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## A General Framework for Open Service Innovation in Logistics

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# A General Framework for Open Service Innovation in Logistics

Katharina Kalogerakis and Nikolaus Wagenstetter

## Abstract

Compared to other industries the innovative output of logistics service providers (LSPs) is rather low. By enforcing their attempts to innovate these companies could improve their competitive position. Empirical studies indicate that proactive innovations result in significant improvements of customer loyalty for LSPs.

Most LSPs are B2B service providers and therefore depend heavily on good relationships with their customers. Additionally, they have to act in a very competitive environment characterized by low profit margins. Looking at this special position, the question arises if methods of open innovation are a suitable approach for LSPs to fix their innovation deficit.

Methods of open innovation originate from development processes of tangible products. Although, by now, open service innovation is also evolving, the logistics sector is still lacking behind. The aim of this paper is to evaluate a general framework for open service innovation in logistics. To specify requirements of LSPs in regard to open innovation procedures, interviews with responsible managers of LSPs were conducted.

**Keywords:** open innovation, logistics service providers, innovation methods, interviews

## **1. Introduction**

Due to an increasing trend towards outsourcing and globalized supply chains the logistics industry is rapidly growing (Anderson et al., 2011; Ellinger et al., 2008). Many logistics service providers (LSPs) try to take their share in this expanding market segment. Fierce competition often results in thin profit margins for LSPs. In this context, innovations provide LSPs an opportunity to strengthen their competitive position. The launch of new services offers additional revenue streams and can establish a unique selling point to the customer. Improved processes are valuable contributions to cost savings as well as increased quality. However, the innovative output of the logistics service industry is rather low. Wagner (2008) shows exemplarily for German firms that the share of innovators in the transportation sector is only 30% compared to an average of 60% innovators in manufacturing companies or 52% innovators in knowledge-intensive services. These figures indicate that LSPs face significant deficits concerning their innovation management.

The development of new logistics services differs from the development of tangible products as performed by manufacturing firms. Services have special characteristics calling for new approaches of innovation management (de Brentani, 1989; Gallouj and Weinstein, 1997). As services are intangible, they cannot be stored and their actual performance occurs during the process of consumption. Furthermore, their production usually requires the participation of the client (Gallouj, 2002; Cowell, 1988). Accordingly, service innovation relies even more on customer orientation and integration than product innovation.

Today logistics service innovations are predominantly developed as a reaction to specific customer requests (Wallenburg, 2009; Burnson, 2013). Such reactive innovations are more difficult to manage than proactive innovations, because they are restricted by extreme time pressure (Oke, 2008). Furthermore, following such a reactive approach to new service development hampers the development of standardized solutions. Usually, a large additional development effort is required to offer these individualized innovations to other customers (Wagner

and Franklin, 2008). Besides, often only minor improvements strongly based on industry trends are generated, because these ad hoc unplanned innovation efforts are seldom supported by methods of innovation management (Busse and Wallenburg, 2011; Wagner and Franklin, 2008).

Furthermore, empirical results indicate that proactive improvements can strongly foster customer loyalty (Wallenburg, 2009; Cahill, 2007). A large customer segment does not perceive logistics services as a commodity (Anderson et al., 2011). For these customers, the offered logistics services are essential to their business performance. Therefore, they choose LSPs that provide good quality services and show their ability to proactively develop new service solutions (Cahill, 2007; Anderson et al., 2011). Finally, service innovation capability can directly lead to higher levels of market performance for LSPs (Grawe et al., 2009) and innovative LSPs profit from lower logistics costs as well as higher EBIT margins (Little, 2007).

Traditionally, LSPs are very operative oriented and only a few LSPs have special personnel or a budget for innovation management. Hence, it seems unlikely that these companies will be able to enhance their innovative output based on solely internal resources and capabilities. Therefore, we suppose that the concept of open innovation (Chesbrough, 2003) will help to identify practices and methods to increase the innovation performance of LSPs and thereby improve their competitive position. Accordingly, the aim of this paper is to analyze the concept of open innovation for the logistics sector. It needs to be evaluated if certain practices and methods of open innovation are suitable to overcome innovation deficits of LSPs. In order to answer this question, special demands of LSPs concerning their innovation context are raised in interviews with leading persons from LSPs.

In the following section the concept and methods of open innovation are introduced. Then, in section three, our research approach is described. Afterwards, in section four, results of our qualitative investigation are presented. The paper concludes with a discussion of results and an outline for future research.

## **2. Concept of open innovation**



Open innovation is a concept of innovation management characterized by open systems of research and development. Innovative ideas and solutions can stem from inside as well as from outside of the company.

“Open Innovation is the use of purposive inflows and outflows of knowledge to accelerate internal innovation, and expand the markets for external use of innovation, respectively.”(Chesbrough, 2006)

Two main processes of open innovation can be distinguished. Inbound open innovation encompasses the use of external knowledge and discoveries. In this sense, internal R&D should be supplemented by external sources. Outbound open innovation describes openness towards the market. Companies should be aware that there might be external organizations better capable to commercialize a new developed technology (Chesbrough and Crowther, 2006; Chesbrough, 2003). Gaining external knowledge and bringing ideas to new markets can, of course, also be combined. These coupled processes encompass “co-creation with (mainly) complementary partners through alliances, cooperation, and joint ventures during which give and take are crucial for success.” (Enkel et al., 2009) Although practices of open innovation have been used over many decades, recent developments made it necessary to further open up innovation processes. Due to trends like outsourcing, agility, and flexibility, companies were forced to reconsider their strategies and processes leading to new approaches of innovation management (Huizingh, 2011).

As the concept of open innovation is rather broad, there exists no consistent classification of open innovation activities or methods. Based on a literature review about open innovation and own research about inventive cross-industry analogies an overview and classification of open innovation activities is given in Table 1 (Enkel et al., 2009; Parida et al., 2012; van de Vrande et al., 2009; Mina

et al., 2014; Chesbrough, 2006; West and Gallagher, 2006; Kalogerakis et al., 2010; Wagenstetter et al., 2013).

Inbound Open Innovation (Outside-In)	Outbound Open Innovation (Inside-Out)
<ul style="list-style-type: none"> <li>– Technology scouting                             <ul style="list-style-type: none"> <li>• Systematically assessing technology trends</li> <li>• Search for cross-industry analogies</li> </ul> </li> <li>– Technology sourcing                             <ul style="list-style-type: none"> <li>• Buying external technology</li> <li>• Investments in start-ups and other businesses</li> <li>• Inward licensing of IP</li> </ul> </li> <li>– Customer involvement                             <ul style="list-style-type: none"> <li>• Engaging with lead users and early adopters</li> <li>• Submission websites and idea competitions</li> <li>• Virtual communities</li> </ul> </li> <li>– Use of innovation intermediaries</li> <li>– Outsourcing R&amp;D</li> </ul> <p> Technology exploration</p>	<ul style="list-style-type: none"> <li>– Venturing                             <ul style="list-style-type: none"> <li>• Spin-off</li> <li>• Spin-out processes</li> </ul> </li> <li>– Outward licensing of IP</li> <li>– Selling IP</li> <li>– Selling technology to other industries</li> </ul> <p> Technology exploitation</p>
Coupled Processes / Co-Creation	
<ul style="list-style-type: none"> <li>– Vertical collaboration (with present or potential customers and suppliers)</li> <li>– Horizontal collaboration (with partners from the same or other industries that are not part of the value chain)</li> <li>– Participation in open source developments</li> <li>– Innovation networks</li> </ul>	

Tab. 1: Overview of open innovation activities

Prominent examples of open innovation stem from large manufacturing firms belonging to the high-tech sector (Chesbrough, 2003). However, growth strategies concerning revenues as well as new products led to the adoption of

open innovation concepts across diverse industries (Chesbrough and Crowther, 2006). Furthermore, small and medium sized companies also practice open innovation. They can profit a lot from opening up their innovation processes, because they often lack resources to develop and commercialize new products on their own. Empirical results of van de Vrande et al. (2009) "indicate that open innovation in SMEs is mainly motivated by market-related targets: SMEs make use of several open innovation practices at the same time to serve customers effectively or to open up new markets, with higher-order objectives to secure revenues and to maintain growth." This was confirmed by Parida et al. (2012) who investigated effects of four inbound open innovation activities on innovation performance of high-tech SMEs. On the one hand, SMEs compared to larger firms are restricted concerning the practice of open innovation due to a lack of own resources and unstructured innovation processes. On the other hand, SMEs can profit a lot from open innovation activities, because these provide a way to compensate for the scarcity of internal resources and competences (Parida et al., 2012). Based on these results, it can be supposed that small and medium sized LSPs who lack internal resources and competences to innovate will also profit from the open innovation approach.

Although research about open innovation started in the tangible goods sector and most empirical results stem from manufacturing and high-tech companies, Chesbrough (2011) himself expands the discussion of open innovation to service innovation. He provides several examples how service companies can profit from open innovation. One important strategy for service companies is to open up towards their customers. For B2B-service providers it can be valuable to embed their company in the customer's organization. United Parcel Service (UPS), for example, offers its customers to take over the function of their shipping department regardless of which company is responsible for transportation. Thereby, their services can reach higher quality and they get valuable insights into processes of their customers stimulating further innovations. In this case, open innovation also means an increased sharing of previously internal resources and processes like information technology with customers. Besides,

open innovation in the service context often encompasses economy of scale effects – such as Amazon created by opening up their shop-portal to external sellers. Furthermore, openness helps service companies to stay ahead and create a series of temporary advantages. Although these advantages will be copied by other companies if they are valuable, they help to establish a leadership position attracting more customers. Finally, a major advantage – also for small companies – is the opportunity to enrich and strengthen the relationship to their customers (Chesbrough, 2011; Chesbrough and Euchner, 2011).

The importance of customer involvement in open service innovation is also confirmed by Mina et al. (2014). Based on a large empirical survey of UK firms, they provide evidence of open innovation practices in business services firms. Results show that 70% of the respondent service firms engage directly with lead users and early adopters. All other analyzed open innovation activities were much less frequently used (Mina et al., 2014).

In the context of B2B service innovation in the transportation industry, Wagner (2013) conducted a first quantitative analysis. Based on secondary empirical data raised 2005 in a German innovation survey, he tested the influence of different external partners as sources of innovation in relation to innovation performance (measured as service improvements and new services). Results show that altogether the innovative output of the participating LSPs is low: Only 6% of their annual sales are based on improved services. Hence, it is not surprising that external sources of innovation are only seldom used by these companies. Yet, the proposed hypotheses could be supported: (1) "The utilization of external partners as sources of innovation is positively related to innovation performance" and (2) the "benefit of utilizing external partners as sources of innovation ... depends on the type of partner". Improved services were positively related to customers, suppliers, and competitors as sources of innovation, but not to consultants and universities. The development of services new to the firm was only positively related to the involvement of customers (Wagner, 2013).

Altogether, the results presented in this section indicate that open innovation practices constitute a promising approach for LSPs to foster their innovative



output. In order to further investigate the suitability of certain open innovation activities for LSPs and to derive more specific recommendations for improvement, we interviewed leading persons working for LSPs of different sizes.

### **3. Research Approach**

Because of limited research results available regarding open innovation practices of LSPs, a qualitative research approach was chosen to identify their demands and requirements (Myers, 2013). Eight interviews were conducted in six different companies starting in April and ending in June 2014. The interviews were addressed to higher management of small and medium-sized LSPs as well as to leading managers of large LSPs based in Germany. Table 2 provides an overview of some basic facts concerning the surveyed LSPs.

The semi-structured interviews were held either personally or via telephone and lasted each between 30 and 60 minutes. In an introductory part, facts about the company and the interviewed person were complemented. Additionally, it was asked if they actively practice innovation management and what innovation means to them and their company. The rest of the interview was structured in three main parts:

- Involvement of customers in the innovation process
- Involvement of other external parties in the innovation process
- Innovation contests

Each topic was looked upon from different perspectives. First, current practices were collected including pros and cons. Second, the interviewees were asked to anticipate future developments in order to evaluate which further activities might be feasible and which activities they strictly reject including an explanation of their choices.

Company	Size (no. employees)	Interviewee position	Competence area of interviewee
A	Medium (< 100)	Innovation assistant	B2B-logistics (last mile)
B	Large international (> 90.000)	Site manager	Manufacturing logistics (automotive)
		Project manager	Manufacturing logistics (automotive)
		Branch office manager	Manufacturing and distribution logistics (diverse industries)
C	Large international (> 2.000)	Head of projects	Manufacturing and distribution logistics (diverse industries)
D	Small (< 50)	Managing director	Freight forwarding
E	Large international (> 50.000)	National Manager	Sea freight systems (development and support)
F	Large national (< 500)	Managing director	Freight forwarding and warehouse logistics

Tab. 2: Overview of interviews

## 4. Results

### 4.1 Innovativeness

In order to better understand and assess the answers regarding open innovation practices, we will first take a look at the general answers concerning innovation and the innovation management at the surveyed companies.

The innovativeness of the interviewed companies varies greatly as an effect of company size and culture. At the low end of the spectrum, company D is situated, a small freight forwarder struggling with its day-to-day business. In this company, resources for innovative projects are very limited and customers usually demand standard freight solutions.

Company F classifies as a large national company offering standard and branch specific freight forwarding and warehouse logistics. It has no special department or personnel for innovation management. The only driver of innovation is improvement in processes.

Medium sized company A is very innovation driven. Due to a strong innovation focus of its managing directors, weekly internal meetings to spur innovation are held. The interviewee is a special innovation assistant responsible for pushing and promoting innovative projects.

All three large international LSPs (B, C, E) provide a central innovation department. However, most innovative projects are conducted decentralized at the local sites of the companies. Compared to the size of the companies, they still have deficits concerning structured processes and competences to proactively develop innovations.

## **4.2 Involvement of customers in the innovation process**

### **4.2.1 Dialogue with the customer**

The qualitative study of Flint et al. (2005) indicates that LSPs regularly interact with their customers to identify unmet needs and difficulties offering opportunities to improve their services. An important foundation for this dialogue with the customer is the establishment of a customer-oriented and innovative culture. A frequently used approach to gather clues for innovation is the establishment of customer groups: “Key members of strategically important customer organizations were invited to come together at one time in one place to discuss issues with the logistics service provider.” Furthermore, Flint et al. (2005)

describe special approaches of LSPs to intensify this process, as for example formal depth interview processes or extended, single customer retreats.

In the same vein, all interviewed companies from our study regularly seek conversations with their customers. These meetings usually address issues related to improvements of existing business relations. Both customers as well as LSPs initiate such meetings. From the customer side, contact is searched if expectations or agreements are not fulfilled. In company C, for example, continuous improvement processes are part of the contracts with some major customers. If the LSP is lacking behind concerning productivity and cost reductions, these issues will be addressed by the customer.

The LSPs also actively invite their customers to special meetings – usually each customer separately. Strategic meetings are held regularly with large and important customers. Traditionally, these interactions with the customer are used to improve existing customer relationships and for acquisition of new business. However, some interviewees report that they explicitly address topics like improvement processes and future innovations (A, B) with their customers. Interactions based on virtual communities and social networks in the web are not considered a suitable instrument for customer interaction by the interviewees.

An approach to intensify the dialogue with their customers already practiced by companies A, B, C, E and F is to send own employees to the customer company in order to study their processes. However, the LSP first needs specific reasons to enter the customer company. These could be for example:

- Remedy of urgent problems the customer is facing: Employees of the LSP pass through the defective processes and test the involved interfaces in order to detect the causes and to develop new solutions.
- Improvement of existing processes: Joint workshops are held at the customer site to advance and optimize processes involving the operational level.

Employees suitable for this task usually stem from customer management or sales force and possess logistics planning competences. Aim of these visits should be an intensive process analysis and optimization on the operational level

as an enabler for new innovative projects. Interviewee from company E, for example, reported that in his competence area they have a special process-team consisting of four business analysts specialized for analyzing customer processes.

Altogether the interviews show that LSPs are involved in an intense dialogue with their customers. Diverse opportunities exist to discuss innovative topics. This should be more actively used by the LSPs to develop new innovative services. Existing information channels used for daily business need to be further evolved to enhance innovations.

#### **4.2.2 Innovation cooperation with the customer**

Wagner and Sutter (2012) provide evidence based on four case studies that innovation projects between third-party logistics providers and customers can be very beneficial for both parties involved. All four of their analyzed projects were initiated by customers. However, customers as well as LSPs invested resources in the projects. These resources were mostly complementary to each other and could not have been compensated if the other party was not involved. Direct interactions between the employees of the involved firms as well as testing opportunities provided by both sides paved the way to successful innovation. As a result of the projects, the LSPs could strengthen their innovation capabilities and intensify the relationship to their customers.

Three of the companies that we interviewed already have experience concerning innovation cooperation with their customers (A, B and C). In order to initiate such cooperation a primary willingness of the customer to work jointly and fair with the LSP needs to exist. This encompasses openness towards the development of really new solutions instead of incremental improvements of already existing solutions as well as a willingness to transparently and openly share essential information. Knowledge of the customer's value chain is a prerequisite to most joint development projects.

The customer needs to draw a benefit from the innovation cooperation to achieve a win-win situation. This is likely if the LSP has higher logistics competences than

the customer. Customers with strong own logistics competences are more likely to develop innovations on their own. Sometimes these customers give special defined work packages to external LSPs. In this case, however, the LSP is rather regarded as implementing entity and not as equal cooperation partner. Furthermore, the willingness and ability of a customer to participate in an innovation project depends on its own innovation culture. If innovations are rated high in the customer company then the willingness to also advance logistics innovations increases. Some customers also seek innovation cooperation if properties of their goods are not conforming to standard logistics solutions. For example, if a company wants to ship a good that is too heavy or too valuable for normal transport solutions, it is likely that this company is willing to innovate together with his LSP.

So far, the interviewees did not actively seek lead users among their customers. However, some of the interviewees could report about innovation projects with leading customers of one branch that could be transferred to other customers of the same branch afterwards. Furthermore, some industries are more advanced concerning their logistics solutions than others, as for example the automotive and high-tech industry. Solutions developed here, often can be introduced to other industries later on.

Interviewees from companies D, E and F could not report own experience with customer innovation cooperation projects. However, only the interviewee from the small LSP (D) states that his company is lacking resources and competences to approach customers for innovation projects. Interviewee from company E states that in his competence area of the large international LSP they are aspiring joint innovation projects with their customers, but they are still at the beginning of such approaches. As they are a large international leading LSP, customers attractive for such cooperation projects would need to have a similar size and position in their respective industry. Likewise, interviewee from company F thinks there is a realistic possibility to start innovation projects with industry customers that possess an own innovation department.

### **4.3 Involvement of other external parties in the innovation process**

Apart from their customers, other external parties can be integrated in the innovation processes of LSPs: research organizations, technology providers, consultants and other LSPs.

Joint developments of technology providers and LSPs seem to be common practice. All interviewed companies except for D and F could describe such experiences. Trigger for this kind of cooperation often is a specific customer demand that cannot be fulfilled by currently available systems. Therefore, these joint developments with technology providers usually are initiated after a corresponding contract with the customer was confirmed and the result will contribute to the promised service. The tie of a joint development project with a technology provider to a specific customer mandate is especially important, if the LSP has no own innovation budget.

None of the interviewees reported about a systematic assessment of potential cooperation partners. An important prerequisite for the choice of a partner company is trust in its competence and honesty. This seems to be especially true for software developments, as the effort for such a project can only be estimated with difficulties by the LSPs. A success factor, mentioned by one interviewee is a sufficient support capacity from the side of the LSP for the project. Due to high operational pressure, this often constitutes a bottleneck for LSPs. Furthermore, as participants of these cooperation projects often belong to different knowledge fields and hence are used to different vocabulary, the development of a coherent picture at the beginning can be a great challenge.

Based on the results of the interviews, two versions of development cooperation between LSPs and technology providers exist. The most common way seems to be the development of an individualized product (or a specific customization of a standard product) that the LSP orders from a technology provider. Thereby, the employees of the LSP translate demands of their customers into technical requirements and push the project. Depending on their contract agreements, the resulting technical product either can be solely used by the LSP or is free for

further marketing of the technology provider. In an alternative type of cooperation the technology provider is not paid by the LSP and no formal contract exists. The LSP just contributes his experience into the development of a new product and can thereby influence the final outcome of the project.

A crucial point brought up by one interviewee concerns intellectual property rights (IP). As IP often remains with the technology provider due to cost issues, other competing LSPs might also profit from the new development in the future. Another problem might arise due to a high dependence on the technology provider after the project, as barriers to switching the technology provider can arise. A possibility to reduce this risk is intensive project supervision on part of the LSP. Thereby, missing expert knowledge can be built up and the development output can be transparently documented in order to allow other partners to join the project later on.

All interviewees state their willingness to contribute to research projects, if they are approached. However, they do not actively seek research cooperation, because results will be free to their competitors as well. Most interviewed LSPs could report experience concerning cooperation with external consultants, but these projects were not specifically focused on innovation. Cooperation projects with other LSPs were not described. It seems as if until now, rivalry outweighs expected benefits that might result from such cooperation.

#### **4.4 Innovation contests**

Open contests to obtain innovations can be traced back several hundred years (Adamczyk et al., 2012; Boudreau et al., 2011). However, due to developments of Web 2.0 and an increased openness in the innovation process, innovation contests raised in popularity recently. Prominent examples by companies such as BMW, IBM, Dell or Siemens show that innovation contests can constitute a valuable approach to idea generation and concept development (Adamczyk et al., 2012; Füller et al., 2006; Bayus, 2013). Furthermore, idea contests can also deliver solutions for difficult scientific problems (Lakhani et al., 2007) or new software algorithms (Boudreau et al., 2011). Even in the logistics sector some



successful examples exist, such as the contests by Deutsch Post DHL and the German CEP service provider Hermes<sup>1</sup>.

All interviewed experts had already heard about innovation contests. However, none of the interviewees could look back on own experiences concerning external innovation contest. Just one interviewee from company B described internal idea contests among the employees of his company. A common difficulty seen by the interviewees is the problem of information disclosure in public contests. If they seek solutions to specific customer requests, they are restricted by confidentiality agreements. However, some of the interviewees can imagine using public idea contests for general problems that are not connected to a specific customer request. Here, positive effects are expected concerning the communication of innovativeness to the public.

As an alternative, some interviewees approve of the idea to address innovation contests to logistics technology providers. Within the framework of a functional call for tender, these companies could compete against each other about the best concept. As a reward the winner would get the job to further develop and implement the submitted solution.

Based on these insights, public innovation contests seem to be an instrument that can be rather used if innovations are to be developed independent of specific customer requests. As, however, a proactive innovation development seems not to be in the realm of possibilities for most LSPs, currently the active use of external public innovation contests does not constitute a favored strategic approach for them.

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<sup>1</sup> Deutsche Post DHL: "City Logistics Open Innovation Contest" (2011)

<http://www.citylogistics-ideacontest.com>

Hermes: "Getting, delivering ... what else?" (2013)

<https://www.innovationskraftwerk.de/Wettbewerb/Hermes/HolenBringenWasNoch>

## 5. Conclusion

The open innovation paradigm defines itself mainly by contrast to closed innovation, which was the traditional approach for most manufacturing firms with high internal R&D competences until the end of the last century. These companies were equipped with high R&D budgets and special innovation infrastructure within. Such a closed innovation approach has never been a realistic scenario for LSPs. Until now, only a few LSPs – mainly large global players – have established an innovation department and provide a small budget for innovation projects. Besides, as service companies, LSPs are highly dependent on customer involvement in innovation development. Most innovations developed by LSPs start with specific requests from their customers. Furthermore, even internal and technology oriented process innovations, that are not visible to the customer, often cannot be developed independently due to missing competences.

The question arises how LSPs could best start or improve open innovation activities to overcome their innovation deficits. The results of our interviews confirm the importance of customers and technology providers in innovation projects of LSPs. Although these parties are already involved in innovation processes, there seems to be significant potential for improvement. Furthermore, it has become obvious that some of the open innovation methods need evaluation and advancement in the context of LSPs. The lead user approach, for example, seems to be a realistic method for LSPs. However, it is still unclear how LSPs best identify such advanced users and which context factors are relevant to transfer this innovation approach to LSPs. Specific methods and guidelines for LSPs to better integrate external parties in their innovation efforts seem to be needed.

Altogether, open innovation in logistics can be either specifically bond to certain customers or it can be proactive and aimed at a variety of customers. In order to proactively develop innovations that are not directly financed by specific customer orders, LSPs need to provide special resources or a special budget for

innovation. For example, employees could be provided with extra time for innovation projects to be conducted parallel to their regular tasks. Especially large LSPs will profit from an innovation department that can support the decentralized innovation activities within the company. However, without a strategic commitment from the top management to innovation, a proactive innovation approach seems to be unrealistic for LSPs.

Our research confirmed that innovation management at LSPs is still beginning to evolve. The open innovation concept seems to constitute a valuable approach to foster innovation at LSPs. Hence, we will further address this issue in our current research project aiming at the development of guidelines for LSPs to make more effective as well as efficient use of open innovation methods. Especially small and medium sized LSPs need to be provided with support to increase their innovative output and thereby improve their competitive position.

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## References

- Adamczyk S, Bullinger AC and Möslin KM. (2012) Innovation Contests: A Review, Classification and Outlook. *Creativity & Innovation Management* 21(4): 335-360.
- Anderson EJ, Coltman TIM, Devinney TM, et al. (2011) WHAT DRIVES THE CHOICE OF A THIRD-PARTY LOGISTICS PROVIDER? *Journal of Supply Chain Management* 47(2): 97-115.
- Bayus BL. (2013) Crowdsourcing New Product Ideas over Time: An Analysis of the Dell IdeaStorm Community. *Management Science* 59(1): 226-244.
- Boudreau KJ, Lacetera N and Lakhani KR. (2011) Incentives and Problem Uncertainty in Innovation Contests: An Empirical Analysis. *Management Science* 57(5): 843-863.
- Burnson P. (2013) Top 50 3PLs Third-Party Logistics: Seeing into the future. *Logistics Management* 52(6): 56S-70S.
- Busse C and Wallenburg CM. (2011) Innovation management of logistics service providers Foundations, review, and research agenda. *International Journal of Physical Distribution & Logistics Management* 41(2): 187-218.
- Cahill DL. (2007) Customer Loyalty in Third Party Logistics Relationships. Findings from Studies in Germany and the USA. *Contributions to Management Science. Heidelberg: Physica-Verlag Heidelberg, Online-Ressource.*
- Chesbrough H. (2006) Open Innovation: A New Paradigm for Understanding Industrial Innovation. In: Chesbrough H, Vanhaverbeke W and West J (eds) *Open Innovation - Researching a New Paradigm*. New York: Oxford University Press, 1-12.
- Chesbrough H. (2011) Bringing open innovation to services. *MIT sloan management review* 52(2): 85-90.
- Chesbrough H and Crowther AK. (2006) Beyond high tech: early adopters of open innovation in other industries. *R & D Management* 36(3): 229-236.
- Chesbrough H and Euchner J. (2011) Open Services Innovation: An Interview with Henry Chesbrough. *Research Technology Management* 54(2): 12-18.
- Chesbrough HW. (2003) *Open Innovation: The New Imperative for Creating and Profiting from Technology*, Boston, Massachusetts: Harvard Business School Press.
- Cowell DW. (1988) New Service Development. *Journal of Marketing Management* 3(3): 296-312.
- de Brentani U. (1989) Success and failure in new industrial services. *Journal of Product Innovation Management* 6(4): 239-258.
- Ellinger AE, Ketchen DJ, Hult GTM, et al. (2008) Market orientation, employee development practices, and performance in logistics service provider firms. *Industrial Marketing Management* 37(4): 353-366.

- Enkel E, Gassmann O and Chesbrough H. (2009) Open R&D and open innovation: exploring the phenomenon. *R&D Management* 39(4): 311-316.
- Flint DJ, Larsson E, Gammelgaard B, et al. (2005) LOGISTICS INNOVATION: A CUSTOMER VALUE-ORIENTED SOCIAL PROCESS. *Journal of Business Logistics* 26(1): 113-147.
- Füller J, Bartl M, Ernst H, et al. (2006) Community based innovation: How to integrate members of virtual communities into new product development. *Electronic commerce research* 6(1): 57-74.
- Gallouj F. (2002) Innovation in the service economy. *The new wealth of nations*, Cheltenham [u.a.]: Elgar.
- Gallouj F and Weinstein O. (1997) Innovation in services. *Research Policy* 26(4-5): 537-556.
- Grawe SJ, Chen H and Daugherty PJ. (2009) The relationship between strategic orientation, service innovation, and performance. *International Journal of Physical Distribution & Logistics Management* 39(3-4): 282-300.
- Huizingh EKRE. (2011) Open innovation: State of the art and future perspectives. *technovation* 31(1): 2-9.
- Kalogerakis K, Lüthje C and Herstatt C. (2010) Developing Innovations Based on Analogies: Experience from Design and Engineering Consultants. *Journal of Product Innovation Management* 27: 418-436.
- Lakhani KR, Jeppesen LB, Lohse PA, et al. (2007) The value of openness in scientific problem solving. *Harvard Business School Working Paper No. 07-050*.
- Little AD. (2007) Innovation excellence in logistics. *Value creation by innovation*, Brussels: ELA European Logistics Association.
- Mina A, Bascavusoglu-Moreau E and Hughes A. (2014) Open service innovation and the firm's search for external knowledge. *Research Policy* 43(5): 853-866.
- Myers MD. (2013) *Qualitative research in business & management*, London [u.a.]: SAGE.
- Oke A. (2008) Barriers to Innovation Management in Logistics Service Providers. In: Wagner SM and Busse C (eds) *Managing Innovation: The New Competitive Edge for Logistics Service Providers*. Berne: Haupt, 13-31.
- Parida V, Westerberg M and Frishammar J. (2012) Inbound Open Innovation Activities in High-Tech SMEs: The Impact on Innovation Performance. *Journal of small business management* 50(2): 283-310.
- van de Vrande V, Jong JPJd, Vanhaverbeke W, et al. (2009) Open innovation in SMEs. Trends, motives and management challenges. *technovation* 29(6/7): 423-437.

- Wagenstetter N, Kalogerakis K, Kersten W, et al. (2013) A new approach to innovation for logistics service providers based on inventive analogies. Conference Proceedings of the IEEE Technology Management Conference & 19th ICE Conference. The Hague, The Netherlands.
- Wagner SM. (2008) INNOVATION MANAGEMENT IN THE GERMAN TRANSPORTATION INDUSTRY. *Journal of Business Logistics* 29(2): 215-231.
- Wagner SM. (2013) Partners for business-to-business service innovation. *IEEE Transactions on Engineering Management* 60(1): 113-123.
- Wagner SM and Franklin JR. (2008) Why LSPs don't leverage innovations. *Supply Chain Quarterly* 2(4): 66-71.
- Wagner SM and Sutter R. (2012) A qualitative investigation of innovation between third-party logistics providers and customers. *International Journal of Production Economics* 140(2): 944-958.
- Wallenburg CM. (2009) Innovation in logistics outsourcing relationships. Proactive improvement by logistics service providers as a driver of customer loyalty. *The journal of supply chain management* 45(2): 75-93.
- West J and Gallagher S. (2006) Patterns of open innovation in open source software. In: Chesbrough H, Vanhaverbeke W and West J (eds) *Open innovation*. Oxford [u.a.]: Oxford Univ. Press, 82-106.

