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**Conclusions from BMBF research project „Transfer Scenarios – Requirements for Successful Co-operation Between Business and Science in Courses of Innovation “ (ILAG and TU Dresden)**

The following remarks will present essential results deriving from surveys among enterprises, institutions of science and intermediary organizations in pre-selected clusters in Northern Germany and Saxony with regard to existing role manifestations and social relationships between the acting individuals.

**1. Roles in transfer scenarios**

The statements of the interviewed persons in the qualitative survey can be summed up in different role images as illustrated further below (p.2). Those role images are highly relevant for the implementation of transfers of science and technology within the clusters and networks of science, economy and also intermediary organizations. For the first time this role model offers an approach that makes it possible to recognize and describe essential functional roles in co-operative projects of innovation - projects that are typical in a local context between KMU and institutions of science.

Role occupants are first of all necessary not only to mediate between fields of science and economy but also to act as a **TRANSLATOR**. It is reported from either side that the systems “are using different languages” which are incompatible in two respects: on the one hand scientists are so deeply engaged in their fields of research that they appear to be unable to communicate their subjects to non-specialists or to those who are interested from a more practical point of view.

On the other hand both science and economy are pursuing different targets – even though co-operating – and in fact their success will be measured by different and even contradictory criteria. This “gap” - as one interviewed person puts it - might be closed by means of professional coaching. This is where transfer experts from intermediary organizations and also from institutions of science begin to step in. They moderate this process and at the same time act as translators. This requires not only theoretical know-how but also social competence and - last not least - the skill to communicate. Here again those who act in a transfer area will take advantage of partners who are familiar with the local settings.

Furthermore it is important to employ **DRIVERS** (ready to take risks) who can be found either in the field of economy where scientific support is needed as their own means of r/d are not sufficient enough to work out a solution. “Ready to take risks” is essential here as such drivers will be prepared to invest in high-risk technologies. Drivers might, however, also be scientists who can from their own research work present an advancement which requires support from the field of business in order to complete a product that might be marketable. Here the fact that one can find suitable cooperative partners for issues that are rather specific means a clear advantage within regional trade clusters as both adequate scientific institutions and suitable enterprises are available. As a consequence new topics of research will be introduced by such drivers who will then also look for new technologies and develop visions towards the future development of the field of technology as well as the region or cluster.



Illustration 1: Essential roles within the transfer area

Another crucial role is that of **ENFORCERS** who from a professional point of view look after the co-operative project in every participating organization. They are responsible for the development of results of excellent quality and market utilization. It will, however, be necessary that they are fully committed throughout the total period of co-operation and in permanent connection with their particular partners outside. The concentration of certain businesses means another advantage of regional clusters: highly qualified labour is easier available on-site. Quite a few educational institution , for example, focus upon the specific characteristics of the local labour market.

**SUPPORTERS** who supervise the transfer process are relevant for the establishment of a legal framework and also for the financial handling. In an ideal case they are involved in the project from the very beginning. They help to work out detailed legal regulations to avoid e.g., later disputes regarding the ownership of a developmen . They also provide information about project financing and marketing strategies.

Such issues are usually taken over by transfer experts in connection with the roles of mediators and translators either within or outside the organization. Members of the foundation initiatives will also be involved here. Table 1 gives a summary of the determined roles together with their performance.

<b>role</b>	<b>performance</b>
<b>mediator</b>	<ul style="list-style-type: none"><li>- establishment and mediation of contacts</li><li>- preparation of communication platforms</li><li>- survey of local actors</li></ul>
<b>driver</b>	<ul style="list-style-type: none"><li>- attendance at the field of technology</li><li>- political networking as lobby</li><li>- visions of future local development</li></ul>
<b>risk-taking driver</b>	<ul style="list-style-type: none"><li>- enterprises ready to take risks</li><li>- risky investment in new developments</li><li>- local commitment</li></ul>
<b>enforcer</b>	<ul style="list-style-type: none"><li>- high professional competence</li><li>- entire handling of r/d projects</li></ul>
<b>supporter</b>	<ul style="list-style-type: none"><li>- supervision of licensing and outsourcing in terms of law and management</li><li>- technology scouting</li><li>- incentives for science towards marketing</li></ul>
<b>translator</b>	<ul style="list-style-type: none"><li>- interpreting between divergent goals and “languages” of business and science</li><li>- overcoming of inhibitions of SME against Institutions of science</li></ul>

table 1: social roles and their performance in the transfer area

As stated before it is of high importance that these roles are a) occupied, b) co-ordinated among one another and c) in permanent interaction between each other.

Table 2 gives an impression of the organizations in which the acting persons were located.

<b>role</b>	<b>institution of science</b>	<b>enterprise</b>	<b>intermediary organization</b>
<b>mediator</b>	-	-	x
<b>driver</b>	x	x	x
<b>risk-taking driver</b>	-	x	-
<b>enforcer</b>	x	x	x
<b>supporter</b>	x	-	x
<b>translator</b>	x	-	x

table 2: possible assignment of roles in transfer process

The analysis in terms of quality also shows that a success in handling co-operative projects in clusters is highly depending on how much the acting individuals are going to fill such a free area ( see above ) with a high amount of personal dedication.

As an example the head of a research institution reports of having located a US company in his place by his own initiative in order to have another suitable co-operative partner available for research projects in the area.

This survey also reveals the exceptional importance of the representatives of science. These persons show an engagement far beyond the requirements of their specific role at work - and this even though or perhaps because criteria such as transfer and marketing of scientific results are less relevant in their professional scope.

To make such activities independent of an acting person a modification of the structures in the system of science is necessary allowing incentives to acknowledge and support transfers of know-how and technology.

## **2. Configuration of social relationships between acting persons in the transfer area.**

In order to allow a statement here the results of the **quantitative questionnaires of the survey** were partly included . The latter was based on the assumption that a trustful social relationship among those who act within a cluster is a precondition for both the exchange of know-how in co-operative systems and also for a positive evaluation of such systems. 'Trust' in this context means that partners and their future activities are expected to be anchored in a framework of mutual goals and values .Trust is therefore based upon credibility and reliability (cf. Luhmann 2000). The scientific discussion at the beginning already hints at the meaning of trust as a medium that cuts costs and also lowers barriers when individuals enter into a co-operation ( Preisendörfer et al. 1995).

Frankness and sincerity of the individuals who act in clusters were also regarded as crucial for the development of co-operative exchange. Individuals will only be prepared to interchange if they are ready to get involved in new issues and alternative solutions or even in new co-operating partners. Therefore the survey was very much interested to learn from every acting group in a transfer process how social relationships in a cluster were estimated in terms of trust, frankness and also exchange of knowledge.

In order to measure **success** of transfer processes between science and business it was important on the one hand whether the involved persons could **reach the goals** that they had intended to achieve so far within a cluster in co-operation with science or business. On the other hand the survey measured the degree of **contentness** with the progress of co-operations on the part of representatives of science, business and intermediary organizations in the cluster.

The analysis of social relationships among the acting persons within a cluster was based upon the following assumptions:

- Trust and frankness are basic requirements when an exchange of knowledge is intended to develop among people acting in clusters.
- An exchange of knowledge is essential for co-operations to be successful , i.e. the acting partners are able to achieve their goals and they are also pleased with the the process of co-operation itself.

The interviewed persons were asked in the questionnaire to score the aspects mentioned above on a scale from 1 (*very low*) up to 5 (*very high*).

The results (see illustration 2) show that trust does not necessarily relate to the rating of success of transfer co-operation between science and business in clusters. However, trust does seem to be a precondition for the development of frankness and especially for the exchange of knowledge among the persons involved in the transfer process. Finally it is the degree of frankness among the persons acting in clusters as

well as their exchange of knowledge that are associated with a positive assessment of the result of co-operations (as, e.g. having reached a goal and being content).

The results of the correlation analyses are illustrated as follows :

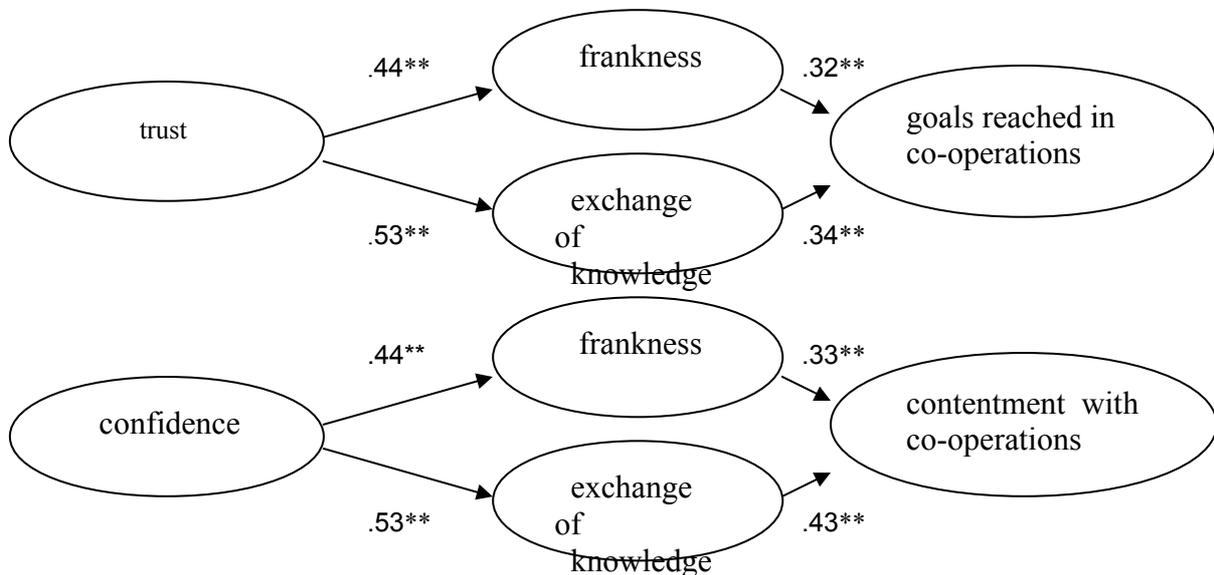


Illustration 2 :  
 results of statistical evaluations based upon a quantitative questionnaire in Saxony and Northern Germany (N = 70; out of this S = 36; NDL = 34). Correlation coefficient according to Kendall (cf. Bortz & Lienert 2008)

The assumptions above are supported by the results of the statistical analysis. These results indicate that trustful social relationships among people acting in clusters are a prerequisite for an open exchange of knowledge or technologies. A high degree of frankness and exchange of knowledge in co-operative research work will in fact encourage every person who is involved to make a positive assessment of the process.

### Bibliography

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