

---

«**FOCUSED**»  
— **Current Design Research  
Projects and Methods**

**Swiss Design Network  
Symposium 2008**

**30–31 May 2008  
Mount Gurten, Berne  
Switzerland**

---

**03**

Rosan Chow  
Gesche Joost

---

University	Technische Universität Berlin
Institute	An-Institut Deutsche Telekom Laboratories
Email	rosan.chow@telekom.de gesche.joost@telekom.de
Internet	www.telekom.de/laboratories www.designresearchnetwork.org

---

## **Best or Worst of the Two Worlds? Experiences in Long-Term University-Industry Collaboration in Design Research**

---

Keywords	↳ university & industry research collaboration ↳ t-labs
----------	--

*Although University and Industry (UI) research collaboration was around in 1800s in Europe and during the industrial revolution in the USA, it has been intensified in the past decade and received much public and institutional attention. It is safe to say that UI research collaboration might become an unavoidable part of working life for most if not all academic researchers. However, generally one finds little formal discussion on the topic of UI collaboration in Design Research. Even less documented is the collaboration that is long term and systematically sustained through an established institution. To encourage discussion on UI research collaboration in Design Research, we report on our own experiences at the Deutsche Telekom Laboratories (T-Labs) in Germany. We first give some background of the institution. We then, through illustrative research projects, share our experiences in how to move between academic research and industry practice, to fulfil the demands from the two. We also speak about the advantages and disadvantages that such a research setting poses for design researchers. We end by envisioning scenarios of UI collaboration in Design Research to facilitate debates and discussions.*

## 1. Introduction

### 1.1 University and Industry Research Collaboration

Although University and Industry (UI) research collaboration was around in 1800s in Europe and during the industrial revolution in the USA, it has been intensified in the past decade and has received much public and institutional attention [Jones 2008]. The growth of UI research collaboration is due to various factors. More effective and efficient knowledge transfer for the benefits of the industry and more funding opportunities for the benefits of academic researchers are two key ones. There are signs signalling that UI research collaboration will continue to increase.

At the beginning, most UI research collaborations were located in the natural sciences and engineering. But social and behavioural sciences are now considered to be significant as well [GUIRR 1999]. These collaborations have always focused on knowledge transfer to strengthen economic performances, but now they are also thought to be important for educational purposes [Prey 2007]. Besides, various efforts are put into tackling difficulties, such as intellectual property rights and the incommensurable values of the university and the industry. For example, in the USA, there is the University-Industry Demonstration Partnership which is 'to deliberate on the causes of, and potential solutions to, the difficulties facing universities and companies when attempting to work together'. They have published a number of documents to give advice to all involved [University-Industry Partnership 2006]. Besides, some research has shown that researchers favour such collaboration and would choose to continue with it [Lee 2000]. It is safe to say that UI research collaboration might become an unavoidable part of working life for most if not all academic researchers. Certainly, this situation might vary in intensity among different countries, such as Switzerland and Germany. Switzerland is active in promoting UI collaboration through funding programs such as DORE, while in Germany it is not as common because research collaboration with industry is traditionally done through institutes such as Fraunhofer Gesellschaft and the Max Planck Institute. However, as we will show later, Germany is not exempt from this trend.

### 1.2 UI in Design Research

Design departments in universities in Germany often have professional design projects contracted by industry, but few have *research* collaboration. However, in various design research centres or groups in other countries, as in Switzerland, the UK and the Nordic countries, there are research projects that are UI collaborations. In comparison to these countries, generally speaking, design research in Germany is far less established on the university level. The ERA 05 'Joining Force' conference in Helsinki in 2005 particularly explored the relationship between design education, design research and industries. So UI collaboration in Design Research is right there with us. Despite this fact, in general one finds little formal discussion on the topic of UI collaboration in Design Research. Even less documented is the collaboration that is long term and systematically sustained through an established institution. Such a collaborative research institution can be found in natural sciences and engineering around the world, but we are unaware of any in Design Research in Germany. Design and Design Research are gaining steadily more reputation and higher status in both the academy and industry. One should not be surprised if such a centre and the like will emerge and might become a model for the future. Or more strongly asserted, such a centre can serve as a lobby and coordinator for collaboration with industries partners. As a matter of fact, the recently established Design School at Stanford University in the USA and in Potsdam in Germany can be taken as a signal to such a development. There is much to learn, to exchange and to prepare for such a development. To open discussion on UI research collaboration in Design Research is timely.

To this end, we would like to report on our own experiences at the Deutsche Telekom Laboratories (T-Labs) in Germany. In this paper, we will first give some backgrounds of the institution. We will then, through illustrative research projects, share our experiences in how to move between academic research and industry practice to fulfil the demands from the two. We will also speak about the advantages and disadvantages that such a research setting poses for design researchers. We will end by envisioning scenarios of UI collaboration in Design Research to facilitate debates and discussions.

## 2. Experiences in UI Collaborative Design Research

### 2.1 Backgrounds of Design Research at T-Labs

T-Labs began to operate in 2005 and is a partnership between the Deutsche Telekom (DTAG) and the Technical University, Berlin. T-Labs is made up of the Strategic Research and the Innovation Development departments. Among Strategic Research, there is a fast-growing Design Research Lab which we head. On the one hand, T-Labs was conceived as a technical research center which helps develop innovative products and services within the DTAG. On the other hand, T-Labs creates knowledge in a strict academic sense. Design Research had not been part of the plan of T-Labs, but the success of our research projects and the interdisciplinary approach we take led the way to building an academic team. In 2005, Gesche Joost, as the first Post-Doc in Design, joined the team of technical engineering researchers. This step was possible due to the argument that interface and interaction design have high potential for innovations in the field of ICT. Through two years of delivering convincing ideas and developing systematic approach to design research, the Design Research Lab was gradually established. It now has an appropriate range of topics and a good number of design researchers. There are two senior scientists, four doctoral candidates and three student interns, and we continue to grow. We pursue three major research themes, namely 'Humanizing Technology' – exploring new interaction paradigms for technological innovations in ICT such as multitouch interfaces or sensor technology; 'Mediating People' – taking the user and his/her needs and behaviour as the starting point for research projects, e.g. on gender specific design; and 'Conceiving Design' – the most abstract field dealing with theories and methods of design research such as design transfer and the rhetorical framework of audio-visual products. We are also involved in design and development projects for the strategic business units of Deutsche Telekom, including T-Mobile, T-Home and Innovation Marketing.

### 2.2 Intellectual Property

Intellectual property is a key issue of conflict in many UI research collaborations and we are not exempt from this problem and must find a way around it. In principle, T-Labs follow the paradigm of open

innovation. Therefore, we as researchers are allowed to publish all scientific results in academic contexts. Furthermore, we invite researchers from all over the world to collaborate with us on specific topics. This policy permits us researchers to share ideas and knowledge. Nevertheless, the Design Research Lab was once involved in a research and development project the results of which were not allowed to be published because we were working for one of the business units of DTAG. From a research perspective, it was a true disadvantage as we could not share and discuss our results. Learning from this experience and to prevent it from happening again, we have developed a 'gate' process to help us better communicate and negotiate with our industry partners. This process consists of three decision steps guided by the following questions:

1. Does the topic fit our research agenda? If the answer is no, we then recommend external partners or other research units within T-Labs.
2. Can we publish research results and probably apply for patents? If the answer is no, we then help set up a project in the Innovation Development department and act as scientific advisors only.
3. Do we have enough resources? If the answer is no, we have to apply for additional funding and/or human resources to run the project.

If we can answer all three questions positively, the new research project is likely to be mutually beneficial to both academy and industry and we can in principle set it up within the Design Research Lab. We treat the knowledge gained through these projects as free to be shared within the community. Those ideas or prototypes that could lead to new products will apply for a patent. The intellectual results of our activities are publications, working prototypes, and patents.

### 2.3 Research & Application

Academic institutions expect researchers to produce new understanding and industry is interested in quick application of research results. Fundamental understanding and immediate application are two conflicting demands that we must address. The projects 'Transferability' and 'Women's Phones' illustrate how we conduct research

in ways that fulfill the two demands at the same time. In the 'Transferability' project, we are interested in understanding the method of Case Transfer. We design, test and demonstrate that Case Transfer holds more promise than traditional Case Study method in supporting design projection. The research results have also been presented at this academic Symposium. However, these abstract research results are not that relevant to the activities of DTAG. We should mention that we at T-Labs are given a high degree of freedom to investigate any topic of our own interest and to participate in academic exchange. In principle, these research results have been sufficient because quality as well as quantity of academic publication are the measures of our research output. However, in this same study, we have chosen intentionally the subject matter of transfer – mobile communication devices – so to yield immediate results for the interests of DTAG. Through testing of the method Case Transfer, the study produces more than 80 new concepts of mobile communication devices. From the perspective of academic investigation, these concepts could be considered as a byproduct. But they were quite valuable for the innovation development process within T-Labs and DTAG. These concepts could be immediately applied to the development or improvement of new products at DTAG, ranging from ideas about solving the problem of undesired data on mobile phones to ideas about sharing music within a small group in an intuitive way. In this specific case – funnily enough – it is these byproducts and not only the fundamental knowledge that communicates the value of design research to DTAG. It is through this kind of communication that we continue to receive support to our research.

The project Women's Phones was quite different than the project Case Transfer. Here, we started with the hypothesis that the current offer of mobile phone devices on the market does not reflect gender specific differences in wishes, needs and habits. The popular view of women's attitude towards technology pictures them as rather uninterested and less skilful than men. Consequently, the formal design of women's phones uses smooth forms, pastel colours and floral decorative elements to conceal its technical character. This strategy may be adequate for some female customers, but may well fail to mirror the variety of needs and lifestyles among women. They have a right

to be perceived and be taken seriously in their needs as product consumers. Therefore, we conducted a research project using inquiry methods from Participatory Design. Together with prospective female users, we developed prototypes for future devices that reflected more on the symbolic and emotional relevance of communication activities rather than on technical features or styling. We applied the tool of Cultural Probes to get deeper insights into the relevance and quality of communication in the everyday life of our group of 8 female users. The initial results from this project have already led to a request from DTAG to continue with this research with female user groups of different ages and backgrounds – as female users are seen as an important target group for future services and devices. In this example we learned that our research questions and our methodological approach fit industry interests quite well. The results from research concerning insights into the life of the user group, as well as the objects that we developed in the participatory design process, act as knowledge and inspiration for the industrial development and design process.

#### 2.4 Best or Worst of the Two Worlds

Based on our experiences, we can honestly speak more about the advantages than the disadvantages in a UI research collaboration. We will begin first with the negative. We sometimes feel that we have double workloads. As the above research examples show, we often have to keep the interests of the institution and industry in mind and that necessarily requires more planning and thinking. All of our projects must be written as proper academic papers. Besides, following the industry practice, we also have to write reports, do demonstrations and organize promotional events to communicate our research to DTAG. Academic researchers who are not interested in speaking the language of industry might find UI collaboration not easy. As for advantages, like most UI collaboration, financial support is a real convenience, to say the least. Although, at T-Labs, we are encouraged to seek external funding, we are not required to do so in order to conduct research. T-Labs has been extremely supportive not only of our research but also of our involvement in the Design Research community. T-Labs has financed the establishment of the Design Research Network and its conference. We have no data on

funding situations for Design Research in Germany or elsewhere, so we will not be able to say whether our financial support is exceptional or just average. However, we can at least say that the double workload that we mentioned above is compensated by the time and energy saved by not having to write funding applications. Furthermore, being in a UI environment we have an advantage to learn about new trends from close-to-market developments within DTAG. This can often serve as a source for new research topics among others. In this context we also have the opportunity to turn research results to actual products that might get to the market. Research prototypes leave the ivory tower to become “real” products more readily.

### 3. Concluding Remarks

We have shared our experiences in long-term University-Industry collaborative design research. We do not claim that UI collaboration is the only model or it is *necessarily* beneficial for Design Research. However, without sounding too self-congratulatory, our experiences have been positive and we hope that our presentation will facilitate discussions on the topic for the benefits of the community. We believe that experiences in various forms of collaborative research exist in Design Research and we hope that we will continue to exchange. To conclude, we would like to raise some issues to do just that.

It is not new to say that design is a discipline that integrates various domains of knowledge such as technology, business and human values. Nor is it new to say that design bridges theory and practice. But we would still add that our projects are evidences of the potential of Design Research to bridge the gap between university and industry. We would like to facilitate discussion by claiming that Design Research is by ‘nature’ suited for UI research collaboration. This nature is of course not natural but created by us. We are referring to the proposal of ‘research through design’ by Jonas and Findeli, among others. To agitate a bit more, we suggest that if design is a form of practice, (although this practice is not necessarily connected with industry), collaborating with industry might provide a fertile ground to explore ‘research through design’. It is potentially a win-win situation. We invite you to debate this possibility. Besides

the above more theoretical issue, we would also invite you to debate how we might practically use UI collaboration for the development of Design Research as a field. For example, should an institute like T-Labs serve as a lobby for Design Research in Germany, if not in Europe or the world? To a certain extent, we have addressed these questions in our own context in the past few years. Design Research has its own way of creating specific knowledge with practical implications for academic as well as industry contexts. It seems unfortunate that there are not many institutions working in this field – at least in Germany. We believe that building our own playgrounds for Design Research activities is vital and perhaps UI collaboration is a good way for it.

---

**References**

- ↳ GUIRR (Government-University-Industry Research Roundtable), 1999. *Can Knowledge of Human Behavior Be a Competitive Advantage?* Retrieved 16.01.2008, 2008, from [http://www7.nationalacademies.org/guirr/Knowledge\\_of\\_Human\\_Behavior.html](http://www7.nationalacademies.org/guirr/Knowledge_of_Human_Behavior.html)
- ↳ Jones, L.M. 2008. *University-Industry Research Collaboration – Advantages of the collaborative relationship and Disadvantages of the collaborative relationship*. Retrieved 16.01.2008, 2008, from <http://education.stateuniversity.com/pages/2519/University-Industrial-Research-Collaboration.html>">University-Industrial Research Collaboration – Advantages of the Collaborative Relationships, Disadvantages of the Collaborative Relationships
- ↳ Lee, Y.S. June 2000. The Sustainability of University-Industry Research Collaboration: An Empirical Assessment *The Journal of Technology Transfer*, 25 (2), 111–133.
- ↳ Prey, J.C. 2007. *Academic and Industry Collaboration to Improve Education*. Retrieved 16.01.2008, 2008, from <http://research.google.com/university/relations/eduSummit2007/JanePrey.pdf>.
- ↳ University-Industry Partnership. 2006. *The University-Industry Partnership*. Retrieved 16.01.2008, 2008, from [http://uidp.org/UIIDP\\_HISTORY.html](http://uidp.org/UIIDP_HISTORY.html)