How to distinguish innovative suppliers? Identifying innovative suppliers as new task for purchasing

Holger Schiele *,1

University of Hanover and h&z business consulting, Munich, Duesseldorf, Germany
Universität Hannover, Institut für Unternehmensführung und Organisation, Königsworther Platz 1, D-30167 Hannover, Germany

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Abstract

For companies operating under unfavorable macroeconomic conditions, such as high wage/high tax countries in central Europe, innovation has become a central theme for survival. If there is one thing that has changed in innovation management during the last decade, it is the growing reliance on external sources of technology. As a consequence, a new task for purchasing arises, as firms need to understand which suppliers actually do have high potential contributing to the innovativeness of the firm and which do not. This paper focuses on the conceptual basis and derives propositions on the nature of innovative suppliers: specialized, technically competent firms, located in the proximity of the buyer, being embedded in a trusted and intensive relationship are identified as having a higher probability to be the core innovative suppliers. These criteria can serve to refine strategic sourcing decisions and improve communication between engineering and purchasing professionals.

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1. Innovation and purchasing: selecting innovative suppliers

In their introduction to a special journal edition on new product development (NPD) Wind and Mahajan state with some underlying resignation: “Unfortunately, despite marketing, operations, research and development (R&D), and business strategy disciplines’ increased attention to NPD [...] the new product success rate has improved minimally.” (Wind & Mahajan, 1997, p. 1) Interestingly, purchasing is not mentioned. Could it pave the way out of the dilemma of too slow an increase in innovative output? Purchasing may be a neglected function as far as contributing to a firm’s innovativeness and new product development is concerned. One reason for this was that during the 1990s a fundamental change seems to have occurred in the way innovations are generated. While at the beginning of the decade only one fifth of the most technology-intensive companies were heavily relying on external sources of technology, their share had increased to 85% in the new millennium (Roberts, 2001). A firm’s ability to exploit external knowledge can be considered as a critical component of innovative performance. Innovation is increasingly not happening in the isolated laboratory of a firm anymore, but involves the supply chain including the firm’s suppliers. In the UK innovation survey covering more than 8000 firms, for instance, suppliers have been identified as the prime external resource for co-operation, slightly ahead of customers (Stones, 2001). It comes as no surprise that a recently conducted major benchmarking study identified a particular commitment to innovation by purchasing as a key feature distinguishing successful firms from those underperforming their industry rivals (Goffre, Plaizier, & Schade, 2005). Still, there is a “dearth of research” into innovation generation in buyer–seller relationships (Roy, Sivakumar, & Wilkinson, 2003), let alone for example into purchasing’s role in fostering such innovative collaborations (Chen, Paulraj, & Lado, 2004).

To help fill the gap, this paper is going to briefly establish the theoretical link between purchasing and innovation and then focus on one of the core activities of purchasing: supplier selection, more precisely on the selection of suppliers with a high potential for contributing to the buyer’s innovativeness. To understand the characteristics of such suppliers, a brief review of
the literature will be followed by the derivation of characteristics typical to innovative suppliers. On this basis, a shortlist amending the traditional cost focussed supplier evaluation could be developed. The typical problem situation addressed by this approach could be like the one of a producer of IT-peripherals who decided to entrust a supplier with developing and providing a new component that was not completely specified, but would still have to be jointly particularized. About half a dozen vendors quoted. The ensuing issue was how to identify the supplier who is more likely to fully understand the challenge, pose limited problems in collaboration and finally, who is the most likely to contribute with an innovative solution? Another application could be found with a firm intending to increase its innovativeness and needing to filter out suppliers to be actively involved in such a campaign. So far literature does not provide a comprehensive tool or a set of criteria that can be used in managerial decisions to distill out such innovative suppliers. The purpose of this paper is to provide propositions on such criteria. They could also serve as a basis for empirical verification and amend the current stage of research in collaborative new product development by stressing a sourcing related access more.

2. Theoretical background: Innovations in systems

One of the central points of criticism of empirical work on innovation is the lack of a clear definition of what is meant by innovation, which makes it difficult to compare results or to generalize them (Hauschmidt, 2004). Looking at the basic meaning of the word, ‘innovation’ originates from the Latin “novare” which means renewing and indicates the introduction of something that did not exist before. In the business context, an important specification of the general term ‘innovation’ is directed at the object of innovation: for whom is the innovation new, new for the world or just new for a firm? Bearing in mind the central question of this paper, i.e. how those suppliers can be identified who offer the maximum contribution to the innovativeness of a buyer, it seems appropriate to follow a wider notion of innovation, not necessarily as a world innovation, but as innovating in a firm which break the established pattern and radical innovations in a firm which break the established pattern. The key issue: each form of generation or appropriation of innovation requires a different organizational answer and different processes. One way of how to distinguish between processes of innovation is shown in Fig. 1.

Håkansson and Eriksson (1993) establish the link between purchasing and innovation using the idea of networks. According to this view, ideas are developed in close exchange with a series of network partners, resulting in the network members’ power of innovation becoming determined by the activities of their counterparts. A theoretical approximation to innovation, exploring the concept of innovation as an inter-organizational feedback process, is the “systems of innovation” approach (Edquist, 1997; Freeman & Soete, 1997; Håkansson, 1989; Porter, 1990). Common ground within the systems of innovations approaches is the assumption that “…firms almost never innovate in isolation. In the pursuit of innovation they interact with other organizations to gain, develop, and exchange various kinds of knowledge, information, and other resources. […] therefore it does not make sense to regard innovating firms as isolated, individual decision-making units.” (Edquist, 1997, p. 1f.)

Based on the systems of innovation approach, an important distinction can be made: who is innovating? Traditionally, innovation has been considered the product of a single person or an individual company. However, on the basis of an extensive historical research, Freeman and Soete argue in favor of an increasing role played by so called “network-innovations”, as opposed to “inventor-innovations” (an invention leading to a radically new product, often commercialised, i.e. innovated, by the inventor himself) and “laboratory-innovations” (a considerable number of specialists are pooled in distinct departments, most of them systematically improving processes or products in their in-house laboratories or research units) (Freeman & Soete, 1997; Gammage & Schiele, 2000; Schiele, 2003; Servatius, 2004). A network-innovation occurs when different actors from different organisations with distinct knowledge bases combine their skills, thus improving an existing product or process or even creating a new one. Unlike well-organized research and development, network-innovations may happen without planning.

Of course, external acquisition of novelties does not necessarily need to follow the network-innovation model, i.e. innovation being the product of a joint development or occurring during work. Innovations can also be purchased from their inventor, e.g. via licensing. Furthermore, it is possible to commission a solution to be developed by a supplier (Quinn, 2000). The key issue: each form of generation or appropriation of innovation requires a different organizational answer and different processes. One way of how to distinguish between processes of innovation is shown in Fig. 1.

The focus of this paper is on the co-development of innovations, either through the integration of a supplier into a new product development process or, not to be neglected, in the context of a continuous improvement process. The outsourcing of development to a partner may also have similarities in the need to assess his power of innovation, while the search for unrelated and exogenous, already “finished” innovations is likely to require different techniques than those discussed here. Procuring innovations directly from their inventors, the focus would be less on the characteristics of the supplier, but more on the technical qualities and the feasibility of the concept proposed. Furthermore, the role of external search strategies would become more relevant in the first instance than the ongoing innovation-fostering management of a business relation.

This goes along with a distinction between more incremental and radical innovations, also referred to as step-by-step vs. leap-wise technological changes (Håkansson, 1989). To introduce radical innovations in a firm which break the established pattern requires other techniques than those which are in the subsequent focus of attention. The role of the supplier in the context dealt
with here is primarily to support the process of innovation of the buyer. Of course, this does not exclude (rather: also requires) new ideas from the seller to be brought into the buying firm proactively. However, the more typical case will be the buyer already having an idea on what is wanted, but does not see a way of how to realize this idea, or it is simply beyond his core competencies and thus is incumbent on a supplier.

To summarize, the following discussion is focused on an understanding of (1) innovations as novelties for the firms involved (which does not exclude them from being world novelties, but does not make this a condition), (2) typically more incremental path following innovations and (3) the product of a joint buyer–seller process, e.g. the supplier helping the buyer in his quest for innovation, in particular through collaborative new product development, continuous improvement processes or changes on supply parts on demand from the customer. Based on a similar understanding Krause et al. have operationalized the expectations towards an innovative supplier along the following items: (a) the ability of the supplier to design new products or make changes in existing products, (b) the level of technological capabilities the supplier possesses and is willing to use and (c) the willingness of the supplier to share key technological information (Krause, Pagell, & Curkovic, 2001, p. 501) to which one may want to add (d) the capabilities and willingness of the supplier to support collaborative processes in product development and process improvement. Innovation in that sense is not limited to a high-tech environment only. The question of suppliers contribution to innovation is generally likely to be more important in those industries which are strongly characterized by network-innovations rather than inventor-innovations as the other extreme.

Looking at the practical applicability of the network approach to innovation, Rutten (2003) reports on a project in which the development work for a new product was largely effectuated in a network with suppliers. Even though the overall project was considered a success, there had been serious shortcomings: the engineering capacity of the selected suppliers had been regularly overestimated, resulting in the need for substantial supplier development. Many of the suppliers had to learn how to engineer. This case study evidence underscores that the practical application of the network of innovations approach requires a substantial body of new know-how, beginning with the selection of innovative suppliers. The subsequent part of this paper therefore analyses which contributions research has been able to provide so far in the task of identifying suppliers, who can become innovative in a buyer–supplier relationship.

3. The contribution of prior research: new product development, early supplier involvement and supplier selection

It is hard to identify a large stream of research explicitly usable to answer the question of the characteristics of innovative suppliers, with notable exceptions (e.g. Cabral & Traill, 1999; Croom, 1999; Häkansson & Eriksson, 1993; Monnier, 2005; Stern & Jaberg, 2003, p. 246). However, three streams of research immediately come to mind that could at least provide indirect input: research on purchasing involvement in new product development, early supplier involvement and the extensive literature on supplier selection.

A few studies on new product development have tried to clarify under which conditions the purchasing department becomes involved in new product development (e.g. Atuahene-Gima, 1995; McGinnis & Vallopra, 1999; Nijssen, Biemans, & de Kort, 2002; Wynstra, Weggeman, & van Weele, 2003). The identification of innovative suppliers, however, is not explicitly
analyzed in these investigations. The important contribution of this line of research is to underscore the relevance of purchasing involvement in product development. Good internal co-operation is required for external co-operation, i.e. early involvement of purchasers is associated with early inclusion of suppliers (Hillebrand & Biemans, 2004). Without suppliers being involved, their possible contribution to innovation is considerably limited by nature.

A similar picture arises in the research concerning early supplier involvement in the development process. Supplier integration has often been analyzed without focusing on purchasing’s role in this process. As a consequence, the focus is more on managing an existing project rather than preparing the ground by selecting the right partners. A notable exception in this line of research is the work of Handfield, Ragatz, Petersen, and Monczka (1999) who explicitly ask for the criteria used to select innovative suppliers. Apart from demonstrating the benefits of early supplier inclusion, the contribution of the research into supplier involvement is more of an indirect nature: for example, some studies highlight the importance of frequent face-to-face communication (McGinnis & Vallopra, 1999; Murphy & Heberling, 1996; Ragatz, Handfield, & Scannell, 1997). This finding means that suppliers with whom it is easier to communicate on a daily basis show a higher probability of contributing to the buyer’s innovativeness than those from remote locations. This finding can serve as an indication that suppliers located closer to the buyer can be integrated more effectively into the process of innovation and are thus more likely to contribute to the innovativeness of a firm.

Finally, having a look at the contribution the purchasing discipline itself has delivered so far, again mostly indirect input can be found. In a synopsis of 75 papers, Weber, Current, and Benton (1991) conclude that since the early works on supplier selection criteria, little has changed, except for the geographical aspect being more emphasized due to just-in-time techniques. The focus is still on price, product quality and delivery reliability. Based on a synopsis of 85 mostly German sources – identifying similar criteria as Weber et al. – Koppelmann (2000) concludes that supplier evaluation and selection should be differentiated according to the type of supplier. Selecting suppliers with a requirement for innovation has to follow different criteria than the selection of such suppliers whose product is only differentiated by its costs. Asking firms on their evaluation practices, Muschinski (1998) found that about half of them did follow the advice of different selection sets for different suppliers. However, even in the sets for suppliers of complex production materials only 17% of the firms did use the criterion “potential for development”, which could be associated with the power of innovation of a supplier. Similarly, Choi and Hartley (1996) find the criterion “incremental improvement of the supplier” – a possible indicator for process innovations – only to range in the last quintile of importance. These early findings somewhat contrast with a recent survey evidencing that the suppliers’ power of innovation has gained increasing attention as an element of supplier selection, at least with the group of leading firms (Goffre et al., 2005). Apparently business starts to recognize the value of innovation-suppliers.

In sum, it seems fair to conclude that neither research nor practice have so far offered conclusive tools helping to identify innovative suppliers. As a consequence, one may gain the impression that choosing suppliers who contribute to the process of innovation is largely left to intuition or good luck, but is no result of systematic analysis and planning. While this attitude may have been acceptable in a time in which partners external to the firm did not play a significant role in the process of innovation, a professionalization of the supplier selection clearly becomes a necessity today. It also becomes clear that – in the absence of an integral theory of supplier innovativeness – propositions on the identification of innovative suppliers have to be derived from a variety of sources.

4. A framework for analysis: the supplier, the buyer–seller relationship and enabling factors

Proposing a first set of criteria to help identify innovative suppliers is the objective of the next part of this paper. To assess the potential of a supplier, his characteristics play a role in the first place. The initial three propositions developed subsequently ask for a detailed analysis of the firm in question. They may be interpreted as necessary conditions. However, regarding the supplier alone does not give a full picture: if innovations are to be developed in co-operation between buyer and supplier, their interface, i.e. the character of the buyer–supplier relationship, does matter as well. Propositions four and five are dedicated to the understanding of this interface and the possibilities to design it. Finally, one may add enabling and supporting factors. These factors bring together the underlying conditions beneficial to collaborative innovation. For instance, the age of a relationship in principle does not define the quality of a relationship, but has often been found to represent one of the conditions typically facilitating mutual understanding. Based on this segmentation a framework for analysis can now be discussed in detail (Fig. 2).

5. Identification of suppliers likely to contribute to a firm’s innovativeness

5.1. Character of the supplying firm

As a part of the literature on supplier selection various supplier typologies have emerged. They facilitate the job of the purchaser by offering a form of classification. One such typology was developed by measuring innovative capabilities of suppliers and then identifying types of suppliers by clustering the responses (Petroni & Panciroli, 2002). The “A-type” suppliers are the highly innovative ones. They usually provide complete products with high technology content, offered in the context of full-blown partnering. The least innovative ones are the “C-type” suppliers who are characterized by being largely de-specialized, operating in a number of different industries. The argument that supplier specialization tends to be associated with innovation is also supported by another typology that identified the “technology specialist” as a business model operating on the basis of being highly innovative (Kaufman, Wood, & Theyel, 2000). An automotive study, differentiating between subsystem, first-tier and low-tier suppliers also found that the latter show much less of an industry specialization—and are only one third
as innovative, measured in terms of patents held (Liker, Kamath, Wasti, & Nagamachi, 1996). Therefore, the following proposition can be derived:

**P1.** Specialized firms are the more innovative ones, rather than the generic contractors supplying several industries.

Another important point is what Cohen and Levinthal (1990) call the “absorptive capacity” of a firm. It has been shown that firms tend to profit from co-operation in terms of innovations only if they do have a certain level of specific and similar know-how in-house (Cassiman & Veugelers, 2002; Prabhu, Chandy, & Ellis, 2005). Transferred to suppliers this means that they need to have a certain level of know-how in order to become innovative contributors. Likewise, the buyer’s trust in the supplier’s competence, i.e. the vendor’s ability to find a solution for the issue at hand meeting the required specifications, is an important element influencing the innovative outcome (Roy et al., 2003; Sako, 1992). Confirming this view, suppliers’ research and development activities as well as other technological activities have been identified as determinants of a supplier’s innovativeness (Cabral & Traill, 1999). If the buyer receives indications that the supplier’s capabilities may not be sufficient, e.g. by being confronted with poorly trained personnel, missing IT systems, no process documentation and the like, collaboration is threatened. Suppliers’ design capabilities, their process and product know-how and indicators for that, such as quality certificates obtained, are thus recommended for identifying innovative suppliers (Croom, 1999; Ellram, 1990; Koppelmann, 2000). An example for a competence-proving certificate could be the supplier’s compliance to a quality norm like ISO TS 16949, popular in the automotive industry. Independent auditors only award this certificate to such organizations that can prove to have a process of new product development that is documented, relies on a cross-functional approach, follows defined quality criteria and does also extend to the management of suppliers.

Therefore, the following proposition seems straightforward:

**P2.** Firms with high own development capability are likely to be more innovative.

In their analysis of innovative suppliers in the food industry, Cabral and Traill (1999) found that innovative suppliers tended to be engaged in several collaborative relationships and external alliances, not only with the buyer at hand. The supplier’s previous experience with collaboration may serve as an indicator for his capacity to innovate (Koppelmann, 2000). This observation becomes plausible if one interprets it as an indicator for a company culture open to collaboration. The partnering literature has also found, for example, that within the multitude of North-sea oil co-operations a very limited number of firms was responsible for the bulk of the collaborative ventures, apparently collaboration being a part of their company strategy and/or of their company culture (Green & Keogh, 1998). Therefore, the following proposition can be derived.

**P3.** Innovative suppliers are engaged in several collaborative ventures at the same time.

### 5.2. Character of the buyer–supplier relationship

Given that the supplier shows a potential to contribute to the buyer’s process of innovation by his internal constitution, this does not happen automatically, but the two parties have to interact. An important moderating variable is the quality of relationship between them. Success in new product development projects and innovation tends to correlate with the quality of collaboration (Felde, 2004; Hoegl & Wagner, 2005). In line with this, a study found engineers considering the supplier’s cooperativeness to be about twice as important as his technical competence for assuring the technical success of a development project (McCutcheon, Grant, & Hartley, 1997). Consequently,
Chen et al. (2004) reach the conclusion that the most relevant measures in supplier evaluation are those on relationship quality. It is worth noticing that also sellers evaluate the relationship quality with the buyer: For instance, in the American automotive industry suppliers are trying to reduce their dependency on the American car companies traditionally known as the “Big 3”. Even more alarming for these firms are studies indicating that the suppliers do increasingly shift their research capacities away from them and develop innovations together with the Japanese firms operating in the US. At the same time, compared to the Big 3, the Japanese firms score almost double in the “OEM-supplier working relation index” that measures the suppliers’ view on manufacturers’ ability to develop relationships (Verespej, 2005).

Why would the relationship play an important role in the co-development of innovations? One explanation for the significance of the relationship is that in the process of innovation new value is created, the scope of which is difficult to anticipate. It is challenging to include all possible outcomes in a contract. Still, the partners need to be confident that a fair distribution of gains will take place. Without that confidence, an open exchange of ideas may be hindered. But without such an exchange process it is more difficult to find new combinations, i.e. to innovate. The assumption is thus that a relation with a supplier can be more fertile for innovation if the buyer has the confidence that loosening control will not create vulnerability. How, then, to safeguard against the misuse of trust? From a conceptual point of view two types of safeguards in buyer–seller relationships can be distinguished: technical ones, e.g. equity participation or joint investments and value oriented safeguards, i.e. behavioral norms (Sako, 1992). In a sourcing decision, at least in the medium term, technical safeguards such as equity participation are out of scope, so that the behavioral aspect gets closer attention. A prominent representative of the behavior-oriented approach is Macneil and the school inspired by his work. Macneil suggested a behavior oriented on norms “...that does occur in relations, must occur if relations are to continue, and hence ought to occur so long as their continuance is valued.” (Macneil, 1980, p. 64). Those norms are solidarity, harmonization of relational conflict, role integrity, propriety of means, mutuality and open communication. Out of these, solidarity (commitment) and mutuality (trust) have empirically been found to be the most relevant and recommended for further use (Medlin, Aurifeille, & Quester, 2005). These two factors have also scored prominently in the literature on relationship quality (confer a synopsis with Stölzle & Helm, 2003).

In the practical application, trust and commitment have often been operationalized distinguishing between an arm’s length contractual relationship and a mutually obligational one (Dyer, 2000; Macbeth, 1994; Sako, 1992). Sako (1992) introduced the distinction between three types of trust: contractual trust (delivering the promised good or service), competence trust (ability of the agent to fulfill the expectations) and goodwill trust (the commitment to do more than is formally expected, e.g. contributing with improvement ideas). Trust is supposed to be a precondition for the disclosure of information—that stands at the center of a collaboration aiming at the generation of innovations. Furthermore, trust reduces monitoring costs, which is a typical problem in product development where tasks are handed over to a supplier. Finally, goodwill trust may directly translate into a supplier’s proactive behavior of presenting ideas. It comes as no surprise that Sako identifies a high statistical correlation between goodwill trust and inter-firm technology transfer in her sample of British and Japanese exchange relationships. Similarly, one of the few empirical studies analyzing the suppliers contribution to innovation and relationship quality also has found that the two are linked (Walter, Muller, Helfert, & Ritter, 2003). Based on the association of high quality buyer–seller relationships and potential for innovation the following hypothesis can be derived:

P4. The buyer enjoys a relationship with innovative suppliers based on trust and commitment.

The quality of the relationship between buyer and seller is also of great importance in supplier development programs. In case of an adversative relationship the supplier may get the feeling of being controlled by the buyer through a program disguised as a development effort. Literature indicates that joint improvement programs only work if there is a mutual acceptance, if the buyer sees a feeling of commitment by the supplier and if the inter-firm communication functions on a trusted level (Handfield, Krause, Scannell, & Monczka, 2000; Krause, 1999; Krause & Ellram, 1996). On the other hand, supplier development programs have been found to lead to an increase in innovations, primarily including process, but also product innovations (Krause, Scannell, & Calantone, 2000; Tracey & Tan, 2001; Watts & Hahn, 1993). Supplier development can be subdivided into passive and active measures, with the latter showing the greatest effect on innovation. Passive supplier development would include supplier evaluation schemes, communicated to the supplier, but with his commitment to self-improvement only. Active supplier development includes sending resident engineers to the supplier’s site (and vice versa), supporting a supplier’s personnel development program or running joint improvement projects. It is important to note that supplier development should not only be initiated in the case of supplier failure. Poor performance of a supplier, in principle, is a market imperfection, for competition should have eliminated poorly performing suppliers (Krause et al., 2000). However, even if the original motivation for a development program was to stop problems from occurring, by increasing relation specific skills it can pave the way for better mutual understanding and improve the supplier’s potential to contribute to the buyer’s process of innovation in the future (Asanuma, 1989).

An example for the benefits of supplier development programs can be found with Magna Steyr, a firm developing and assembling small series cars, which could substantially increase workforce in the last years, while direct competitors had to adopt their headcount. Together with many of its suppliers this firm is embedded in the Styrian automotive cluster, a regional agglomeration of more than 300 automotive firms. Magna Steyr invests substantially in several programs of supplier development, this activity absorbing about one third of the purchasing department’s resources. As a benefit, a network of innovative
vendors has evolved. Many local suppliers are now ready to be integrated into joint development projects and even to provide innovative solutions on a short notice, putting upcoming ideas into practice. The short distances within the cluster do further support collaboration. Starting a concept competition and selecting new suppliers for this purpose would considerably slow down the speed of development. Drawing back on such a network of innovative suppliers has also enabled the Austrian location to establish as prime development center within the Canadian-owned Magna group of automotive suppliers. Thus, besides of the direct effect of innovations occurring during joint improvement projects, indirect effects of supplier development are relevant as well, such as breeding a network of innovation-suppliers ready for employment when needed.

Therefore, the supplier’s improvement efforts, e.g. in the context of a supplier development program, could be a criterion for selecting suppliers with the potential for innovation (Koppelmann, 2000). Given the importance of supplier development and joint improvement efforts and its association with an increase in innovation, the following proposition can be derived:

**P5. Innovative suppliers take part in joint improvement programs with the buyer.**

### 5.3. Enabling and supporting factors

Finally, there is a group of factors that a priori exert more of an indirect influence, but have often been observed in the context of relations successful in terms of innovative outcome. Håkansson, for instance, gives a representative summary after analyzing 172 buyer–seller relationships: “First, we found that the typical partner is near at hand, important in terms of volume, and well established as partner.” (Håkansson, 1989, p. 118). These three features tend to be verified in other studies, as well as in related research.

Concerning partners being “near at hand” typical results have been ranging between 70% and 80% of regional or national relationships, international co-operation being more of an exception (Ahman, 2005; Håkansson, 1989; Revilla Diez, 2002; Stones, 2001). At first glance, the importance of proximity between the partners may sound counter-intuitive and be questioned in its current existence as well as its future relevance due to the globalization and the digitalization of business. Interestingly, a hundred years ago a similar discussion took place, with the expectation that the automobile would render space unimportant (Krugman, 1991). After the euphoria during the e-business “hype” this time there are indications of an exaggerated “death of distance” postulation as well (Morgan, 2004). Instead, most electronic market places which promised to be cheap hubs for the virtual exchange of information have disappeared again. Also the effect of collaborative engineering software, most relevant in the context of co-developed innovations, may have been overestimated: the installation and linkage of such systems remains expensive and is thus limited to a selected number of large volume relationships. It actually requires an intensive and ongoing process of mutual adaptation of standards (Schiele, 2003). In fact, less than 10% of the savings through collaborative engineering software are attributed to reducing travel expenses, i.e. overcoming distance (Rugullies, 2001).

On the other hand, the importance of proximity for the processes of innovation comes as no surprise, if one considers that the same above mentioned studies have documented that in innovative relationships there is very frequent face-to-face communication by several people, meeting once a month or more often, for example for testing on a prototype. It is typical for network-innovations that they develop during problem solving situations at work, immediacy of exchange almost being a precondition (Gammage & Schiele, 2000). This is what is reflected in the French school of “economics of proximity”, which assumes at its core that proximity can be divided into physical and organizational proximity, which, however, tend to coincide (Torre & Gilly, 2000).

While business research has tended to neglect geographical aspects, the cluster approach, which has been a dominating theme in the discussion of economical geography and regional policy since the beginning of the new millennium, has extensively elaborated on the issue (Cantwell, 2004; Porter, 1990; Schiele, 2003). The cluster approach analyses the common phenomenon that firms located in regional–sectoral agglomerations like Silicon Valley, India’s software cluster in Bangalore or the Styrian automotive cluster develop strong local ties that provide them with competitive advantages towards their isolated rivals. Among the advantages identified is the superior power of innovation (Baptista & Swann, 1998; Molina-Morales & Martínez-Fernández, 2003). Research in economic geography clearly shows that innovative activity is not distributed evenly across the country, but for many industries is concentrated in a limited number of locations, often not larger than the distance of a 1-h drive. One reason for this is that knowledge has been found to migrate so slowly that it has often lost its value, when leaving its region of origin. Innovation favors regionally bound networks of innovators (Breschi & Lissoni, 2001; Feldman, 1999; Jaffe, Trajtenberg, & Hederson, 1993). Direct exchange is apparently facilitated if the collaborating firms are located in physical proximity to each other. There, tacit, not-codified knowledge which requires face-to-face contact can be exchanged. This type of knowledge is not accessible through digital channels. Further, the “cafeteria-effect” comes into play, i.e. the probability of unplanned exchange of knowledge increases and so does the likelihood of finding new combinations.

On top, the quality of the buyer–seller relationship as an important factor influencing the outcome of collaboration has been found to deteriorate over distance and borders (Homburg & Kiedaisch, 1999).

The ultimate form of taking advantage of proximity with suppliers could be to locate in a cluster or creating an own one. The decision of General Electric Healthcare to set-up a unit in the heart of the Bavarian medical technology cluster, which is associated with the network of its competitor Siemens Medical Solutions, serves as an illustrative example of trapping a cluster. Moving into a cluster can be a way of how to get closer to innovative suppliers. Another way is to ask the suppliers to locate near the manufacturer’s facility. Cluster-replication may be a less well-known Japanese management technique, aiming
at transferring the whole production system to a new location, but keeping the structure intact, including geographical proximity (Steine, Eickhoff, & Schiele, 1998). For instance, in the emerging Chinese automotive market, several Japanese manufacturers have established their facilities in the same town, asking more then 70 suppliers to follow them (Sigurdson, 2004). While the initial objective of instituting such an agglomeration may be of logistics nature, the aspect of innovation and improvement is likely to follow.

Of course, smaller firms have less degrees of freedom in choosing a location. The same is true for larger firms if it comes to such materials or technologies which are not at the heart of their operations. A firm, for sure, may not want to limit the scope of search for innovative suppliers to the proximate environment, only. However, under the ceteris paribus condition, the cluster research implies that a supplier located in proximity is likely to offer advantages in integration compared to remote suppliers. Finally, also the research into the success of new product development finds indications for the advantage of proximity, identifying co-location of buyer–seller personnel as a success factor for supplier integration (McGinnis & Vallopra, 1999; Murphy & Heberling, 1996; Ragatz et al., 1997). Asking for suppliers who can support collaboration for innovation, the locational aspect can play a role. Therefore, the following proposition can be derived:

**P6.** Most suppliers successfully collaborating with the buyer in the process of innovation are likely to be located in geographical proximity to the buyer.

The second enabling characteristic identified by Håkansson was the mutual importance of the supplier and the buyer. Most suppliers realized more than 20% of their relevant sales with the collaborating customer. The other way around, sellers in his sample tended to be responsible for more than 5% of the total purchasing volume of their clients (Håkansson, 1989, p. 111). The considerable transaction volume was antecedent to collaboration.

Buyer–seller collaboration incurs costs and binds limited resources. The importance attributed to the relationship thus has a resource allocation component: not all suppliers can be included in a collaborative development process or in joint improvement programs. The same is true from the seller’s point of view. All partners must be cognizant of providing the other party with some form of partnership advantage compared to alternative partners (Sethuraman, Anderson, & Narus, 1988). In fact, in channel studies, an unbalanced power situation has been found to relate negatively to relationship stability (Anderson, 1989). This finding supports the assumption of sourcing portfolio theory, according to which strategic collaboration, as a fertile ground for innovations, should only be established with a supplier important to the buyer and on which the buyer has a minimum level of influence (Kraljić, 1983). Therefore, from the buyer’s point of view the following proposition can be derived:

**P7.** The buyer is important for the innovative supplier or can gain importance.

The third and final aspect of the introductory quotation from Håkansson refers to the age of collaborative relationships. Previous experience with the partner is often mentioned as a supplier selection criterion or a success factor in collaboration (Handfield et al., 1999; McCutcheon et al., 1997; Ragatz et al., 1997). The analysis of existing relationships revealed them to be clearly older than 10 years on average (Åhman, 2005; Felde, 2004; Håkansson, 1989; Liker et al., 1996), the age even showing a positive correlation with financial performance and improving innovative results (Felde, 2004). The innovative core of a relationship seems to be embedded into a wider, multi-layer relationship between two or more companies, most of which had grown over time. Therefore, the following proposition can be derived:

**P8.** The innovative supplier has a long history of collaboration with the buyer.

6. Conclusions and next steps: the value of an innovative supply base

All eight propositions can serve as indicators for analyzing a firm’s existing portfolio of suppliers, e.g., as part of a campaign to increase innovativeness or also with an exercise to reduce the number of suppliers. If the intention is to compare potential suppliers who are completely new, only P1–P3 and P6–P7 may be selected, because no relationship exists, so far, which thus cannot be part of the assessment. Based on the above discussion, focusing on the path following type of innovation, a picture of a supplier greatly advancing a firm’s process of innovation matures: Ideally, it is a specialized, technically competent firm located in proximity to the buyer and taking part in a joint improvement and development program. An intensive and trusted relationship has evolved over a long period of time.

Buyers may want to become the “preferred customer” of such valuable suppliers, ensuring their prime commitment, which “… implies that the manufacturer has to present itself as a kind of supplier to its supplier…” (Wynstra et al., 2003, p. 74). However, analyzing the identified characteristics of innovative suppliers, one striking feature comes into view: there may be a limited choice in establishing innovative relationships on short notice. If a firm misses a competent supply base to which it is linked in long-term and trusted exchange relationships, it may first have to take the time to create it in order to enjoy continuous innovative input from the suppliers. Creating a network of innovation-suppliers is a new direction for supplier development programs. It also requires more long term planning for the supply base. Dissolving long-term relationships, on the other hand, may be paid for with a reduction on the level of the buyer’s innovativeness. To prevent this effect, a buyer may find it helpful to distinguish between strategically relevant “innovation-suppliers” and easily replaceable “cost-suppliers” when analyzing the supply base. Both should be addressed by different means, the selection of innovation-suppliers including the above distilled criteria in addition to the more common price, quality and logistic evaluation criteria. Such an approach can also objectify the discussion between technical and commercial issues, often represented by engineering and purchasing personnel. Eventually, the findings also support the thesis derived from a resource based view of the firm that the proximate environment of a firm, including its network of innovative suppliers, can enhance – or
limit – its competitiveness, thus being a valuable resource difficult to imitate (Duschek, 2004; Dyer & Singh, 1998; Steinele et al., 1998). These implications sum up the need of purchasing to expand its scope of analysis in supplier selection. Identifying suppliers that become innovative by collaborating with the buyer is a new task for strategic sourcing.

Finally, lending empirical support to the picture of an innovative supplier as deduced above would be a logical next step in research. Regarding methodological issues on future research design, this could either be done by case study research or via a broad quantitative verification or a combination of the above. One form of quantitative confirmation could be to ask managers to indicate the criteria they use for choosing innovative suppliers or to indicate in how far they agree with the above developed propositions. However, it is not sure if the results of such a questionnaire would correctly identify the characteristics of innovative suppliers. Verma and Pullman (1998) undertook an experiment by asking purchasing managers to indicate their supplier selection criteria and then apply this to 16 experimental supplier selection situations. “The results indicate thatalthough managers say that quality is the most important attribute for a supplier, they actually choose suppliers based largely on cost and delivery performance” (Verma & Pullman, 1998, p. 739). So, asking for selection criteria may rather illustrate the intentions of the person answering rather than reflecting the reality of choice. Therefore, it seems preferable to try to identify the characteristics of the most innovative suppliers that are already working for a firm. Such a design would also overcome one of the limitations of the main body of research in the field of supplier integration, namely the focus on single projects rather than a comprehensive view of suppliers (Wynstra et al., 2003). Moving away from a single project perspective would require the managers first to make up their minds as to who actually are their most innovative suppliers and then analyze their characteristics, maybe even contrasting them with the typical un-innovative supplier.

A validated understanding of which suppliers are contributing with innovations and which are unlikely to do so paves the way for a constructive discussion between purchasing and engineering on supplier selection and ultimately offers a substantial contribution to a firm’s competitive advantage: with a growing reliance on external partners for innovative solutions, privileged access to innovative suppliers stands at the core, being one of the characteristics for distinguishing between successful and less successful firms.

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Dr. Holger Schiele is lecturer at Hanover University, Institute of Management and Organisation. He also works for h&z business consulting Munich/Duesseldorf which is specialized on strategy, purchasing and production consulting. His research interests include innovation management, firm strategy and purchasing issues besides of regional innovative clusters. On top of being author of two monographies and contributor to several edited volumes, his previous work has been published in journals like Research Policy in English language and Zeitschrift für Planung and HMD-Praxis der Wirtschaftsinformatik in German language.