Innovation Study 2012 – Benchmarking

Introduction

In what way can open innovation formats help firms to systematically enhance their innovation performance? Which open innovation activities might be more beneficial than others? Are there specific antecedents with respect to differing open innovation formats and business model initiatives? Our Innovation Study 2012 shall support companies to benchmark against others and shall help to answer such questions.

The study dealt with three key topics: the relationship between innovation strategy and openness, business model innovation and cross-industry innovation. In this context, the Chair for Innovation Management predominantly focused on organizational capabilities including cultural, strategic and structural aspects which might foster or hinder specific innovation formats and approaches in the corporate landscape.

In order to gather the necessary information for the benchmarking analysis, the data were collected via a web-based online survey between March and November 2012. In so doing, companies of different sizes and industry affiliations were addressed via personalized cover letters and systematic email waves.

In total, we addressed over 2,500 companies and finally received 183 filled questionnaires. Due to the fact that some questionnaires were not fully completed, we had to cope with missing values regarding specific questions. This led to a reduced number of observations. Apart from the missing data problem, some companies did not reach a critical firm size or were categorized as start-up companies which again led to a reduction in sample size. Finally, we could utilize an adjusted sample of 169 observations for the benchmarking analysis.

Figure 1: Industry affiliation of surveyed companies (N = 169) in Innovation Study 2012
73.4% of the surveyed companies belong to the category of big corporations (more than 500 employees), whereas 26.6% are small and medium-sized enterprises (SMEs).

With respect to the industry affiliation, 78.6% of the companies can be categorized as manufacturing firms, whereas 21.4% are service providers (= non-manufacturing). Since the topics open, cross-industry as well as business model innovation are still more frequently discussed in manufacturing firms, this unequal distribution might be explained. Nevertheless, these topics have also become more important for non-manufacturing firms during the last years. Overall, we observe an increased interest with respect to required organizational capabilities and employed innovation activities to increase a company's innovation performance.

**Strategy as determining factor for openness**

Based on theoretically derived strategy profiles (DeSarbo et al. 2005; Olson et al. 2005) we were able to separate the corporate landscape into different proactive strategy archetypes. The companies were asked to categorize themselves according to defined strategy profiles. Within the benchmarking analysis, we only regard the three proactive strategic archetypes (N=160) and neglect the interrogated non-proactive strategic archetype, as the latter type is less successful in the market. This is true, since innovation obviously does not play a key role for this company type.

The Prospector’s profile describes a company to frequently be the first-to-market with new product or service concepts. This company type aggressively enters new market segments where it perceives an opportunity or new trend. Furthermore, Prospectors concentrate on offering products or services that overcome and push performance boundaries. They offer the most innovative products or services, whether based on performance improvement or cost reduction.

The Analyzer’s profile describes a company to rarely be “first-in” with new products or services and enter emerging market segments. However, by carefully monitoring their competitors’ actions and the customers’ responses, Analyzers can be characterized as “fast followers” with a better targeting strategy, an increased customer benefit, or lower total costs. Depending on the product or service category, Analyzers consciously decide in favor of two differing strategies: In some categories, they act as cost leaders and thus, attempt to enhance market shares in existing markets. In other categories, they aim for a differentiation strategy in order to stand out by offering the most innovative products or services.

The Defender’s profile exhibits that this company type tries to maintain a relatively stable domain by aggressively protecting its product-market position. Defenders are rarely at the forefront of product or service development. Instead they often follow one out of two possible sub-strategies:

1. On the one hand, they might focus on producing goods or services as efficiently as possible. They frequently emphasize an increase of existing market shares by providing products or services at the best prices. This type is known as the cost-leading Defender.

2. On the other hand, they might focus on providing superior levels of service or product quality. Then, their product or service prices are typically higher than the industry average. This type is known as the differentiated Defender.

Based on the different business strategies, innovation strategies and the degree of firm openness can be assumed. Companies that follow a Prospector strategy are usually more open than companies which follow a Defender strategy (see also Enkel and Bader, 2012). Due to the fact that Analyzers are positioned in the middle, we expect Prospectors to have the highest degree of firm openness, followed by the Analyzers, and finally followed by the Defenders.
This assessment makes sense, when regarding the archetypes’ market orientations, internal structures and processes as well as their objectives regarding resource allocation. To get a better overview with respect to the archetypes’ utilization of open innovation activities, we conducted an analysis and calculated the mean of activity utilization for each strategic archetype.

Figure 2 shows that the Prospectors achieve the highest utilization mean for all investigated open innovation activities. This implies that Prospectors strive for a higher degree of firm openness. Since these companies regularly integrate external knowledge in their innovation processes, they often set new trends and are able to discover a variety of opportunities.

In comparison to the Prospectors, the Defenders are less open with regard to the integration of external knowledge and predominantly focus on their internal know-how. Since the Defenders either strive for cost leadership or quality leadership (see cost-leading versus differentiated Defenders), these firms do not have to open up as much as Prospectors do and can still be equally successful (see also article by Karoline Bader about balancing open and closed innovation). This is true, as companies sometimes lose focus and over-search, or they might rely too heavily on external resources (Dahlander and Gann, 2010).

**Figure 2: Average utilization of open innovation activities depending on the three proactive strategic archetypes (N = 160)**
As a result, one cannot argue that companies with a higher degree of firm openness are more successful. If companies do not adapt their innovation strategies – including the application of open innovation formats – to their strategic goals and vision, these companies are likely to be less successful in the markets (Gianiodis et al., 2010; Laursen and Salter, 2006).

Due to the fact that the Analyzers follow a hybrid strategy adopting both characteristics of Prospects and Defenders, they might occasionally be less open regarding single open innovation activities (e.g. spin-offs or knowledge acquisition via M&A) and instead focus on others. However, from a general point of view, the Analyzers achieve a greater degree of firm openness than the Defenders do.

To sum up, we can show that the degree of firm openness can be derived from strategy and that it differs with respect to a company’s strategic focus. Furthermore, we demonstrate that this tendency is also true for single open innovation formats.

Finally, we are able to reveal which open innovation activities are the most important ones across all three proactive strategic archetypes. Taking for instance the integration of lead user knowledge or the knowledge exchange in networks within the own industry (see Figure 3), we see that these open innovation formats were intensively applied. In contrast, the integration of external knowledge via M&A seems to play an inferior role.

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**Figure 3: Comparison of single open innovation utilization with respect to the strategic focus (N = 160)**

- **Prospector**
- **Analyzer**
- **Defender**
This evaluation might support companies to benchmark their degree of openness as well as their utilization of single open innovation activities with others. Nevertheless, one should always consider a company's strategic focus and orientation when benchmarking against others.

**Business model innovation**

In our sample, we see the increasing relevance of developing new or reconfigured business models, beyond established product, process, and service innovations.

This can be partly attributed to a moderately dynamic environment regarding technological development and changes in the market structure (see Figure 4). The latter one refers to frequently changing customer needs, new competitors, while technological development captures the speed in which new technologies enter the market (see also Jaworski & Kohli, 1993).

Participants in the study consider especially technological developments as dynamic. As outlined in academic research, the emergence of new technologies often leads to the development of new business models, which adequately leverage the potential of this technology (e.g., Chesbrough and Rosenbloom, 2002; Rosenbloom and Christensen, 1994). Thus, working in this moderately dynamic environment requires a firm to consider business model innovation as complementary activity within its innovation strategy.

With a potentially increasing volatility and dynamism in global markets, such a systematic consideration of reshaping business models might become even more important. Therefore, CEOs, managing directors, and innovation managers are likely to ask how to approach and organize this topic within their companies.
Responsibility for business model innovation

The organizational responsibility for business model innovations plays a crucial role, as it is not quite clear yet, who is responsible for these innovation activities (Chesbrough, 2010).

The results of our study show that business model innovation is organized centrally (see Figure 5). These activities are driven by corporate management, i.e. CEOs, Chief Innovation Officers, strategy heads, and/or other board-level managers. This again emphasizes the strategic relevance of the topic.

Typical functions that hold operating responsibility are Corporate R&D, Corporate Development, or even a specific incubator unit. Incubator units are independent organizational units that provide a home for start-ups within a company. These incubators often offer technical infrastructure, consulting or other services to internal new businesses for example. In so doing, new ventures that develop new business models can benefit from the deep know-how and other resources of the core company (Roseno et al., 2013).

Figure 5: Where does the managerial responsibility for initiatives regarding business model innovation reside? (N=147)
Capabilities for business model innovation (BMI)

Based on dynamic capabilities theory (e.g., Teece, 2007), companies need capabilities to adapt their resources in order to address or even induce change. As innovations in business models are often radical or disruptive changes, companies need certain capabilities especially focusing on sensing opportunities or threats in the environment as well as designing and implementing new business models.

To allow for benchmarking, we identified top business model innovators within our sample. These companies share certain characteristics, as they:

- Systematically consider BMI a core part of their innovation strategy and innovation activities.
- Regularly challenge and evaluate existing business models.
- Take more initiatives towards changing the current form of “how to do business”.
- Establish new business model successfully on the market.

Therefore, these companies systematically and purposefully pursue BMI in order to create competitive advantages, foster growth, and address new markets.

What are the differences between top business model innovators and the average sample regarding specific capabilities? Our sample shows that the top business model innovators have strong competencies in sensing and seizing business opportunities and threats.

Sensing comprises capabilities such as:

**Business model thinking:** Companies need to think beyond their traditional product/service boundaries and consider the business model (within an ecosystem or regarding partners) as subject to innovation. Hence, they should evaluate whether their current business model serves customer needs and leverages technological possibilities adequately.

**Market and customer orientation:** Current business models serve current customer needs. However, these needs do change and today's buyers might become non-buyers in the future and vice versa. A strong market and customer orientation for the evaluation of current product/service bundles is relevant to ensure that a business model fits to evolving customer needs.

**Thinking in business ecosystems:** Customers do not think in terms of single products or services; customers require that companies deliver comprehensive solutions to their problems. Hence, new business models more and more deliver such solutions instead of providing single products. As a consequence, the integration of complementary (or substitutable) products is key for recognizing opportunities and threats.

Within our sample, we found out that companies are already very well positioned regarding market and customer orientation (see Figure 6). However, top business model innovators are significantly ahead of the average company. They excel in terms of thinking in comprehensive, solution-oriented business models and considering the business ecosystems as important input to identify relevant value propositions for the future.
Seizing relates to the subsequent step of approaching business model opportunities and threats that have been identified before. This dynamic capability comprises four aspects:

| Business model design: To tackle opportunities, business model innovators propose entirely new business models, not only new products or services. This differentiates them from other companies. For example, Daimler introduced the car sharing platform car2go to address the segment of young, urban adults. They did not introduce a new car, but introduced an entirely new business model to satisfy this market segment’s needs. |

| Partnering and open innovation: New business models require the companies to integrate partners with complementary competencies. Hence, open innovation and partnering are essential capabilities for business model innovators. This includes a clear definition which competencies are that critical that they should be developed in-house. |

| Reconfiguration of resources: The resource base of a company is valuable for a specific time and within a specific market configuration only. Technological changes and market developments require a company to acquire or build new resources such as technological know-how or customer knowledge. New business models essentially base on these new resource configurations. |

| Decision making: To pursue BMI successfully, a company’s decision-making processes should fulfill certain characteristics, for example being close to the market, allowing for a high autonomy or systematically focusing on business models. |

Our sample shows that all participating companies are rather advanced regarding their partnering and open innovation approach (see Figure 7). However, top business model innovators outperform others in other capabilities such as business model design or resource reconfiguration. Overall, this benchmarking analysis provides insights for companies how to further strengthen their abilities to successfully pursue business model innovation.
Capabilities for cross-industry innovation

Drawing on absorptive capacity theory (Cohen & Levinthal, 1990), the study addressed distinctive capabilities for cross-industry innovation, allowing companies to locate and capture specific knowledge or technologies of partners from beyond established industry boundaries. While the distance between the acquired knowledge and the problem to be solved is positively related to exploratory innovation, too much diversity hinders efficient knowledge absorption and results in a reduced effect on novelty value (Nooitboom et al., 2007).

Therefore, building potential absorptive capacity makes a firm receptive to understanding and evaluating distant knowledge. Further, realized absorptive capacity reflects a firm’s ability to derive new insights from the combination of existing and newly acquired knowledge (Zahra and George, 2002). More specifically, according to the process view of absorptive capacity (Lane et al., 2006) and applied to the context of cross-industry innovation, potential absorptive capacity comprises the process stages of recognizing, assimilating, and maintaining distant knowledge from other industries to set the stage for future knowledge transfer to occur.

On this basis, realized absorptive capacity includes the process stages of recombining new external knowledge of other industries with existing organizational knowledge and implementing it in new products, services, or processes (see also article by Sebastian Heil about distant collaboration).

To allow for a benchmarking analysis, we identified top cross-industry innovators within our sample. These companies share certain characteristics, as they:
Pursue cross-industry innovation more intensively and perform more activities towards the integration of distant knowledge.

Implement cross-industry innovation as a core part of their innovation activities.

Successfully conducted a multitude of cross-industry innovation projects during the past three years.

Hence, these companies have established cross-industry innovation as a method to systematically accomplish exploratory innovation. What are the differences between top cross-industry innovators and the average sample regarding specific capabilities? Our sample shows that the top cross-industry innovators have stronger antecedents to potential and realized absorptive capacity (see the following sections).

**Antecedents to potential absorptive capacity**

Our sample shows that all participating companies spend only some effort in recognizing, assimilating, and maintaining potentially valuable external knowledge from other industries (see Figure 8). As yet, there seems to be no systematic exploration of distant knowledge. This may be due to the fact that analogical knowledge from other domains is frequently looked for without the aid of formal methods, which help to abstract from the original problem and to identify appropriate industries or partners. While this approach is rather efficient, the tendency to only partially access knowledge from other industries may constrain the possibility for creative recombination and increase the risk of failing to seek out valuable alternative technologies. Top cross industry innovators outperform others in all antecedents to potential absorptive capacity. In particular, they have in place clearer incentives
to encourage distant knowledge absorption, observe technological developments in certain industries more frequently and approach external partners on a regular base. However, on average, even top cross-industry innovators lack behind an exhaustive approach to adapt to their external technological environment. These findings suggest that it may be an effective way to promote distant search on an individual level and venture broad observations about technological developments only in certain key industries.

**Antecedents to realized absorptive capacity**

Within our average sample, we found that companies are ill-positioned regarding recombining assimilated knowledge from other industries and implementing this knowledge in new products, services or processes (see Figure 9). Top cross-industry innovators are significantly ahead of the average sample on all antecedents to realized absorptive capacity; therefore, they may achieve superior performance by using acquired knowledge in the innovation process. These interfirm differences are likely influenced by the aforementioned differences in the firms’ level of prior related knowledge, determined by the effort that firms undertake to build up their potential absorptive capacity. When combining new and existing knowledge, potential absorptive capacity helps firms to determine the usefulness of new technological knowledge from other industries and convert it into new products, services, or processes. Thus, the realized absorptive capacity is likely to be limited by the level of potential absorptive capacity. In sum, these benchmarking results show where and how companies should further strengthen their capabilities for cross-industry innovation to learn new insights via knowledge from distant industries.

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**Figure 9: Antecedents to realized absorptive capacity (N = 142)**

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<thead>
<tr>
<th>Recombine</th>
<th>Sample Average</th>
<th>Top Cross-Industry Innovators</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quick recognition of the usefulness of new technological knowledge from other industries</td>
<td>3.2</td>
<td>4.0</td>
</tr>
<tr>
<td>Regular match of new technologies from other industries with ideas for new products, services, or processes</td>
<td>3.1</td>
<td>3.9</td>
</tr>
<tr>
<td>Distribution of disparate expertise on different industries to develop new products, services, or processes</td>
<td>3.6</td>
<td>4.2</td>
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<table>
<thead>
<tr>
<th>Implement</th>
<th>Sample Average</th>
<th>Top Cross-Industry Innovators</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quick transformation of technological knowledge from foreign industries into new products, services, or processes</td>
<td>3.2</td>
<td>4.0</td>
</tr>
<tr>
<td>Regular application of technologies from foreign industries in new products, services, or processes</td>
<td>3.3</td>
<td>3.8</td>
</tr>
<tr>
<td>Proficient implementation of technologies from foreign industries in new products, services, or processes</td>
<td>3.3</td>
<td>3.9</td>
</tr>
</tbody>
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Excellence in Open Innovation
Performance effects from cross-industry innovation

Finally, we see in our sample that top cross-industry innovators outperform the sample mean in all performance measures (see Figure 10). These findings underline the importance of building potential and realized absorptive capacity for cross-industry innovation. The top firms are particularly ahead regarding the reduction of development time and project duration, but also benefit from cross-industry innovation more often in terms of increased product innovativeness. Overall, performance effects from cross-industry innovation activities remain rather modest, especially with regard to the inside-out perspective in terms of licensing revenues and profits out of the commercialization of own technologies.

For both, the sample average and top cross-industry innovators, there is great potential for future development of their cross-industry innovation performance by preparing for distant collaboration in an even more systematic manner. First of all, companies should develop sufficient resources in recognizing, assimilating, and maintaining external knowledge beyond established industry boundaries to assure a sufficient level of potential absorptive capacity. Thereby, an excessive focus on only one process stage will not be sufficient.