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## Exploratory study into the effects of collaboration in IWT-funded industrial R&D-projects

## Summary and main conclusions

General context and methodology

* IWT provides additional support for collaboration in industrial R&D-projects. When a minimum of two independent companies are collaborating, their basic support percentage increases with 10%. This is under the condition that they are each substantially involved and that at least one of the companies is an SME or is located in another EU member state.
* Within the population of 384 industrial R&D projects that were finished between January 1st, 2007 and September 30th, 2010, 4 out of 5 projects involved collaboration. The applying companies collaborated mostly with research partners. They do so in 56% of the projects. In 18% of the projects, they collaborated with one or more companies that together apply as business partners. Because of the extensive collaboration, business partners keep on average 52% of the IWT-funding they receive. This corresponds with about 16% of the total project cost. The other 48% of the IWT-funding goes to their subcontractors (17%) and their research partners (31%), who are both reimbursed for 100% by the business partners.
* All this triggered the question about the effects of this collaboration for the partners and subcontractors, their position in the value chains to which they belong and even further in the ecosystem. This explorative study, mainly qualitative in nature, focused on the identification of effects that can be attributed to the collaboration. It is based on 39 interviews: 10 with applicants who have collaborative projects, 17 with company partners, 3 with company subcontractors and 9 with research organisations.
* A distinction has been made between input, behavioural, output, economic and ecosystem effects. When analysing these effects, it turned out that some of them where more prominent amongst company partners and subcontractors, others among the research partners. The effects seem also to be more pronounced in case of longer term collaboration. Other profile and context characteristics didn’t make a big difference.

Effects among company partners and subcontractors

* **Input effects** are less pronounced among the company partners. The funding from the collaborative projects provides a stable financial basis to increase employment by hiring specialised personnel for the duration of the project, but the continuity of their employment primarily depends on the continuity of the research, mostly in the form of follow up projects. With the current economic difficulties, IWT funding is seen as one of the support mechanisms to avoid laying off research personnel. The infrastructure related effects of collaboration manifested themselves in purchasing additional units of equipment for the purposes of the given project. New equipment purchased for the needs of an R&D consortium has on some occasions been made available for other firms for their own R&D projects.
* The **behavioral effects** are comparable to the effects identified in previous studies that focused on the applicants mainly. The IWT-funding of collaborative R&D provides company partners with some financial ‘room’ to be involved in projects that are more risky and longer term. The smaller, partnering companies in particular, also mention the positive impact of collaboration on the effectiveness of their R&D processes, stimulating better formalised R&D practices, higher R&D process quality, a stronger internal R&D attitude among partners and more openness for R&D-collaboration.
* The collaborative projects are in most cases successful in producing the foreseen **outputs** like new knowledge, new or improved products/services and processes, and IPR. Some company partners mentioned that they benefitted from the acquired knowledge later on in contexts outside the project, or could even commercialise their own contribution to the project, such as, for instance, testing facilities. The research outcomes in many cases also resulted in new R&D-contacts and R&D collaboration projects for the company partners, some of which IWT-funded, others not.
* The most important **economic effects** are reputation effects. Companies built a stronger reputation as quality providers of products and services which allowed some of them charging higher prices and increasing their market share. Other economic effects that were mentioned by a substantial number of interviewees are a stronger position in the value chain vis-à-vis clients (f.e. through preferred supplier relationships), a market development effect because the R&D-output and –collaboration attracts new clients and commercial contacts and employment effects (an increase or the ability to maintain employment).
* Among the **ecosystem effects** there are the networking opportunities within strong clusters which support the growth of the companies involved and helps to attract new potential partners. 3 out of the 4 companies that are part of a multinational group, also mentioned the positive effects of the collaborative projects on their position within the group. But most important seems to be the effect of the improved valorisation of academic research through better industrial products and services. Such valorisation takes place in the form of new knowledge being incorporated in commercial products and services that are being developed by industrial partners in the projects. We further collected a few examples about the start of new production activities, but not really of new industries.

Effects among research partners

* The **input effects** are more pronounced amongst the research partners. They mention an increase in R&D-employment, the possibility to purchase new equipment and changes in skills. Most important though is the financial leverage effect: interviewed research organisations stressed the importance of the IWT-funded collaborative projects as a springboard for EU-funding in the context of the Framework Programmes. The focus of these Framework Programmes has shifted towards more applied research and development. Applicants from universities are therefore more likely to be successful if they collaborated before with industry.
* The research partners indicate that they learned about the needs of industry and the ways in which research can contribute to meeting those needs, a **behavioural effect**. The researchers gain experience of industry-related research and also learn to think about R&D and its results more from a commercial point of view. They gain more experience as well in organising and managing the IP aspects of the collaborative projects.
* Similar to the company partners, the research partners could improve their reputation as providers of industry relevant research, with positive **“economic” effects** through new R&D-collaborations and projects with new partners, both other research organisations as well as companies.
* Bridging the gap between academia and industry is the most prominent **ecosystem effect** which was mentioned by the interviewees. When research organisations define their research agenda, the industrial needs have become more important as a guiding principle. The transfer of trained knowledge workers from academics to industry also contributes to this effect. The postdocs for instance who worked on the collaborative project sometimes start working for the industrial partners when the project is finished. Through the project, they learned about the context and setting of industrial research, which makes them interesting profiles for industrial partners.

Overall conclusion

* We find positive effects of collaboration amongst the company and research partners, as well as the subcontractors. These effects extend beyond the mere input effects for the partners involved. The study made an inventory of additional behavioural, output, economic and ecosystem effects. The effects are hard to quantify though and the attribution is difficult to proof, challenges which are similar to other studies on the impact of research and innovation support.
* But the conclusions support the relevance of a policy that focuses on collaboration when providing incentives for R&D&I activities. It seems worthwhile to further support and even strengthen collaboration within IWT-funded industrial R&D-projects. It would therefore be good, for instance, to explore the possibilities to deal with the bottlenecks and barriers to collaborate within IWT-funded projects, mentioned by both applicants and partners, and to consider increasing the extra support percentage for collaborative research.