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Design-driven innovation: Making meaning for whom?

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Abstract: Design-driven innovation focuses on the innovation of product meanings. This innovation is enabled by integrating knowledge on needs, product language and technological development. So far, it has mostly been studied in contexts where the buyer is the assumed end user. There has been little research about design-driven innovation in other contexts, such as business-to-business and public contexts. Here, companies need to create value for multiple stakeholders. In this study, these are defined as users, buyers and influencers. The aim of this study is to explore how companies consider the different stakeholders in the innovation of product meanings. Two companies participated in a case study. The results demonstrate that both companies mainly focus on addressing needs. However, while one case company prioritizes the perspective from the user, the other focuses more on the buyer. The results illustrate the increased complexity that companies need to manage in design-driven innovation in these contexts.

Keywords: Product Meaning, Meaning Making, Value Creation, Intangible Value, Stakeholder Analysis

1. Introduction

In recent years there has been an increasing interest in design-driven innovation as a means to create new value (de Goey, Hilletofth, & Eriksson, 2016; Johansson-Sköldberg, Woodilla, & Çetinkaya, 2013). It has become more difficult for companies to differentiate their offers solely based on technology and functionality (Aaker, 2010; Cooper, 2011). Instead, it is becoming more important for companies to address intangible values and to focus on how they relate to their customers (den Ouden, 2012; Monó, 1997). Design-driven innovation focuses on the innovation of product meanings. The product meaning addresses both utilitarian values, as well as more intangible values such as experiential, emotional and socio-cultural values. In other words, design-driven innovation focuses on the purpose a product has to a customer (Öberg & Verganti, 2014; Verganti, 2008).

Design-driven innovation integrates three knowledge drivers to innovate the product meaning: knowledge about the user needs; knowledge about technological developments; and knowledge about product language (Verganti, 2003). Based on the socio-cultural context and his or her previous
experiences, the customer interprets the purpose of the product (Bellini, Dell’Era, & Verganti, 2012). However, this raises questions about who this customer is, for whom value is created and which purpose they seek in products.

In literature, the customer, user and buyer are commonly presented as being one and the same (den Ouden, 2012). However, den Ouden (ibid.) points to more complex situations where value needs to be created for multiple stakeholders. She makes a distinction between three groups: users, buyers and influencers. These stakeholders all have different aims. Consequently, they seek and interpret product meanings differently. For example, a study by Jonsson, Östlund, Warell and Dalholm Hornyánszky (2014) demonstrates how residents and staff have different interpretations of the furniture placed in public and private spaces in nursing homes.

Research on design-driven innovation has mainly focused on business-to-consumer contexts where buyers are (implicitly or explicitly) the end users, such as household products and the automotive industry (de Goey et al., 2016). More recently, the field started to expand into new areas, such as service design (Beltagui, Candi, & Riedel, 2012) and ICT (Helfenstein, 2012). Yet, other contexts, such as business-to-business and public contexts, have not yet received much attention. Here, companies need to satisfy the tangible and intangible needs of various stakeholders. However, there has been little research on design for multiple stakeholders (Aquino Shluzas & Leifer, 2014). More specific to this study, meaning making for multiple stakeholders has remained largely unexplored.

To delve into this research gap, the aim of this study is to explore how companies consider the different stakeholders in knowledge generation to innovate product meanings. To structure and delimit this aim, this study connects the three knowledge drivers identified by Verganti (2003) with the three customer categories identified by den Ouden (2012). This paper addresses the following research questions:

RQ1: How do companies prioritize knowledge generation and integration on needs, product language and technological development?

RQ2: How do companies consider different stakeholders for each of these knowledge drivers?

A qualitative case study is conducted at two companies to address these research questions. This paper contributes with new knowledge on design-driven innovation in new contexts. In addition to that, this paper provides new insights on methods to map and present patterns regarding the consideration for different stakeholders in design-driven innovation.

2. Theoretical framework

This study builds upon and connects theory on design as meaning making and design for multiple stakeholders. This theoretical framework provides a concise description of these two subjects.

2.1 Design as meaning making

Krippendorff (1989, p. 9) states that “design is making sense (of things)”. More specifically, he argues “the products of design are to be understandable or meaningful to someone”. There exists an inherent challenge to design, since there is a dual aim to create something new and to create something understandable. People always aim to interpret the products around them, regardless if they are aware of this process or not. They might not understand products and designs that are too innovative and do not align with their expectations (Monö, 1997).
As highlighted in the introduction, product meanings entail both utilitarian and intangible value. For example, the products provide joy, help shape identities, represent goals and enable the formation of social bonds (Csikszentmihalyi & Rochberg-Halton, 1981; Richins, 1994). Here, the role of design is to communicate the product meaning “beyond the sum of its parts” (Beltagui, Candi, & Riedel, 2012, p. 114). Still, the interpretation of product meanings is a complex process (Monö, 1997). Product meanings are context dependent (Karana & Hekkert, 2010; Krippendorff, 1989). Based on previous experience and knowledge the customer interprets the meaning of an object in a specific context (Krippendorff, 1989). Product features, such as material, colour, signs and symbols help people to understand potential product meanings (Jahnke & Hansson, 2010; Monö, 1997). Due to the interaction of these three elements, being product features, context and cognition, companies cannot fully predetermine product meanings (Bellini et al., 2012). Instead, Verganti (2008) discusses how companies propose new product meanings. Rosen, Eriksson and Bergman (2016) created a model, of which a simplified version is shown in Figure 1, to present how a company, based on a specific message, uses product features to propose new product meanings to a consumer in a specific context in a coherent manner.

![Diagram](image)

Figure 1: A model for the intended product communication from company to stakeholder, adapted from Rosen et al. (2016)

2.2 Design for multiple stakeholders

Over the years, great emphasis has been placed on user-centred design with the aim to create designs which are better suited to the needs and wishes of the end user (Brown, 2008; Ulrich, 2011; Veryzer & Borja de Mozota, 2005). However, it is common that products need to satisfy multiple stakeholders (Aquino Shluzas & Leifer, 2014; den Ouden, 2012). A stakeholder is “any group or individual who is affected by or can affect the achievement of an organization’s objectives” (Freeman, 2010, p. 46). Different stakeholders usually have different needs and requirements which they aim to address (Bendjenna, Charre, & Eddine Zarour, 2012). And they have different influences on decision making during product development (Majava, Harkonen, & Haapasalo, 2014). According to Majava et al. (ibid), the overall impact stakeholders have on the product development process depends on; their power to influence the company, their relation to the company, and the relevance of their requirements. Den Ouden (2012) distinguishes between three main stakeholder categories that need consideration in the product development process (Table 1).
Table 1. Description of stakeholder categories, adapted from den Ouden (2012)

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Users</td>
<td>The stakeholder group that adopts the product for actual use.</td>
</tr>
<tr>
<td>Buyers</td>
<td>The stakeholder group that makes the purchase decision and provides the</td>
</tr>
<tr>
<td></td>
<td>financial resources needed to purchase the product. The buyers can purchase</td>
</tr>
<tr>
<td></td>
<td>a product intended for use by themselves or by others.</td>
</tr>
<tr>
<td>Influencers</td>
<td>The stakeholder group that influences the decision to either use or purchase</td>
</tr>
<tr>
<td></td>
<td>the product.</td>
</tr>
</tbody>
</table>

The individual and context dependent interpretations of product meanings complicate design-driven innovation for multiple stakeholders. As Monó (1997, p.16) explains:

“When a group of people look at an object, none of them sees exactly the same thing as anyone else. Even if they receive approximately the same image on their retina and interpret the image in basically the same way, this image is always revised by the observer’s personality and situation.”

Previous research has demonstrated that there is a difference between public and private meanings attached to products. In other words, the relation one has to a product influences the interpretation of product meanings (Richins, 1994). Users, buyers and influencers all have different relations to a product and they will experience the product in different contexts. This influences how they will perceive the value of the product.

3. Research method

3.1 Case study

Meaning making for multiple stakeholders has not yet been explored in detail. Therefore, this topic is studied with an explorative and qualitative approach (Edmondson & McManus, 2007). The research method is a multiple case study. This is a suitable method for exploratory studies on contemporary events which cannot be manipulated (Yin, 2014).

3.2 Case company selection and description

Two case companies, here referred to as ToolsCO and SoundCO, participated in the case study (Table 2). These case companies were included based on three selection criteria. First, the companies have their own product development process and employees dedicated to work on this process. Second, the companies operate in contexts where the end users commonly do not make the purchase decision. Therefore, they have to consider multiple stakeholders in their product development process. Last, the companies are of comparable size.
Table 2. Case company descriptions

<table>
<thead>
<tr>
<th>Case company</th>
<th>Company focus</th>
<th>Context</th>
<th>Turnover 2015 (in SEK)</th>
<th>Employees</th>
</tr>
</thead>
<tbody>
<tr>
<td>ToolsCO</td>
<td>Development and manufacturing of tools, steps, ladders and protective clothing intended for use by professional craftsmen.</td>
<td>Business-to-business</td>
<td>1,070,431,000</td>
<td>76</td>
</tr>
<tr>
<td>SoundCO</td>
<td>Development and manufacturing of sound absorbers and acoustic furniture intended for use in public spaces.</td>
<td>Public context; Business-to-business</td>
<td>77,919,000</td>
<td>84</td>
</tr>
</tbody>
</table>

3.3 Data collection

The evidence collected in this case study contains qualitative data. The main sources for data collection were semi-structured interviews conducted with employees at the case companies (Table 3). Additional sources of data include internal and external company presentations, annual reports and marketing material.

Table 3. Semi-structured interviews at case companies

<table>
<thead>
<tr>
<th>Case company</th>
<th>Interviews</th>
<th>Interviewees</th>
</tr>
</thead>
</table>
| ToolsCO      | 6          | • Head of Product Development  
• Manager Product Development  
• Head of Design  
• Test Engineer  
• 2 Product Development Engineers |
| SoundCO      | 2          | • CEO  
• Manager Product Development |

3.4 Data analysis

The collected data was evaluated in the three phases defined by Miles and Huberman (1994): (1) Data reduction, (2) Data display, and (3) Conclusion drawing. The two cases were treated and analyzed as two separate cases, only at the end of the third phase cross-case synthesis was performed (Yin, 2014). In the first phase, the interviews were transcribed and coded. Then, through iterative coding cycles, the data was grouped in different categories. Starting from theory, the coding process started with a deductive approach (O’Leary, 2014). This suits the aim of the study to explore the predetermined categories regarding knowledge, as defined by Verganti (2003), and customers, as defined by den Ouden (2012). In the first cycle, the data regarding knowledge about needs, technology and product language was coded. In the second cycle, this data was coded into the subcategories of user, buyer and influencer. This resulted in organization of the data into different combinations of codes, for example “technology-buyer”. Then an inductive coding process was applied to reveal specific topics within each combination (Figure 2).
In the second phase, data display, figures were created to present how each stakeholder category is considered for each knowledge driver. These figures are based on the relative frequency of the different combinations of codes (i.e. needs-user or technology-buyer) which came up during the interviews. Therefore, it is important to emphasize that the figures are not based on quantitative data. Instead, based on qualitative data, they provide a representation of the case companies’ prioritizations. Last, in the third phase, conclusion drawing, the data from the two participating case companies was compared. The figures were analysed and reviewed to address the research questions.

### 3.5 Reliability and validity

To increase the internal validity of the study, additional sources of data, such as internal and external communication, were included to crosscheck data from the interviews. Multiple interviewees were included from each case company and all interviewees are personally involved in the product development process. At the start of each interview, the purpose of the study was clarified and concepts were explained throughout the interviews to increase construct validity. Last, to ensure reliable results, procedures for data collection and analysis were consistent and precise. Three researchers discussed the data collection, analysis and conclusion drawing to reduce the risk of bias.
4. Interpretation of findings

This section first presents the findings of both case studies separately, before they are discussed together in Section 5. To provide a more detailed context for each case study, a table shows which specific stakeholders the company needs to consider. Then, to address the research question, the relative importance of each stakeholder category for the different knowledge drivers is presented for both case companies.

4.1 Meaning making for multiple stakeholders at ToolsCO

ToolsCO develops and manufactures tools, steps, ladders and work wear for professional craftsmen. The company operates in a business-to-business context. They encounter the stakeholders presented in Table 4.

Table 4. Identified stakeholders at ToolsCO

<table>
<thead>
<tr>
<th>Case company</th>
<th>User</th>
<th>Buyer</th>
<th>Influencer</th>
</tr>
</thead>
<tbody>
<tr>
<td>ToolsCO</td>
<td>Experienced professional craftsmen</td>
<td>Wholesalers</td>
<td>Experienced professional craftsmen</td>
</tr>
<tr>
<td></td>
<td>Young professional craftsmen</td>
<td>Resellers</td>
<td>Sellers</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Purchase departments</td>
<td>Online reviewers</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Technical requirements and standards</td>
</tr>
</tbody>
</table>

Figure 3 presents the prioritization of the different knowledge drivers at ToolsCO. It also presents to which extend the different stakeholders are considered for each knowledge driver. The figure demonstrates that the case company mainly focuses on generating knowledge about needs. The product development manager explains that the company aims not to focus on specific, predetermined functionalities, but rather on what their users are trying to achieve. Product language is considered second after needs. Although there is a head of design at the company and there are some directions on product language, the interviewees acknowledge that they could increase the focus on product language. This is of importance since ToolsCO develops innovative products that cannot always be described with traditional terminology such as “hammer” or “nail”. Here the product language plays an important role to express the innovative value of the products. One opportunity mentioned is to trust more on the skills and expertise of the head of design. Last, the company works least with technological developments. This is partly explained by the traditional context in which the company is active. However, a lack of knowledge, time and financial means were also mentioned as a barrier to integrate more technological developments.
ToolsCO strongly prioritizes the perspective of the user for all knowledge drivers. The difference between the consideration for the influencers and buyers is marginal. The focus on the user is clearly articulated in ToolsCO’s strategy. Therefore, the emphasis on the user is not surprising. At the same time, the interviewees acknowledge the role of the other stakeholders to ensure that the products actually reach the user. It has been a challenge for the company to present the value of innovative products to all stakeholders, especially when the company cannot have direct communication with them. The head of product development states the following:

“We have not been able to communicate this. We are good at talking about it, and then immediately everyone understands that this is a great product, but it is difficult to get that out to everybody along the way.”

The head of design adds that although the buyers are an important group in the whole chain, they receive little attention when it comes to meeting their needs or their understanding of product language of the product itself. Instead, they are considered more when it comes to the product packaging.

4.2 Meaning making for multiple stakeholders at SoundCO

SoundCO traditionally focused on the development and manufacturing of sound absorbers. More recently, the company broadened their collections to include acoustic furniture as well. The company’s design council, which includes both internal and external members, influenced this decision. Moving from sound absorbers and screen dividers, the company now develops acoustic solutions for public environments. The company operates both in business-to-business and in public contexts. Table 5 presents the relevant stakeholders for SoundCO.
Table 5. Identified stakeholders at SoundCO

<table>
<thead>
<tr>
<th>Case company</th>
<th>User</th>
<th>Buyer</th>
<th>Influencer</th>
</tr>
</thead>
<tbody>
<tr>
<td>SoundCO</td>
<td>- Employees, especially those working in activity based offices - People in public spaces, for example including day-care, hospitals and elderly homes</td>
<td>- Resellers - Purchase departments - Interior design companies - Companies, especially larger companies in urban areas with activity based offices</td>
<td>- Interior designers and architects - Reference and labelling system for Swedish furniture - Technical requirements and standards - Companies which are both buyer and competitor</td>
</tr>
</tbody>
</table>

Figure 4 presents the prioritization of the different knowledge drivers, and the consideration for different stakeholder categories, identified at SoundCO. The emphasis at this company also lies on generating knowledge about needs. Over the years, SoundCO developed an expertise in providing acoustic solutions, which plays an important role in their products. The company spends second-most attention to product language. The installation of the design council, in which external designers and interior architects also participate, increased the quality of SoundCO’s work regarding product language. The interviewees value the contribution of this council and feel that it has increased their chances of successful developments. Regarding technological developments, the interviewees keep themselves updated on new trends, although they do not actively aim to integrate this in their own sound absorbers and furniture. Here, they spend closer attention to the potential application of new materials.

Figure 4: Results case company SoundCO
Overall, SoundCO mainly considers their buyers, except for knowledge generation on technological development, where the users receive slightly more attention. The relationships with the buyers are of importance, because this is also the company’s main source of information on the users. The product development manager explains the focus on the buyer as follows:

“The problem is that we do not have our own resellers. If we had an organization that we own or control in a way, we could push out products more strongly. Now we have to work with architects, interior designers and retailers. Sometimes other customers find us through a different route.”

The company acknowledges the meaning of the acoustic furniture, beyond pure functionality. Here, the CEO of SoundCO emphasizes the need to communicate the impact of improved acoustics to convince buyers to make the purchase. Adding to this by taking the perspective of the users, the product development manager states:

“We are convinced that well-designed furniture makes people happier as well. It is better to come to an office where it is nice, where the eye can rest and study details. At the same time, it is a work environment issue as well. This is something we need to continue to work with.”

4.3 Cross-case synthesis

Figure 5 presents the overview of the cross-case synthesis. In the upper left corner, the focus on the different knowledge drivers is presented for both companies. Here, the resemblance between the two case companies is strong (this makes it difficult to identify ToolsCO’s line, which is actually right under SoundCO). However, taking a closer look at how the companies address the stakeholders for each knowledge driver, the differences between the companies become apparent. Most noteworthy is that ToolsCO considers the stakeholders with similar priority for all knowledge drivers, with a clear focus on users. In contrast, SoundCO presents a more diverse prioritization.

![Cross-case synthesis](image)
5. Discussion

The aim of this study has been to explore how companies consider different stakeholders in knowledge generation in design-driven innovation. The results of this study show that the case companies aim to consider different stakeholders and they both acknowledge the importance of doing so. However, the companies do not approach this issue in the same way, even though they operate under comparable circumstances. Both companies clearly prioritize one stakeholder category over the others. ToolsCO chooses to focus on the user with the intention that this will create value for the other stakeholders in extension. In contrast, SoundCO focuses on the buyer, with the aim to reach other stakeholders through this buyer. Connecting this to literature on stakeholders in product development, Majava et al. (2014) identified three aspects which affect the stakeholder’s influence on the process. In this study, it is shown that ToolsCO mainly focuses on the relevance of the requirements of stakeholders, whereas SoundCO is more influenced by the power that the stakeholder holds. A prioritization based on the third aspect defined by Majava et al. (ibid), being the relationship of stakeholders to the company, was not identified in this exploratory study. However, future research could focus on identifying and including this approach as well. The aim of this study has not been to make the assessment if one approach is preferred over the others. This would require further research, including the perspective from all stakeholders and the analysis of quantitative data on company performance.

The results demonstrate the need for companies to balance the perspectives from different stakeholders in design-driven innovation for business-to-business and public contexts. The main practical implication here is that companies first need to become aware of the different stakeholders that encounter their products. Second, they need to understand and address how these stakeholders might interpret product meanings differently. The method used in this study to map how companies address different stakeholders for each knowledge driver could be instrumental for companies to gain a deeper understanding on their current approach and priorities. It would enable companies to select an approach most suitable to their circumstances and objectives. Additional research, where this method is developed further and tested at more case companies, contributes to making the method more robust.

Last, this study shows the need to broaden the focus beyond the end user in research on design-driven innovation in these contexts. The cross-case synthesis clearly demonstrates that at first sight companies might have similar priorities regarding knowledge generation on needs, product language and technology. However, a more detailed look into each knowledge driver reveals the actual difference between the case companies. Therefore, it would be valuable to make explicit which stakeholders where considered in the innovation of the product meaning. In future research, more attention needs to be given to the influence of the context in which the study takes place.

6. Conclusion

The title of this paper questions for whom companies aim to create new product meanings in design-driven innovation. So far, the focus in research has been on the intended end users. However, this study demonstrates there is a need to consider more stakeholders when discussing design-driven innovation in business-to-business and public contexts. These first results also point to different approaches that companies can adopt to prioritize the stakeholders. It is important that companies become aware of the stakeholders they address, or perhaps do not address, in their current approach. Second, they need to select a suitable approach to address multiple stakeholders with intention.
Due to the exploratory nature of this study and the lack of previous research on this subject, it is not possible to give definitive answers to how and why a specific approach would be preferable. However, these preliminary findings do provide a ground for future research on addressing multiple stakeholders in design-driven innovation. This would expand our understanding of design-driven innovation and contribute to developing this new field further. Furthermore, it would enable the innovation of product meanings in a wider range of contexts.

References


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