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# Success Factors of Innovation Networks – A German Case Study

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## **Abstract**

Improvement of the innovation infrastructure for SMEs is one of the main political and economical targets in many countries today. A prominent role is played by innovation networks of various kinds and structures and it is important to understand the crucial success factors of such a network in order to improve existing clusters or to set up new, more efficient systems.

In this paper we present our research based on a case study approach on the largest German innovation network, in which we take part ourselves. The network consists of more than 30 partners having provided services for SMEs for over 6 years and covering all aspects of innovation management.

Data from several 100 projects and a customer satisfaction survey have been analysed and show main demands and objectives from SMEs as well as their preferred way of co-operation with external partners. On the other hand, important aspects in delivering high class customer-oriented services are derived from the data and are interpreted, like securing quick response, high quality, real partnering and still a “all-from-one-hand” project for the customer.

Since the analysed innovation network is a very successful network, it can be regarded as a good example for others. This paper will help innovation service networks to set themselves up or improve themselves towards a more successful, customer-oriented alliance by having a better understanding of the crucial factors of efficient and reliable collaborations and helping governmental bodies to take the right approach in supporting these networks and their co-operations with industry. Also from this study, it can be stated that there is a clear demand in industry for comprehensive innovation management providers and that networks combining different partners and different know-how are regarded as suitable and useful partners.

## **Introduction**

“Innovation” is of course still one of the keywords of success – however, in particular SMEs are often reluctant to take on a new product development (NPD), patenting, trend and market analysis or try out new methods in the area of innovation management. This is despite the fact that the flow of new and economical successful products or services (innovations) provides the basis for the prosperous future of many of these companies. When undertaking innovation projects, companies face the risk of failure. A certain degree of risk is inherent in innovation related projects and can endanger the companies survival for the case a project fails. This means that in particular SMEs have to take action to reduce risks. In many cases it is the lack of information, which is the primary reason for the existence of risk. And this results in many pitfalls that have been

identified in several empirical studies (Cooper and Kleinschmidt 1996, Cooper 2001, Di Benedetto 1999, Quélin 2000).

Thus, reducing the mentioned risks inherent in innovative projects and processes is one of the primary tasks of R&D managers. In particular, an increase of the required specific know-how of methods, technology and information can decrease the risk. One way to increase know-how is to perform active research, another is the project-related transfer of know-how by means of a co-operation<sup>1</sup> (Afuah, 1998; Blau, 1999; Cutler, 1991; Davenport et al., 1999; McGuinness, 1997; Peters, 1997; Specht and Beckmann, 1996; Tether, 2002).

Since this was the idea behind the largest German innovation network (so-called: “insti”), it seemed interesting to investigate to what degree this network was able to convince its target group SMEs of the usefulness of co-operations in innovation projects. From the data obtained it was possible to identify the main success factors for innovation networks to be regarded as appropriate partners for SMEs.

### **Background: Theory of Innovation and Project types**

“insti” covers innovation (management) projects and therefore most aspects during the so-called NPD process that begins with an idea and ends with a market launch (Albach, 1993; Cooper, 2001). Although a number of different NPD processes can be found in literature (i.e. Cooper and Kleinschmidt, 1996; Cooper, 2001; Specht and Beckmann, 1996), we defined the following process steps in order to fit with the data (which are equivalent to the different project types) from “insti”:

1. Analysis of the external and internal environment and definition of innovation strategy	INNOVATION-CHECK
2a. Idea screening and evaluation	NEW BUSINESS
2b. Market data, trends, competitors etc.	MARKET MONITOR
3. Whole process coaching (project management, methodology transfer etc.)	INNOVATION-COACH
4. Market launch	MARKET STRATEGY

Figure 1: nomination of “insti” project types (right)  
in correlation with process steps in innovation projects (left)

<sup>1</sup> The term co-operation is used in a broad sense. A co-operation is the joint effort of two independent companies based on a tacit understanding or a contract (Pleschak 2001).

Together with four further project types this makes up the full spectrum of services by “insti” with high coverage of demands from SMEs during innovation projects (internal study of insti, financially supported by BMBF, 1998). A current statistic shows those project types of Fig. 1, which show the highest demand from customer-SMEs.

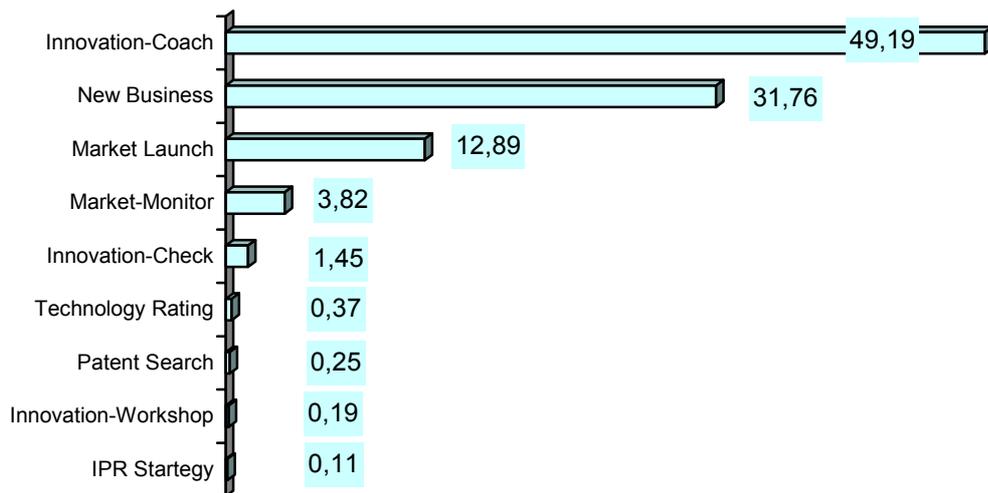


Figure 2: Demand for different “insti” project types (correlating to different modules in the new product development process) (numbers indicate percentage of total budget of all projects)

The reasons for the less frequent usage of the project types “technology-rating”, “patent-search”, “innovation-workshop” and “IPR strategy” lies in the fact that these are also modules in the other five project types and therefore not required as stand-alone cooperation projects. E. g. innovation-workshop is a small project for idea generation and thus integrated in “New Business” as well, a market study (“Market Monitor”) often includes analysis of competitors’ IPRs and thus no separate “Patent Search” project is needed. Because of this statistics, “insti” will adapt its product portfolio accordingly in due course, which implies a reduction of the product portfolio to the five most often requested services.

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## **Methodology**

Research presented in this paper is based on a case study approach on the largest German innovation network “insti” during the years 2001-03. Data are taken from three sources:

- A customer satisfaction survey by “insti” project management: After conclusion of a certain project (maximum duration 9 months) each customer is asked to answer questions concerning his degree of satisfaction with the project and the results, the consequences of the project for his company, quality of service etc. Although more than 300 projects have already started, up to today only 85 replies are available for discussion (from approx. 200 finished projects). However, this represents 42,5% of the finished projects and is a reasonable return-rate of questionnaires.
- General data from more than 300 projects are available about the conducted projects, the primary motivation to co-operate, contents of co-operation and project types through central registration of these projects.
- Fraunhofer TEG, one of the members of the insti network, and represented by the authors of this paper, made more detailed statistics about its own 41 conducted projects.

Against the background and the methodology, data from these three sources are combined and checked against each other to give the results of this paper:

## **Results**

First of all, various motivations were detected at the subsequent customer SMEs for the co-operation with the “insti” network. Clearly, the know-how and methodology of professional external partners was the favourite reason for co-operation combined with the lack of time and (human) resources within the companies. More than 70% of the customers got notice of “insti” by PR of “insti” itself, only about 10% were actively looking for a suitable partner in an future project.

Fig. 3 shows the main improvements from the “insti” projects for the customer.

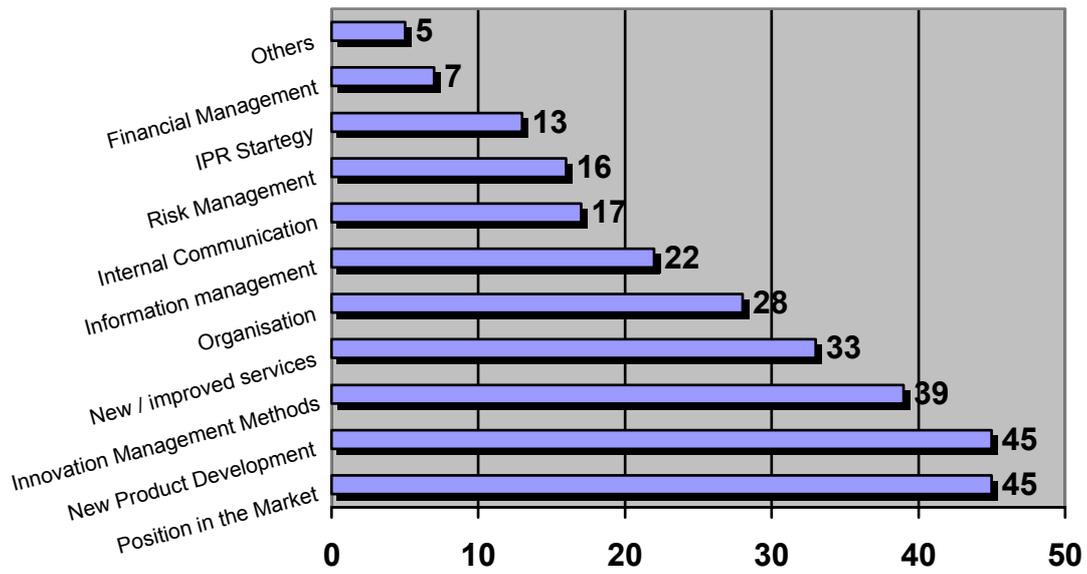


Figure 3: Improvements for the Customer SMEs, as seen by the customer (n=85, multiple answers possible)

Further data indicate that the customer satisfaction is extremely high (Fig. 4) combined with the clear expectation that the results are useful and will be installed (Fig. 5).

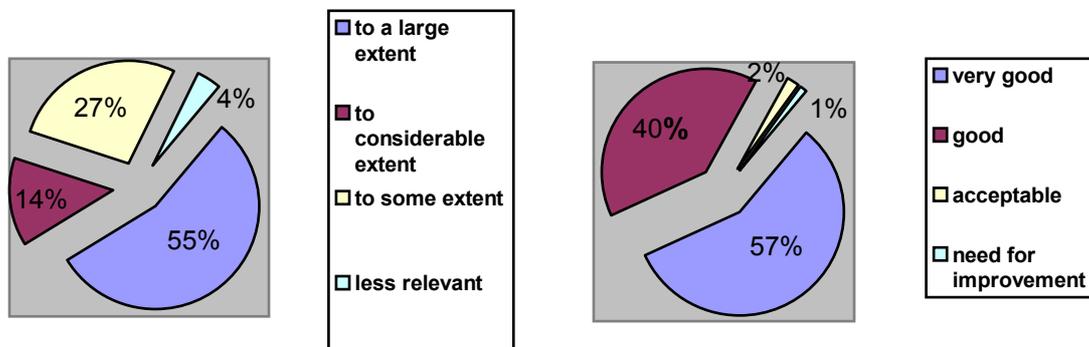


Figure 4a (left): Answers by customers to the question: “Are the project results transferable into practical use?”

Figure 4b (right): Answers by customers to the question: “How do you judge the quality of the “insti” service(s)?” (percentages shown, n=85, multiple answers possible)

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32% of the customers questioned are considering to co-operate further with the external partner and take advantage of more innovation services from the “insti” network.

### **Discussion**

This section discusses the results and implications for innovation networks. This includes the specific success factors important to innovation service providers, in particular networks.

The motivation for co-operation with an external expert in the field of innovation is in accordance with the results found by Schaarschmidt et al., 2003. Clearly, SMEs are looking for somebody who combines innovation management and methodology knowledge with specific market or technology know-how (Success Factor (SF) 1). Customers expect a quick response (at first contact and for a possible project start, SF 2). This indicates that once that there is a demand for a project and the according decision has been made, the process must start straight away (in 65% of TEG-projects the time between first contact and project start was less than 3 weeks). One big advantage of the “insti” services is a funding for the customer SMEs (SF 3), however, this is rarely mentioned as the motivation for the project. It is crucial to understand that not funding makes SMEs do projects and co-operate with external experts but know-how and expertise. Funding helps with the decision and makes negotiations about the project budget easier for both sides.

Although SMEs usually realise that innovation projects demand large resources (money and human resources) the decision to incorporate external know-how is not all that easy. In about 70% of the projects one of the “insti” network members did the first step towards the future customer, e. g. through mailings, advertisements, press conferences or telephone marketing (SF 4). One reason could be the lack of knowledge about the network. However, SMEs are usually “grateful” for being approached by the “insti” network and seemed to have waited for some help. This means of course for all innovation service providers and even for those with high reputation and/or regional presence that active sales and marketing is the best way to be able to give suitable support to innovation projects in SMEs.

It is not surprising that SMEs’ expectations from innovation projects strongly emphasise their objective to survive or grow in existing or new markets. About half of the

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“insti” customers want to improve their position in the market and expected the start of a successful NPD process (SF 5). About 40% were still interested in the methodology of innovation management. The main reason for this is their desire to learn and to conduct similar projects in the future on its own. It is therefore crucial and a unique selling position to innovation service providers to emphasise their willingness to lay open methodologies and tools to the customer and to coach customers’ employees in their usage (SF 6 and 7). This intention of “insti” is manifested in the special and frequently used project type “innovation coach”.

Whereas main motivations for innovation projects normally lie in the technical area it is an important result of the conducted customer survey that improvements at services, at organisation and internal communication are also seen as appropriate innovations (SF 8). Indeed, such improvements can mean a large advantage about competitors for certain SMEs. Obviously, an innovation service provider and network does need an extremely broad range of competences and services to suit the varying main customer demands in the area of innovation. Together with the required technological or market knowledge in various branches of industry, these demands require a larger network of partners with different competences. “insti” with its 30 partners (each partner with further partners of his own) is above a crucial number of partners necessary for this broad know-how coverage. When setting up a network, the variety of partners and their competences is very important (SF 1, 7 and 8). Networks of similar partners do not mean an added value to the customer. The customer expects a “all-in-one-hand”-strategy, which means that “insti” projects are always run by one responsible partner in charge (project management) with sub-contractors in and outside the network (SF 9).

Less importance is given to the field of financial management (SF 10), probably because SMEs do not expect from innovation service providers to be competent in this field. However, especially in economically difficult times, this demand is increasing and it can be expected that innovation networks will need increasing knowledge in this field.

Innovation networks, like any other service provider, build up reputation through success and satisfaction with their customers. Satisfaction means meeting the above mentioned expectations with high quality results (SF 11). Both is fulfilled by the “insti” network: 69% of the customers will transfer results into practical use to a considerable or

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large extent, 97% regard the delivered quality as very good or good. These results are well above average for customer satisfaction surveys. Again, the well-working and co-operating network is responsible for such a result as well as internal network training schemes compulsory for the partners. It is the flexibility to react on customer demands very quickly by actually knowing the most suitable network partner in person (SF 11). To further secure quality, project teams summarised the suitable tools and methods for each of the project types in compendia available to each eligible partner. This actually meant to lay open parts of the know-how and knowledge of each partner. The partners in this network were convinced that their gain in sharing knowledge and know-how is more important than the loss of his own unique know-how. Right from the start, the partners decided that the network and partnering would create business opportunities rather than create competitors (SF 12). And it seems one of the most important reasons why “insti” performs so well: Co-operation is done for the advantage of the customer.

With such positive judgement from the customers one would expect the willingness for further co-operation. But it is only about 1/3 of the customers who considers further co-operation. The explanation lies in the nature of the projects and services: In particular SMEs will not be able to conduct several innovation projects at the same time, they are often engaged in one innovative NPD for years. For the product design, the testing and manufacturing they often rely on their own know-how and resources or choose different partners. And the next innovation projects they will probably try to conduct themselves by means of the lessons learnt from the “insti” project (or the coaching / methodology transfer).

Innovation Network Success Factor (SF)	Importance*	Advantage to the Customers
SF1 Combination of methodological and technical / market knowledge	++	- "All from one hand" (saves time and project management resources)
SF2 Quick response to customer's demand	+	- Once decided, project objectives can be fulfilled quickly
SF3 Access to funding sources	+	- Decided project less expensive than anticipated
SF4 Active innovation stimulation, in particular SMEs	+	- Awareness of external co-operation partners is increased, possibilities outside the company itself become more obvious
SF5 Service offering specially designed to create growth and success of SMEs	+	- The main objective today is to be prepared for future growth and success
SF6 Methodology transfer to customers	o	- Know-how increase inside the company for future projects
SF7 Additional coaching services	o	- Know-how increase and motivation for employees
SF8 Additional consulting services non-technical areas, such as organisation and processes	o	- "All from one hand" - Organisational or process management projects may support or follow NPD-projects
SF9 One face to the customer	++	- Easier communication and progress
SF10 Additional financial services	-	- "All from one hand"
SF11 Ensuring a high degree of quality of service (independent of the network partner) and excellent personal relations between the network partners	++	- Satisfaction and work progress - Quick response on demand by the most suitable (competent) partner
SF12 Win-Win-situation between the partners (and trust)	++	- see SF 1, 2, 5, 6, 9 and 11

Figure 5: Innovation network success factors for delivering services to industry (as explained in the text) and their main advantages to the customers; the \*importance of the success factor is derived from the customer satisfaction survey and the Fraunhofer TEG's internal survey:

++ crucial success factor; + very important success factor; o helpful; - add on

## Conclusions

The research data and results presented in this paper indicate the crucial success factors of innovation services in general and innovation networks in particular. A broad multidisciplinary range of services covering all important steps in NPD is necessary to meet various customer (SMEs) demands. Professional services have to be offered with quick response time and a guaranteed high quality. This high and equal quality can only be adopted by all network partners in an open atmosphere with the willingness to

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exchange know-how and information. This means that all partners have to recognize a win-win situation right from the beginning, otherwise the network will not offer added value to the customer.

Network partners should be aware of the pros and cons of network memberships, but often it is only an extended network service portfolio for potential customers which is able to meet the variety of market demands. From that understanding it is clear that many (rather formal) networks lack the unique success factors found in this research. But any network can in this sense be transferred to a better one and every new network can, through variety in its partners, lay the foundation for a customer-oriented position right from the start.

A network that meets customers' demands and provides additional advantages to the customers by incorporating the critical success factors presented in this paper is set to be successful, and more importantly to satisfy its customers.

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