment was available to
confirm that the resulting product represents some improvement on a green attribute. During the fieldwork in the chemical industry, it became clear that both selected organizations had developed two different product versions, to adapt to differences in stringency of regulations between countries or regions. In both cases, this involved additional NPD activities, and therefore it was decided to view the two sub-projects for the product versions as separate units of analysis when applicable.

Data Collection

Data was collected through in-depth interviews with key informants, documents (e.g., marketing manuals, written guidelines, strategic plans, press reports), and artifacts (e.g., product packaging and promotion material). Key informants were selected on information provided in the first interview with the initial contact person. In total 28 informants from various domains (general management, R&D, marketing, and environmental management) were interviewed, yielding over 40 hours of tape-recorded interviews. Following recommendations made by Rubin and Rubin (2005), the interview protocol was designed to allow for comparisons between NPD projects during the analysis. Each informant was invited repeatedly during the interview to compare the focal NPD project to other NPD projects. The basis of comparison was mostly left to the informants. In the cases from the chemical industry, informants would sometimes compare the two sub-projects of the focal NPD project, in which a product version was developed for another country or region. Alternatively, informants would reflect on other NPD projects from the organization, or on changes taking place within the organization over time. Sometimes informants elaborated on competing products. The interviews thus provided data from a larger set of NPD projects, organizations, and environments, and made it possible to make comparisons between them in order to explore the integration of multiple stakeholder issues in NPD in a broad range of contexts.
**Coding and Data Analysis**

The tape-recorded interviews were transcribed, subjected to an informant check, and then subjected to a qualitative content analysis procedure. A coding procedure advocated by Miles and Huberman (1994, pp. 55-77) was followed. First, the transcripts of the interviews, containing approximately 209,000 words, were coded by one researcher using qualitative analysis software (Kwalitan 5.0). The coding scheme contained 221 different codes, which were assigned 1509 times to a text fragment. An independent judge ensured test-retest reliability of the coding for a sample of 425 coded text fragments: inter-rater agreement was 87.7% before consultation about disagreements, which is well in excess of the 70% that Miles and Huberman (1994, p. 64) report as common. After consultation about disagreements, the coder and the judge reached inter-rater agreement of 92.0%. This means that the reliability of coding is sufficiently high to warrant further analysis. In addition, documents and artifacts were used for triangulation purposes (Jick, 1979; Yin, 1994).

The analysis was done in three stages. The first stage was the development of memos, brief interpretations of text fragments that were made during the coding (Miles and Huberman, 1994). Memos were ordered by codes to enable further investigation, and added up to 45 pages of single-spaced text. The second stage was a descriptive analysis. The descriptive analysis focused on convergent validity in measurement by identifying the commonalities between different informants and sources. The hierarchical coding scheme and the qualitative analysis software made it possible to shift continuously from a micro level (e.g., by reviewing all fragments about coordination of green issues by an environmental champion for one focal NPD project) to a macro level (e.g., by reviewing all fragments from all cases about coordination) and back. The third stage involved the creation of reduced data tables that allow for a condensed overview of the phenomenon under study (Miles and Huberman, 1994).
Results

Findings are presented in two steps. The first step shows that identifying and perceiving nonmarket stakeholders as relevant introduces tensions between market and nonmarket stakeholder issues in the NPD process. The second step shows how organizations differ in the management of these tensions by using coordination mechanisms and prioritization principles.

Tensions between Market and Nonmarket Stakeholder Issues

Analysis of the case data on stakeholder information acquisition reveals that there is substantial tension between stakeholder issues. Table 2 is a reduced data table that provides an overview of the stakeholders that were identified in the NPD process as being relevant, the issues linked to these stakeholders, and the resulting tensions between the issues.

= = INSERT TABLE 2 ABOUT HERE = =

The analysis shows that a distinction needs to be made between market and nonmarket stakeholders. Market stakeholders are stakeholders directly involved in exchanges taking place in the product markets of the organization. Market stakeholders that were found to be relevant for NPD in the case studies are customers, competitors, suppliers and retailers. Nonmarket stakeholders are all stakeholders not directly involved in exchanges taking place in the product markets of the organization. Nonmarket stakeholders that were considered relevant for NPD in the case studies are regulators, SIGs, and – to a lesser degree – employees. Two stakeholders that were suggested by Polonsky and Ottman (1998) – owners/stockholders and suppliers – were not considered relevant by the informants. The role of top management warrants some explanation. Top management can act as a conduit for stakeholder interests, amplifying the voice of a stakeholder. In some organizations top management voiced the interests of market stakeholders, whereas in other organizations top management voiced the interests of nonmarket stakeholders.
The distinction between market and nonmarket stakeholders is relevant because the results show that green issues are much more likely to be brought forward by nonmarket stakeholders. Thus, the identification of nonmarket stakeholders as relevant for NPD is likely to lead to more green issues being incorporated in NPD activities, which in turn leads to more tension between the issues (see last column of Table 2). Tension between stakeholder issues refers to stakeholder issues that are in conflict with each other. For example, in the BeerProduct project there was a tension between using organic ingredients (a nonmarket stakeholder issue) and product costs (a market stakeholder issue). Organic barley and hops are considerably more expensive than their regular counterparts. Moreover, producing organic beer puts a higher burden on administrative processes for official organic certification, which contributes to costs as well. Informants in all cases claimed it is extremely difficult or even impossible to develop a product that excels in both green and non-green attributes. Sometimes, the tension between a market stakeholder issue and a nonmarket stakeholder issue arises as a consequence of a technical trade-off, as an informant illustrates:

“[PaintProduct] is a 250 VOC product, which means it contains very little solvents. This makes any product more critical. The lower the VOC, the more difficult in use the product becomes, and the more competence and skill is demanded from a user.” (PaintCompany marketing manager)

Tension can also arise as a consequence of nonmarket stakeholder issues that are in conflict with each other, as in the following example where addressing one nonmarket stakeholder issue would mean stifling innovation to address other nonmarket stakeholder issues:

“We discuss animal testing with a Belgian animal rights organization and a British animal rights organization. These organizations oppose animal testing, and CleanCompany fully agrees with them. (…) However, the animal rights organizations ask us to use a fixed cut-off date [i.e., not to use new animal-tested ingredients]. But new ingredients are sometimes required by law to be tested on animals.” (CleanCompany marketing manager)
The set of stakeholders that an organization identifies as relevant helps to understand the tensions were present in NPD. For example, organizations that perceive only market stakeholders to be relevant are likelier to overlook green issues, because market stakeholders emphasize non-green issues. CleanCompany identified a relatively great number of nonmarket stakeholders that were perceived as relevant. These nonmarket stakeholders put green issues on CleanProduct’s NPD agenda, which resulted in a more complicated agenda of issues to be dealt with in the NPD process (as witnessed from Table 2). MusselCompany, on the other hand, only identified market stakeholders to be relevant: customers, competitors, and retailers. None of these were perceived to attach great value to green issues in this particular market. As a consequence, MusselCompany experienced far less tension between stakeholder issues.

The organizations in this study differ in the way they identify stakeholders as relevant. The analysis shows several stakeholder issue identification techniques (see Table 3). Most organizations use techniques to identify issues raised by market stakeholders, such as focus groups, store-checks and user observation studies. Some organizations, however, also use structured techniques to identify nonmarket stakeholder issues. PaintCompany devised an international monitoring system to continuously observe regulatory developments. CleanCompany found the issue of animal testing to be relevant for NPD because of continuous dialogue with animal rights SIGs. BeerCompany had representatives from nature conservation SIGs serve as advisors, which made ecology in general more relevant for NPD. An organization can thus use a number of stakeholder issue identification techniques, which allows them to identify a much wider set of stakeholder issues, including those issues important to nonmarket stakeholders. Firms that use nonmarket stakeholder issue identification techniques more extensively are more likely to pay attention to these nonmarket stakeholders, which brings a different kind of stakeholder issues to the fore. This makes NPD more complex and creates more
tension. The results suggest that most tensions are rooted in identifying both market stakeholders and nonmarket stakeholders as relevant, as the latter tend to bring green issues into the NPD process that often conflict with other stakeholder issues. More specifically, green issues are mostly responsible for creating tensions between stakeholder issues. In order to study how these tensions are dealt with in more detail, the results now focus on tensions involving green issues.

Managing Tensions Between Stakeholder Issues

Analysis of the case data on dissemination of and responding to stakeholder information shows that organizations differ in the degree to which they address, rather than ignore or downplay, nonmarket stakeholder issues in their NPD. The CleanProduct project was most successful in addressing nonmarket stakeholder issues, whereas the MusselProduct project was least successful in this regard. More importantly, the NPD projects differ in how nonmarket stakeholder issues are managed. Within the context of green NPD, addressing nonmarket stakeholder issues translates to the coordination and prioritization of green issues. The analysis identified several coordination mechanisms and prioritization principles that helped to achieve this (see Table 3).

Coordination mechanisms. The analysis shows that some organizations are better able to keep green issues on the agenda during the NPD process. By keeping green issues on the agenda, the tension between stakeholder issues is acknowledged. NPD team members may not necessarily hold the same views on how to deal with tensions, but acknowledging tensions between stakeholder issues is a first step towards reaching consensus within the team. Several coordination mechanisms were identified that enhance the communication about green issues within the NPD team. CleanCompany, for example, used several coordination mechanisms, such as an elaborate stakeholder management system and various guidelines, norms, and procedures.
concerning the inclusion of green issues in the NPD decision-making process. In addition, it was characterized by a high level of informal communication on green issues and the inclusion of all departments in the assessment of green issues. Managers at CleanCompany indicated that these coordination mechanisms were the result of a long period of listening to a wide set of stakeholders, resulting in an increased need to channel information about a host of issues. Coordination mechanisms were established to ensure that green issues were incorporated in the discussions throughout the whole NPD project. A CleanCompany informant reflected on the situation and compared it to the past:

“In the past, somebody would bring up an issue, like: ‘hey, isn’t that packaging too much material’ or ‘is that plastic ecologically sound’. And people would have stopped and thought, and put in effort to find an alternative. But in no way was this in a structured or formal manner. Now, we discuss every innovation on a number of issues, including environmental aspects. For instance, choice of material for packaging will be considered every time. In some projects, this is not relevant because we are only changing the ingredients of what is in the packaging. But we still tick the box and write ‘not applicable’.” (CleanCompany environmental manager)

In contrast, in the MusselProduct case green issues were not extensively discussed during the NPD process and as a result non-green issues dominated the discussions. While an R&D Manager in the MusselProduct case was assigned the role of part-time environmental champion within the NPD team, in practice he focused on his tasks as R&D manager and neglected his environmental championing task. As a result, there was no effective coordination mechanism. The fact that MusselProduct in the end turned out to be rather green, was characterized by one of the respondents as an almost unintended side effect:

“An environmentally friendly packaging was definitely not our point of departure. Later, it turned out to be worth a green award.” (MusselCompany top manager)

Coordination mechanisms range from formal to informal. Formal coordination mechanisms provide written instructions to include green issues in the innovation process, e.g. by written norms or quantified objectives in a product profile that is drawn up at the start of the project.
Informal coordination mechanisms stimulate communication about green issues by creating a culture where green issues are regularly discussed in NPD meetings.

The case data suggest that organizations that integrate many market and nonmarket stakeholder issues in NPD use several, sometimes redundant, coordination mechanisms. Using multiple coordination mechanisms in conjunction is important to ensure that a minimal level of coordination of green issues is safeguarded. If, for whatever reason, one mechanisms does not fully function, other mechanisms bring the issue back on the agenda. For example, CleanCompany’s Stakeholder Management System was used as a critical fall-back checklist, in case a green issue needed clarification. It was available for everybody through the company’s computer network:

I would be lying if I said that the system is used intensively. But when necessary, people can fall back to it. I could point out how the elements in the system correspond with what we are trying to do: you will see all the elements in the system. You will come full circle.
(CleanCompany top manager)

Also, an NPD procedure involving a document with checkpoints for green issues to be cleared by all involved departments was not completely followed. At the time of development of CleanProduct, this procedure was new and therefore unfamiliar to some departments. As a result, the procedure was only partly followed. However, other coordination mechanisms made sure that green issues remained on the NPD team’s agenda. Finally, two environmental champions and the organizational culture of discussing green issues (an informal coordination mechanism) served as last safeguards against ignoring green issues.

Prioritization principles. The analysis shows that some organizations are better able to prioritize green issues in the decision-making processes. That is, they consistently attached more weight to green issues when making tradeoffs between stakeholder issues. In order to ensure that green issues receive more weight, organizations may employ several prioritization principles, i.e.
guidelines or rules that are used to weight green issues against other issues during the NPD process. Prioritization principles include setting minimum requirements, setting maximum levels, and ranking of importance of characteristics.

For example, in the CleanProduct case, the initial decision-making involved the question whether the product should be developed at all. CleanCompany has sometimes opted not to develop a product, because it was not able to make ecological improvements that were large enough to compensate for the inherent negative effects of a product. In the CleanProduct case, however, the decision was made to proceed with the development because a large enough improvement was possible if a new technology was used. Thus, the first prioritization principle used by CleanCompany attached a very high weight to green issues, even to the extent that the NPD team was unwilling to compromise: if a green alternative had not been available, NPD would have been halted at that point.

Alternatively, some organizations deal with the tension between stakeholder issues by downplaying the importance of nonmarket stakeholder issues. For example, for PaintProduct, VOC level was a green issue that was perceived to be important to regulators, as the organization was aware of the possibility that regulation about VOCs might come into effect in the near future. This resulted in a prioritization where the VOC level was constrained at a level that was expected to comply with future regulation. However, PaintCompany was quick to sacrifice greenness when US regulation did not require such a VOC level. Green issues were primarily dealt with in order to obtain a license to operate within the market:

“On a corporate level, you can sell this green story to a number of ideologically involved people, but in the end you will have to walk the talk. If we are telling that story, we should be ready in all parts of the corporation. We are not. On a product level, we end up following a minimum scenario which is to comply with regulation.” (PaintCompany marketing manager)
Furthermore, the pattern in the data presented in Table 3 reveals that NPD projects that address many nonmarket stakeholder issues use several prioritization principles in conjunction. It helps making complex trade-offs that are difficult to make with only one prioritization principle. For example, the BeerProduct NPD team used multiple prioritization principles to manage the complexity of various tensions between stakeholder issues. The most important principle was that the new product needed to comply with ecolabel standards. However, the ecolabel standards alone do not address all tensions created by the perceived stakeholder issues, thus making it impossible to make decisions regarding these tensions. For example, ecolabel standards do not provide guidance regarding taste. Therefore, within the margins left by the first prioritization principle, the team benchmarked the taste of the new product against existing non-green alternatives. That is, the new product should have a taste to match the alternatives. Similarly, the first two prioritization principles still did not provide guidance on the tension between stakeholder issue “organically grown ingredients” and stakeholder issue “locally grown ingredients”. Therefore, as a final principle to guide prioritization, they used the principle that all ingredients for the new product should be locally grown. With these three prioritization principles the NPD team was able to make decisions regarding all tensions. There was only one exception: as it turned out, hops that were both organically grown (as dictated by the first principle) and locally grown (as dictated by the third principle) were not available. To solve this problem, the first principle was regarded as more important. Therefore, imported organically grown hops were used, rather than locally grown non-organic hops. In conclusion, the three identified prioritization principles and the order in which they were used were found to be necessary and sufficient to take decisions regarding each of the tensions between stakeholder issues in this case.
Learning. Overall, CleanCompany stands out, as the organization has learned to deal with a wide set of stakeholders that it identified as relevant, which resulted in the highest number of tensions between stakeholder issues of all cases. The most elaborate set of coordination mechanisms as well as prioritization principles was observed in this case. This enables the organization to successfully integrate multiple stakeholder issues in NPD. Informants described how the organization had changed over a four-year period from a rather single-minded focus on green issues to dealing with a more complex set of green and non-green issues:

“We started four years ago to consider personal benefits to the consumer in addition to green benefits. [...] There is more balance. If you look at our product packaging today you see both: consumer benefits and green benefits. And when I look at the weights of the benefits and how we take them into consideration in product development and basically everything we do, green issues will, in the end, still tip the scale” (CleanCompany marketing manager)

The results from this case suggest that the organization has learned to integrate multiple stakeholder issues over time by accumulating experiences. As one of the informants explained:

“If you’ve done this a few times, you start to feel how it should be done. It really becomes an integral part of the job. Not something that is controlled by somebody and that requires somebody’s stamp of approval. I think this is one of the big differences between CleanCompany and other companies that are going green. I think it has become completely woven into our fabric.” (CleanCompany top manager)

Discussion and Implications

Analysis of the case data shows that integrating multiple stakeholder issues in NPD, in essence, is about recognizing and dealing with the tensions that result from identifying nonmarket and market stakeholder issues. As such, the results extend the literature about information processing in NPD: while the market information processing literature recognizes that multiple issues may be present at the same time (Howell and Shea, 2001; Yadav et al., 2007), little attention has been given to the fact that this may result in tensions between these issues. This may be due to the relatively homogeneous nature of market stakeholder issues. Results suggest that by including
both market and nonmarket stakeholder issues a much more heterogeneous set of stakeholder issues is brought to the fore, which can change the nature of an NPD project because tensions become much more prominent.

The existence of tensions between stakeholder issues also relates to an important discussion in stakeholder theory: while some authors downplay tensions and believe it is possible to find solutions that satisfy all stakeholders’ interests (Ogden and Watson, 1999), others contend that stakeholder issues are often in conflict (Hill and Jones, 1992; Winn and Keller, 2001). The findings suggest that, while win-win solutions may be possible, usually prioritizations of stakeholder issues have to be made to manage the tensions.

A major contribution to the literature of this article is that it conceptualizes stakeholder integration within the context of NPD. In addition, this article argues that organizations can develop a capability for stakeholder integration. In the remainder of this discussion, five propositions are formulated, addressing the nature, antecedents, and consequences of stakeholder integration capability. The analysis shows that some organizations (in this study most prominently CleanCompany) have a complex bundle of knowledge, skills and mechanisms in place that enables them to incorporate the voice of the stakeholder in its decision making processes. First of all, they possess and extensively use techniques to identify a wide set of both market and nonmarket stakeholder issues. Such techniques ensure that all relevant stakeholder issues and the resulting tensions between them are recognized, which is the first step toward stakeholder integration. Second, they use mechanisms that enable them to acknowledge the tensions by keeping the stakeholder issues on the agenda. Third, they use a set of principles to consistently attach more weight to green issues when making trade-offs in the NPD process. When taken together, the three components discussed above have the characteristics of being essential building blocks of a capability (Leonard-Barton, 1992). Thus:
**Proposition 1:** Stakeholder integration is a capability, which consists of (1) stakeholder issue identification techniques, (2) coordination mechanisms, and (3) prioritization principles.

The results also suggest that stakeholder integration capability is developed when the three components are incorporated into the fabric of the organization. This suggests that stakeholder integration capability is difficult to build overnight or copy from others, which is in line with literature on capabilities (Leonard-Barton, 1992; Day, 1994). Rather, stakeholder integration capability may be regarded as the result of accumulated experiences with integrating multiple stakeholders. As these experiences accumulate, organizations may learn how and when to use the techniques, mechanisms and principles. These techniques, mechanisms and principles may be institutionalized within the organization, i.e., they become part of the accepted way of working and thinking within the organization and become linked to other elements of the organization. Building a stakeholder integration capability in NPD is thus similar to building capabilities related to market orientation (Day, 1994), for instance through a dynamic process of change (Gebhardt et al., 2006). More formally:

**Proposition 2:** Stakeholder integration capability is the result of a learning process.

Further interpretation of the results, in combination with the extant literature, leads to formulating propositions about the antecedents of stakeholder integration capability. Note that the cases in this study were selected on two criteria: proactivity of environmental management and environmental impact of the industry. This selection was done based on the belief that these two factors might impact the development of stakeholder integration capability. The data indicates that both factors may be antecedents of stakeholder integration capability: the case that scores lowest on both criteria turned out to score lowest on stakeholder integration capability, while the case that scored highest on both criteria also scored highest on stakeholder integration.
capability. This seems to confirm that cases were selected on the right criteria. More importantly, however, the data provides some additional insights in *how* proactivity of environmental management and environmental impact of the industry may affect the development of stakeholder integration capability. Organizations that have a proactive stance toward environmental management need the input from a wider set of stakeholders. This corroborates earlier findings (Henriques and Sadorsky, 1999; Buysse and Verbeke, 2003). The results suggest that, in order to obtain this input, environmentally proactive organizations develop techniques to recognize stakeholder issues from multiple stakeholders in a structured way. Organizations that show less commitment to becoming a leader in environmental management (i.e., reactive organizations) take a much more ad hoc approach and do not spend as much time and energy to developing stakeholder issue identification techniques.

Similarly, the results suggest that organizations that operate in an industry with a high environmental impact experience pressure from a much broader set of stakeholders. In a high environmental impact industry, more issues are salient to stakeholders. The results show that especially nonmarket stakeholders, such as regulators and NGOs, are more likely to bring issues to the fore. As a result, organizations in such demanding and complex industries are confronted with multiple stakeholder issues. This stimulates them to develop techniques to keep track of and anticipate on relevant stakeholder issues. Thus:

**Proposition 3a:** Organizations that follow a proactive environmental strategy and organizations in industries that are characterized by a high environmental impact are more likely to develop stakeholder issue identification techniques.

In addition, the results suggest that taking a more structured approach in identifying multiple stakeholder issues is likely to result in tensions between the various stakeholder issues, especially between those from market and nonmarket stakeholders. In order to cope with these tensions, organizations develop coordination mechanisms and prioritization principles. The data shows
that coordination mechanisms help organizations to keep issues on the agenda during the NPD process, while prioritization principles help them to prioritize the issues in the NPD process. Organizations that perceive fewer tensions (because of identifying less stakeholder issues) also experience less need to develop coordination mechanisms and prioritization principles. Thus:

**Proposition 3b:** Organizations that identify more stakeholder issues experience more tension between identified stakeholder issues, which leads them to develop coordination mechanisms and prioritization principles to cope with these tensions.

While it was not the focus of this study, the findings in combination with the literature lead to a proposition about the performance implications of having a stakeholder integration capability. The findings show that some organizations are better at integrating multiple stakeholder issues in NPD than others. Closer inspection of the data reveals that market stakeholders, such as consumers, have greeted the initiatives to address green issues through NPD with varying levels of enthusiasm. This suggests that stakeholder integration capability does not necessarily lead to an increase in traditional short-term NPD performance outcomes, such as new product adoption and market performance.

However, at the same time the data suggest that stakeholder integration capability does have an impact on long-term performance in terms of organizational identification/dissociation by nonmarket stakeholders. For example, informants from CleanCompany point out that addressing the issue of biodegradability earned the company the reputation of an ecologically innovative organization with nonmarket stakeholders, such as SIGs, regulators, and research institutes: they were impressed by the efforts of the company and especially by the fact that it dealt with the various issues in such a sincere way. This strengthened the relationship CleanCompany had with its stakeholders. The MusselCompany case study, on the other hand, shows that low stakeholder integration capability can lead to organizational dissociation by nonmarket stakeholders. SIGs
found green issues that were not sufficiently addressed in NPD and did not feel heard in the NPD process. As a result they dissociated themselves with MusselCompany. This is in line with literature outside the NPD domain that suggests that addressing a stakeholder issue leads the concerned stakeholder to identify more with the organization, whereas failure to address stakeholder issues leads a stakeholder to dissociate with the organization (Bhattacharya and Elsbach, 2002; Maignan and Ferrell, 2004). The finding that stakeholder integration capability may result in increased organizational identification is important because it may result in stakeholder resources (Maignan and Ferrell, 2004). Stakeholder resources refer to having such strong relationships with stakeholders or such a good reputation among stakeholders that these stakeholders are willing to make an effort to help the organization, for example by sharing knowledge, recommending the organization to others, or buying its products. In the case of CleanCompany, several stakeholders were reported to show such willingness. Stakeholder resources can be a source of competitive advantage, because they are difficult to build, valuable, rare and difficult to imitate (Barney and Hansen, 1994; Shrivastava, 1995; Choi and Wang, 2009; Surroca et al., 2010). Stakeholder resources have been found to not only to result in positive financial performance, but also to help organizations to recover in difficult times (Choi and Wang, 2009), for example in case of a product harm crisis. This suggests that organizational identification by stakeholders and the resulting stakeholder resources may be more relevant for the long-term performance rather than the short term performance of the organization: it increases the legitimacy of the firm, bolsters the organization against crises, and contributes to the survival of the organization (Shrivastava, 1995; Henard and Dacin, 2010).

The argument above suggests that, while stakeholder integration capability does not directly result in positive financial performance, it may do so indirectly through organizational identification by stakeholders. This is in line with recent studies that take a resource based view-
approach and suggest that it is ultimately intangible resources (like reputation) that create financial performance (Surroca et al., 2010). Based on the foregoing:

**Proposition 4:** Stakeholder integration capability leads to organizational identification by stakeholders, which in turn leads to the organization having a competitive advantage.

**Limitations and Future Research**

This study provides the first conceptualization of stakeholder integration capability in the context of NPD and as such constitutes an important contribution to the NPD and stakeholder theory literatures. In addition, by presenting a set of propositions on the nature, antecedents and consequences of stakeholder capability a fertile ground for future research is prepared. However, a major limitation of this study lies in its exploratory nature. With a limited number of case-studies, this study describes an empirical phenomenon in detail, but suffers from the low generalizability inherent in this approach. Future research could test the propositions offered in this study. More specifically, future research could test the proposed three-dimensional structure of stakeholder integration capability using a large scale quantitative approach. In addition, such a study could test the relationships stakeholder integration capability has with antecedents and consequences, including the ones suggested in the propositions.

While this article presents a comprehensive conceptualization of stakeholder integration capability, more research may be needed to understand the effectiveness and efficiency of the individual stakeholder issue identification techniques, coordination mechanisms, and prioritization principles. In a similar vein, while this study suggests that stakeholder integration capability is the result of a learning process, further research could focus on providing more detail on this learning process, i.e. how firms develop this capability over time. Like the study of any learning process this is not likely to be an easy endeavor, but it would enable us to give more concrete guidelines on how to build a stakeholder integration capability.
Furthermore, the study suggests the relevance of a dyadic or even network perspective when studying how stakeholder issues ‘trickle down’ from business strategy into NPD. From the data (especially from the PaintProduct and CleanProduct cases) it showed that some stakeholders actively try to get issues on the NPD team’s agenda. Because this was outside the focus of the study, the influence strategies that stakeholders use (see Frooman, 1999) are not addressed. Yet, future research using data from the whole stakeholder network could enhance our understanding of how the organization and its stakeholders influence each other in an NPD context. A relationship perspective may also be used to obtain a better understanding of how stakeholders can actively contribute to the NPD process. Actively involving nonmarket stakeholders in NPD is probably easier achieved when an ‘open innovation’ perspective (Chesbrough, 2003) is adopted by the organization.

**Managerial Implications**

The results show that integrating multiple stakeholder issues is not just a matter of feeding additional information into NPD processes, but of changing the nature of these NPD processes. Just as managers over the past decades have changed NPD processes in order to better integrate the issues of market stakeholders, the integration of issues of nonmarket stakeholders will pose new challenges. The results suggest that managers should ignore the popular rhetoric of win-win solutions, and realize that there is often tension between stakeholder issues. However, this tension can be managed. Stakeholder integration capability helps organizations to find a balance in a world with many, often conflicting, stakeholder interests. This study suggests that it requires organizations to identify a broad set of stakeholders relevant for NPD, to set up and use coordination mechanisms to keep nonmarket stakeholder issues on the agenda, and to use prioritization principles that ensure that these issues are responded to. When identifying stakeholders, organizations should actively search for a range of nonmarket stakeholders relevant
to their NPD and identify the issues they hold important. Ways to achieve this could include monitoring of regulators, building relationships with experts at SIGs, and implementing a stakeholder management system that formalizes and structures information about all stakeholders. When setting up coordination mechanisms, the results suggest that a mix of formal and informal coordination mechanisms, with some built-in redundancy, works best to achieve integration of multiple stakeholder issues in NPD. When prioritizing stakeholder issues, managers should be aware that to manage the tension between stakeholder issues, several principles need to be formulated to guide the decision-making. The identification techniques, coordination mechanisms and prioritization principles listed in Table 3 may serve as inspiration.

Furthermore, the study shows that there are several pathways to develop green products: one organization developed a greener product by serendipity, whereas some other organizations had a more structured approach that involved numerous coordination mechanisms and prioritization principles. This shows that serendipity exists, also for green products. Results suggest however that organizations that want to develop greener products may benefit more from a more structured approach that enables them to address many nonmarket stakeholder issues.

Finally, the stakeholder perspective has implications for the NPD community at large. Although the results in this study are obtained by focusing on green issues, the findings are likely to apply to other issues of interest to nonmarket stakeholders. Numerous societal issues have become relevant for product development, such as genetically modified ingredients, trans fat contents, toxic materials in rechargeable products, suitability of new products for the ‘bottom of the pyramid’, and fair trade issues. Nonmarket stakeholders are, increasingly so, part of the environment in which NPD teams operate, and need to be considered in NPD decisions. The NPD community would therefore benefit from a more structural consideration of all stakeholders in decision-making.
Notes:

(Note 1): Following the literature, this article uses the term environmental management strategy to denote strategy with respect to the natural environment, i.e. ‘green’ strategy)
References


Carroll, A.B. (1979). A Three-Dimensional Conceptual Model of Corporate Performance, 


(4), 37-52.


Functional Collaboration: Examining the Different Routes to Product Innovation 


Edmondson, A.C. and McManus, S.E. (2007). Methodological Fit in Management Field 


### Table 1: Case Study Design

<table>
<thead>
<tr>
<th>Environmental Impact of the Industry</th>
<th>Proactivity of Environmental Management</th>
<th>Moderate</th>
<th>High</th>
</tr>
</thead>
<tbody>
<tr>
<td>Moderate (Food)</td>
<td>MusselCompany&lt;sup&gt;a&lt;/sup&gt;</td>
<td>MusselProduct (4 informants)</td>
<td>BeerCompany BeerProduct (4 informants)</td>
</tr>
</tbody>
</table>

<sup>a</sup> Case organizations are printed first, followed by the focal NPD project in italics. Names of organizations and NPD projects are fictitious.
<table>
<thead>
<tr>
<th>Focal NPD project (version)</th>
<th>Category</th>
<th>Stakeholders</th>
<th>Perceived stakeholder issues in NPD</th>
<th>Green issue?</th>
<th>Tension with stakeholder issue</th>
</tr>
</thead>
<tbody>
<tr>
<td>PaintProduct (EU version)</td>
<td>Market</td>
<td>Top management:</td>
<td>Improve buyer’s business process (a)</td>
<td>(d)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Market</td>
<td>Customers:</td>
<td>Minimum drying time (b)</td>
<td>(c) (d)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Market</td>
<td>Customers:</td>
<td>Compatibility / ease of application (c)</td>
<td>(b) (d)</td>
<td></td>
</tr>
<tr>
<td>Nonmarket</td>
<td>Regulators:</td>
<td>Reduction of VOC level (d)</td>
<td>✓</td>
<td>(a) (b) (c)</td>
<td></td>
</tr>
<tr>
<td>PaintProduct (US version)</td>
<td>Market</td>
<td>Top management:</td>
<td>Improve buyer’s business process (a)</td>
<td>(d)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Market</td>
<td>Customers:</td>
<td>Minimum drying time (b)</td>
<td>(c) (d)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Market</td>
<td>Customers:</td>
<td>Compatibility / ease of application (c)</td>
<td>(b)</td>
<td></td>
</tr>
<tr>
<td>Nonmarket</td>
<td>Regulators:</td>
<td>Reduction of photo-reactive VOC level (d)</td>
<td>✓</td>
<td>(a) (b)</td>
<td></td>
</tr>
<tr>
<td>CleanProduct (world version)</td>
<td>Market</td>
<td>Customers:</td>
<td>Cleaning performance (a)</td>
<td>(d)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Market</td>
<td>Customers:</td>
<td>Convenience (b)</td>
<td>(d)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Market</td>
<td>Competitors:</td>
<td>Convenience (b)</td>
<td>(d)</td>
<td></td>
</tr>
<tr>
<td>Nonmarket</td>
<td>Employees:</td>
<td>Easy assembly of packaging (c)</td>
<td>-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nonmarket</td>
<td>Top management:</td>
<td>Biodegradability (d)</td>
<td>✓</td>
<td>(a) (b) (e)</td>
<td></td>
</tr>
<tr>
<td>Nonmarket</td>
<td>SIGs:</td>
<td>No animal testing (e)</td>
<td>✓</td>
<td>(d)</td>
<td></td>
</tr>
<tr>
<td>CleanProduct (California version)</td>
<td>Market</td>
<td>Customers:</td>
<td>Cleaning performance (a)</td>
<td>(d)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Market</td>
<td>Customers:</td>
<td>Convenience (b)</td>
<td>(d)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Market</td>
<td>Competitors:</td>
<td>Convenience (b)</td>
<td>(d)</td>
<td></td>
</tr>
<tr>
<td>Nonmarket</td>
<td>Employees:</td>
<td>Easy assembly of packaging (c)</td>
<td>-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nonmarket</td>
<td>Top management:</td>
<td>Biodegradability (d)</td>
<td>✓</td>
<td>(a) (b) (e) (f)</td>
<td></td>
</tr>
<tr>
<td>Nonmarket</td>
<td>SIGs:</td>
<td>No animal testing (e)</td>
<td>✓</td>
<td>(d)</td>
<td></td>
</tr>
<tr>
<td>Nonmarket</td>
<td>Regulators:</td>
<td>Reduction of photo-reactive VOC level (f)</td>
<td>✓</td>
<td>(d)</td>
<td></td>
</tr>
<tr>
<td>MusselProduct</td>
<td>Market</td>
<td>Top management:</td>
<td>Product quality (freshness) (a)</td>
<td>(b)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Market</td>
<td>Retailers:</td>
<td>Non-leaking packaging (b)</td>
<td>(a)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Market</td>
<td>Competitors:</td>
<td>Non-leaking packaging (b)</td>
<td>(a)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Market</td>
<td>Customers:</td>
<td>Packaging should be a bag (c)</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>BeerProduct</td>
<td>Market</td>
<td>Customers:</td>
<td>Product cost (a)</td>
<td>(d)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Market</td>
<td>Competitors:</td>
<td>Taste (b)</td>
<td>(d) (e)</td>
<td></td>
</tr>
<tr>
<td>Nonmarket</td>
<td>Top management:</td>
<td>Locally grown ingredients (c)</td>
<td>(d)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nonmarket</td>
<td>Top management:</td>
<td>Organically grown ingredients (d)</td>
<td>✓</td>
<td>(a) (b) (c)</td>
<td></td>
</tr>
<tr>
<td>Nonmarket</td>
<td>SIGs:</td>
<td>Ecological product (e)</td>
<td>✓</td>
<td>(b)</td>
<td></td>
</tr>
<tr>
<td>Focal Product</td>
<td>Identification techniques</td>
<td>Coordination mechanisms(^a)</td>
<td>Prioritization principles(^b)</td>
<td>Overall assessment</td>
<td></td>
</tr>
<tr>
<td>------------------</td>
<td>---------------------------------------------------------------</td>
<td>-------------------------------------------------------------------</td>
<td>--------------------------------------------------------------------------------</td>
<td>------------------------------</td>
<td></td>
</tr>
</tbody>
</table>
| PaintProduct     | • Regulator monitoring                                       | • Quantified objective for maximum VOC level is included in written new product profile  
|                  | • User observation studies                                   | • Green task force for eco-efficiency improvements                  | 1. Maximum VOC level is used as constraint                                    | Moderate stakeholder integration |
|                  | • Ad-hoc competitor analysis                                 |                                                                   | 2. Acceptable level of toxicity is used as constraint                         |                              |
|                  |                                                                 |                                                                   | 3. Company motto stressing non-green issues is used as guiding principle during NPD process |                              |
|                  |                                                                 |                                                                   | **Overall assessment**                                                       |                              |
| CleanProduct     | • Stakeholder management system                              | • Guidelines for selecting fragrances                              | 1. When green alternatives are not feasible, NPD is halted                     | Extensive stakeholder integration                                           |
|                  | • Dialogue with SIGs                                         | • Written norms for animal testing                                 | 2. Stakeholders are formally ranked by importance, thereby prioritizing their ‘stakes’ |                              |
|                  | • Focus groups                                               | • Procedure using an NPD document with built-in green checkpoints    | 3. Cleaning performance, price, convenience, health and sustainability are specified as dimensions to be optimized |                              |
|                  | • Complaints screening                                       | • Written lists of green issues available to the whole organization | 4. Non-green product is benchmark for cleaning performance                     |                              |
|                  | • Store-checks                                               | • Environmental champion at top management level involved in NPD    |                                                                              |                              |
|                  | • Employee feedback                                          | • Environmental champion at HSE department involved in NPD          |                                                                              |                              |
|                  |                                                                 | • Frequent informal discussion of green issues in project meetings  |                                                                              |                              |
| MusselProduct    | • Dialogue with retailers                                    | • R&D manager acts as part-time environmental champion             | 1. Non-green technical problems are solved first                               | Limited stakeholder integration                                             |
|                  | • Consumer survey                                            |                                                                   | 2. Green issues are an afterthought: they are dealt with when a ‘free lunch’ presents itself |                              |
| BeerProduct      | • Ad-hoc interviews of customers                              | • Use of organically grown ingredients is included in new product profile | 1. Compliance with ecolabel standards                                          | Moderate stakeholder integration                                             |
|                  | • Store-checks                                               | • CEO is part-time environmental champion and part of NPD project group | 2. Non-green product are used as benchmark for taste                          |                              |
|                  | • Advice-seeking with SIGs                                   |                                                                   | 3. Local ingredients are selected, if available                              |                              |

\(^a\) Coordination mechanisms are listed from formal to informal within each case  
\(^b\) Prioritization principles are ranked by importance in the process