

Fantastic Voyage

Wayfinding design for
Danderyds Hospital in Stockholm

Anja Popović
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University of Gothenburg / HDK School of Design and Crafts
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Abstract

This thesis project is a design solution for a specific situation. It explores how design can support wayfinding in a complex environment.

How can design support wayfinding, navigation and orientation in this specific surrounding? And how can the design outcome be functional, but still innovative and artistic?

The outcome is a concept based on graphic design with various means of communication, which seeks to be innovative, functional and artistic.

In addition to that the investigation studies the advantages and possibilities of multidisciplinary work between the knowledge fields of design. Simultaneously it questions the traditional boundaries originating from categorisation and specialisation within the design discipline as such.

How does collaboration contribute to the designed outcome? What happens if the design fields and their knowledge merge?

Finally questions about the roles of designers arise. How much of a service executor or a creative is a designer? Where are the boundaries between the design fields?

Keywords

co-creation
wayfinding
inter- and multidisciplinary design
system
social responsibility

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Design issue

This thesis intended to research how multidisciplinary work and co-creation between the knowledge fields of design can cross-fertilise each other. In addition to that it explores if this approach can be applied to foster both, the process of designing and the outcome that possibly carries the approach in a visual form.

In the beginning I asked myself, if and how the merge of various skills and knowledge fields can be translated into the design outcome.

Is it possible to merge the knowledge fields of design to create a holistic design system? What happens when various techniques, previous knowledge (communication design) and new insights (other fields) meet each other? How can graphic design be applied to a broad range of applications? How can my ability to create identities for products be useful to produce entities for experiences and processes in a space?

Does the outcome reflect the possibilities of co-creation and sharing in various knowledge fields of design?

Beyond that the multidisciplinary approach and the results of the investigation also raise the questions, where the boundaries between the knowledge fields actually are and how this might affect the role of the designer in the future.

Introduction

For the sake of convenience I used the terms:

we = shared process (Rickard Granholm, Anja Popović)

I = design investigation (Anja Popović)

Background and Motivation

This thesis project was originally a design proposal initiated by CIF - Clinical Innovation Fellowships in Stockholm¹. The original request of the proposal was to 'improve the communication in Sweden's largest cardiac clinic'.

I've always been interested in all kinds of communicational activities between people (and/or people and objects). A reason for this could be that I grew up between two cultures and needed to know quite early how to deal with more than one language at the same time for instance. This experience grew to a strong interest for oral and written language, semantics and semiotics, typography, exchange of information and the human body as a tool for communication. With my educational background as a communication designer I already collected experience in how design can support information processes in various fields of daily life.

A hospital is a complex matter. As simple as it might sound, I was always interested in other people's work and methods. First and foremost it was pure curiosity that made me apply for this proposal. Another though very private reason to apply for this fellowship was, that my father died of a heart attack at the age of fifty-eight. I myself was twenty-three years old at that time and that was a very incisive experience in my life. Due to that my interest in cardiology and everything that is related to that was very strong. It seems somehow that I subconsciously would like to support the work that people in public healthcare execute every day in order to save and make people's life better.

Finally the opportunity to work with another student from the field of cognitive science attracted me from the very first moment. In my eyes the only way to create something outstanding is to cooperate with people from a broad range of professions by combining their individual skills, abilities and characteristics.

The project is about how wayfinding at Danderyds Hospital can be improved with the support of communication design. The design focuses on people, who are not familiar with the architecture e.g. patients, visitors and new employees.

Further the project explores how new ways of thinking and designing can foster and influence another discipline like public healthcare, but still be innovative, functional and artistic in the field of design.

Innovative means in this case the ability to create something unprecedented and original by combining and relating on already existing knowledge. Functional means to create something that is user-friendly or easy to use. And artistic means that it has a certain aesthetic expression that stimulates senses and perception.

Team

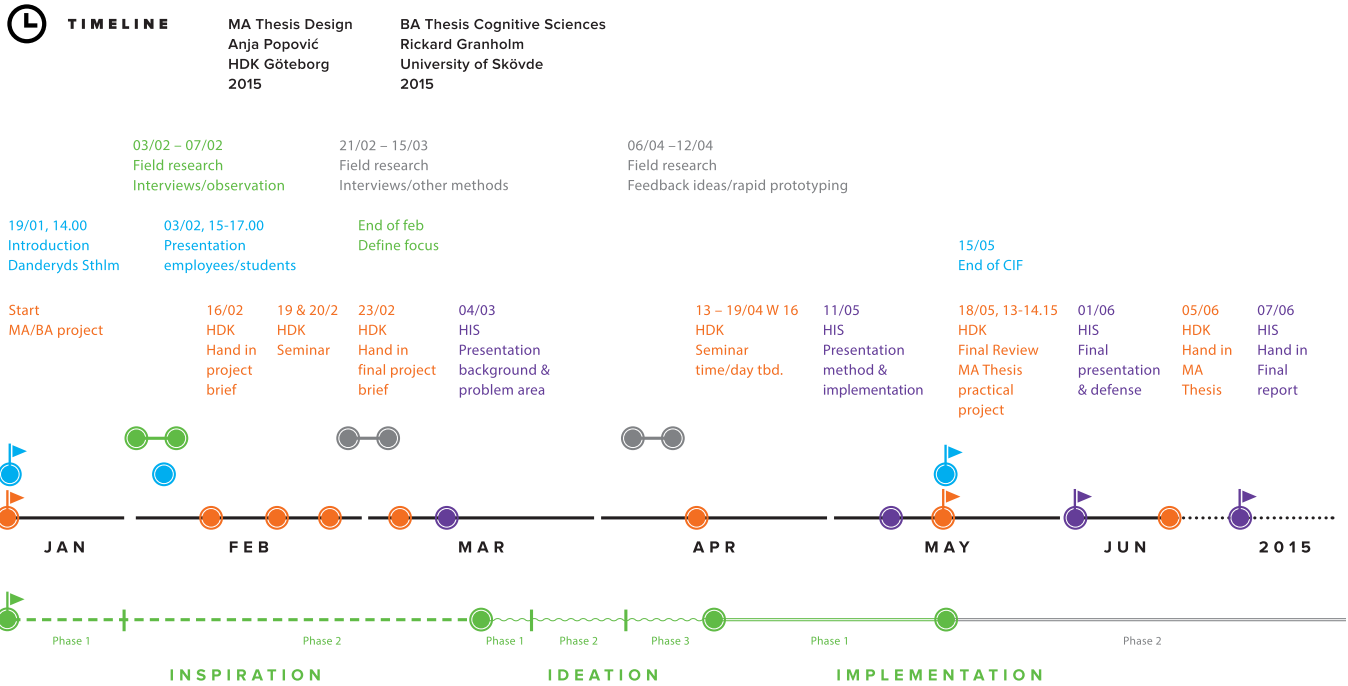
My project partner Rickard and me shared the research process. In other words it means that we discussed, planned and applied various methods during our hospital visits. But in the end we divided our areas of responsibility according to our skills and professions.

¹ CTMH (2015) Clinical Innovation Fellowships, Available at: <http://www.ctmh.se/fellowships/>, Accessed: 3rd June 2015

Project Plan

Before starting the investigation it is useful to set up a project plan¹ in order to have a good overview of time and things to do. Besides that it is essential to work in a structured way due to the complexity of the topic and involvement of people.

The plan is divided in three project stages:



Inspiration

Inspiration is about framing the design challenge and collecting a lot of research material. The first phase of inspiration is about getting started and organising different documents such as project plan, project description, get to know everyone and having first team meetings and discussions. Despite that it is time to gather secondary research material such as information from literature, digital sources or material related to the field of design and medicine.

The second phase of inspiration is to prepare for field research. To plan and prepare methods, which should help to gain quality insights into the hospital's communicational activities.

Ideation

This stage of the project is divided into three phases. Phase one is about structuring the research findings, informing the team members and discussing the most relevant contents. Further it is about choosing main topics and defining directions to go.

The second phase is all about creating. To conduct brainstormings, to structure the ideas, to select them and try to formulate idea concepts is the goal.

Phase three is about formulating the concept. Then it's time to define core ideas, but also to discard some of them. Further it is important to get constant feedback and to integrate it into the concept of a design. Another helpful method in this stage is to create customer journeys in order to show possible scenarios within the designed framework.

Implementation

This stage of the thesis project was optional, since it wasn't clear if there would be enough time left to start with it. It is about application and testing the design concept with prototypes.

The intention is indeed to create at least rapid prototypes in order to get feedback and prove that in a qualitative way. So phase one of this stage would be to create first prototypes and pilots. Further it would be time to build up partnerships and create roadmaps for the upcoming implementation steps.

The next and second phase of this stage would be to create a strategy with potential future scenarios. It's all about identifying success and to publish or communicate the overall idea or concept. Further it is important to define costs or financial needs for human resources and applications needed.

¹ Designkit (2015) Create a project plan, Available at: <http://www.designkit.org/methods/9>, Accessed: 3rd June 2015

Secondary research

It was not very hard to find inspiring material such as articles on the web, which discuss the opportunities for design in public healthcare. Despite that I could find interesting projects from other designers. I would like to mention two projects that were the most relevant design resources for this thesis work: The first is The Nature trail by Jason Bruges in London¹.

This is an interactive wall that becomes a natural canvas with digital look out points that reveal various animals. It helps to create a calming yet engaging route for patients to the anesthetic room. The usage and combination of different analogue and digital techniques allowed to create something unique and forward-looking.

Another equally important resource was the work of SEGD², the Society for Experiential Graphic Design. SEGD is a multidisciplinary community creating experiences that connect people to places. It consists of practitioners, that come from the fields of graphic

design, architecture and industrial design. They are concerned with the visual aspects of wayfinding, communicating identity and brands, information design and shaping a sense of place.

Between the years 2003 and 2010 a team of various designers developed an universal set of symbols for healthcare through a joint partnership between Hablamos Juntos with the support from the Robert Wood Johnson Foundation. They have been tested and their impact was approved by SEGD. The symbols are available as original files and can be downloaded and used in other design projects.

It turned out that this design was of great importance in the thesis project, especially regarding equality and accessibility for all people. The symbols played a major role in the visual system and are an integrated part of all designs deriving from that.

Field research

First observations

Since we wanted to specify and narrow down the topic as quickly as possible, we discussed possible ways to be able to achieve our goal. We decided to conduct a first pilot study. The pilot was mainly about observing people's activities and behaviours during the daily hospital routines.

We observed different groups of people that were mainly interacting with each other. Further we witnessed communicational activities between patients and employees, joined rounds and shift exchange meetings in order to understand the employees' ways of working, their routines, thoughts and conditions. In addition to that we observed peoples movements and their behaviours in hallways and 'non-specific' or public areas alike.

But we also visited and analysed specific locations like waiting rooms, kitchen, common rooms, offices, doctor's offices, emergency ward, cardiac daycare, medication room, patient's rooms and receptions in several departments. After having collected a lot of material documented as pictures, notes and sketches we tried to evaluate that and identified basically two main challenges: 1. Supply of specific information to cardiac patients and 2. Wayfinding.

¹ Jason Bruges (2012) Nature trail, Available at: www.jasonbruges.com/projects/uk-projects/nature-trail, Accessed: 15th February 2015

² SEGD (2003-2010) Healthcare Symbols, Available at: www.segd.org/healthcare-symbols, Accessed: 15th February 2015

Blog

In order to collect and document various research material for a better understanding, but also to easily share it with the different stakeholders of the project, I set up a private blog. Please contact me, if you wish to access it (privat policy).

1

While we spent time within patients' areas, we had the opportunity to analyse informational material we found in waiting rooms amongst others. We discovered a lot of printed material such as brochures or many self printed DIN A4 sheets that contained more or less important information for patients or their relatives. The material was placed in different locations, mainly on walls or doors. Further there were flat screens installed showing different kinds of informational slides containing mood images and text. While observing patients were waiting, we did not see even one of them reading the present material. Another study question was, how many of them actually read and understand the existing resources. We agreed, that it would certainly be a more difficult challenge to 'measure' how much of the given information is perceived and understood by the patients. But there is surely scientifically sound and research based material to rely on in order to design something more effective.

2

One aspect that we observed was that people were constantly asking for directions. The immense amount of orientational questions we've heard, but also people, that we've observed navigating unknowingly through the hospital was very distinct. Since we both were wearing hospital clothes during our observations, we were frequently asked, if we could explain the way to a specific room, area or person. It was not possible for us to answer those questions, since we ourselves could not orientate in this building either. Another thought was, what kind of impression this state would leave to a (new) patient or guest, if the hospital's employees even not know the ways throughout the building. In addition to that I was in that position myself, when I entered the hospital for the first time. I can clearly remember how I tried to find my way and moreover how awkward and frustrated I felt, because it took time (I had a meeting), it made me insecure (entered 'prohibited' rooms) and it made me feel very stupid ("Am I too stupid to find this way?"). In this case I tried to find my way my own, but when I realised that it was not possible I asked an employee dressed in white and blue hospital clothing for the way, but he just recommended me to return to the entrance and ask for help at the information desk. Further it seemed that employees try to avoid contact with wandering people while walking through the corridors. They seemed busy (which is probably case), but also to avoid eye contact or even give a try to answer peoples way finding questions, because they have important things to do or no appropriate answers to it anyway. This might also affect the hospital's image in public opinion.

Furthermore it would have been important to analyse and test both, the existing information material and its priorities as well as the patients' perception to it. We thought, that the measuring part would have been a bigger challenge for us, since there were subjective research factors involved, which were not clearly 'measurable' in a more objective way. From a designer's perspective there are uncountable ways to work with the transport of information to patients and there are undoubtedly things that can be done to support the informational transfer more than this appears to be the case now.

Another aspect we experienced was that even if you got information from the person behind the information desk, you were 'left alone' with it on your further path. That means that there is no help available when lost in the cardiology department. Furthermore even when we got a bit more familiar with it due to repetition and our memory, it was hard to explain the routes people should go, because there are not that many characteristic features or applications in the cardiology department that could serve as visual points for further orientation. We've heard that there already exist such improvised orientation aid, which was invented by the employees themselves like the experssions 'Pass Pressbyrån and then elevator B' or 'pass flower shop to the right'. And it seems that those commercial shops in the hospital have a clear visual and 'odd' (means visually not belonging to hospital) appearance. Such descriptions, our observations and experiences implicate that there is an intense problem with wayfinding. It causes disorientation and questions and obviously costs precious time that could be used for more important things – especially in a hospital.

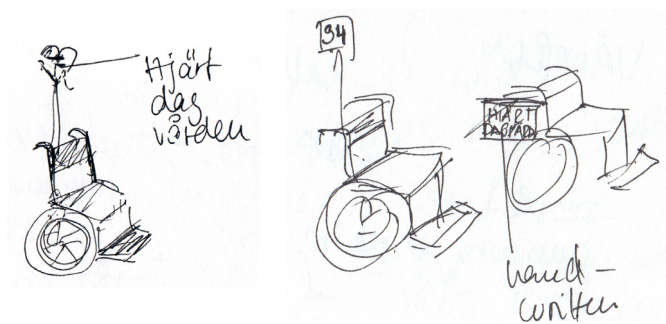
In conclusion we thought that those are the most obvious and problematic topics to work with, so we decided to work on with the topic of wayfinding.

The topic of Wayfinding

To be able to formulate a project brief and plan further steps, a project brief was launched.

The brief includes the following passages:

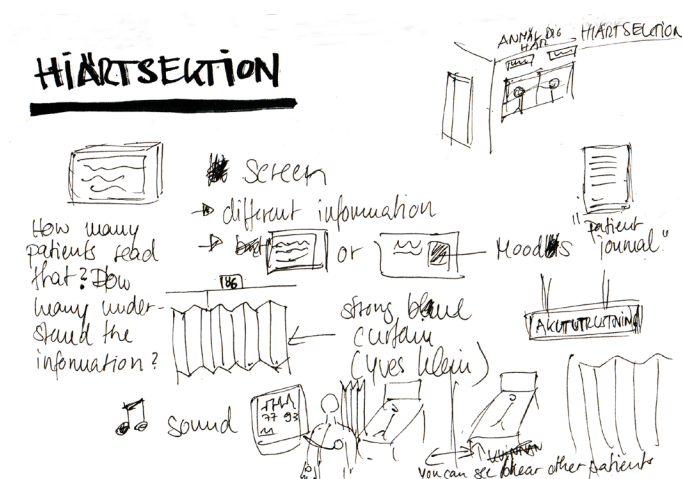
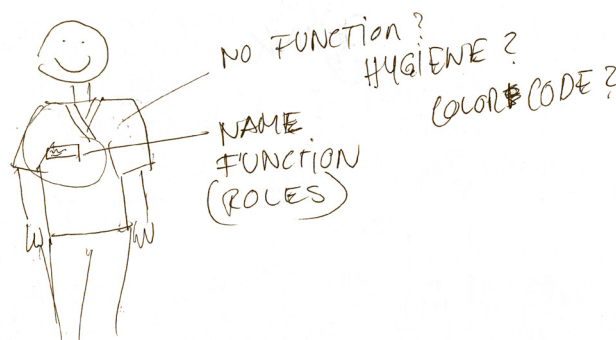
- general description
- design issue investigation
- methods, experiments and practical approach
- motivation of relevance
- outline of expected outcome
- references I referred to including sources



Secondary research Wayfinding

After deciding to work with wayfinding it was necessary to find more secondary research material, such as specific books related to that topic or specific design projects in this field.

Further it was necessary to understand the previous knowledge in the field of design in order to be able to innovate. A good source of information for developing the design was Per Mollerup's book *Wayshowing: A Guide to Environmental Signage Principles & Practices*¹. It basically contains essential requirements and suggestions exemplified by projects from the design practice for developing a well functioning wayfinding design.



Examples of notes and sketches from observations


Field research 2: Define challenges & deepen insights

This second part of Inspiration was about uncovering and getting more insights of wayfinding problems. We prepared a variety of methods. It was the first time to use IDEO methods² in a practical project.

¹ Mollerup Per (2005) *Wayshowing: A Guide to Environmental, Signage Principles & Practices*, 1 edn., Baden/Germany: Lars Müller Publishers

² IDEO (2002) *IDEO Method Cards: 51 Ways to Inspire Design*, 1 edn., San Francisco/USA: William Stout Architectural Books

→ Patient comes
that is looking
for shampoo



→ interrupting

→ he's running around
in a towel and
asking us for shampoo

First and foremost I have to admit that it was remarkable how some of the methods did not have the remotest chance to work. One reason might be that there were no appropriate (spatial) circumstances for this. After a few attempts, we realised that specific methods are simply not feasible during a daily routine in a hospital. Another reason might be that everything that sticks out and that is not announced properly might possibly be regarded as a disturbance by the employees. Therefore I will just name the ones we were able to conduct:

Conditions

In general we had to organise a lot before our visits. It turned out that our contact people themselves had not that much time to help us to organise things. So we just tried to make it work. Even though we organised a lot before hand, it turned out, that not everything worked out as planned. I learned that I have to deal with unpredictable things, improvise and make the most out of it.

Guided tours

This method is all about shadowing people and trying to follow them while they were trying to orientate. First we were wearing our 'hospital clothes' until we realised that the people immediately asked us for wayfinding help rather than allow us to follow them silently. So we changed our clothes in order to get unbiased results. Therefore we followed many people, tracking their ways to the different departments. This method turned out to be very efficient, since we collected many findings and insights about peoples movements and uncovered troubles with the existing system.

Experience

We interviewed many people and asked them how they experienced navigation so far. In the end we had material such as notes and recordings of voices. There were mixed opinions and thoughts regarding the wayfinding experiences. How people navigate through the hospital, depends mostly on age and circumstances. There are also different kinds of means of information people use to orientate before-hand or while they navigate through the hospital (e.g. digital map, signs etc.). We mostly asked people in the public waiting zone, since they had to kill time. This turned out to be successful.

Symbol quiz

I found out that there were already symbols created especially for the usage in a hospital. The SEGD¹ designed a set of symbols, that show many departments, functions and activities in a hospital. Since there are already existing symbols, that are also available for free usage, I considered to embed them into the design. Before that I wanted to evaluate them for myself to see, if they could also function in another cultural context. So I set up a digital survey respective a symbol quiz², where people can guess the meaning of the particular symbols. Every side showed a particular symbol and the user had to type in quickly the respective department, action, activity or medical term - short: in their own words. Further I thought about how to get unbiased results. So I told them, if they don't know the answer, the symbol is simply not good. They could skip to the next one. It turned out, that 62 people out of 132 completed the survey, which included 33 symbols in overall. The results showed, that almost all symbols worked out pretty good and people understood their meaning even without providing any written description (e.g. department name).

¹ SEGD (2003-2010) Healthcare Symbols, Available at: www.segd.org/healthcare-symbols, Accessed: 15th February 2015)

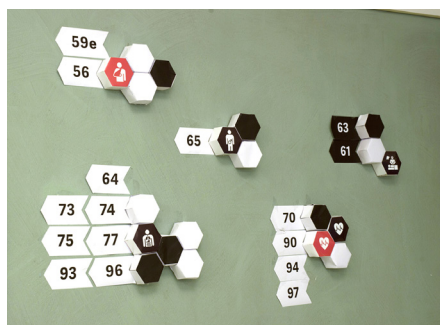
² Symbol Quiz: <https://anja4.typeform.com/to/zb1R5y>

Brainstorming

A brainstorming¹ is a group or individual ideation session, where efforts are made to find a conclusion for a specific problem by gathering a list of ideas, spontaneously contributed by its members. We managed it somehow to catch the employees during one of their 'fika'² breaks. Even though it was a bit difficult to gather the employees at the same time, but we got many ideas.

Later I conducted brainstorming sessions with people that are not familiar to the hospital in order to see if we get different and possibly more 'crazy' ideas. For this I asked even specific questions like "How can we avoid that people take the elevators dedicated to a better patient transport?" Finally we collected a lot of ideas, that were useful to develop a reasonable design.

The next step was to bundle the ideas and to create an outline of a concept. To combine them, to keep the best ones, but also to discard some of them.

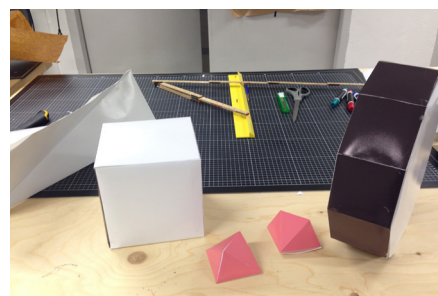


Testing of 70mm prototypes at Danderyds

During our last visit we were basically working in the openlab workshop for a few days, building 3-dimensional artifacts and exploring various shapes for possible future applications. Our plan was to quickly build and after that test them in the actual space. This was more of an investigate attempt without having any strict rules to follow. In contrast to the structured way of working according to the project plan, this was the try to open up the ideation phase again. To be able to open up for new insights through making and hands-on work.

Prototyping openlab Stockholm

After having experimented with various materials and shapes, it turned out that we can use geometrical objects as information carriers but at the same time create a sort of sculptural landscape. Not only the landscape but also larger single objects can be used as a sort of landmark or trigger. First and foremost it attracts attention and secondly helps to orientate. Another attempt was to use this 3-dimensional objects as lights in order to highlight darker areas.



Examples of geometrical 3D objects from prototyping at openlab

¹ Wikipedia (2015) Brainstorming, Available at: <http://en.wikipedia.org/wiki/Brainstorming>, Accessed: 3rd June 2015

² Wikipedia (2015) Fika, Available at: <http://sv.wikipedia.org/wiki/Fika>, Accessed: 7th June 2015

Graphic exploration

At the same time it was important to me as a designer to work parallel with the help of graphic design to find a possible access to the topic. So I started to explore colours, shapes, structures, symbols, materials, typography and pictures. This was more of an investigative attempt to find an appropriate approach. Beyond that I am convinced, that a flexible graphic design system could be applied to all of the design applications later on. And after all our insights it is needed to repeat the design elements in the space in order to make it perceptible.

Moreover I tried to study the existing hospital map and the building itself to understand the architecture and the system behind it. Another try to comprehend the building better was to sketch a rough map. Furthermore I built first prototypes based on the previously explored shapes. This was to sample their sizes and to see more clearly if something like this could possibly work. There were basically a few requirements that the graphic design had to fulfill in my eyes:

1. Very flexible and scalable for all applications
2. Informative and understandable for many people
3. Intriguing, but still integrative
4. Shape a holistic system
5. Innovative, functional and artistic design system

In this case I have to mention a precious reference that served as a great source of inspiration to me. The work of Hinnerk and Lou Scheper, who designed early orientation and/or colour systems for hospitals and other institutions. Especially Scheper's color-based guidance system for the private section in the surgical clinic in Münster¹ in 1926 had great importance to develop the design. Both, Lou and Hinnerk Scheper were students at first and later on from 1925 - 1933 teacher at Bauhaus Dessau and Berlin. Especially their integrative approach, to unite disciplines like architecture, sculpture and painting was very important for the practical part of this thesis. It was important to work intermedia in this project. Another aspect I would like to mention is the System-Design at Bauhaus². The system was regarded as a dynamic and self-sustaining process. According to Bauhaus a system is therefore a variable, flexible and 'elastic' entity. This entity includes not only objects, but further also language as a part of the systematisation.

The Bauhaus philosophy turned out to somehow be my constant companion throughout the whole project. The graphic exploration was a very welcoming change to the previous research work, which was very pragmatic and theoretical. As a designer I discovered that I feel very comfortable working with theoretical and practical phases in turn. This variety and alternation empowered the outcome in a more fruitful and confident way, I assume.

(theoretical, 'academic', organisational, immaterial — 'practical', 'hands-on', concrete work)

¹ Stöppel Daniela (2014) *Visuelle Zeichensysteme der Avantgarden 1910 - 1950: Verkehrszeichen, Farbleitsysteme, Piktogramme*, 1 edn., München, Silke Schreiber Verlag, Chapter 3: Zeichensysteme der visuellen Kommunikation, Farbleitsysteme, Realisierte Farbsysteme, p. 279 – 288

² Stöppel Daniela (2014) *Visuelle Zeichensysteme der Avantgarden 1910 - 1950: Verkehrszeichen, Farbleitsysteme, Piktogramme*, 1 edn., München, Silke Schreiber Verlag, Chapter 3: Zeichensysteme der visuellen Kommunikation, Farbleitsysteme, Realisierte Farbsysteme, p. 323 – 324

Evaluation and analysis of research

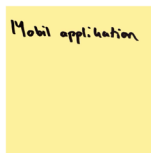
In conclusion it turned out that we were partly successful with our method based research material. We did not really know that it would be such a challenge in that environment, but still we tried to apply all of the prepared methods. That is probably unpredictable. People are presumably stressed and really don't have time to be bothered by even more students than usual. Otherwise we were satisfied with the material we researched so far. We collected a diverse range of information materialised as sketches,

pictures, recordings, quotes, notes, opinions, literature. In addition to that Rickard gathered scientific material from the field of cognitive science. It consisted amongst others of various experiments that showed how the human brain functions especially in moments of stress. It indeed helped me to understand the challenge of orientation from a different perspective. At a glance we regarded the material sufficient to build up upon it and to argue for the design concept later.

Before / after hospital



Paint AKUT entrance on housewall outside

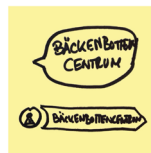


Interactive map website and phone app

Analogue printed map, take away leaflet



Guided introduction tour for new employees (and patients)



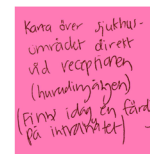
Oral information using same language as the wayfinding system (information desk, doctors)

In the hospital

Entrance area
Ground level main building



Object with integrated touchscreen, digital map, output: printed descriptions of routes



Map showing entrance area and ground level

Map showing all hospital buildings

Overview over all departments using symbols, numbers and words



Reception - design it distinctly



Reduce amount of signs at entrance

3 Directional signs: show main directions first (pink / orange / turquoise zone - more info on map)

In general



Use symbols, words & numbers



Structure logically



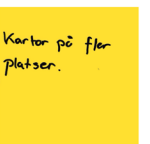
Use short words and descriptions



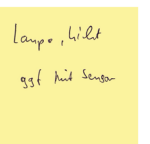
Hierarchy within signage, modular, flexible sign



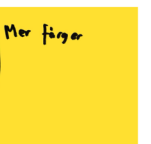
Instead of prohibitions illustrate opportunities (e.g. smoking zones)



Kartor med en prick: "Här är jag"



Work with lights Highlighting, trigger perception



Use colour system



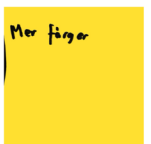
Show staircases and escalator



Use whole architecture (doors, ceiling, floor, furniture, windows, walls, clothing, objects)



Simplify information, remove old info



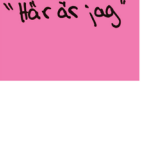
Logical usage of colours



Graphic space



Use landmarks in the whole hospital Interactive and simple



Maps in the whole hospital with specific information

The brainstorming concept

Requirements for design applications

All our researched findings led to the formulation of various requirements for the design. The detailed list is attached to this document.

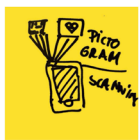
In the hospital

Hallway - Way to hisshallen / ways to other buildings
Level 1-14 main building



New waiting zones equipped with pillows showing relevant wayfinding information for this specific areas

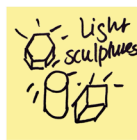
All of the other waiting zones could have those around



A mobile app or gadget allowing to scan the symbols and showing you the way to the resp. department



Interactive landmark shows position and way to the different departments



Interactive lighting objects with integrated wayfinding information = reacting when you approach or activate them

Placed as landmarks in the hallways / way to hisshallen

Wall modules with symbols and department numbers in hisshallen



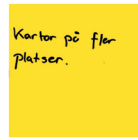
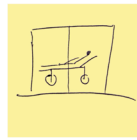
Mark the elevator for patient transport

Highlight the way to the other elevator (personhiss) Use door, floor, wall



Map showing ground level / way to other departments - way out

Integrated (in geometric object, light box) or external (wall e.g.) > depends on space



The concept

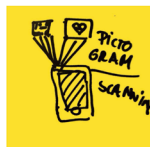
As previously mentioned a concept was formed out of the brainstorming material that was generated during the brainstorming sessions. This concept is meant to be the basic document, that shows all requirements and aspects that should be considered for installing a new wayfinding system.

In the hospital

Elevator / Staircases / Hallways
All levels all buildings



Use wall in staircase and show current level and next department

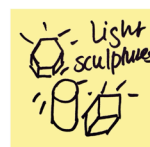


A mobile app or gadget allowing to scan the symbols and showing you the way to the resp. department



Mark the particular department distinctly

Use graphic / modules / light (if darker)



Interactive lighting objects with integrated wayfinding information = reacting when you approach or activate them

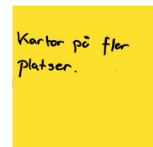
Placed as landmarks in the hallways / way to hisshallen

Wall modules with symbols and department numbers in hisshallen



Map showing ground level / way to other departments - way out

Integrated (in geometric object, light box) or external (wall e.g.) > depends on space



Show level plan in and outside elevator



Use colours on elevator doors



Signage Symbols / numbers / words on modules, wall & floor (depending on space available)



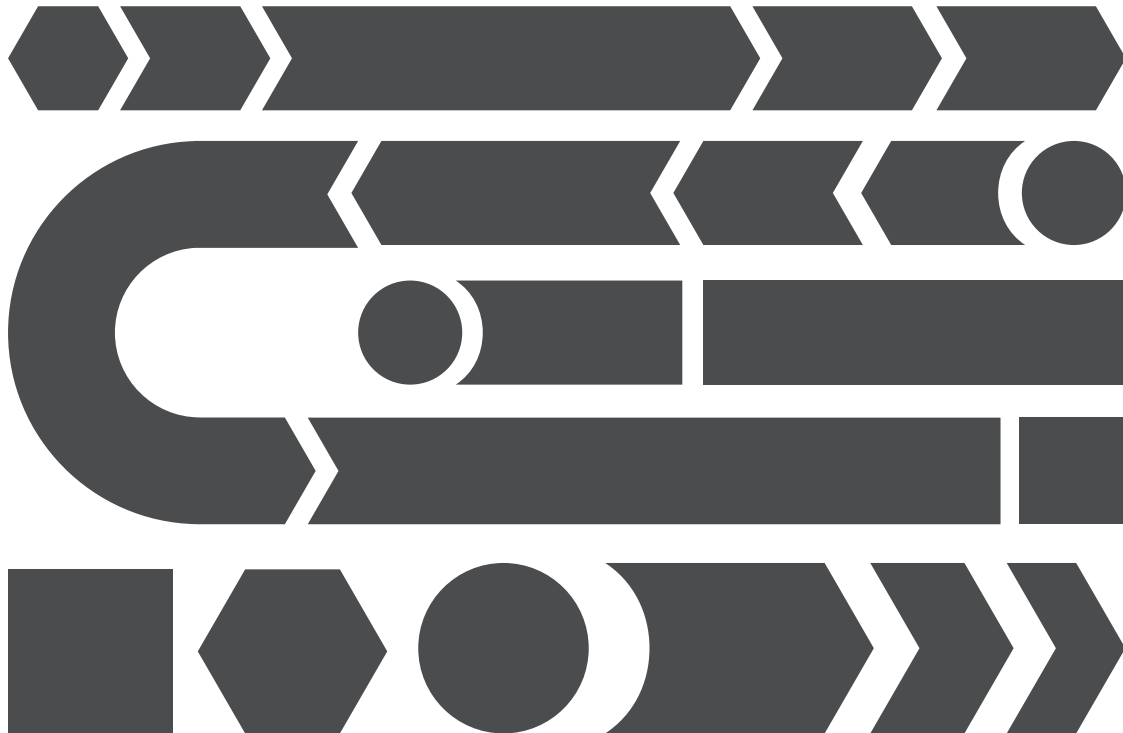
The components of the visual system

Shapes

The system consists of various shapes, that can be combined in any way and adapted to the specific demand. Therefore endless combinations form new structures, but are clearly recognisable as belonging to the hospital's wayfinding system. Sometimes it might be needed to use just one shape, sometimes there is the need to group more of them in order to deliver specific information.

The ulterior motive was that information, which is placed on the negative background is more legible than the other way round. Another approach was to implement the directional sign of an arrow into this system. This allows to direct to particular cardinal points. Beyond that the signs set themselves apart from the walls, which are mostly painted in light colours. In either case - grouped or single - they immediately work as basic information carriers and fingerposts.

However a more critical aspect though is that if grouping the shapes, that there is a point, when the group consists of too many shapes. So it might be confusing or simply take too much time to find the information that the enquiring eye is looking for. In order to avoid that, the careful choice of the particular spots for installing the signs is very important. In other words, to consider height, the size of the whole structure, their relation to each other and finally the context they are placed in ("Are there other things, that distract the eye?").



Investigation

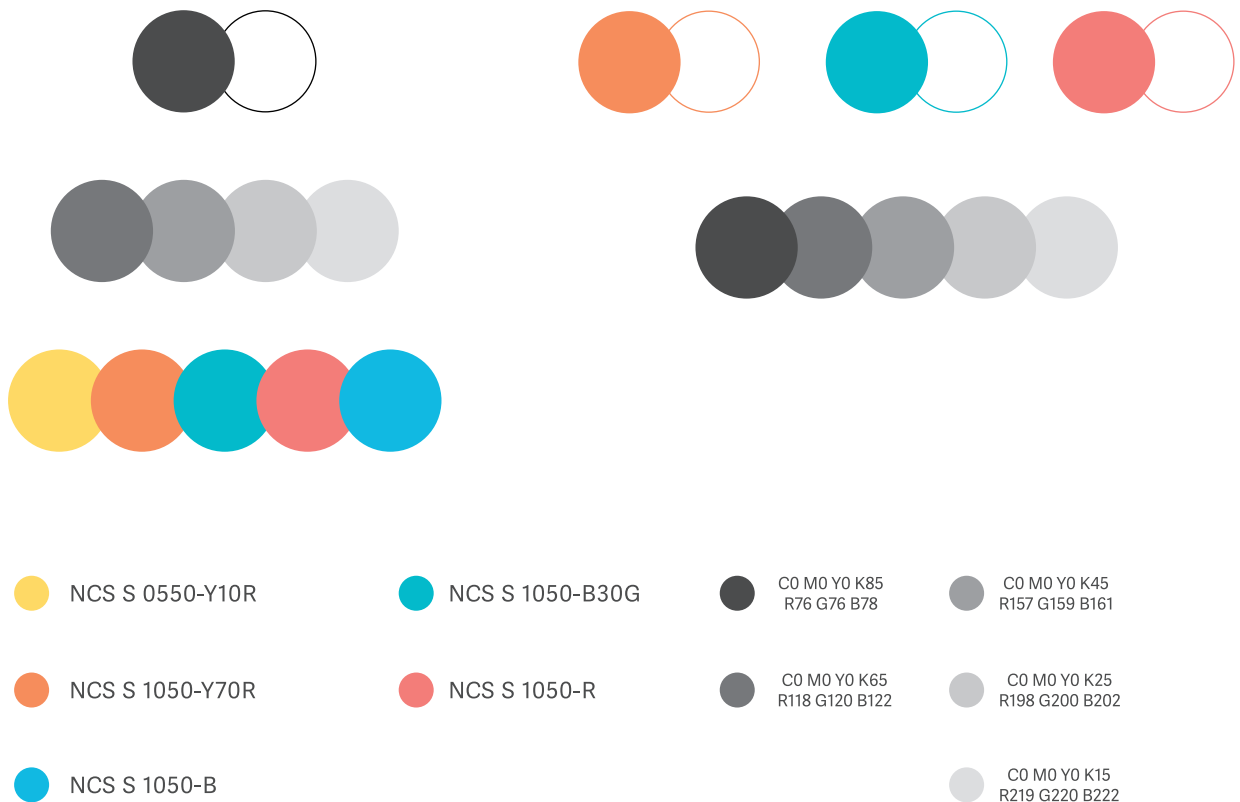
The components:

Colours

It was necessary to create a set of more color ranges in order to make any application flexible within the design system. One approach was to use colour as a trigger for individual emotions. Therefore a range of curbed colours should create a more soft and welcoming atmosphere. Another experience in the space was, that there is a lack of significantly coloured surfaces. If there would be varying colour surfaces that contrast with the existing environment (means surrounding objects and surfaces), they could trigger emotions, but also serve as visual reference points. (→ spatial sketches).

In order to function as visual reference points, it was necessary to consider that there are people who are color-blinded or have a red-green colour blindness. Therefore no red or green is used. In order to make it also noticeable for those, who can't perceive colour differences or only see light/dark contrasts, a greyscale was added to the colour palette. By combining one or more soft colours with particular ones from the greyscale would result in people with a visual disability being able to distinguish between the colours and therefore different kind of information. Besides that it would cause a serious (functional), but playful (artistic, emotional) appearance, which I set as one of my requirements for the whole visual system.

Further I formed three colour groups to use them for dividing the whole hospital into three zones. This basic idea can be found in the already existing maps and signage system. Currently it is not applied in a consequent manner in all applications. But when simplifying all information around the three colours chosen could be used as landmarks in the buildings, on maps or signs to mark the individual zones.



The components:

Typography

The choice of typography is also based on the approach to be very flexible. That's why a whole family with various weights and combination possibilities was required.

Adelle and Adelle Sans¹ are typefaces with a lively and unobtrusive character. This makes them both an utterly versatile tool for any kind of application. All fourteen styles of Adelle Sans has been manually hinted for better screen rendering and cross-platform consistency.

It is not only legible and combinable. Moreover this typeface has a human touch, which makes it likeable and friendly. My requirement for the typeface was, that it has more than just a clean and technical appearance in order to contrast with the increasingly engineered hospital spaces. This contrast would make it also more perceptible in this environment.

Another approach was to take a closer look at the language used. It is scientifically proven that our short term memory can only keep a certain amount of elements. This amount increases gradually over childhood and declines gradually in old ages. It is also important to consider that there are more and more elderly in hospitals. That means that it is needed to use as short words as possible for the departments/receptions and to combine them with other kind of information like digits or pictures in order to make it processable and memorable for the human brain.

In addition to that it is advisable to use exactly the same wording in all kinds of information output (web, print, spatial). That implies that also employees use the same wording no matter if informing people orally or in a written way.



*Adelle & Adelle Sans
for Danderyd's Hospital
wayfinding design*



Wayfinding Orientation & good health

94



Hjärta

Infektion

Intern

Kirurgi

Ortopedi

Fakta

Danderyds Sjukhus AB är ett helägt dotterbolag till Landstingshuset i Stockholm AB, med specialistvård med huvudsaklig inriktning på internmedicin, kardiologi, ortopedi, obstetrik och gynekologi, kirurgi och urologi - utöver förlossningsvården.

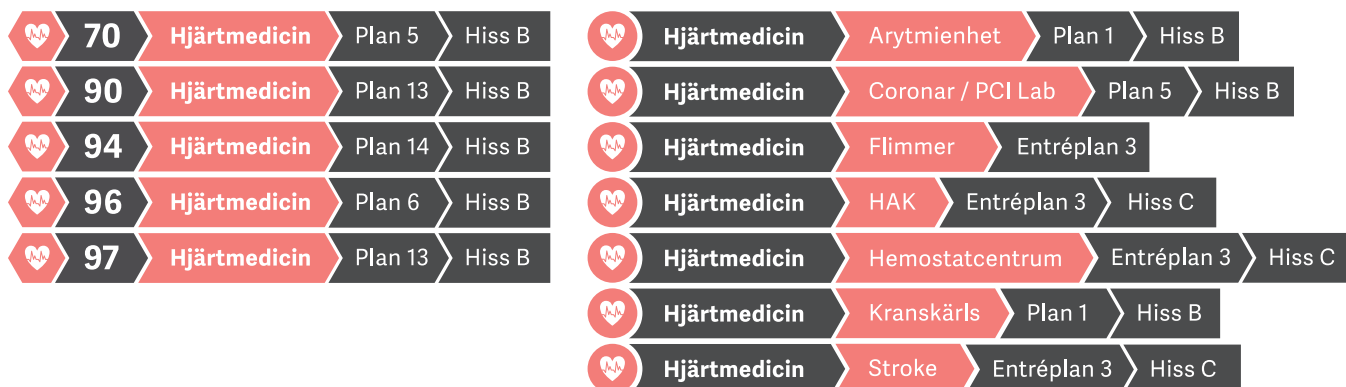
1234567890

Internmedicin



¹ Type Together (2015) Adelle Sans, Available at: <http://www.type-together.com/Adelle%20Sans>, Accessed: 7th June 2015

Hjärtmedicin



This allows to bundle departments and even receptions logically into the same medical discipline they belong to.

The chosen shapes facilitate wayfinding with regards to content, but also allow to form groups with the shapes that carry words and number. Since they are

all geometric, they can be consolidated amongst each other.

However, since the SEGD symbols do not cover all of the specific departments in this hospital, I had to complement the collection by creating the missing ones.

Investigation

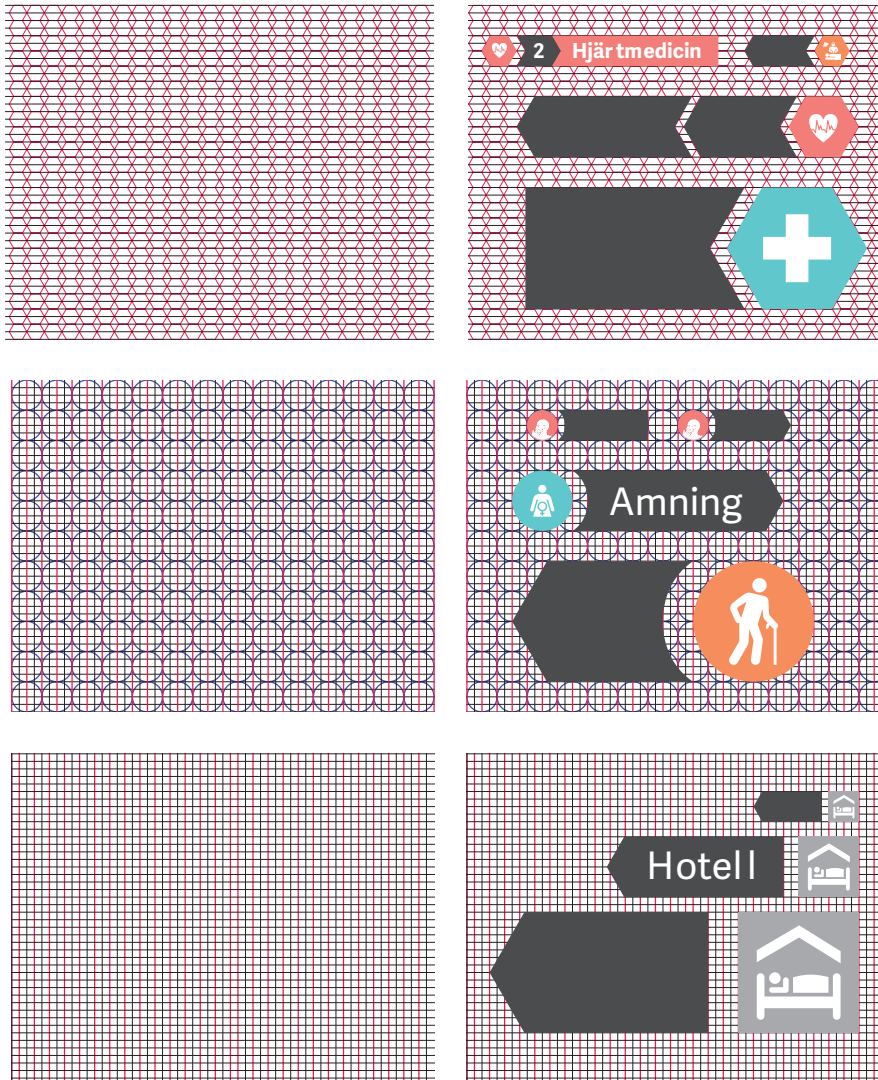
The grid

In the end there was the question of how to apply the modules practically as simple as possible. An adequate tool for that is a grid. It gives you the solid framework, though you can be very flexible with sizes and combinations.

Therefore I created three different grids adapted to the three different symbol shapes. The outcome of this is a recommendation of three different sign sizes: 70 mm, 140 mm and 280 mm height.

The grid can be used as a helpful tool for installing the signs with correct relations to each other in the space, too (e.g. project grid on wall). It also gives the possibility to gather different sizes in groups.

Of course there can be even bigger signs if needed. Regarding to future applications there might be the need to create even more grids, that fits potential upcoming needs.



Various grids with examples of signage sizes

Prototypes



Example of map for ground floor, pink zone

Prototypes: Maps

It is crucial to use maps for navigating effectively through a hospital.

At present there are maps located in the entrance hall, but they are visually difficult to understand and overwhelmingly unstructured. Anyway there are some basic thoughts noticeable, that are useful to work with, when creating new maps (e.g. di-

viding areas into colored zones). But there is also a need of simplification of information to make the maps more clear.

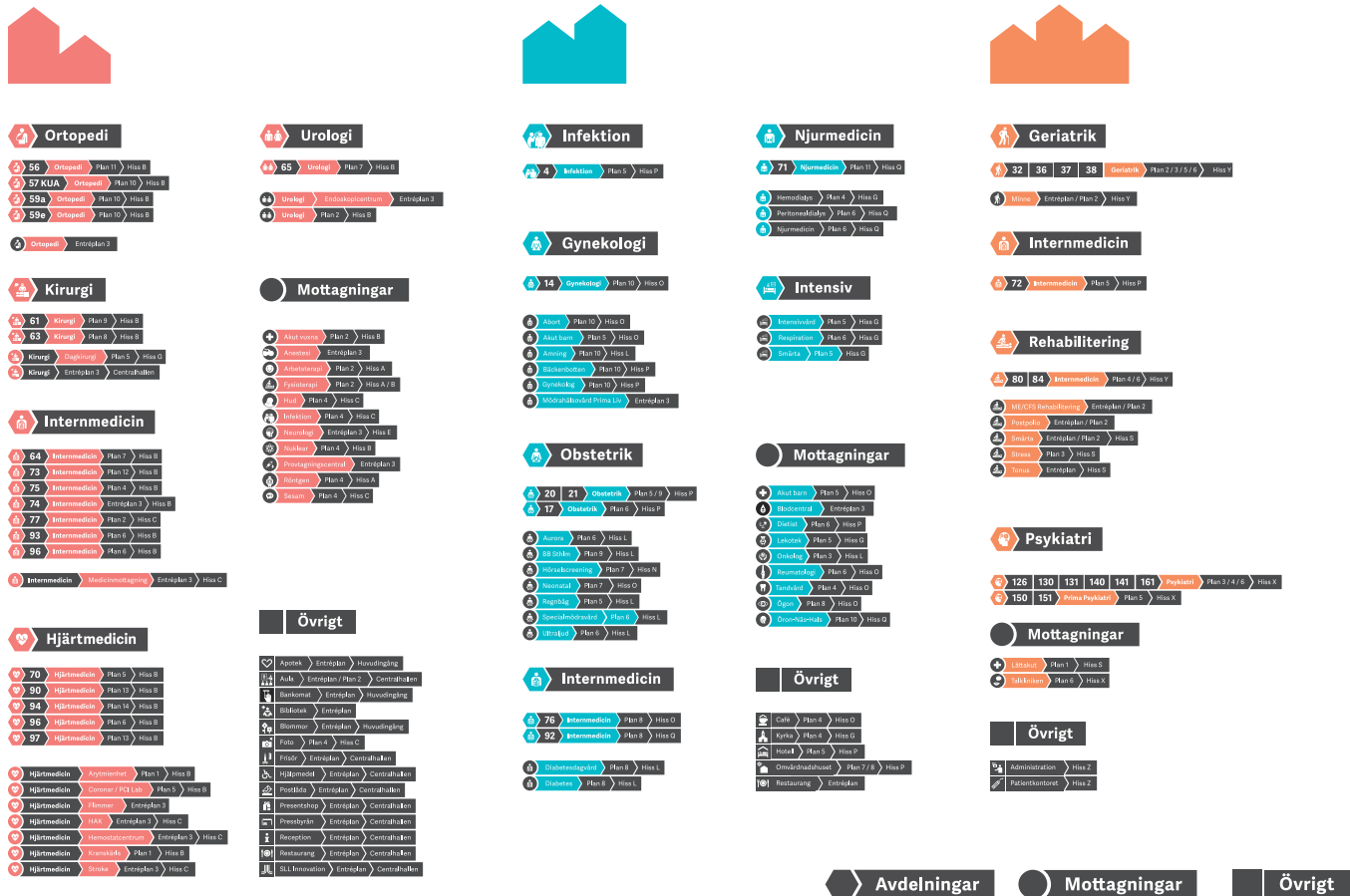
Inspired by Harry Beck's tube map¹, I asked myself if a map like the tube map could also work for a hospital. So would it be possible to show the network of departments, receptions and others in a circuit based line diagram?

Therefore I sketched a map, which is based on the information I found on the hospital's webpage and visually inspired by Harry Beck's model.

¹ Transport for London (2015) Harry Beck's Tube map, Available at: <https://www.tfl.gov.uk/corporate/about-tfl/culture-and-heritage/art-and-design/harry-becks-tube-map>, Accessed: 3rd June 2015

Investigation

In addition there is an overview written in words that shows all departments, receptions and institutions, the levels they are located in and the elevators that lead to them.



Ortopedi

- 56 Ortopedi Plan 11 Hiss B
- 57 KUA Ortopedi Plan 10 Hiss B
- 59a Ortopedi Plan 10 Hiss B
- 59b Ortopedi Plan 10 Hiss B
- Ortopedi Entréplan 3

Kirurgi

- 61 Kirurgi Plan 9 Hiss B
- 63 Kirurgi Plan 8 Hiss B
- 64 Kirurgi Östergården Plan 5 Hiss G
- 65 Kirurgi Entréplan 3 Centralhallen

Internmedicin

- 64 Internmedicin Plan 7 Hiss B
- 73 Internmedicin Plan 12 Hiss B
- 75 Internmedicin Plan 4 Hiss B
- 74 Internmedicin Entréplan 3 Hiss C
- 77 Internmedicin Plan 4 Hiss C
- 83 Internmedicin Plan 4 Hiss B
- 86 Internmedicin Plan 4 Hiss B
- Internmedicin Medicinöversikt Entréplan 3 Hiss C

Hjärtmedicin

- 70 Hjärtmedicin Plan 3 Hiss B
- 90 Hjärtmedicin Plan 12 Hiss B
- 94 Hjärtmedicin Plan 12 Hiss B
- 96 Hjärtmedicin Plan 4 Hiss B
- 97 Hjärtmedicin Plan 12 Hiss B

Hjärtmedicin

- Acylmerkret Plan 1 Hiss B
- Coronar / PCI Lab. Plan 5 Hiss B
- Fluoriserat Plan 3 Entréplan 3
- HIAK Entréplan 3 Hiss C
- Hemostasiologiska Entréplan 2 Hiss C
- Hjärtmedicin Plan 1 Hiss B
- Hjärtmedicin Siska Entréplan 3 Hiss C

Urologi

- 65 Urologi Plan 7 Hiss B
- Urologi Endoskopikentréplan 3
- Urologi Plan 2 Hiss B

Mottagningar

- Abstraktion Plan 2 Hiss B
- Aliment Plan 2 Entréplan 3
- Aliment Plan 2 Hiss A
- Främmande Plan 2 Hiss A / B
- Alia Plan 4 Hiss C
- Arkeolog Plan 4 Hiss C
- Neurolog Entréplan 2 Hiss E
- Skatt Plan 4 Hiss E
- Phytogastroenterologi Entréplan 2
- Röntgen Plan 4 Hiss A
- Skatt Plan 4 Hiss C

Övrigt

- Apoteek Entréplan Hovudbygging
- Aula Entréplan / Plan 2 Centralhallen
- Bankomat Entréplan Hovudbygging
- Bilbyrå Entréplan
- Bilmonor Entréplan Hovudbygging
- Foto Plan 4 Hiss C
- Frisör Entréplan Centralhallen
- Hjälpmiddel Entréplan Centralhallen
- Postbox Entréplan Centralhallen
- Presskitchen Entréplan Centralhallen
- Presskitchen Entréplan Centralhallen
- Reception Entréplan Centralhallen
- Restaurang Entréplan Centralhallen
- ILL Innovation Entréplan Centralhallen

Infektion

- 4 Infektion Plan 5 Hiss P

Gynekologi

- 14 Gynekologi Plan 10 Hiss G

Obstetrik

- 20 21 Obstetrik Plan 3 / 4 Hiss P
- 17 Obstetrik Plan 5 Hiss P
- Ambulans Plan 6 Hiss L
- SB Siska Plan 7 Hiss L
- Hörselcentrum Plan 7 Hiss N
- Nasalsal Plan 7 Hiss D
- Röntgen Plan 7 Hiss L
- Sonografiska Plan 6 Hiss L
- Urologi Plan 6 Hiss L

Internmedicin

- 76 Internmedicin Plan 8 Hiss D
- 92 Internmedicin Plan 8 Hiss D
- Diagnostikentréplan Plan 8 Hiss L
- Skatt Plan 7 Hiss L

Njurmedicin

- 71 Njurmedicin Plan 11 Hiss G
- Hemodialys Plan 4 Hiss G
- Peritonealdialys Plan 6 Hiss G
- Njurmedicin Plan 6 Hiss G

Intensiv

- Intensiv Plan 5 Hiss G
- Respiration Plan 6 Hiss G
- Siska Plan 5 Hiss G

Mottagningar

- Ambulans Plan 1 Hiss D
- Blodcentral Entréplan 3
- Dietst Plan 6 Hiss P
- Labb Plan 3 Hiss G
- Skatt Plan 3 Hiss L
- Reumatolog Plan 6 Hiss D
- Skatt Plan 4 Hiss D
- Dag Plan 8 Hiss D
- Druckcentral Plan 10 Hiss D

Övrigt

- Café Plan 6 Hiss G
- Kyrka Plan 6 Hiss G
- Plan 7 Hiss P
- Omställningscentrum Plan 7 / 8 Hiss P
- Restaurang Entréplan

Geriatrisk

- 32 36 37 38 Geriatrisk Plan 2 / 3 / 5 / 6 Hiss Y
- Missa Entréplan / Plan 2 Hiss Y

Internmedicin

- 72 Internmedicin Plan 1 Hiss B

Rehabilitering

- 80 84 Internmedicin Plan 4 / 6 Hiss Y
- MUCFS Rehabilitering Entréplan / Plan 2
- Protokoll Entréplan / Plan 2
- Siska Entréplan / Plan 2 Hiss S
- Skatt Plan 3 Hiss S
- Tomas Entréplan Hiss S

Psykiatri

- 126 130 131 140 141 161 Psykiatri Plan 3 / 4 / 6 Hiss X
- 150 151 Prima Psykiatri Plan 5 Hiss X

Mottagningar

- Läkarut Plan 1 Hiss S
- Tidkriterium Plan 5 Hiss X

Övrigt

- Administration Plan 2
- Patientombud Plan 2

Avdelningar **Mottagningar** **Övrigt**

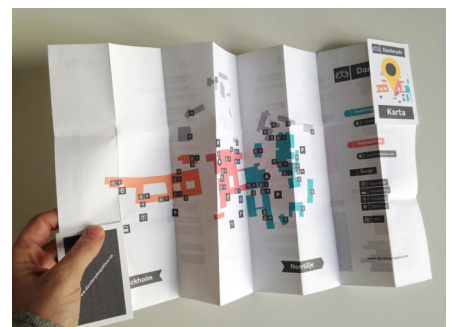
Overview of all departments / receptions / other



Prototype of pocket map



Frontside overview of all departments / receptions / other



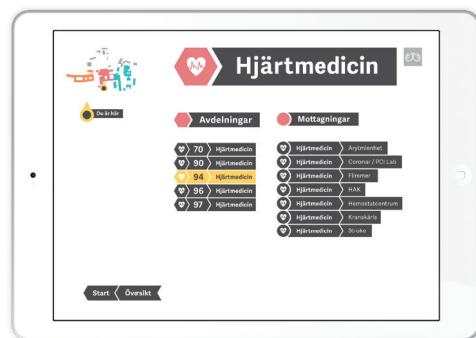
Backside Map of all buildings

Investigation

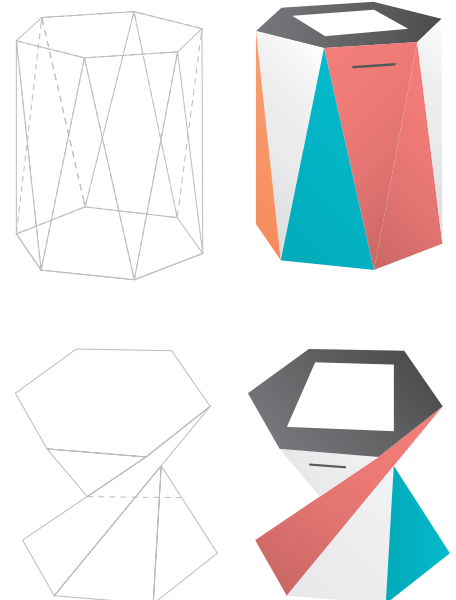
The combination of map and the overview should also serve as external information source. That means that only this map and supplement is available outside the hospital. However, the best experience can only be provided, if all design applications are co-responding and complementing each other.

To provide the best user experience for all age groups, it is recommended to use analogue maps like pocket-maps which show the overview over the whole hospital. Additionally there is the possibility to use digital tools (mobile phones, tablets, whatever will be developed in the future), which allows more options for finding the same way. So I created a short animation to illustrate a few UX-possibilities for an interactive map.

Since there were discussions about an eventual installment of touch screens in the hospital's entrance area, I thought it would be good to show, how interactive maps could be integrated into a whole visual wayfinding system. Thus the screens could be integrated into 3D and geometric shaped objects.



Sketches of interactive maps

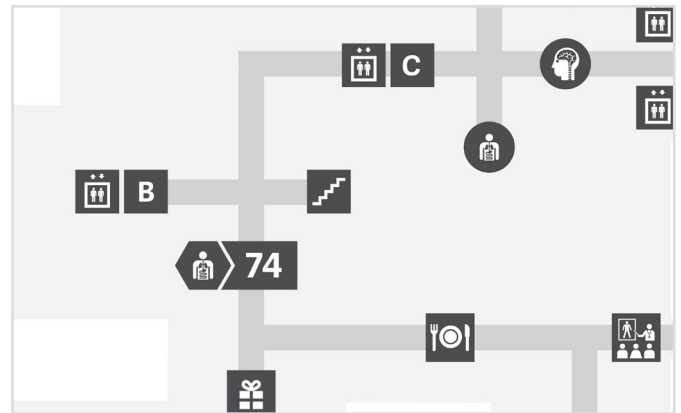


Sketch of 3D objects with interactive printable wayfinding information

Sketches of 3D objects with integrated touchscreen

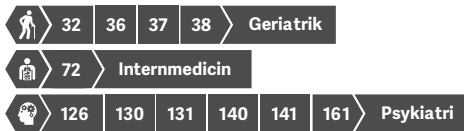
Investigation

In order to offer good orientation, I created maps for each level and all buildings that could be applied all over the place. Further all of them are based on the concept of the tube map and equipped with map legends. It is advisable to mark the level number and all of the elevators, entrances/exits clearly.



1

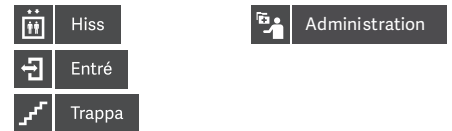
Avdelningar



Mottagningar

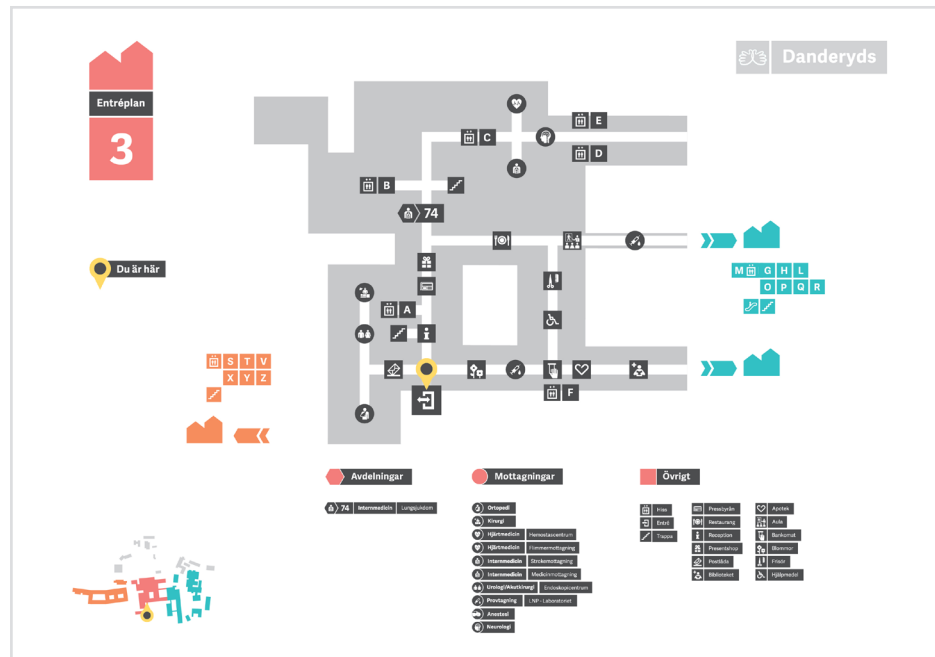


Övrigt



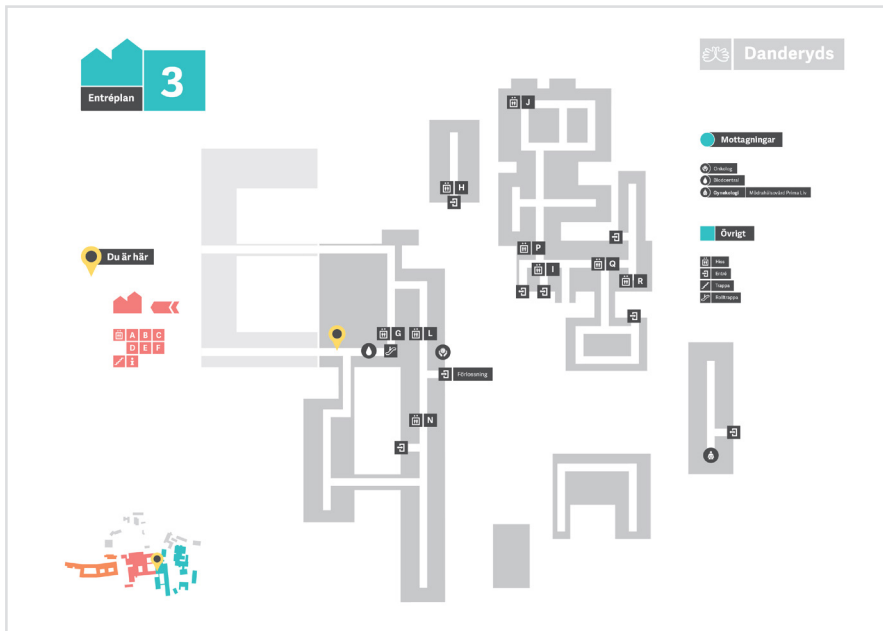
2

- 1 - Close up of map
- 2 - Example of legend showing departments, receptions and others
- 3 - Example of ground floor map, pink zone

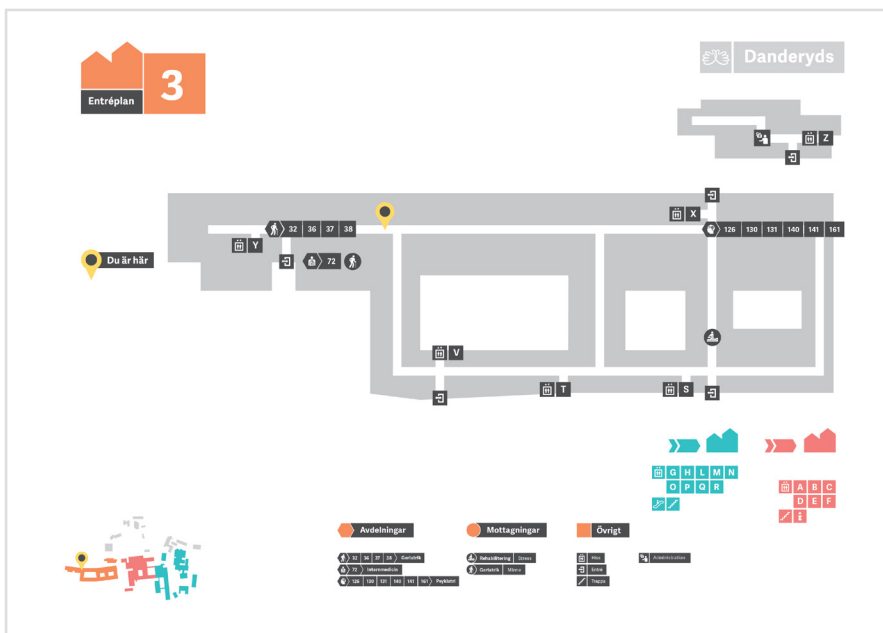


3

Investigation



4



5

4 – Example of ground floor map, turquoise zone

5 – Example of ground floor map, orange zone

Investigation

Prototypes:

Interactive lamp / 3D sign & signage

One of the main problems with the existing signage was that there is no hierarchy between the single signs. That means that the signs have always the same sizes and shapes. And if there are many in large groups, it is hard to filter the sought-after sign. In other words, it is difficult for our eyes to differ between them.

One of the first questions was, whether the signs can also have different shapes in order to create priorities, but still provide information. While investigating opportunities, I came up with the idea to build 3-dimensional objects, that could show the symbols somehow.

The outcome of some hands-on experiments was a prototype of a box, where the transparent frontside can be replaced with different graphics.

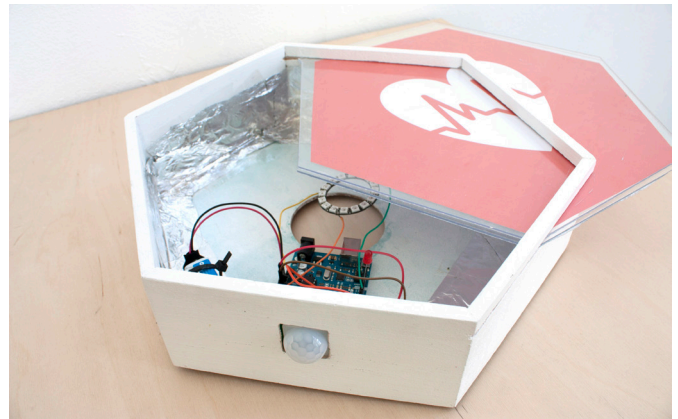
In order to highlight darker areas in the hospital but also to attract people's attention, another idea was to make a light box out of it. It is equipped with LED modules inside and motion sensor from the outside. With the help of an Arduino¹ micro controller the motion signals are translated into soft light.



1



2



3

- 1- In the making
- 2- 28 mm light-box
- 3- Inner life with Arduino, motion sensor and LED ring
- 4- Light function
- 5- 28 mm light-box in combination with flat sign



4

¹ Arduino (2015), Available at: <http://www.arduino.cc/>, Accessed: 3rd June 2015

Investigation

If needed, the light box could be also combined with a sign (28 mm height), that shows the respective department. The graphics in turn are replaceable, so the light box can stay even if departments are relocated.



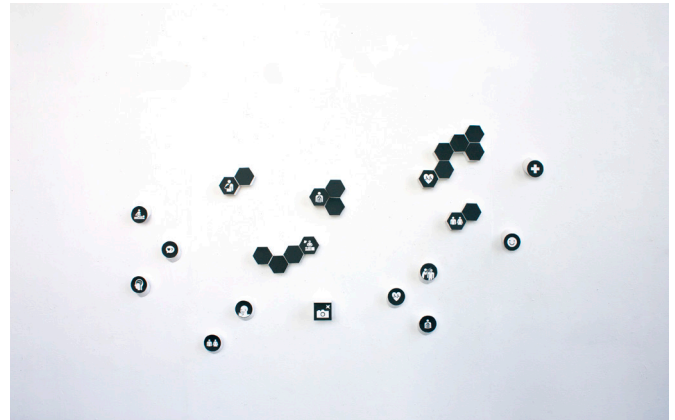
Investigation

Since there is not always the same amount of wall space available, another question was, how many different sign sizes are needed and how exactly to group them but still providing well-arranged directional information.

After having experimented with various paper prototypes at openlab in Stockholm, another approach was to create smaller sign modules, which can be installed as individual groups on walls.

So the idea was to have the three shapes of symbols as 3-dimensional objects. So a cylinder would show the receptions (mottagningar), the hexagon different departments (avdelningar) and others, like for instance restaurants would be shown by cubes.

There could be also more hexagonal modules without graphics indicating the amount of different departments belonging to the same medical discipline (e.g. cardiology 70, cardiology 90...)



1

In addition to that flat signs can be used to show the numbers belonging to the particular departments



2

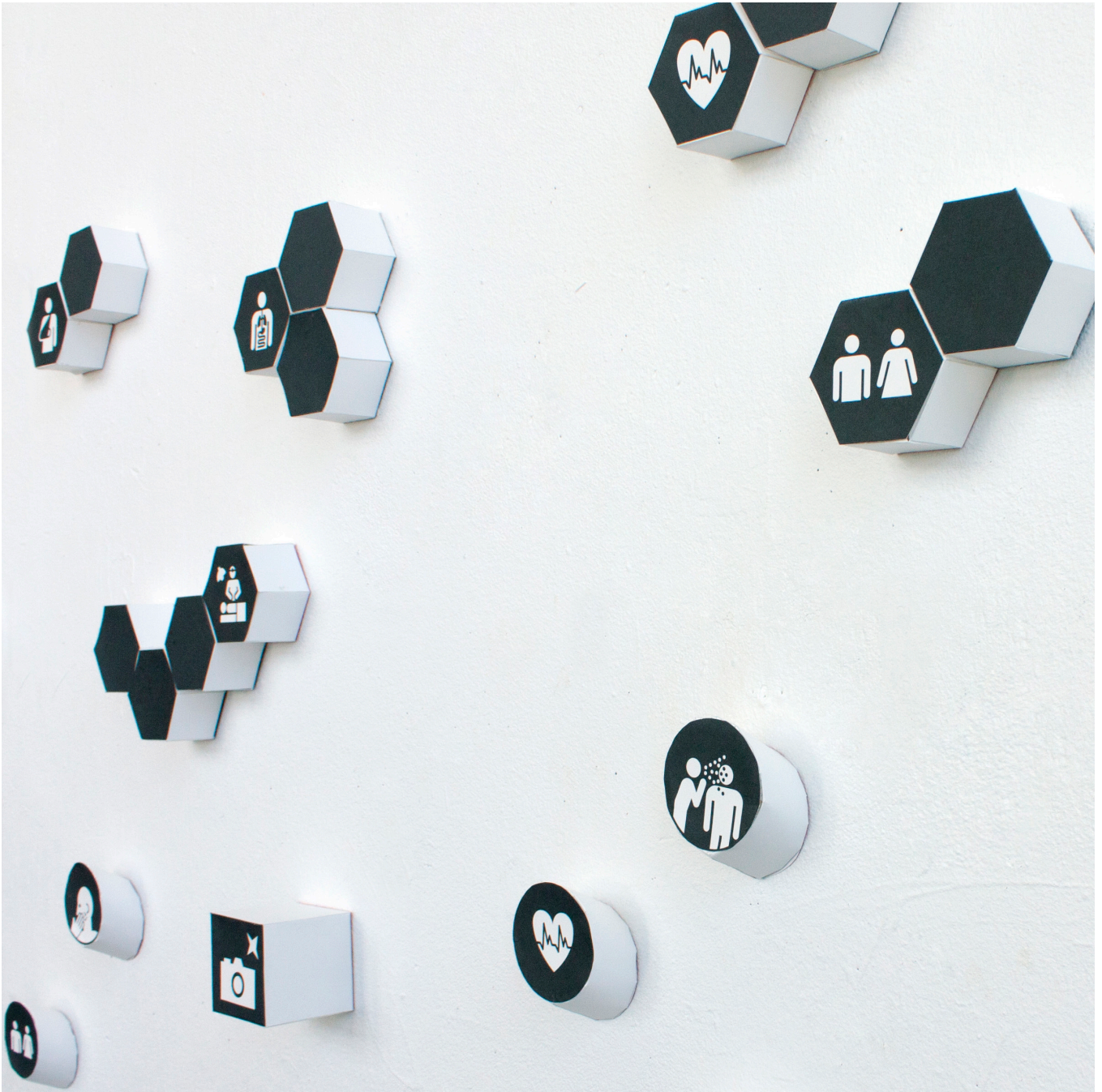
Further for that the receptions and departments can be immediately distinguished from each other, flat signs indicating directions to the receptions and other can be added to the respective circular or squared modules.



3

- 1 – Front view of 70mm 3D modules → symbols and department numbers
- 2 – Front view of 70mm 3D modules → symbols
- 3 – Front view of 3d modules → symbols, department numbers and reception names
- 4 – Side view and close up

Investigation



4

Investigation

To offer the greatest imaginable flexibility grids can be used to compose signage groups. There is also the possibility to group all of the different sign sizes (70mm, 140 mm and 280 mm height), if more hierarchical structure is needed.

If all of the departments/receptions/others are resided in the same zone/building, they can be coloured in dark grey or in the zone's respective colour. It depends on what kind of colour the particular background surfaces have. It is recommendable that the signs are contrasting with the background and therefore have high recognition values.

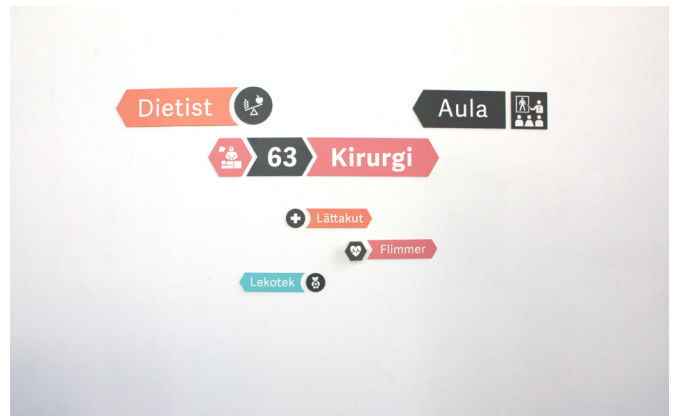
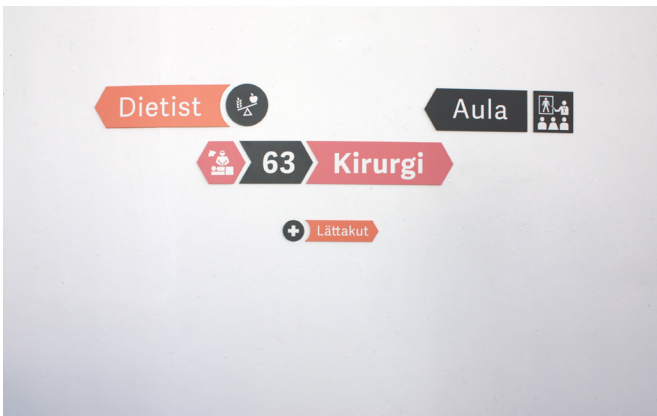
In addition to that flat signs can be used to show the numbers belonging to the particular departments.



Prototypes of signage, examples of application

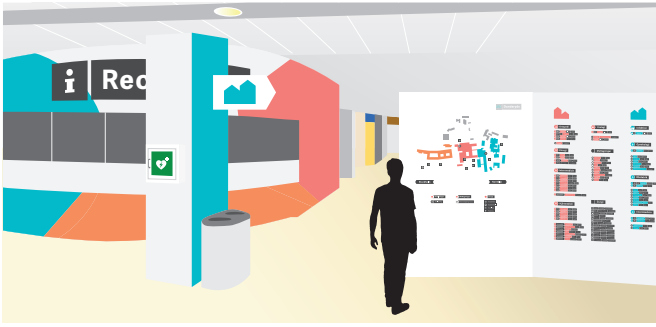
Investigation

And of course, there are endless possibilities of application. The aim was to illustrate the potentials of various combinations and the high flexibility. There can be just flat signs, flat signs combined with 3-dimensional ones, all signs having the same sizes or different sign sizes grouped together. The signs can be coloured in dark grey, orange, turquoise or pink, dependent on zones they are located in, directions they indicate or background surfaces.



Prototypes of signage, variations

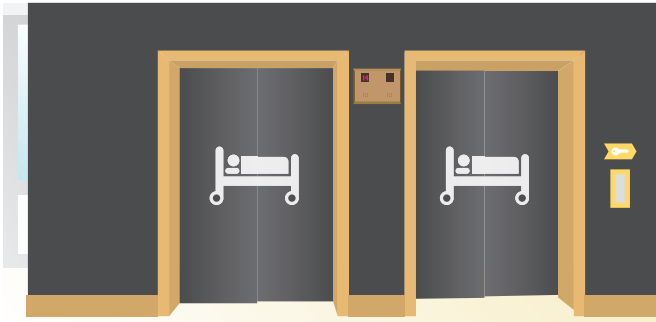
Investigation



1



2



3



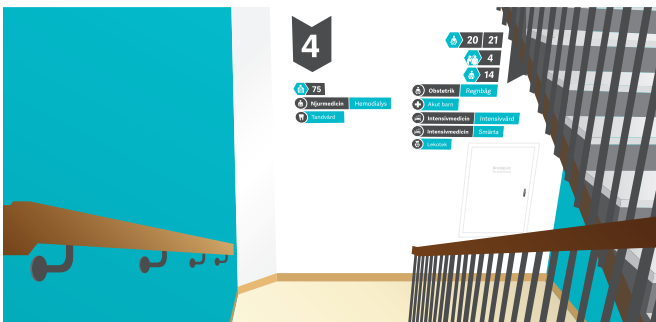
4



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7



8

Subsequent to this concept, it would be important to have a closer look on all eligible areas on-site. Further it would be necessary to decide which kind of combination makes most sense for each selected spot.

To give examples of how signage could look like in the space, I've created some sketches based on photographs of the

most critical spots that we've found during our field research. They show possible application of colours and combinations of signs in hallways, staircases or the entrance area.

Furthermore the signage concept could be extended with free-standing elements or elements that can be attached to the ceiling.

- 1 – Sketch of entrance hall, examples of application
- 2 – Sketch of elevator hall, examples of signage applications
- 3 – Sketch of elevators, example of symbol application
- 4, 5, 7, 8 – Sketches of staircases, examples of signage applications
- 6 – Sketch of staircases, examples of elevator applications

Investigation

Prototype: Agneta - interactive helper

Since many people received wayfinding information just at the information desk or from the maps in the entrance hall, they got lost on their further path through the hospital. The reason for this is that there are not enough landmarks in the space.

A landmark¹ is a recognisable feature used for navigation, a feature that stands out from its near environment and is often visible from long distances.

So it is just naturally to mark the elevators distinctly. But also to use more maps in the space, that shows the particular position as landmarks.

Another idea was to have a sort of interactive guide. Therefore I built a speaker box, that can talk to you and help you if you have questions. The boxes could be installed pretty much everywhere in the hospital, since they are very compact.

In this case the prototype has a rectangular shape and is painted in dark grey to stand out from the background. Another shape could be also imaginable as long as all of the installed speaker boxes have the same shape, so people can identify them and their function.

The prototype has a female voice, which is soft and calm. There is a Raspberry Pi² - a single-board computer and a microphone integrated in the box. The computer is

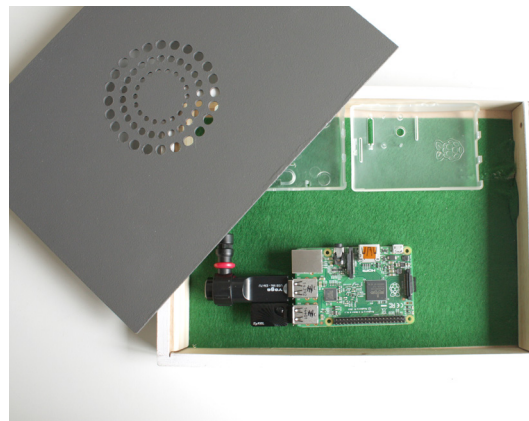
connected to a speech recognition based information system.

By preprogramming buzzwords the computer automatically recognizes single spoken words and reacts to them by activating an animation, which answers individually the particular request. The information can be sent to any possible output device, such as a screen, projector, mobile phone or any kind of display.

For instance by sending signals to a projector the animation could be projected to a wall in a hallway and this way show the enquirer the way to the requested institution.

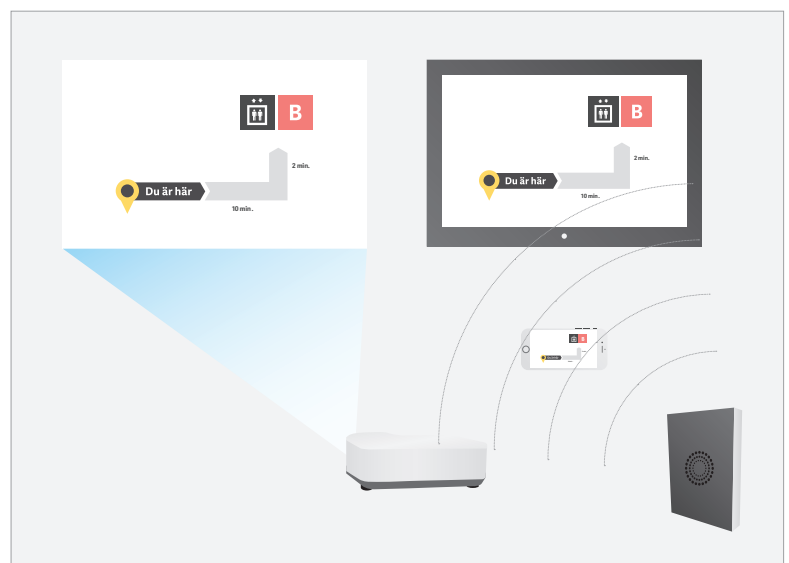


1



2

- 1 – Example of a possible search function
- 2 – Inner life of speaker box
- 3 – Speaker box function



3

¹ Wikipedia (2015), Landmark, Available at: <http://en.wikipedia.org/wiki/Landmark>, Accessed: 3rd June 2015

² Raspberry Pi (2015), Available at: <https://www.raspberrypi.org/>, Accessed: 3rd June 2015

Investigation

Prototypes: Pillows

Finally I asked myself if there are other information carriers that come into consideration. After our field research we found out that information material like brochures are placed in almost all waiting zones. But they inform mostly about medical procedures.

Another quite obvious aspect was, that there are efforts to make the waiting zones patient-friendly by applying warm colours on walls for instance.

So I asked myself if and how wayfinding information could also be found in the waiting areas. An idea was to create pillows for seating furniture in various geometric shapes, that could serve as information carrier but also create a warmer atmosphere.

Different information such as the symbols combined with the medical term or the map of the particular level the waiting zone is located in could inform the one who has to kill time.

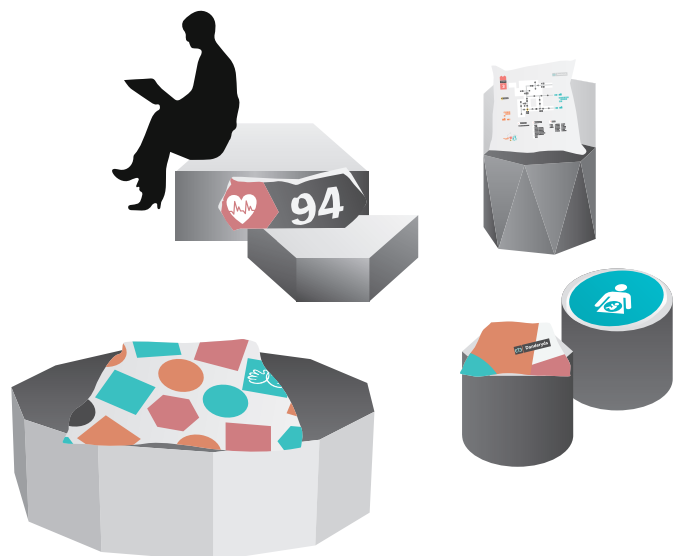


Overview pillow collection



Supplementary the whole waiting area could also serve as a landmark. Therefore I created sketches, which show how geometric objects can be transformed into waiting zone furniture. In this way, the areas would be recognisable as part of the visual wayfinding system, where information for orientation can be found.

Furthermore the furniture modules could be rearranged in many constellations, so that they automatically adapt to the size of the room or area they reside in. It is also conceivable to realise some odd shaped seating objects, which auxiliary attract attention.



Seating furniture with wayfinding pillows

Outline of possible actions and recommendations

For the now upcoming task of implementation I would like to recommend the following measures.

The first step would be to create pilots for various designs. This means to produce sophisticated prototypes of maps and signs and test them on-site for a longer time span. It would require to get constant feedback from the users in order to uncover weak points or confirm its functionality. Further I would recommend to use human centered design methods in order to get this feedback.

The basic applications the hospital would need in order to improve the navigation and orientation for everyone are different kinds of maps and signage. To ensure the best possible wayfinding experience it is highly recommended to use more interactive landmarks like the speaker box Agneta or the light boxes as add-ons.

The whole design system can unravel all it's potential, if the designed applications stick out from the existing surroundings, but clearly are recognisable as elements of the wayfinding system. Only if the design system approaches more than the visual sense, it would attract people's attention immediately and only then it would have the slightest chance to work properly. That's why it is recommended to use more interactive gadgets, which are simple in their function and appearance, but work immediately and fast.

Another commendation is to form an interdisciplinary team of professionals with different backgrounds and skills. In this case I recommend to employ at least one designer with a background in spatial design/environmental design or/and information design/architecture. In addition to that it would be advisable to cooperate closely with or recruit an architect. Despite that it is necessary to expand the team by recruiting people with a technical background, who could help with the actual applications (e.g. service technicians). Since there will be the use of interactive maps and other software based applications it is required to hire a programmer. Finally to complement the team with a background in cognitive science and/or psychology would help to guarantee the high quality and consistency of the wayfinding system in the long-term view. Experience has shown, that it is often good to announce a project manager as contact person and coordinator for the whole process.

As spatial partition in the hospital is underlying constant change, the wayfinding system must be able to cope with this. A way to do so might be to get employees involved permanently with the wayfinding system and hence daily work in that hospital. In doing so the best overall hospital experience for each could be guaranteed. It is important to emphasise that the navigation and wayfinding has a great share in the overall well-being for patients, guests but also employees. It is fundamental not to underrate this, since it plays a major role in the daily routine.

Further it is necessary to decide on every single application that is needed and request offers in order to plan the budgets. This should happen in close collaboration with the responsible team in situ.

If the hospital would like to work with this design concept, I am available as contact person for cooperation with the responsible team on site. Open questions or new challenges could be tackled practically together in workshops on a regular basis for instance.

Beyond that I could additionally offer lectures and a sort of summary of the design system in a digital form. So the team could use that for their work on the spot.

This thesis project is just the basis for the development of a new and better wayfinding system. There will probably a lot more challenges coming up during the pilot tests or eventually regarding costs and production. That's why it is important to have a permanent team on-site, who can practically master forthcoming challenges.

Design diversity forms an open system

In this investigation I used knowledge from various subareas of design, such as symbols as a component of the visual system or the use of maps inspired by the tube map. Beyond that I additionally used already existing methods like brainstorming and prototyping, which are rooted in product related fields of design. This allowed me to explore how my own expertise in communication design can be enriched by adding knowledge from other design fields such as interaction design, environmental graphic design, experience design, service and product design.

The starting of my exploration was the creating and editing of singular design components such as shapes, colours, typography, symbols and grids. By composing them a variety of design applications emerged from that.

In this case the in-depth study was actually the exploration of how my previous expertise of creating visual identities for individual products can be used to create identities for and shape sense of environments, processes and experiences.

By identity I mean the forming of a visual system¹ through various components, that interact with each other. My goal was to create a self-sustaining entity. It means that the components can be combined in endless variations, but still go hand in hand with each other when it comes to the outer expression and perception. The outer expression affects the perception in terms of identification of the designed variations as an ensemble of the system.

By looking back on the entire outcome of the investigation I realise that the boundaries of the visual system I've created are very elastic. That means that I would rather name it an open visual system².

By definition an open system is one, that exchanges information, matter and energy with it's environment, whereas a self-sustaining and isolated system doesn't. The open one is neither isolated nor closed. In my case the components of the system can be amplified through new visual components originating from nearly all existing and upcoming design disciplines.

In turn this means that the already designed components can be used by various design professionals to form new components in the future. So my outcome of the thesis becomes also a part of the common design knowledge, whose content can and should be used by other designers with various backgrounds.

If I reflect on what I've done in this thesis, I regard the open visual system as a mirror of an multidisciplinary approach, where intersection and co-creation within the various design disciplines fortify each other and stimulate the growth of new knowledge.

Personally I could strengthen my ability to tackle new fields of interest by using my skills and knowledge from the perspective of a communication designer. I regard design practice as a constant process of learning. To keep my core skills, but constantly enrich them with new perspectives. The composition of knowledge from various design fields can therefore be considered as a possible method for my future practice as a designer.

¹ Wikipedia (2015) System, Available at: <https://en.wikipedia.org/wiki/System>, Accessed: 18th June 2015

² Wikipedia (2015) Open system, Available at: [https://en.wikipedia.org/wiki/Open_system_\(systems_theory\)](https://en.wikipedia.org/wiki/Open_system_(systems_theory)), Accessed: 18th June 2015

Why a specific design role?

The approach to share and co-create in a multidisciplinary design environment inevitably leads to the question, which design role or function designers should carry. Is it really possible to strictly draw the line within the knowledge fields of design? In other words is it possible to be a generalist designer with specific skills in specific fields of design?

My experiences in this project have also shown, that it is hard to find a role for a designer or an expression for a design, that operates with and interacts within a broad range of media. Further there is certain expectation to the role and the outcome. For instance when I told non-designers, what I am researching in this project, they immediately drew a picture of a medium which my artistic outcome will be expressed in (signage). But in the end my investigation turned out to be a visual system, which holds various design applications expressed in various media. Still a system remains subject to interpretation.

However even if I've been operating autonomously (means one active designer) in this project, I somehow collaborated with others through using their design output, which again turns them into co-workers of my visual system.

"The key skill here is not the designers' competence in line drawing, nor the strengths of their aesthetic style, which will eventually come to deliver the visual outcome; but rather lies in their ability and their curiosity to search and interpret information in any context in order to make something of it, something new. When this skill is taken from the situation of a commission and is instead placed under the terms of a 'self-initiated' project, the role of the designer can be seen to change from that of a specialised practitioner, to that of a professional amateur (or to use the appropriate jargon, an 'autonomous multidisciplinary creative'). This is not to say that such a professional is immediately amateurish in their

design approach, but rather in the 'extra-curricular' activities that they become increasingly involved in, such as data collection and data analysis.

It has been a common sight over the last few decades to see large agencies, labelled as 'Multidisciplinary' and 'Interdisciplinary' (that is to say there are lots of specialised professionals working together under one roof). However, through the new form of work described above, we can see that this multidisciplinary approach is, to some degree, slowly distilling in to the singular, autonomous practices that are becoming more and more common today. This new wave of designer has, to use Ruskin's terms, successfully combined the 'workman' and the 'thinker'. [6] An evolution which takes the discipline far beyond the primary search for 'visual forms' that has typified the field's aim and its self assumed history for centuries past."¹

As Jack Clarke puts it into words, I identified that I don't want to restrict myself to a specific field or medium in design. I would rather call myself designer with specific skills in specific fields of design. One reason for that is that I would like to keep my freedom of working across the disciplines, but still knowing how to apply my core skills. Despite that I wish to use this ability of cross-working for both self-initiated and commissioned projects in the future.

"It's important to be set goals and objectives so you can see a progression in yourself and career but around this you can still adopt a flexible approach to your job function and create and expand your role above and beyond what a job may say you can and can't do."²

¹ Jack Clarke (April 16, 2015) The Role of the (Graphic) Designer..., Available at: <http://www.metamodernism.com/2015/04/16/the-role-of-the-graphic-designer/>, Accessed: 18th June 2015

² Paul Wyatt (2015) How to be a multidisciplinary designer, Available at: <http://www.digitalartsonline.co.uk/features/creative-business/how-be-multidisciplinary-designer/>, Accessed: 18th June 2015

Social responsibility and Ernst Bettler

By choosing to investigate an issue in a hospital, I clearly intended to demonstrate that there are a lot of opportunities for designers to contribute to socially relevant topics. Further the outcome could have a positive impact on many people's lives, that it is indeed worth to deal with it as a designer.

How can I work with something irrelevant, when there are so many issues out there that are more relevant for societal change? Why should the designed outcome just be relevant for exclusive groups of people? And how can a designer keep his/her own integrity but still serve a purpose with skills and knowledge?

"But it also reveals something else: how desperately we designers crave that our work has the capacity to truly make a difference" wrote Micheal Bierut in the article 'Will the real Ernst Bettler Please Stand Up?' in 2008¹

Bierut refers that Ernst Bettler is a fictional Swiss graphic designer. Christopher Wilson wrote a hoax article for the magazine DotDotDot in the year of 2000. The article tells the story of Bettler, who was asked in the 1950s to design advertisement posters for Pfäfferli+Huber (P+H), a Swiss pharmaceutical manufacturer.

Further Bierut writes that "Bettler found out that P+H was involved in testing prisoners in German concentration camps less than 15 years before. First he hesitated, but then accepted the commission. It says, that he had the feeling to be able to do some real damage. In order to succeed with his intention he created four posters featuring dramatic, angular, black and white portraits juxtaposed with sans serif typography. The compositions in the posters contained hidden letters and by looking closer a message emerged. Hung next to each other, they spelled out N-A-Z-I. The result of that was, that the company was ruined within six weeks.

This story proves that graphic design has the potential to change the world. But the only problem with that is, that Ernst Bettler never existed. The story was broadly discussed in the design community and several magazines featured it after the first publication. Later it was proofed that Ernst Bettler and Pfäfferli+Huber were completely made up."¹

On the one hand, I think that a story like that even though fictional can help to remind us, that there is something like a responsibility for a designer. Further it illustrates, how designers should critically question every task they approach. On the other hand it is really depressing that actually a character like Bettler never existed. It is also sad, that only a fictional story like this got so much publicity. It somehow

made me think, that there is just the big illusion of being able to change the world through design. But in reality we step back and just execute a service, make things superficially nice or create shallow trends - just because it's easier. But is this really the core of design? Is it really just the surface, styles and endless reproduction what it is about?

I do hope that this thesis project has the chance to prove the opposite. Even though one could also discuss here, if this wayfinding system would really serve many or just those who can effort to pay a private hospital. But that is probably another discussion.

I've never meant to save the world or to be a Mother Teresa in design, but I think that this project at least investigates the possibilities of (graphic) design in social relevant and complex matters.

Nevertheless my intention was to pass on the spirit of Ernst Bettler to future designers and to prove that design should have a social relevance even though it first might seem hopeless to cope with everything that comes with that. I wish that many young designers would be more critical and look beyond the shallowness and fast pace of the design industry. That they would dedicate their masterminds to humanity and a greater good.

¹ Michael Bierut (2015) Will the Real Ernst Bettler Please Stand Up?, Available at: <http://www.designobserver.com/feature/will-the-real-ernst-bettler-please-stand-up/6427>, Accessed: 3rd June 2015

Teamwork/interdisciplinary work

Another aspect I would like to mention is, that it was very helpful to have a project partner during the whole time. It simply broadened my own perspective and facilitated to negotiate and discuss things in a reasonable way. It was a good idea to conduct the thesis in a teamwork, since it would have been way too complex to cope with the research part for a single person. My experiences have shown yet that the process is effectively performed, if every team member contributes with his/her own specific skills and the work is divided into areas of responsibility.

My project partner Rickard, who is a cognitive scientist has a very analytical and structured way of working. This helped me to stay focused and not to get lost or confused by all of the distractive things that naturally come along within a project like this. This in turn helped us to arrange important documents to work on with such as creating a fictional character, a flow analysis of the most important hospital areas and finally to set up a scenario, which can help us to relate to that at any point of further future actions.

Nevertheless it is important to stress the fact, that I as a designer often had to adapt to the language and mindset of non designers in order to make myself and my point understandable to them. That might be laborious for all stakeholders sometimes, but in the end it could help to gain empathy and respect for each others profession and work. And of course, raise the quality of the outcome by discarding potential irritations and misunderstandings. Despite that it helps to argue for the design and it's benefit.

Moreover I do hope that this project demonstrates, that sharing knowledge interdisciplinary has a positive impact on a design outcome. Retrospective I would say that reflection and discussions of the concerned issue created a better understanding between all team members. Especially the regular exchange of manifold thoughts and perspectives might strengthen a more critical and challenging view on the issue. Further it can help to reveal unexpected but relevant opportunities for the sake of a purpose.

Finally I wish that other designers can also rejoice in collaborating and cross-border working as I did and will continue to do. So I hope this thesis project can serve as a motivational source for future designers.

Credibility for the design discipline

Since the practice of design is underlying constant and rapid changes, it seems to be more and more difficult for non-designers to grasp what a designer actually does or can do. In retrospective I have to admit, that even for me as a designer it took quite a while to understand how I work and what I actually do. Not to mention communicating it to non-designers.

Previous experiences have shown, that I often had to explain my profession first and make clear how I am working. There is a certain image of a designer in society, which is built up of prejudices and a limited view on the design discipline itself.

My intention through this thesis project was also to highlight that a designer can have more roles beyond certain categories. Further I intended to show to people with a background in medicine that a designer with a background in graphic design can indeed contribute to their field of expertise. And that is potentially done in a different way than expected or the public image of a designer might indicate. The main method I chose to achieve this, was to involve the hospital's employees into the artistic and creative process by using Human Centered Design methods.

Through involvement I was hoping to give a better understanding of what a designer can also be. At the same time it shows the constant seek for a meaning in design, which lies beyond superficiality and the pure supply of services. In other words that a design is actually more than just to make things nice and beautiful.

The comeback of creativity in design

The previous mentioned aspects lead inevitably to the next one. Throughout the whole thesis project an important question was, what creativity actually means. Before daily practice proved, that there are diverse opinions of what creativity means. Purchaser often confuse creativity with provision of a service. But if I provide just what other people want me to do, then I am sincerely not the creative, but more or less just the executor.

Not that long ago I've read an article in 'Die Zeit' - a weekly newspaper from Germany. It's title was 'The lust to provoke / real ingenuity is dangerous - at all times', written by Jens Jessen¹.³ He describes quite clearly how and why everything creative in the sense of novelty is regarded as displeasing and economically inefficient. Especially when creativity is considered as creating something unusual and extraordinary.

Further he mentions "the practical creativity, that resembles more painting by numbers. In other words the will-less execution of a task. Beyond that the use of the expression 'creative' for designers and admen, implicates the opportunistic timidity and fear of everything new in our society."¹

Exactly this view causes the impression that nowadays everybody can be a designer. If a designer is just the executive of a service, her/his performance and effort becomes replaceable and arbitrary. Because not the intellectual work (ideas & methods) to come up with new perspectives is valued, rather the measurable and predictable or 'safe' way of mastering tools and techniques to get a salable result.

Creativity doesn't necessarily mean to reinvent the wheel. It maybe means more to share and co-create the knowledge of design with the intensions of a greater good, too. To create something out of already existing components means also to be creative, I would say.

In my eyes creativity is and will always be the basis of designing. This is what distinguishes design from other fields of expertise and represents it's unique feature. Therefore it should be appreciated and inevitably seen again as inherent part of it.

My intention is to motivate future designers not to just blindly execute, but more to question and challenge a task from scratch. Further I want to encourage to dare to try out the extraordinary even if they are not expected to do this. That's what hopefully this thesis project also points out - the opportunities of claiming back creativity as the basis of design. In relation to create something new and unusual in terms of opportunities for healthy growth and emendation in a society.

This is not only about responsibility towards the society, even more about having respect towards the design discipline itself and it's self-perception.

¹ Jens Jessen (2015) Die Lust zu provozieren, Available at: <http://www.zeit.de/2015/20/kreativitaet-provokation-kirche-kuenstler-ketzerei>, Accessed: 3rd June 2015 and Jens Jessen (2015) 'Die Lust, zu provozieren', Die Zeit, No.20, 13th May, p. 56.

'Human Centered Design'

Working with people to get better insights?

It was the first time for me to work with human based design method. In my previous everyday practice of working for mostly smaller clients and offices it wasn't possible to have a fundamental research phase, since the budgets often covered only the process of creation. As I applied methods by IDEO¹, I asked myself, why just they are able to use 'Human Centered Design' and creative methods in such great intensity. Do they have the freedom to have a deeper research phase, because they have bigger budgets? Is it because they employ so many professionals and have therefore enough human resources? Or is it due to the fact, that they established 'Design Thinking' and 'Human Centered Design' and the customers ask them for collaborations? Could a smaller company also have a deeper and extended research phase? If yes, how would it look like in practice?

As previously described we were partly successful with applying methods. Some of the methods were working out quite fine, whereas others didn't. But what matters most in the end is, not how many methods actually delivered measurable results. It is more about applying methods and inviting the users/clients to be

a part of the design process. This anthropologic approach helped me to gain more profound insights about the existence and the unspoken needs of other people. Of course, one could discuss if there is minimum need of particular methods and if the findings are measurable and objective enough to use them in a scientifically sound way. But I think that not everything is measurable when it comes to human beings. There are many irrational issues, that can probably only be judged by a common sense and boundless optimism.

In addition to that it somehow gave me a better understanding of how I want to work in the future as a designer. That means that I would like to work intensively with creative methods as inherent part of my activity as a designer on a regular basis.

What is innovation?

Since I was working for an initiative called CIF - Clinical Innovation Fellowship², I asked myself during this thesis project what actually innovation means in this context. What is actually innovations in design and what in public healthcare? Means innovation to use always the latest technologies? Innovative design in my eyes might not necessarily be design in the eyes of the hospital's employees.

During the ideation phase of this thesis project I tried to solve an existing challenge, but at the same time show up with new perspectives on wayfinding. After

deciding to go with the topic of wayfinding, I experienced that people always thought, that this means to work with signage only. But the researched findings also proved, that this isn't only about the most obvious things like the signs but more that a network of corresponding applications expressed in different material manifestations. Therefore I experimented with different techniques, tools, surfaces, shapes, technologies and methods to create something that is functional but also unique. The outcome though might be the compromise between designs, that are already familiar like the functional flat signs but also innovative designs like the 3-dimensional signs, the lightbox or the in-

teractive speaker box. In overall the whole system as such can be described as a new and unfamiliar solution that meets the requirement of wayfinding through this hospital.

In conclusion this project endorsed, that my approach to combine the usual with the unusual, the pretended with the unexpected, to put something out of a context into another. This intermedia and cross-border way of working can also serve as a method for pretty much every task that might be requested or self-initiated. In conclusion I can say, that this is innovation to me.

¹ IDEO (2015), Available at: <http://www.ideo.com/de/>, Accessed: 3rd June 2015

² CTMH (2015) Clinical Innovation Fellowships, Available at: <http://www.ctmh.se/fellowships/>, Accessed: 3rd June 2015

Meaningful design

Mainly through the thesis work, but also during my studies in Sweden, I found out, that meaningful design is for me to design for the people out there and clearly with a social background.

Meaningful is also, when as many people as possible can use the design in their everyday life. If the developed design has a positive impact for many users, it is successful to me.

Further it means a lot to me to have the freedom to work intermedia, cross-border and interdisciplinary. I am concerned that mainly the recipient benefits from this freedom. That's why I want to keep this philosophy for my future work.

I was able to translate my findings and experiences into a philosophy for my future design practice (see attachments).

Relevant websites/articles/other:

www.segd.org
www.hablamosjuntos.org
www.en.wikipedia.org/wiki/Environmental_graphic_design
www.hermanmiller.com/why/talking-pictures.html
www.1972municholympics.co.uk/index.php
www.otlaicher.de
www.svid.se/sv/Forskning/Design-Research-Journal/Artiklar-ur-Design-Research-Journal/Varden-ar-full-av-designnutmaningar
www.en.wikipedia.org/wiki/Wayfinding
www.designworkplan.com/wayfinding/introduction.htm
www.ctmh.se
www.ctmh.se/fellowships/
www.openlabsthlm.se
www.danderydssjukhus.se
www.ideo.com/work/method-cards
www.sv.wikipedia.org/wiki/Danderyds_sjukhus
www.designkit.org/methods
www.zeit.de/2015/20/kreativitaet-provokation-kirche-kuenstler-ketzerei
www.designobserver.com/feature/will-the-real-ernst-bettler-please-stand-up/6427
www.en.wikipedia.org/wiki/Landmark
www.raspberrypi.org/
www.arduino.cc
www.tfl.gov.uk/corporate/about-tfl/culture-and-heritage/art-and-design/harry-becks-tube-map
www.type-together.com/Adelle%20Sans
www.en.wikipedia.org/wiki/Brainstorming
www.sv.wikipedia.org/wiki/Fika
www.papanek.org
www.en.wikipedia.org/wiki/System
[www.en.wikipedia.org/wiki/Open_system_\(systems_theory\)](http://www.en.wikipedia.org/wiki/Open_system_(systems_theory))
www.digitalartsonline.co.uk/features/creative-business/how-be-multidisciplinary-designer/
www.metamodernism.com/2015/04/16/the-role-of-the-graphic-designer/

Relevant videos:

www.ted.com/talks/aris_venetikidis_making_sense_of_maps
www.ted.com/talks/daniele_quercia_happy_maps

Relevant books/other:

- Jane Fulton Suri (2005) *thoughtless acts?*, 1st edn., San Francisco, USA: Chronicle Books LLC
- Craig M. Berger (2009) *Wayfinding - Designing and implementing graphic navigational systems*, 1st edn., Mies, Switzerland: Roto Vision SA
- David Gibson (2009) *The wayfinding handbook - Information design for public places*, 1st edn., New York, USA: Princeton Architectural Press
- Roland Posner (1998) *Zeitschrift für Semiotik 20 (Heft 1-2, 1998)*, 1st edn., Tübingen: Stauffenburg Verlag
- Tom Kelley & Jonathan Littman (2005) *The ten faces of innovation*, 1st edn., New York, USA: Doubleday
- Adrian Frutiger (1981) *Der Mensch und seine Zeichen - Zeichen, Symbole, Signete, Signale*, 1st edn., Echzell: Horst Heiderhoff Verlag
- Adrian Frutiger (1979) *Der Mensch und seine Zeichen - Die Zeiche der Sprachfixierung*, 1st edn., Echzell: Horst Heiderhoff Verlag
- Paul Shaw (2011) *Helvetica and the New York City subway system*, 2nd edn., Cambridge: MIT Press
- TwoPoints.Net (2010) *Left, Right, Up, Down - New directions in signage and wayfinding*, 1st edn., Berlin: Gestalten Verlag
- Stöppel Daniela (2014) *Visuelle Zeichensysteme der Avantgarden 1910 - 1950: Verkehrszeichen, Farbleitsysteme, Piktogramme*, 1 edn., München, Silke Schreiber Verlag
- Mollerup Per (2005) *Wayshowing: A Guide to Environmental Signage Principles & Practices*, 1 edn., Baden/Germany: Lars Müller Publishers
- IDEO (2002) *IDEO Method Cards: 51 Ways to Inspire Design*, 1 edn., San Francisco/USA: William Stout Architectural Books

Requirements for design applications

- ✓ finding
- interpretation/problem
- ➔ conclusion for design

Observations:

- ✓ Even employees (working clothes) ask for directions ● new employees have no clue about the location of departments
➔ Introduction of all buildings for new employees
- ✓ Visitors ask employees for directions ● they presume every employee knows every location in the hospital ➔ a good wayfinding system supports also the employees
- ✓ Visitors/relatives/patients followed us when we were wearing hospital clothing ● people feel comfortable with a companion
➔ consider guiding
- ✓ People get information at the information desk ● but then get lost on their way, can't keep information, have to return to the entrance ➔ memorisable information, gadget, map

Graphic exploration:

- ✓ Created a set of shapes ● recombined them in various constellations ➔ created groups that can be rearranged in many ways, still are recognisable and serve as information carrier
- ✓ Creation of a colour palette ● applied them to the map and first prototypes (signage) ➔ trigger people's perception but still be functional (colour blinded people)
- ✓ Find a suitable typeface ● exchanged, combined and tried many typefaces, printed them ➔ find a serious, readable and joyful typeface ('human touch')
- ✓ Work with textiles ● applied shapes to textiles and create pillows ➔ complementary carrier of wayfinding information
- ✓ Use color coding ● applied different colors to different contents ➔ visual hierarchies and readability

Brainstormings

- ✓ Many similar ideas and thoughts ● confirmation of necessity and indicator of priorities ➔ find the right design elements for the right spots/acitivities in the hospital

Experience

- ✓ People told different experiences at different age groups ● there are different characters ➔ design elements should be useable for young, old and handicapped people
- ✓ People use different means of information ● depending on age ➔ consider this when designing, design various and comprehensive media and formats

Symbol Quiz:

- ✓ People described the meaning of symbols without problems
- pictures work better than just words/medical terms, international ➔ use pictograms as part of system

Method Guided tour:

- ✓ Staircases are not displayed/marked ● but the shortest way to a department (emergency!) ➔ somehow show, mark, display the shortest way
- ✓ Waiting time for patient transport elevators (14 floors) ● traffic jams in crowded hallways ➔ guide people to elevator which is intended for them
- ✓ Signage is covered by other objects (e.g. lamps/rubbish bins) ● People don't see them ➔ hierarchy in size, shape and colours for the signage system
- ✓ Employees at the information desk, patients, visitors don't know medical terms (e.g. obstetrics) ● Looking for other words/descriptions (maternity clinic) ➔ implement symbols
- ✓ People are standing a long time in front of the map ● they can't read it ➔ Design the map logically, simplify, consider analogue and digital media
- ✓ People who leave the elevator seem insecure ● can't see the floor level ➔ show level clearly in space
- ✓ Many people at the information desk ask in English ● 3 out of 8 people are not Swedish speaking ➔ Use complementary and explanatory pictures, use Swedish and English
- ✓ People in the waiting zones ● have more time ➔ Use design elements to inform them about the building and existing departments
- ✓ Information in dark spots ● people can't read/see them and they feel uncomfortable, delusive ➔ use corresponding and complementary light to highlight wayfinding information
- ✓ People get oral wayfinding information at the desk ● they can't keep the information or get lost somewhere in the way ➔ map or sense description, create landmarks
- ✓ Information desk is not well marked ● people can't see it at the first sight ➔ mark it better

Philosophy for my practice

Meaningful is the opposite of meaningless. If the developed design has a positive impact on many users, it is functional. If the design additionally emerges from the fusion of unusual and odd components, it adds innovation to it. And if the design evokes feelings, it is emotional.

A design containing all three aspects is meaningful design to me. Every new challenge activates unprecedented components and perspectives. If you give me the chance, I will design something meaningful with and for you, too. It will be multilayered, interdisciplinary and innovative.

Critique

To think and rethink everything. To discard ideas. To fight the inner ego. To be (self-)critical. It is often constructive.

Challenge

To go the stony and winding path is often much more interesting, than the straight and quick bee-line.

Mistakes

can help to find new ways.

Ideas

There is not just one good idea. There are millions.

Motivation

My moving spirits are curiosity and boundless optimism.

Simplicity

is to simplify complex matters. Especially nowadays.

Joy

is what also moves me as a designer. To be a good designer is also hard work. Please note that fun can't be per se associated with shallowness and fast pace.

Respect

is to work together at eye-level and to trust in one's skills and knowledge. I would like to work with respectful and inspiring people across all disciplines.

Unusual

Dare to be different, if you are different. But not just for the sake of differentness. Rather to value unusual ideas and be authentic.

Heritage

is to never forget where you come from and what you've learned.

Methods

are as important as the results. So be a part of the process.

Aesthetics / Form

This is just one part of design - the emotional one. The other is pragmatic - the function.

Senses

Design approaches more than just our eyes.

Movement

Constant intellectual and physical movement is the key to creative progress and growth.

Teampay

is actually co-designing by sharing, negotiating, compromising and deciding.

Surprise

Not everything is projectable and measurable. It means to be open for serendipity.

Appreciation

To express your satisfaction is just one form of appreciation. To pay for work is another, but essential for existence. So pay me.

Information

is to make processes and conditions comprehensible for many people.

Quality

Is quality conformance to requirements? Tell me what quality means to you.

Decisions

in design are inevitable.