

# DESIGNLAB, MAKING SPACE FOR DOING DESIGN AS A PROCESS

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## ABSTRACT

The University of Twente has developed the DesignLab initiative to feed the “high tech, human touch” mission of the organisation. The combination of high tech and human touch was made one of the spearheads of the future, in order to bank on the universities unique position as a ‘dual-core university’ with both a strong science and engineering faculty on the one hand and a social sciences faculty at the other. This DesignLab has the mission to integrate the expertise of both academic kernels in “science2design4society”, which means that design knowledge is used to make new technologies available for users and that, together with the latest insights in humanities and business, these are used to tackle problems in contemporary society. To make this happen, the DesignLab needed a dedicated space for doing design in multidisciplinary teams. Because a lot of the prospective users of the lab would not be trained as a designer, it was decided that the actual space of the lab should support the design process. The space that was developed and implemented was therefore not only furnished for the desired design activities, but also structured according the desired design process.

It is not yet evidenced that the space actually contributes to a more designerly way of working, the users are however very positive and the design process metaphor proved to be very helpful to build a shared vision within all the stakeholders involved in the DesignLab project.

*Keywords: Multidisciplinary design, design space, design environment, human-technology relations, design curriculum.*

## 1 INTRODUCTION

In accordance to the strategic positioning of the University of Twente as “High-Tech, Human Touch”, the organisation has set out design as one of the central themes in the development of our institute. Where design is meant to be an integrator of the two kernels of our university. At the one hand the technological advances, researched and created in our technology oriented departments, and on the other hand insights in contemporary developments of society, as researched by our department of Behavioural, Management and Social Sciences. To address this integration challenge, a plan was formed to make a central platform for “science2design4society”. The latter means that the initiative is dedicated to introduce specific teaching and research teams that are focused on creating a creative culture, “where scientific results from nano-, bio-, robo-, cogno- and info- technology are allowed to collide and to connect to real world challenges that people are facing today” [1].

To make this happen, a special place was needed to cater this; a place for innovation and inspiration, where every student and researcher at the University can go to seek and drive application of their work, and where industry, government and NGO’s can gather to explore options to tackle the challenges they face, and where citizens can participate to actively shape their future. In short, the university wants to establish a situation where ‘doing design’ will be an accelerator for making technology available for people [2]. This paper is about the design and realisation of this place, which was eventually called the DesignLab.

The paper describes the theoretical background of the High-Tech, Human Touch perspective on design, and will show the process-concept and the implemented lay-out of the DesignLab in more detail.

## 2 HIGH TECH, HUMAN TOUCH

High tech, human touch means that technology cannot be understand on its own. A technology is not valuable when it is not made applicable for users. Technology can of course be valuable in an indirect

manner, like photovoltaic technology that produces sustainable energy that can be used for electricity supply. We believe however that technology has more meaning for the people when it is directly used in applications that appear in the direct use context. For instance in charging stations for electric vehicles or systems for lighting public spaces (Figure 1). Design and design engineering play a major role in this transformation process from mere technology into a product that can be used [3]. To do this right (which means that the technology is efficiently used *and* the product fits to the prospective users and use context), both technology and user should be understood. That is why our university wants to bring together engineers and technologists with psychologists and philosophers of technology [4]. And that is also why we have dedicated a large deal of our design curriculum for the analysis and design of human technology relations [2, 5], including the impact on user and society [6].



Figure 1. High tech, Human touch; a technology (left) is only meaningful to people when it is transformed into a usable product. Like for instance a charging station (by Jorien Bootsveld & Katja Schuitemaker) or sustainable parasols (by Ivar Kamies & Kyan Kuiper)

### 3 DESIGN CONCEPT

One of the key concepts of the science2design4society strategy is multidisciplinary, where real world problems are addressed through many projects involving researchers, students, stakeholders, users, partners and experts. In short, this means that there will be a lot of people attending the DesignLab that have little experience with design as such. In this respect we believe that our ‘place for doing design’, should not only support mere cooperation, but should also support design as a process [7, 8].

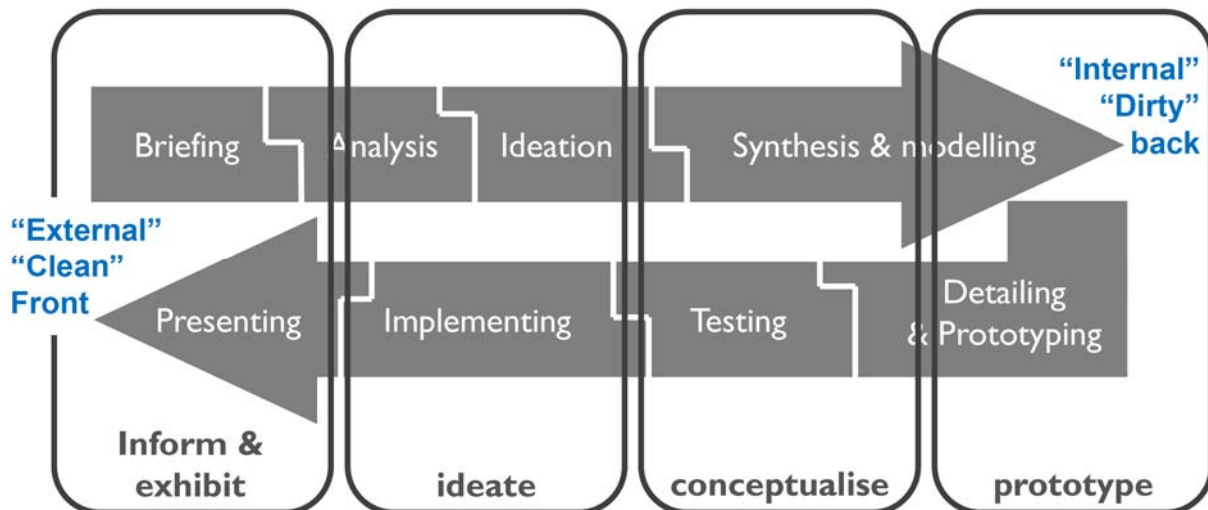


Figure 2. Mapping of the DesignLab space on the ‘generic’ design process. The design problem literally goes back and forth through the lab

The solution for this design support is implemented in a space that is physically structured as a design process. Several design processes were investigated and eventually integrated. In the technology oriented part of our community the linear stage processes are the most common, like the design processes of Pahl & Beitz and Roozenburg & Eekels [9]. In the people oriented disciplines however, circular and reflective processes are used more often and these are also adopted in for instance the Delft Innovation Method [10] and the Eindhoven reflective transformative design process [11]. We

combined these two basic principles also earlier in our own design process for Creative Technology [12], which was developed for the integration of the technology- and human centred perspectives on design. These insights resulted for the DesignLab in a generic design process roughly divided in five design phases; Briefing and Analysis, Ideation, Conceptualising, Prototyping, and Exhibiting/Communicating. These phases should be closely linked then, to allow for circular iteration and reflection. Figure 2 shows the mapping of the specific areas on the design process. The idea is that a design problem goes back and forth through the entire space: from the briefing at the entrance all the way to the workshops for prototyping and back to the exhibition area in the front for presenting the solution to the outside world.



Figure 3. Three main activities in the design process: working together in teams during ideation and conception (left); prototyping (mid) and exhibiting (right)

Building on the structure of the design process, a specific floor plan was made where every design phase has its own space, dedicated to the activities that characterize that phase (Figure 3). Most space is dedicated for working in teams, however following the design process metaphor of figure 2, there are also workshops for prototyping and a central exhibition area for showing results. As argued before, all spaces are closely together to allow for quick circular iteration, which is considered mandatory for a good design process.

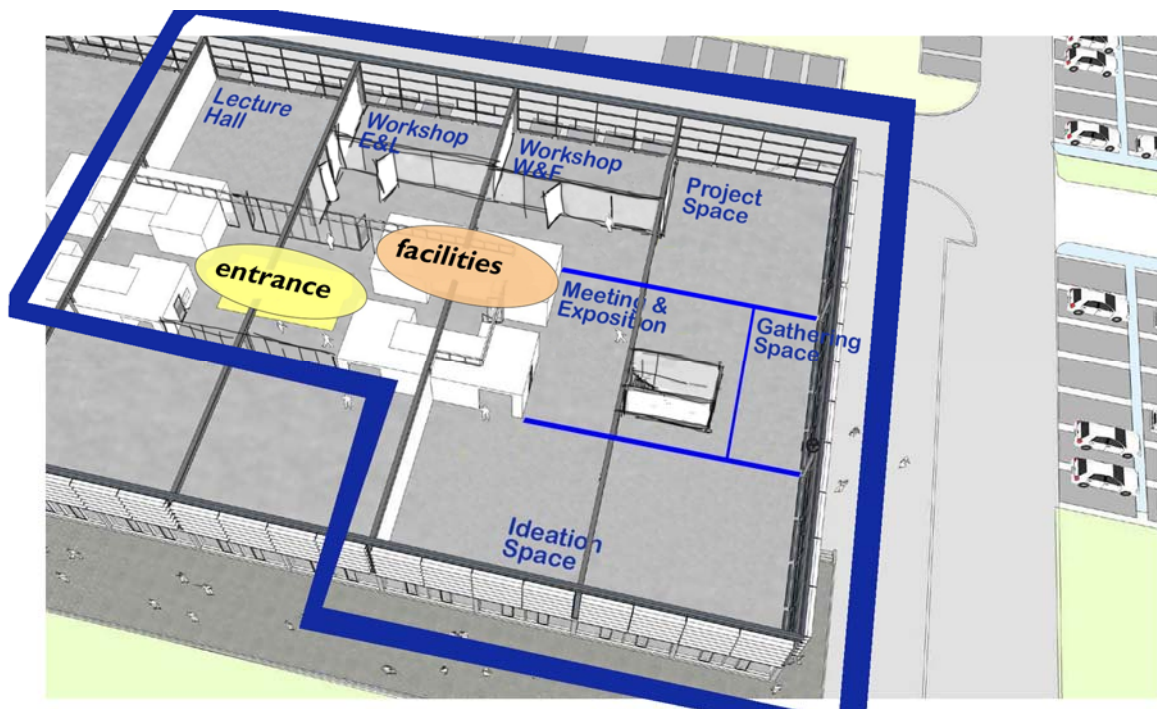


Figure 4. Overview of the layout of the lab in the selected building area

The idea of making the space like a design process was then implemented and illustrated in a master plan that served as input for the conversion of the building and the design of the interior. The actual building area that was reserved for the realisation of the DesignLab did not have a rectangular floorplan, so in the end the areas were grouped around the entrance instead of in a row (Figure 4 & 5).





Figure 5. Impression of the DesignLab interior concept from the master plan

#### 4 IMPLEMENTATION AND CO-DESIGN

Leurs et al. showed that the physical space for doing design has huge effect on the performance and self-confidence of design students [13]. To cater to the needs of the prospective users of the DesignLab, a team of students from Industrial Design Engineering was asked to develop the master plan into an inspiring environment. The students came up with an overarching design style called 'low-poly' and a set of dedicated design furniture objects (besides the obvious bar and lounge corner). The low-poly style is widely known from the tessellation of CAD files for rapid prototyping and is commonly used as a style that stands somewhere in the middle between nature and technology in a lot of illustrations. The style therefore fits both to the visual world of the students as to the high tech, human touch theme of the DesignLab mission. The special furniture objects in low-poly style were then mixed with standard project tables, whiteboards and chairs to make a complete interior. The designed furniture objects included a 'design-island' (in analogy with a cooking island) for doing design work in a group, a little 'house' to work individually and concentrated, and a pitch module with integrated stand for doing on-site presentations. The special furniture was constructed by a bigger team of students. To save costs of course and also to raise a sense of ownership for the DesignLab within the student community.

#### 5 SPACE

After the implementation the result is an open studio-like space with a bright atmosphere, where students and staff can easily switch between different tasks. The openness of the space allows for easy adaptation to the specific needs of the moment and also stimulates community building and cooperation. Specific signing was developed to guide users of the DesignLab through the area and therefore also through the design process. To remind every visitor of the purpose of the DesignLab - eg doing design as a process - the design stages are also installed at the entrance (Figure 6, right).



Figure 6. Students doing project work in the finished DesignLab (left), one of the low-poly designs furnishing the lab (mid), and the signage of the design process at the entrance

## DESIGNLAB STRUCTURE

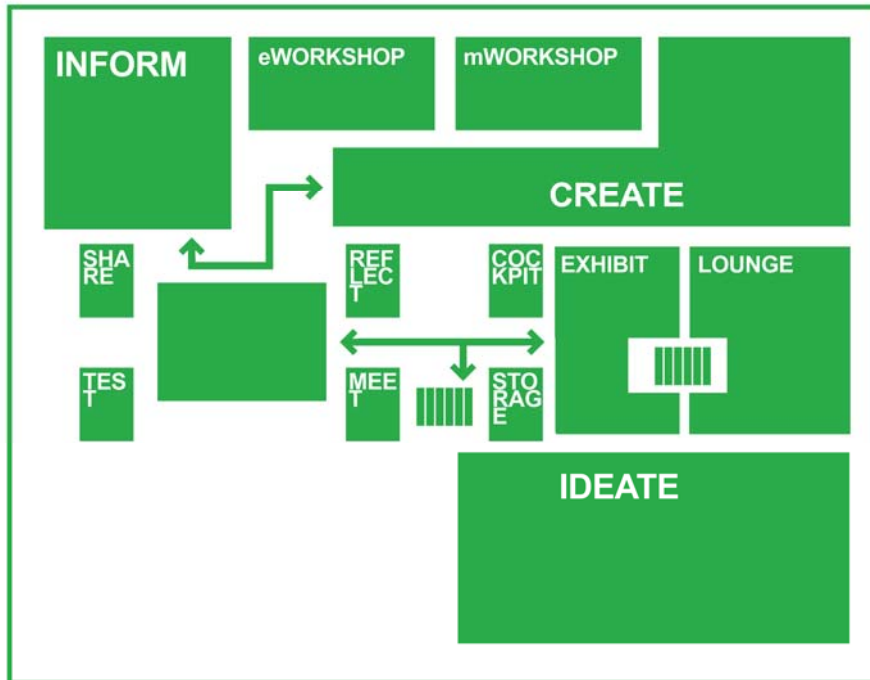


Figure 7. The structure of the DesignLab, according to the eventual implementation. The entire space is approximately 40 by 50 meter

### 6 DISCUSSION

The DesignLab works for the planned activities like lectures, symposia, research meetings and presentation of project results. These are however incidental activities, whereas the lab was meant to do entire multidisciplinary projects with a lot of stakeholders from the beginning (briefing in the 'Inform') to the end (presentation in the 'Exhibit') (Figure 7). Because research projects are mostly temporarily financed, based on the effectuation of proposals, these type of science2design4society projects that are dedicated for the lab still have to start off

Students have to find their way to the lab though for their design project work, thanks to the participation in the building stage. The users of the DesignLab at this time are mostly master students from Industrial Design Engineering and Human Computer Interaction, who are used to do design work from their bachelor. It is therefore hard to say whether the design process layout of the lab really contributes to the execution of projects in a more designerly manner (e.g. with a clear structuring of the project, including a separate ideation phase and several iterations). The users are however very positive about the open atmosphere of the lab, the possibilities to tweak the interior to their needs, and the fact that all the facilities are close to each other.

### 7 CONCLUSION

The process metaphor for the layout of a multidisciplinary design lab space has been successfully implemented. It is however not yet evidenced that the layout actually contributes to a more designerly way of working. The idea of making the space support the design process was at the other hand very valuable as a guide during the development of the DesignLab. Especially in creating a shared vision within all the stakeholders that were involved, not in the least because a lot of these stakeholders were not designers.

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