

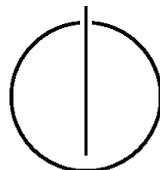
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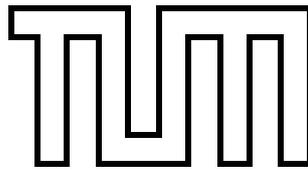
OF THE TECHNICAL UNIVERSITY OF MUNICH

Bachelor's Thesis in Information Systems

**Applying Human-Centered Design
Techniques to Design a Task-centered Project
Management Tool**

Lukas Langlechner





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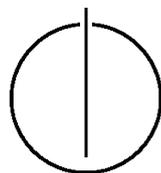
Anwendung von Human-Centered Design Techniken
zur Gestaltung eines aufgabenorientierten
Projektmanagement-Tools

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Date: March 15, 2017



I confirm that this bachelor's thesis is my own work and I have documented all sources and material used.

Munich, March 14, 2017

Lukas Langlechner

Abstract

Collaboration in teams is playing an increasingly important role. Planning, distributing and monitoring tasks is one of the main aspects that the coordinator has to perform. To facilitate that, many different tools exist, which are usually centered around a specific coordination approach. Since the usability of such tools plays an important role in the process, designing a new tool should center around the real approach the team wants to use. To achieve that, the tool has to be designed with the users and their preferred approach in mind.

Approaches, that try to involve users early in the development process, are called human-centered design approaches. In this thesis, these approaches are compared to develop a specific approach for the design of a new task-centered project management tool. With this approach, a concept, implemented in a paper prototype, is being designed and evaluated.

Keywords: Human-Centered Design, Project Management Tool, Coordination, Collaboration

Contents

Abstract	vii
Outline of the Thesis	xiii
I. Introduction	1
1. Introduction	3
1.1. Motivation	3
1.2. Problem Statement	3
1.3. Structure of the Thesis	4
II. Theoretical Foundation	5
2. Human-Centered Design	7
2.1. Overview	7
2.2. Classification of Human-Centered Design Approaches	7
2.2.1. Sanders' Landscape of Design Research	8
2.2.2. Steen's Human-Centered Design Space	9
2.2.3. Conclusion	10
2.3. Human-Centered Design Approaches	11
2.3.1. Participatory Design	11
2.3.2. Applied Ethnography	12
2.3.3. Contextual Design	13
2.3.4. Lead User Approach	14
2.3.5. Empathic Design	15
2.3.6. Co-Designing	15
3. Human-Centered Design Techniques	17
3.1. Personas	17
3.2. Scenarios	17
3.3. Interviews	19
3.4. Requirement Workshops	19
3.5. Contextual Inquiry	20
3.6. Probes	21
3.7. Generative Toolkits	22
3.8. Prototyping	23

III. Approach and Concept Evaluation	25
4. Approach	27
4.1. Hackathon Planning Process	27
4.2. Interviews	28
4.2.1. Interview Structure	28
4.2.2. Interview Execution	29
4.2.3. Learnings	33
4.3. Workshop	36
4.3.1. Workshop Structure	36
4.3.2. Workshop Execution	37
4.3.3. Learnings	42
4.4. Paper Prototype	45
4.4.1. Concept Development	45
4.4.2. Building the Prototype	47
5. Concept Evaluation	51
5.1. Paper Prototype Usage Simulation	51
5.2. Evaluation Interview	54
5.2.1. Main Questions	54
5.2.2. Additional Information	56
5.3. Final Changes to the Concept	57
5.4. Final Mockup Iteration	57
IV. Conclusion	61
6. Conclusion	63
6.1. Summary	63
6.2. Limitations	63
6.3. Conclusion	63
6.4. Future Work	64
Appendix	67
A. Interviews	67
A.1. Interview with Participant A	67
A.2. Interview with Participant B	71
B. Evaluation Interviews	81
B.1. Evaluation Interview with Participant A	81
B.2. Evaluation Interview with Participant B	83
Bibliography	87

List of Figures

2.1.	Landscape of human-centered design by Sanders [55]	8
2.2.	Human-centered design approaches according to Steen [60]	10
2.3.	The idealized process of the lead user method [43]	15
3.1.	The four views of scenarios in the crews framework [52]	18
4.1.	Setup for the first Workshop	36
4.2.	List created by the participant in the first workshop	38
4.3.	Spreadsheets created by the participant in the second workshop	40
4.4.	Brainstorming activities carried out in the second workshop	41
4.5.	An example of the paper prototype in use	48
4.6.	Index Card of the paper prototype	49
5.1.	Paper prototype in category view from both usage simulations	52
5.2.	Paper prototype in monthly view from both usage simulations	52
5.3.	Evolution of the catering card in both usage simulations	53
5.4.	Paper prototype with overdue tasks by one user	54
5.5.	Balsamiq Mockup: Overview of the board	58
5.6.	Balsamiq Mockup: Small Card view	58
5.7.	Balsamiq Mockup: Detailed Card View 1	59
5.8.	Balsamiq Mockup: Detailed Card View 2	60

Outline of the Thesis

Part I: Introduction

CHAPTER 1: INTRODUCTION

In this chapter, the topic of this thesis is introduced.

Part II: Theoretical Foundation

CHAPTER 2: HUMAN-CENTERED DESIGN APPROACHES

This chapter discusses different approaches to human-centered design

CHAPTER 3: HUMAN-CENTERED DESIGN TECHNIQUES

This chapter describes different techniques that can be combined and applied in different human-centered design approaches.

Part III: Approach and Evaluation

CHAPTER 4: APPROACH

This chapter describes the chosen approach. The approach is then implemented to create a concept for a project management tool.

CHAPTER 5: EVALUATION

In this chapter, the developed concept is presented to users. Afterwards, the concept is evaluated by interviewing these users. The results of the evaluation are then used to adjust the concept accordingly.

Part IV: Conclusion

CHAPTER 6: CONCLUSION

This chapter concludes the thesis. Additionally, future work that should be performed is described.

Part I.

Introduction

1. Introduction

1.1. Motivation

Collaboration in Teams is playing an increasingly important role in today's world. One of the main aspects of managing a team, is the planning, distribution and monitoring of tasks. This is usually performed by the team's coordinator or project manager. Keeping track of all those tasks and assigning them to team members is a demanding task. The coordinator has to make sure that single team members haven't been assigned too many tasks. Additionally, the timing of the tasks has to be considered, since often, tasks depend on the completion of other tasks. And last but not least, the coordinator has to always have an overview of all tasks, so that he doesn't forget some of them.

To efficiently perform their role, many different tools exist that team coordinators can use. These tools are often centered around a specific coordination approach. If a tool is chosen, the team has to, to some extent, fit their approach to the approach of the chosen tool. In this thesis, the goal is to design a task-centered project management tool, that is designed to fit an existing approach, rather than fitting the approach to an existing tool.

1.2. Problem Statement

In many projects, an explicit overview of the status of the project is not visible to the team members. Instead, teams often rely on some members to have an overview of the project in their head. But the human brain is not optimally equipped to reliably store a detailed overview. This often leads to forgotten tasks, that the coordinator just didn't think about. Forgotten tasks can lead to considerable delays of the entire project. A typical symptom of projects with a missing overview, is when a remarkably high number of meetings are needed to coordinate the team. This does not mean that an adequate overview leads to no meetings at all. Instead, simple task assignment won't have to be performed as often.

A great way to support collaboration in a team is the usage of a task-centered project management tool. But the selection of an adequate tool is not a trivial task. Because a tool should be chosen at the start of a project, predicting whether this tool will work is difficult. A tool can be used the wrong way if its approach doesn't fit the project approach of the team. In this case, the tool might work for some time in supporting the team, but over time more and more problems will arise. Alternatively, the team has to adjust their approach to mimic the tool's. Both solutions are not satisfying for most teams. A consequence of that is that tools are often abandoned by the team during the project.

Another problem that some tools have, is that they are either too flexible or not flexible enough. If they aren't flexible enough, problems like the aforementioned divergence of the team's and the tool's approach arise. On the other hand, if a tool is very flexible, it often means that using it is very complicated. This usually comes from too many customization

possibilities inside the tool. Additionally, many project management tools are complete software suites that try to support every possible aspect of project management. These tools are often excessive, especially if the project is smaller in size. In these cases, using the tool results in a lot of overhead for the team members.

1.3. Structure of the Thesis

To develop an approach to design a tool with good usability, different approaches that involve users in the design process have been researched. The results of these can be found in chapter 2. Afterwards, the techniques, that are usually employed in such approaches are described in chapter 3. In chapter 4, the developed approach is described in detail. It starts off by explaining the example process. Then, interviews were conducted to get an overview of the process. Afterwards, workshops were held, that were designed to elicit tacit knowledge of the users. The acquired knowledge was then used to develop a concept for a task-centered project management software, which was afterwards implemented in a paper prototype. In chapter 5, the paper prototype was then presented to users, who afterwards were asked questions about the proposed concept. Then, the gathered feedback is used to make some final changes to the concept. Chapter 6 concludes the thesis by summarizing the thesis and discussing what future work should be done with the developed concept.

Part II.

Theoretical Foundation

2. Human-Centered Design

2.1. Overview

Historically, innovations in the development of many ICT products were driven by a technology push. This led to an increase of products, that were developed without serving a "real" need [60]. As a reaction to that, researchers and designers have developed a range of approaches, that aim to increase the usefulness and usability of ICT products by involving users in the design process [55, 61]. Now, there exists a great variety of design research approaches, that try to make users a central part in their process.

These approaches are often referred to as human-centered design approaches. A definition of HCD can be found in the ISO norm 9241-210 from 2010 [34]:

Human-centered design is a creative approach to interactive systems development that aims to make systems usable and useful by focusing on the users, designing around their needs and requirements at all stages, and by applying human factors/ergonomics, usability knowledge, and techniques. This approach enhances effectiveness and efficiency, improves human well-being, user satisfaction, accessibility and sustainability; and counteracts possible adverse effects of use on human health, safety and performance.

Human Centered Design is a design research approach with the goal to improve system usability. To achieve that goal, users and their needs are the focus of this design research approach. There are many different approaches to involve users in the design research process. Users can be involved at each step of the development lifecycle, although in this thesis, the focus is on the fuzzy front end.

The fuzzy front end is the first part in an innovation process. It precedes the product development process. In the fuzzy front end, new ideas and concepts are articulated [37]. At this step, it is unknown what type of deliverable will be developed. For example the deliverable could be a service or a product [55]. Recently, in design research, a lot of the action is at the fuzzy front end [54].

There have been some attempts at classifying different human centered design approaches [36, 45, 55, 60]. But there is no common consensus on one classification. Sanders and Steen both focus in their attempts on the fuzzy front end.

2.2. Classification of Human-Centered Design Approaches

In this chapter, two different approaches at classifying current human-centered design approaches are presented. First, the landscape of design research by Elizabeth Sanders is described. Afterwards, Marc Steen's human centered design space is presented. Then, the differences and similarities are identified.

2.2.1. Sanders' Landscape of Design Research

Sanders identifies a massive change, where the market driven era is ending and a people-centered era begins [54]. From that, she derives five consequences for designers and researchers:

- *People that aren't educated in design are designing*
- *The line between product and service is no longer clear*
- *The boundaries between the design disciplines is blurring*
- *The action now is in the fuzzy front end of the design development process with a focus on experiential rather than physical or material concerns*
- *The action in the fuzzy front end is all about new ways to understand and to empathize with the needs and dreams of people.*

She argues that researchers and designers are getting into each other's domain and misinterpreting or misapplying the others' methods. To get an overview of the different approaches, she created a cognitive map shown in figure 2.1. The map acts as a survey perspective on the landscape of design research in 2006.

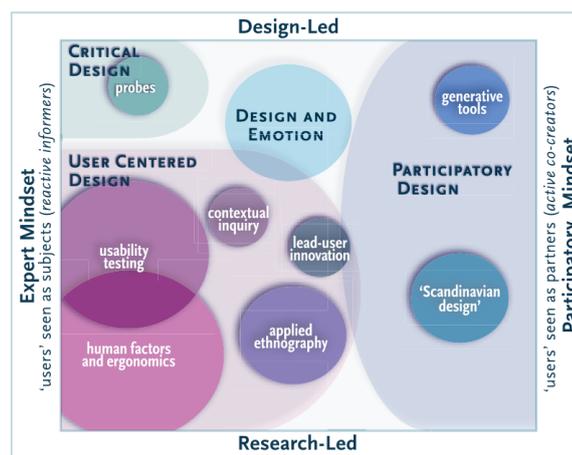


Figure 2.1.: The current landscape of human-centered design research as practiced in the design and development of products and services [55].

The space is defined by two dimensions. In the vertical dimension, Sanders differentiates between approaches that have been introduced to practice from a design perspective versus those that were introduced with a research perspective. She argues that the research perspective is more densely populated, because design research has been influenced more by research. But she argues that this will change [54].

The horizontal dimension is divided by the mindset of those that practice design research. On the left side, approaches are practiced with an expert mindset. Meaning that users are seen as subjects that the design researchers are trying to understand and empathize with. On the right side, approaches use a participatory mindset. This means that the users are seen as partners, that can contribute to the design research.

Sanders writes, that the move from an expert mindset to a participatory mindset is especially difficult, since one must reconsider who the real expert is. But she argues that in the future, design researchers should learn to be able to operate in both worlds, as both are relevant for improving the human condition [54].

On the map, she identifies four big zones: User-centered design, participatory design, critical design and design and emotion. User centered design is the most densely populated zone on the map. It contains usability testing, human factors and ergonomics, contextual inquiry, lead-user innovation and applied ethnography. User centered design is a research-led approach, applied with an expert mindset. Because of that, the zone is located in the bottom left corner of the map [54]. On the right-hand side of the map is the zone of participatory design. It is thus characterized by a participatory mindset. According to Sanders, participatory design can range from design-led to research-led. Inside the participatory design zone, there are the bubbles of generative tools and Scandinavian design. Scandinavian design is where participatory design originated from [59]. The Critical Design zone on the top left corner is characterized by an expert mindset and a design-led approach. It emerged only recently through the works of Dunne and Raby described in [22]. Design and Emotion is a relatively new approach. It draws from all the other design research approaches. It has amassed a large and enthusiastic global following [54].

2.2.2. Steen's Human-Centered Design Space

Steen sees the risk in the ICT industry for "researchers and designers to invent something that only few people need, want to use, or are able to use" [61]. He argues, that there is a gap between the users on the one hand and designers and researchers on the other. According to him, bridging the gap would prove beneficial [61].

He proposes the name human-centered design for such attempts of researchers and designers to include users in the development process. He identifies four key characteristics of human centered design [61]:

- *the active involvement of users for a clear understanding of user and task requirements*
- *an appropriate allocation of functions between users and technology*
- *iteration of design and evaluation processes*
- *and a multi-disciplinary approach*

He chooses to focus on the first characteristic. Furthermore he focuses on the activities happening at the fuzzy front end of innovation and only on approaches in which ICT products are being developed. Given these restrictions, he identifies six different HCD 'moves'. He plots those six 'moves' into a space along two dimension, as represented in figure 2.2 [61].

Steen identifies two distinct starting points for HCD projects. It can start with a problem in a current situation, which he describes as 'is'. Alternatively, an idea about a future situation can be the starting point which is often depicted as an opportunity. He calls those 'ought' situations. Therefore on the vertical axis, he differentiates by the emphasis on a current situation or on a problem at the top, versus the emphasis on a future situation or on an opportunity at the bottom [61].

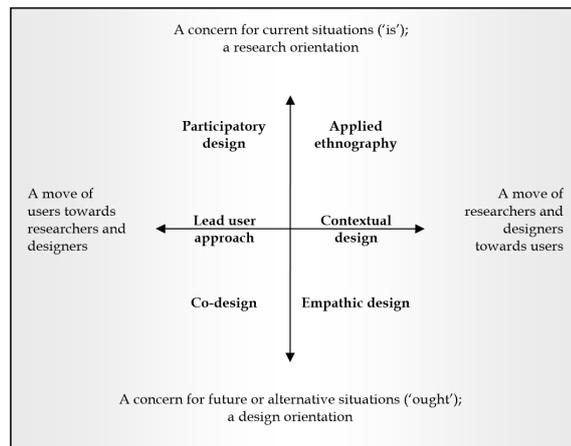


Figure 2.2.: Different human-centered design methods and practices [60]

The horizontal axis is used to distinguish between two categories. On the left are approaches where the emphasis is on the users knowledge. In these situations, the users move towards the designers and researchers. On the opposite side are approaches, where the knowledge of the designers and researchers is emphasized. Consequently he describes these situations as a move of the designers and researchers towards the users [61].

Along the vertical axis of his classification, he describes three categories [61]:

- *a move towards democracy and emancipation in participatory design and ethnographic fieldwork*
- *a move towards pragmatic and commercial application in the lead user approach and contextual design*
- *a move towards creativity and inspiration in co-designing and empathic design.*

On the left side, participatory design, lead user approach and Co-designing are approaches, where users are invited by the researcher and designers to participate hands-on in research and design activities. In contrast, on the right side are ethnographic fieldwork, empathic design and contextual design located. In these approaches, knowledge about the user is being generated and transferred into the design process [61].

2.2.3. Conclusion

After having introduced these two attempts at classifying design research approaches - Sanders' and Steen's - the differences and common grounds between both approaches are identified. Although their axes are completely inverted, they use similar methods to divide the space. Steen even acknowledges, that other researchers used similar axes in their approaches. But only Sanders uses a similar method on both dimension [60].

Both focus on the fuzzy front end in their attempts [54, 61]. But only Steen further focuses on approaches where ICT products are being developed [61]. Although the approaches identified by Sanders could also all be used to develop ICT products [54].

There is a difference in their description of participatory design. Sanders uses a more broad description, where all approaches that employ a participatory mindset, are considered as part of participatory design. Steen on the other hand uses a more narrow description of participatory design. His description is more aligned with Scandinavian design, as mentioned by Sanders [54, 61]. Another difference between the two classifications is that Sanders classifies contextual inquiry in her approach, whereas Steen uses contextual design. Contextual design is a design approach described in detail in chapter 2.3.3. Contextual inquiry is a technique, that was developed as a part of contextual design [7].

Usability testing and human factors and ergonomics are not mentioned by Steen. This can be explained by Steen's focus on the fuzzy front end [60]. They both include lead user approach or rather lead user innovation in their maps. Both are referring to the works of Eric von Hippel in their explanations. The same can be said about applied ethnography, where both use similar descriptions of the approach [54, 61]. In the case of Co-designing, Steen writes that he refers to the works of Sanders [61]. In her own map, Sanders refers to this approach as generative design research [54]. In the corner of expert mindset and led by design, they list different approaches. Sanders identifies Critical Design, an approach popularized by Dunne and Raby in [22]. Steen on the other hand, sees empathic design in the same corner [61].

Sanders additionally lists design and emotion, which Steen doesn't mention. Design and emotion is described by Sanders as a newly emerging approach, which draws inspiration from all other approaches [54]. Although he doesn't list it as an additional approach, Steen mentions the possibility to combine elements of the other approaches in one project [60].

Steen's focus on approaches that take part at the fuzzy front end and his focus on approaches that produce ICT products, is a better fit for this thesis. Additionally, Sanders mixes techniques like generative toolsets or probes, and approaches like participatory design. Therefore, the different approaches as identified by Steen, will be described in the next section. In chapter 3, some of the different techniques, that are commonly used in HCD approaches will be described.

2.3. Human-Centered Design Approaches

In this chapter, the different human-centered design approaches as identified by Marc Steen are being described [61].

2.3.1. Participatory Design

Participatory design originated in the 70s in Scandinavia. In that time, more and more offices became automated by computers. More democratic values in the workplace and worker's emancipation became a focus because of that [60]. To solve that problem, researchers turned to action research for inspiration [59]. In action research, researchers aim "to address organizational problems while at the same time contributing to scholarly knowledge" [19]. In action research, researchers not only observe subjects in an organization, instead they collaborate, together with the workers, to solve organizational problems [19]. This led to collaboration between researchers and trade unions. One of the pioneering projects was carried out by Kristen Nygaard and the Norwegian Metal Workers Union

[48]. Other leading projects that are similarly based on on the idea of industrial democracy are UTOPIA and DEMOS [23].

Participatory Design has two main features that shape its trajectory:

Political - "participatory design raises questions of democracy, power and control at the workplace. In this sense it is a deeply controversial issue, especially from a management point of view." [58]

Technical - "its promise, that the participation of skilled users in the design process can contribute importantly to successful design and high quality products." [58]

Traditionally, Design was performed by experts. The users had to sit around idly while the experts designed a new product for them to use. Participatory design moves away from the expert point of view. But that doesn't mean experts have no place in participatory design. Instead expert knowledge is seen as one of many resources to draw from. In participatory design, users are treated as equals in the design process [58].

In participatory design, the researcher's object of study is the user's tacit knowledge. This knowledge is important in system design, since the user has the most experience of practice. Since this knowledge is tacit, users can't easily articulate it. Participatory design aims to utilize this knowledge by allowing the user to participate in shaping the product [59].

According to Spinuzzi [59], participatory design usually consist of three steps, which should be iterated several times:

- Initial exploration of work, where designers meet the users and familiarize themselves with their work, tools and work environment.
- In the Discovery process, users and designers cooperatively employ various techniques to envision the future workplace and agree on a desired outcome.
- Prototyping performed by designers and users together. They iteratively shape the prototype to fit in the workplace.

2.3.2. Applied Ethnography

Applied ethnography is "a form of applied social science, that draws from anthropology, sociology and ethnomethodology" [60]. In anthropology, ethnography is the study of human groups, which are considered as individual entities. Through observation and analysis, an ethnographer "aims at recording as accurately as possible the perspective modes of life in various groups." [42]

In design research, classic ethnography is usually not used. Although some of the key features are the same [5]. Button et. al. note, that when people use the term ethnography, they usually are talking about field-work. Field-work is part of ethnography, but it additionally involves an 'analytic mentality' [11]. To facilitate this distinction, Steen calls this approach applied ethnography [60]. Others use different terms like 'ethnographic field-work' or 'cognitive ethnography' [27, 6].

Ethnography in system design, especially CSCW, has risen to prominence because of two trends, according to Hughes et. al.[32] :

- *The growing plausibility of the diagnosis that the reason why many systems fail is due to the fact that their design pays insufficient attention to the social context of work; a failure often attributed to the inadequacy of existing methods of requirements elicitation and work analysis*
- *A growing awareness with the emergence of low-cost technology that the ubiquitous nature of networked and distributed computing pose new problems for design which require the development of new methods which analyse the collaborative, hence social, character of work and its activities.*

To gather data, researchers observe and interview end-users. "They gather knowledge about end-users and end-users' current practice" [61]. The researchers try to look at "naturally occurring situations and to look at these 'holistically' and from a 'members' point of view'" [61].

Hughes identified four different uses of applied ethnography:

- *Concurrent ethnography: where design is influence by an on-going ethnographic study taking place at the same time as systems development.*
- *Quick and dirty ethnography: where brief ethnographic studies are undertaken to provide a general but informed sense of the setting for designers.*
- *Evaluative ethnography: where an ethnographic study is undertaken to verify or validate a set of already formulated design decisions.*
- *Re-examination of previous studies: where previous studies are re-examined to inform initial design thinking.*

In [58], Blomberg and Kensing propose combining ethnographic fieldwork with participatory design. Although that is a possibility, as mentioned in chapter 2.2.2, one can still view these two approaches as apart. Mainly since in applied ethnography, the users are not considered partners, instead they are considered as subjects. An often-cited applied ethnography project was carried out by Lucy Suchman [11]. She filmed people struggling while using Xerox printers. Those filmed observations were then used to redesign their printers [60].

2.3.3. Contextual Design

Contextual design is a design approach, that was developed by Karen Holtzblatt et. al. [29]. The approach centers around their contextual inquiry technique, which is described in detail in chapter 3.5. The approach was first introduced at the 1990 conference on Human Factors in Computing Systems [65]. This approach has been refined over time and is now marketed as Rapid Contextual Design [30].

At the heart of the contextual design approach lies contextual inquiry. Contextual inquiry is a technique, where users are observed while performing their work in their usual work environment. These field interviews form the basis of contextual design. This approach "can be considered a further application of applied ethnography" [60]. The data gathered from users is then interpreted by a multidisciplinary team. In the interpretation

session, the team listens to the story of the field interviews and captures all relevant information. The gathered information is then used to build an affinity diagram. In this affinity diagram, all individual notes from the interviews are grouped by key themes of the gathered data. This can be done using post-its on a wall [30].

In contextual design, contextual inquiry is complemented by additional techniques. After the interpretation session, work models are created. "A work model is a diagram that captures the structure of the users' work or activity" [30]. According to Holtzblatt et. al., there are three different types of work models [30]. The physical model describes the user's physical environment. The sequence model is a step-by-step recording of the observed tasks performed by the user. The artifact model describes "physical or electronic 'things' the user creates, passes, or references to do a task" [30]. These work models are afterwards consolidated into a consolidated sequence model.

In the next step, personas are created. Personas are described in detail in chapter 3.1. After that, visioning is applied to envision a new way to work [30]. These steps have only been introduced in rapid contextual design. Both of those steps move contextual design more to the design mindset spectrum [54]. From all gathered data, storyboards are created next. These are a variant of scenarios, which are described in detail in chapter 3.2.

After the storyboards have been created, a paper prototype is created by using the identified functions from the storyboard. The paper prototype is then used to conduct paper prototype interviews. In these, users are asked to perform their work, using the paper prototype. These interview sessions are conducted according to the principles of contextual inquiry. The paper prototype interview is done to ensure usability of the proposed solution.

2.3.4. Lead User Approach

Instead of designers or researchers, often innovative end-users develop ideas that lead to new products. These innovative end-users are often referred to as 'lead-users'. These users possess two defining characteristics [63]:

1. *They are at the leading edge of an important market trend(s), and so are currently experiencing needs that will later be experienced by many users in that market.*
2. *They anticipate relatively high benefits from obtaining a solution to their needs, and so may innovate.*

Involving these users in design research is central to the lead user approach. Eric von Hippel introduced the approach in 1986, by describing a process which allows systematically studying user innovation. The findings can then be used to develop innovative products [54]. The lead user approach usually consists of four steps, as shown in figure 2.3 [9].

Lead users often freely reveal their innovations for many reasons [63]. Although Hippel described an approach to identify and include lead users in the design process, it doesn't have to be initiated by the developing company. Instead, there are cases, where the lead users approach a company by their own volition [9].

The lead user approach is a participatory approach. Although the expert mindset is still somewhat present, since the designers and researchers think that only a specific group of the user base is capable of innovation [54].

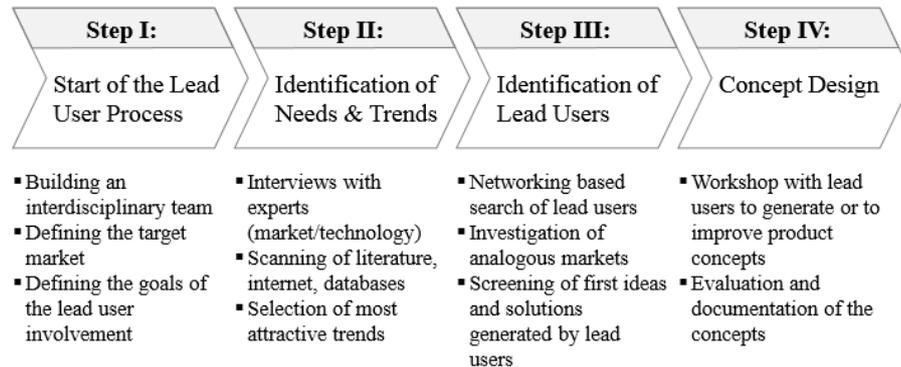


Figure 2.3.: The idealized process of the lead user method [43]

2.3.5. Empathic Design

In empathic design, researchers and designers try to empathize with the users. To achieve that, they have to move towards them, their lives and their work. The difference to ethnographic approaches, is that the goal of empathic design is to empathize with the users on an emotional level, instead of a more detached description of the users. There are different versions of empathic design. Some are more business oriented, as opposed to more creativity focused approaches [61].

The empathic design process is not a strictly defined process. Rather a combination of different techniques is used [61]. A commonly used technique, which is similar to the ethnographic approach is observing people [41]. Probing can additionally be used to empathize with people that are located farther away [24]. Another commonly used technique is a form role playing called bodystorming [49].

An example of empathic design, Instrumentarium Corp., who develops patient monitoring instruments for hospitals, tried to gain an empathic understanding of nurses in a hospital. To achieve that, they used probes and interviews. Through the probes, they gained a "authentic environment descriptions, user profiles and use scenarios with wealth of visual material that makes the descriptions more memorable" [35]. Most of the data they acquired, described users personalities, the products meaning and the environment.

The researcher moves in empathic design towards the user. He tries to understand him, but doesn't let him directly participate in the design process. Although the user is still central to the design process, he is the subject of the study not a participant. Additionally, empathic design is about envisioning what a user could need or want, without him realizing that this is the case. Thus, it is a design led approach that concerns a future or alternative solution [60].

2.3.6. Co-Designing

Co-Designing refers to the works of Elizabeth B.-N. Sanders and her colleagues [60]. This approach is also referred to as Co-Creation by Sanders herself. In Co-Design, designers collaboratively design with potential future end-users. "The focus is on jointly articulating ideas, on playing with concepts, on making and evaluating sketches, on jointly tinkering

with mock-ups and prototypes” [60]. The role of the researcher in co-design is one of a facilitator. “This means leading, guiding, and providing scaffolds, as well as clean slates to encourage people at all levels of creativity” [55].

The goal of co-designing is to elicit the participants tacit and latent knowledge. According to Sanders, this kind of knowledge is usually expressed by what the user creates. Contrary to that is the explicit knowledge, which can be elicited from what people say. And what people do can be observed to elicit the person’s observable knowledge [62]. To facilitate creation by people, generative tools are applied. Those tools refer “to the creation of a shared design language that designers/researchers and the stakeholders use to communicate visually and directly with each other. The design language is generative in the sense that with it, people can express an infinite number of ideas (e.g., dreams, insights, opportunities, etc.) through a limited set of stimulus items. Thus, the generative tools approach is a way to fill the fuzzy front end with the ideas, dreams and insights of the people who are to be served through design” [54].

Co-Designing can be seen as a form of participatory design. The main difference to the classic form of participatory design, is that in co-design the emphasis is on a future or alternative situation or opportunity. This means that co-design is more design oriented. Additionally, in co-design, the collaborating people can come from different backgrounds. They don’t have to be part of an organization where the developed tool will be employed [60].

3. Human-Centered Design Techniques

3.1. Personas

Personas were first mentioned in "The Inmates Are Running the Asylum" by Alan Cooper in 1998 [16].

Personas are hypothetical archetypes of users defined with significant rigor and precision. They are not simply made up, but discovered during investigation process. Only their names and personal details are made up [17]. They usually are page long descriptions that contain information about their life situation, goals and behaviors relevant to the design inquiry. To make them more relatable, usually personal details like name and age are included. Additionally, a picture of the persona is added, usually a simple sketch or a stock photo [26]. Those details are added to make the persona a concrete individual in the designer's mind [17]. The description of a persona should be precise, even if it means not being completely accurate [17]. There are alternative approaches to classic personas as described in [17]. Gaver et. al. proposed using extreme personas, which are highly stereotypical user descriptions [21]. Alternatively, Kurosu described the usage of trait list personas for structured heuristic evaluation method in [38].

Originally the idea behind personas was to focus the design on a single target user, which is viewed as a better approach than trying to please everyone [17]. Projects often have multiple personas, where for each main persona an individual interface is created [15, 17, 51]. Alternatively, one interface is sufficient if it can transform according to the target persona's needs.

Since personas can be used to summarize insights gained from a wide range of research techniques, they can be used in every human-centered design approach. For example, Holtzblatt describes the use of personas in contextual design [30]. Although Cooper explicitly states that users themselves should not be included in the design process [17], personas can still be used in approaches that treat users as partners. For example, regarding co-design, Bornet et. al. investigated the use of personas. And although they found that personas had no positive effect on idea creation, they found positive influence of personas on the idea selection process [8].

In 2013 Nielsen et. al. questioned 13 Danish companies on their use of personas. They found that in these companies the use of personas was viewed as beneficial for the design process [46].

3.2. Scenarios

A Scenario is a believable narrative, that describes how a user will interact with a planned system [50]. It usually describes certain motivations towards the system, action taken,

some reason why action was taken and characterizes the result in terms of the user's motivation and expectations. The actor of a scenario can be a Persona.

The shape of a scenario can vary greatly. They can range from brief stories to richly structured analyses. Usually they are based on a sequence of actions carried out by intelligent agents [2]. They also don't have to be textual. Instead they can assume the form of storyboards, annotated cartoon panels, video mockups, scripted prototypes or physical situations [14]. Scenarios are intentionally kept simple. Because of that, they can be understood by regular users. This is very different from modeling notations, which are becoming more and more complex [2]. The simplicity of scenarios and similarity to stories, facilitate imagination [14].

Scenarios can in principle fill all the roles in the system development lifecycle [14]. Carroll explains their usage in requirement analysis, user-designer communication, as a design rationale, envisionment, software design, implementation, documentation and training, evaluation, abstraction, and for team building [14].

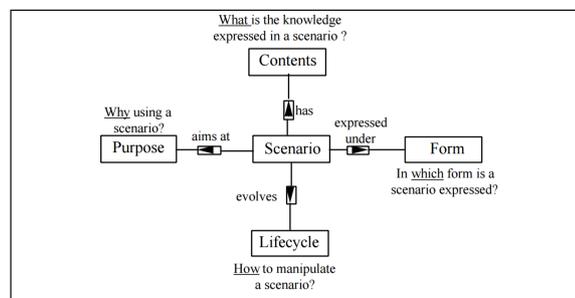


Figure 3.1.: The four views of scenarios in the crews framework [52]

The CREW framework was created to classify scenario approaches by their form, contents, purpose and lifecycle [2, 52]:

The form view In the forms view, scenarios are classified by whether they are formally or informally described, whether they are animated or even interactive. Additionally, the used medium is described.

The contents view describes what kind of knowledge the scenario expresses. Encompasses the coverage, context, argumentation and abstraction of the scenario.

The purpose view differentiates by the role the scenario plays. Scenarios can describe the functionality of a system, explore alternatives or explain certain characteristics.

The lifecycle view considers how scenarios evolve over time within the lifecycle process.

Alexander et. al. identified 14 different approaches according to the CREWS framework [2]. Because of their many different variations and uses, scenarios can be considered usable in every Human-Centered Design Approach.

3.3. Interviews

Interviews are one of the most used elicitation techniques. They have been used in system specification even before user-centered design approaches became common. In a broad sense, they are guided conversations in which one person seeks information from another [18]. The goal of an interview is to collect firsthand experience, opinions attitudes and perceptions of the interviewee [26].

Interviews rely on the ability of the interviewee to know and verbalize their requirements. Thus, only requirements that the interviewee is conscious of can be gathered this way [51]. Additionally, cognitive limitations and vocabulary differences of the participants hinders communication between them [12].

The most important aspect of an interview is to ask the right people. It is not a good idea to interview representatives of stakeholders instead of the stakeholders themselves [31]. An interview does not have to be in person. For example, if the interviewee is too far away, the interview can be conducted per phone or other means of communication. If it's too complicated to get all participants available at the same time, the interview could also be conducted per e-mail or any other means of asynchronous communication. But if possible, it is preferable to conduct the interview in person, since the interviewer can observe nonverbal clues given by the interviewee [18].

Generally, interviews are differentiated by the degree of structure. Usually interviews are either structured, semi-structured or unstructured [18, 26]. Unstructured interviews are useful for explorative purposes, especially in the early stages of requirement gathering [1, 18, 26]. Although they can be more difficult to analyze and usually are a lot more time consuming [1]. In contrast, structured interviews are easier to analyze and can be used to extract specific information [1]. They also enable comparison between interviews with different people [26]. Often, interviews are neither completely structured nor completely unstructured [18, 1].

Since interviews are such a basic technique, they are almost certainly used in every approach in one way or another.

3.4. Requirement Workshops

Requirement Workshop is a versatile method in design which can take many different forms. For a general definition, Ellen Gottesdiener provided a description in [25]:

A requirements workshop is a structured meeting in which a carefully selected group of stakeholders and content experts work together to define, create, refine, and reach closure on deliverables (such as models and documents) that represent user requirements.

A workshop could also mean, that only designers or researchers meet in for an agreed upon amount of time to produce deliverables. But in the spirit of human-centered design, in this thesis only workshops where at least one stakeholder or user participate is regarded as a requirement workshop.

According to the definition of Gottesdiener, a deliverable, that represents user requirements, must be created collaboratively. Deliverables that represent user requirement don't

have to be formal requirements as used in requirements engineering. In some workshops, only simple ideas are collected which afterwards could become formal requirements [47, 57]. In some workshops, basic prototypes are created collaboratively [4, 10, 40]. Alternatively, there also exist approaches to requirement workshops, where a formal requirement specification for the complete product is developed [13, 25, 39]. Although they usually involve a series of workshops where only the last produces the specification.

Depending on the chosen activities for the workshop, it can vary greatly in duration. A workshop can consist of only one or multiple activities. There are a great number of different activities, that can be performed in a workshop. In this thesis, only a few examples will be listed. For more workshop activities [25, 26, 44] are great sources.

Brainstorming Brainstorming is well known method for idea creation in groups. The goal is to collect as many ideas as possible and only afterwards select the best ones. To achieve that, a common ground rule in brainstorming is that no ideas are bad. Ideas should not be criticized because that would shift the mindset of the group from a generative to a critical one [33]. There are many variations on brainstorming like for example, brainwriting, braindrawing [64] and six thinking hats [20].

Bodystorming Bodystorming is related to Brainstorming, but enhances it with physical experience. In a Bodystorming session participants should imagine that an envisioned product already exists, and act out how they would use it. To facilitate the imagination, props are used to represent typical products. Additionally, participants can create new products or services with provided material [26]. It could be beneficial to perform Bodystorming in the original context instead of another location [49].

Card Sorting In Card Sorting, participants are given a deck of cards and are asked to arrange them in a certain way. A common way is to ask them to rank them by importance [33]. Alternatively, they could be asked to sort them into categories [26]. The cards should be kept simple, containing only a word or a picture [33]. The size of the deck may vary greatly in different cases but often a maximum of around 90-100 cards is suggested [26, 18]. Card Sort is used to elicit how users mentally organize content [26, 18, 33].

Since there are many different activities that can be utilized in many different ways, requirement workshops can potentially be a part of every Human-Centered Design approach. The activities can be used with a research orientation as well as a design orientation. The role of the user can also vary from as a subject to as a partner. Consequently, the classification of requirement workshops isn't only dependent on the activities used but also how they are executed.

3.5. Contextual Inquiry

Contextual inquiry combines observation of users with interviews. It is an adaption of field research techniques taken from psychology, anthropology, sociology and interpretative hermeneutics [58]. It was developed to counteract the problem, that users' subconscious requirements can't be elicited by interviews [51].

The method was invented by Holtzblatt and Jones and first published in 1993 as an article in the book "Participatory Design: Principles and Practices" [58]. In 1997, Contextual Design was described as an approach to human-centered design, which relies heavily on contextual inquiry [7].

Holtzblatt et. al. define four key concepts for contextual inquiry [7, 29, 30, 26]:

Context In contextual inquiry the researchers try to understand the users needs in the context of their work. To achieve that, the researcher collects data from the users while they're performing real tasks at the site of real work.

Partnership During the inquiry, the researcher has to work with the user as partners. The user should lead the researcher through all their actual activities, like an apprentice. Meanwhile the researcher should make observations and ask about what is going on in the work. By working together that way, explicit and implicit aspects of the users work will be identified.

Interpretation Whenever the researcher interprets something he hears or sees during the inquiry, he should immediately share his hypothesis with the user. This is done to create a shared understanding of what's going on. If this is not done, the misinterpretation can lead to failed design implications and ideas.

Focus During the inquiry the researcher has to make sure, that the focus stays on the project. He can ask questions or make statements to steer the conversation back to the project. To make that easier, the researcher should know beforehand what his areas of concern of the project are.

In contextual inquiry the researcher gathers knowledge about the users, which he uses as a basis for his further design activities. Although the user provides feedback and ultimately influences the design, he is not treated as a partner. Whether the methodology is a research oriented or a design oriented depends on how the designers or researchers use the gathered data. Therefore contextual inquiry is valid method in Ethnographic Fieldwork, Empathetic Design and Contextual Design. Although Holtzblatt originally described her method as a method for Participatory Design, the Participatory aspects originate more from the techniques that were used in combination with contextual inquiry [58].

3.6. Probes

Probes have been introduced in the seminal paper by Gaver et. al. [24]. In the paper, they describe their design procedure during the Presence Project.

Probes are packages of different materials that are given to participants to provoke inspirational responses [24]. The participants are asked to use the given material according to

the instructions and return them afterwards. Gaver et. al. presented the probes to the participants and explained their intentions. But others only send them, without additionally meeting to explain the process [56].

The goal of this approach is to collect inspiration and empathic understanding of the subjects and their context. They weren't designed to get an objective view of the subject's needs [24].

Probes can vary widely by their form [56]. Often materials like maps, postcards and disposable cameras are included, with corresponding instructions on how to use them. For example, on the disposable cameras, Gaver et. al. listed requests for certain photos. But they didn't specify requests for every photo, leaving participants the possibility to get creative with the remaining photos [24].

This method corresponds to an expert-driven mindset where the user is a subject for the designer. It is also led by design, meaning its goal is to envision a future or alternative situation [56]. Although Visser et. al. propose using probes as a way to sensitize participants for a design session using generative toolkits [62].

3.7. Generative Toolkits

Generative toolkits, originally called "Make Tools" by Sanders are an integral part of Co-Design [53]. In the original paper, Sanders discusses three different perspectives of people's experience. She differentiates between "what people say", "what people do" and "what people make" [53]. She argues, that with traditional methods researchers focus only on what people say and do. She proposes generative toolkits as a method to observe what people make. She argues, that what people make with the toolkits can be used to elicit people's thoughts, feelings and dreams [53].

Generative toolkits are made up of a variety of components and are specifically designed for each project. They can contain 2D and 3D components like for example, pictures, blocks, phrases or wires. Those toolkits are used in facilitated sessions with designers and participants. They don't have to be customers or users, rather everyday people are targeted [60]. Participants are given these tools and are asked to express their thoughts, feelings and ideas [62]. In these sessions, small groups of participating people are possible, as well as one on one sessions [56].

Toolkits are designed to support a certain technique in a session. Examples for such techniques are collaging, cognitive mapping or Velcro-modelling. But the full range of generative toolkits is constantly increasing. Usually more than one technique is used in one session [62].

Since generative toolkits involve a session together with people, they can be seen as a form of requirement workshops. Because of the focus on making as a way to elicit thoughts, feelings and ideas, this method is described individually.

Generative tools is a design oriented method that borrows heavily from participatory principles [56].

3.8. Prototyping

"A prototype is an initial model of an object built to test a design." [28] A Prototype makes an idea or requirements tangible [33, 51]. This facilitates communication with stakeholder about those ideas or requirements.

The Term "prototype" is used by different authors with different meanings [56]. This comes from the variety of types of prototypes and how they are utilized.

A Prototype can be used in the requirement process or as a design tool [51]. In the requirement process, often a prototype is used to test whether the prior gathered requirements are right and complete [30, 51]. In design, prototypes are utilized to test design ideas [33, 40] or to generate new ones [3, 10, 56]. Additionally, usability testing often involves prototypes [26].

The type of prototype is also dependent on the materials used and their fidelity. Prototypes can be constructed using physical material like paper or plastic [40]. Alternatively, they can be created digitally using drawing tools, specialized prototyping software or writing code [4]. The fidelity describes how much the prototype resembles the finished product.

Arnowitz describes 9 different prototyping methods [4]:

Card sorting Card sorting was already listed as an possible activity for requirement workshops in chapter 3.4. The result of such a card sort is considered a prototype by Arnowitz.

Wireframe prototyping A wireframe is a raw sketch of the software's possible layout. The content is not part of a wireframe, so the user has to imagine it. It's usually created in an early stage. Wireframes can be created quick and allow experimentation with different visualizations. They usually have a short lifespan. They can be created physically or digitally. They are low-fidelity prototypes, but can evolve into high-fidelity prototypes, at which point they aren't wireframes any more.

Storyboard prototyping A storyboard is a type of scenario as discussed in chapter 3.2. Usually, when creating a storyboard, the designer begins with the narrative, which is then enriched with visuals. Depending on the stage of the software creation process, the visual can be a simple photo of a potential interaction of a person with the system. Later in the process, mockups might be added to the storyboard.

Paper prototyping As the name implies, paper prototypes are created using paper. They can range from very simple designs, only covering a few ideas, to complex representation of the system at the current development stage. They are often used together with potential users to test interaction concepts. But they are also very popular as a fast way to test ideas, as they can be created quickly and cheaply. To make a paper prototype interactive, a user can simulate interaction with it, while the presenter adjusts the prototype accordingly.

Digital prototyping Digital prototypes are used like paper prototypes. They are created using software tools. To create them, standard office software can be used. Furthermore, specialized prototyping software to incorporate interactivity exists.

Blank Model prototyping In blank model prototyping, the prototype is created together with a potential user. The presenter provides the user with materials to build the prototype and presents him a scenario in which the prototype is to be used. The user has to build the prototype and explain his thought process. The method is used by designers to identify design and usage patterns and learn about the user's preconceptions about technologies.

Video prototyping Video prototypes are like storyboards narrative prototypes. They can show how a nonexistent system would work. It can only show the system and how it would work. But to integrate context information, often the user and how he interacts with the system is added.

Wizard-Of-Oz prototyping In Wizard-of-Oz prototyping the functionality of a system is simulated. The user can interact with the prototype, but the responses are provided by a third party, called the wizard. This method can be especially useful, when speech or tactile interfaces are tested.

Coded prototyping It is a form of digital prototype where the prototype is created using a programming language. Usually the target programming language of the system is used. It is meant to evolve into the final product.

Prototyping in some form is used in nearly every system development project. For example, paper prototyping is part of the Contextual Design approach [30]. Blank model prototyping is a method that can be utilized in Participatory Design and Co-Design, given its participatory nature. In the Lead User Approach von Hippel described prototypes that were created by lead users, which act as a basis for further development [63]. For other Approaches, prototyping might not be part of the description of the approach, but are almost certainly in some way involved in the development process.

Part III.

Approach and Concept Evaluation

4. Approach

In this chapter, an example process that will be used to research collaborative work is chosen and described. Then, interviews were conducted to gain an overview of the process. The acquired knowledge is then used to conduct requirement workshops with two participants. In both cases, the participants were part of the scientific staff, that works at the chair at TUM. Afterwards, the learnings from those interviews and workshops is used to develop a concept for a new task-centered project management tool. At the end of this chapter, the concept is implemented as a paper prototype.

4.1. Hackathon Planning Process

As described in the last chapter, involving users in design research is the main point of human-centered design. To include users in the research of collaborative work, a process that could be used as an example had to be found first. The process would have to be collaborative in nature and the users should be available to be included in the design research. This means that multiple people should be involved, who have to complete a diverse set of tasks. After some research, the planning of an event at TUM was decided upon. One such event, that was held in 2016 for the first time at TUM was a hackathon.

A hackathon is an event, where programmers meet to collaboratively develop software projects. The name is a portmanteau of 'hacking' and 'marathon'. In this case, 'hack' doesn't refer to gaining access to secured systems, instead it is used in the sense of explorative programming. A hackathon usually lasts a few days. During that time, multiple teams complete certain challenges, which can be assigned by the organizers or made up by the team itself. At the end of a hackathon, the teams usually present their results to the other participants. Some hackathons are held with a certain theme. These themes can range from technical themes like certain frameworks, programming languages or platforms, to societal themes, where the projects focus on certain user groups, causes or purposes. A prominent example of such a hackathon is the TechCrunch Disrupt Hackathon¹.

At TUM, the first hackathon was held in November 2016. It lasted one weekend and involved about 250 participants. The event was sponsored by 15 different companies, which provided 10 different challenges that were completed by the teams. The event was planned by a team of eight employees at TUM. The planning of the event started three months before the event took place. During this time, a diverse set of tasks had to be completed. For example, the sponsors had to be acquired and coordinated. Additionally, many smaller tasks had to be completed to make the event possible. Those tasks ranged from simple tasks, like ordering napkins, to more complicated tasks like designing and programming a website for the event. The tasks had to be assigned to team members, and their progress was tracked.

¹<https://techcrunch.com/event-type/hackathon-2/>

The planning of the hackathon at TUM was chosen not only because it is a collaborative process, but also because the event was planned only once. This means that the involved team hasn't developed a routine planning approach. The team is still looking for ways to improve their approach. Their ideas of how to achieve that could potentially prove to be useful. Related to that, is the fact that they haven't based their approach on one tool. Instead, they tried a few, but didn't settle on one. This gives us the possibility to find out what did and what didn't work with different tools, and thus lead to the abandonment of the tool. Since the process was only performed once, another advantage of this process is that the planning was recent. This is important, since otherwise the team members could have forgotten parts of the process. This would be a problem, because then the collected information about the process would be more likely to be wrong or incomplete. And finally, some of the team members agreed to participate in our design research.

The main limitations of using the hackathon planning process as our example is that the team that performed the planning is co-located. Because of that, coordinating the team and distributing tasks was usually performed in in-person meetings. Therefore, it won't be possible to learn much about collaborative work in distributed teams. Because of that, the learnings from the research should only be applied to collaborative work in co-located teams.

Similarly, the team that performed the planning consisted of only eight people. Because of that, coordination is easier than it would be in bigger teams. Additionally, the project wasn't that big and only ran for three months. Because of those reasons, the team didn't define explicit roles for all members. On the contrary to that, in bigger projects, there are often multiple roles. These dependencies make generalizing the example process to other collaborative processes difficult.

In the end, those limitations only make up a small part of the requirements for a collaborative process. Therefore this example process should still provide enough insight into collaborative work.

4.2. Interviews

In the following sections, the structure of the conducted interviews is explained. Then, short summary of the interviews is provided. At the end, the key learnings from the interviews are listed. The entire interviews can be found in appendix A. They were summarized to some extent in order to enhance readability.

4.2.1. Interview Structure

To learn more about the hackathon planning process of last year, two people that were part of the planning team were interviewed. To both persons, contact was established by my advisor, since both are colleagues of my thesis advisor at the TUM. They were both instrumental in planning and executing the first hackathon at TUM. The interviews took place one week apart in a meeting room at the chair, at which both of them work. Both Participants were told that the interview would take about an hour. From both interviewees, the permission to record the audio of the interview was given.

The goal of the interviews was to find out which tools they used in the previous planning process and how they used them. Furthermore, the persons that were involved in the planning had to be identified and their respective roles determined. Subsequently, the whole planning process had to be understood by identifying all tasks that had to be completed and what the overarching structure of the complete process looked like. Another aspect were the problems they encountered during the previous planning process. Problems with the planning itself, as well as with tools they used to support themselves. Finally, we wanted to know, how they would imagine the approach for the next hackathon and how different tools might support them.

The participants were told, that they wouldn't have to prepare anything before the interview. For the first interview, a list of 15 questions was prepared beforehand. During the interview, it became clear, that for this explorative purpose, a prepared list of questions was difficult to adhere to. Because of that, the interview became more informal. It became more of a conversation about the hackathon planning process. The list of questions was still used to check whether points that needed to be discussed were forgotten. In the second interview, the list of questions was replaced by a list of topics that should be talked about.

The insights from the first interview were used in the second interview. They allowed more specific questions about the process to be asked. Additionally, the previous answers could be verified or disputed in the second interview.

4.2.2. Interview Execution

First Interview The first interview took around 40 minutes. At the beginning, the interviewee was asked about the tools that they used during the planning of last year's hackathon. She answered, that they used emails, their intranet wiki, MS Excel, google Docs and Trello. Emails were used to communicate with external people, as well as internally. Mailing lists were only used sometimes to contact all sponsors, volunteers or participants. At the start of the planning, they created a wiki page in their intranet. In this wiki page, a rough outline of the planning was written down. It was additionally used to store documents that everybody on the team would use. Later on, though, they decided to switch to google Docs, because there they wouldn't have to download the documents before working on them reupload them afterwards. Trello was later used to create an overview of open tasks and assign them to the team members. The interviewee mentioned that the possibility to assign deadlines and people to tasks was very useful.

Because Trello was used as a project management software, they were asked how exactly Trello was used. The interviewee responded that they didn't use Trello the way it was meant to be used. They used the lists in Trello to create categories for the different tasks and mostly didn't move the cards around on the board. They also didn't move cards up or down inside one list to prioritize cards, because there usually were fewer than four cards per list. It was instead used to create an overview of open tasks at that point in time. Usually they didn't delete or archive the cards after completion either, since then they would be overlooked. According to the interviewee, Trello could have been utilized much more beneficially, if they would have used it from the beginning. A lot of the features, like creating checklists inside one card were rarely used. She also mentioned, that in the end updating Trello became a lot of overhead.

4. Approach

Then, the interviewee was asked, whether she considers it more important to structure all the information needed, or to execute a defined process. She answered that if there was a defined process, executing it would be great. She argued that at least parts of the planning could be defined in a process beforehand. As examples, she mentioned that acquiring sponsors usually works according to the same schema. Also, organizing a caterer usually consist of the same steps.

Afterwards, she was asked about the people that were involved in the planning, and which roles they played. She answered that in the beginning it was her, an intern and an employee from the PR department. The PR employee left early on and was replaced by another employee called Doris. At that time, another colleague, named Patrick, joined the team. Doris was tasked with organizational tasks like renting the rooms. Patrick assumed the role of the main coordinator, since he knew the most about hackathons in the team. He was also considered the technical contact. The interviewee herself took care of whatever else came up. Her main task was the coordination of volunteers. Shortly before the event two other employees joined the team, who mainly worked on the execution of the event.

Then, she was asked about the tasks that they had to complete and how they decided who would be responsible for each task. According to the interviewee, she was responsible for assigning the volunteer's tasks at the event itself. During the planning, they assigned tasks more formally. Usually the tasks would be assigned to the person who was responsible for that kind of tasks. According to her, a very important task is creating a good online presence. This involves a website for marketing purposes and a working registration for volunteers and participants. Additionally, they performed a few marketing activities like printing and hanging up posters, presenting the event in lectures and posting on Facebook. A recurring task that she described, was acquiring the sponsors for the event. Usually it starts with writing them, then waiting for answers, then sending contracts and afterwards coordinating their appearance on the event.

After the tasks that accumulate during planning, the coordination within the team was talked about. The interviewee argued that, because of the small team size, there were no problems with coordination. Although she mentioned that this would probably be different, if the volunteers were involved earlier. In this case, some form of control of task completion would be needed. But in the last hackathon, they didn't track who completed tasks. She argued, however, that this might be helpful for the next planning, because it could be used to find out who knows most about certain tasks. In general, a history of completed tasks might be, according to her, useful to improve the process for the next time.

Then, the problems during the planning process were addressed. The interviewee argued, that the unstructured planning was the main problem. This led to a lot of work accumulating in the last weeks. She said that with better planning, some of that could have been done much earlier. Additionally, some of the tasks took a long time to complete. She mentioned creating the contracts for the sponsors and getting them approved by the legal department as an example. Also, negotiating with the sponsors took very long, but she said that this is justifiable.

Second Interview The second interview took place two days after the first and took 65 minutes. At the beginning, the interviewee was again asked which tools they used to plan

the last hackathon. The interviewee started by telling me about Trello. It was used to get an overview of the state of things. They didn't use it with a Kanban methodology, instead they named the lists of the board after categories. One list for example, was called catering. He argued that this was useful, because one could then easily see which points are related. Another handy feature is the possibility to assign people to tasks. Although they also assigned deadlines to tasks, they often were completed later than planned. The checklist feature was used only once to keep track of the technical equipment they needed. The main advantage of Trello, according to him, is that if used correctly, it provides a good overview of all the open tasks.

Then, the first interviewees statement, that keeping Trello updated resulted in a lot of overhead later on, was asked about. He confirmed this sentiment and mentioned that this is probably the reason why everybody stopped using Trello. He argued that they used Trello really only once in a meeting and later ignored it. According to him, this was the case because he could usually remember what he had to do, and additionally writing things down would have resulted in extra work. Although this was only possible in this particular case because the team was small and they were co-located. He was asked what he thought of the approach in Trello with a general overview and detailed cards for each task. He said that in general this is a good idea, but that users would have to keep updating the cards for this to work. According to him, it would only work if a project manager is present who forces everyone to update the board. Another problem he mentioned is that tasks often aren't performed the way they were planned beforehand. He argued, that this issue did not arise exclusively because they planned the hackathon for the first time.

They also used a lot of spreadsheets. In the beginning, they used MS Excel but later switched to Google Docs. According to him, the most important spreadsheet was the one, where they collected all expenses and incomes. Additionally, they used the intranet wiki. In this wiki, a page was created, where a rough structure of the planning was created. He mentioned, that even though a lot was missing or wrong, the rough outline was used until one month before the event. Inside the wiki also was a table where they kept track of all the sponsors. He also said, that they used emails a lot. Another tool he mentioned, which wasn't mentioned in the first interview, is mailchimp. Mailchimp is a tool that is used to send large batches of emails at once. Other documents like a room plan, that should be available to all team members, were stored in google Drive.

He then was asked what they would do different the time. He said it would be better to start in a more structured manner. A possible approach he mentioned is to create a spreadsheet with columns for the months leading up to the event. There the tasks would be added to the months in which they should be performed. When asked whether he could imagine using something like a calendar or Gantt chart, he said this would probably be possible somehow, but usually one doesn't know how long a task will take. A Gantt chart would then become inconsistent quickly. Additionally, he argued that because they held meetings regularly, a table is more useful to identify open tasks.

Afterwards, he was asked how long it took to plan the event and which tasks had to be performed to organize the event. The interviewee said that it took from the end of July until November. He said that in the beginning acquiring sponsors was the biggest task. Another important task was to create the website and provide a registration possibility. Furthermore, a lot of communication with the participants had to be done and some marketing material like flyers and posters had to be created and distributed. There were

4. Approach

a lot of organizational tasks like renting rooms, creating a Facebook group or organizing a catering service as well.

Then, possible phases, into which the planning process could be separated, were discussed. He said, that the first phase would be to get approval for another hackathon. Afterwards the sponsors packages and corresponding contracts must be created. Sponsors packages define what role a sponsor plays on the event. Some sponsors provide challenges for the event whereas others only deploy a stand. Afterwards, sponsors can be acquired, which takes some time. Then, the whole branding of the event must be discussed. When a branding is agreed upon, organizational and marketing tasks would be next. Then he was asked, whether he thinks they would need the same time to plan the next hackathon, or if they could do it faster or slower. According to him, three months was an appropriate amount of time. Although he would probably start a little earlier. Some of the tasks would probably be faster next time.

Next, the interviewee was asked about recurring tasks and their usual sequence of events. As a recurring task, he mentioned that every time a new sponsor joins, the website has to be updated with the sponsors logo. In contrast to that, ordering catering and creating the contracts have to be done only once. Other recurring tasks didn't come to his mind at this point. Because he mentioned creating the contract only once, he was asked whether they used the same contract for all sponsors, which he confirmed. He mentioned, that there are some differences in the procedure of acquiring sponsors. Some of the sponsors, for example, wouldn't allow their logo to be used indefinitely, instead they only allowed usage for one year. Additionally, some sponsors need special equipment at the event.

After that, the interviewee was questioned what he would like to do differently to improve the next planning process. He argued, that sorting his email inbox would be helpful. He gets a lot of emails from sponsors and other external people. And especially in the case of sponsors, it is sometimes important to look at older emails to find out what they wrote in a certain email. According to him, it would greatly improve his productivity if he could easily tag all emails, so that he can later filter them. Even better would be an automatic tagging system. He mentioned, that he could enter the information into an extra tool, but that this causes a lot of overhead.

Next, the interviewee talked about structuring all tasks per the date that they have to be performed. He said, that in theory this is a great idea. But in their case, most tasks don't have a real deadline. Even though they set a deadline for most tasks in their Trello board, most of them were ignored. Yet there are some tasks, for which the deadlines are really important and can't be ignored. He said, that the next time they should probably differentiate which tasks really need a deadline and which don't first. When asked whether a priority system would work as an alternative, which he confirmed.

After that, the interviewee talked about documenting the tasks and how to display them. He argued that even though he likes being able to get an overview of all open tasks, he would also like the possibility to filter out every task that isn't assigned to him. Additionally, he said that cards with pending deadlines must be highlighted very visibly. He also mentioned that he would sort the tasks by the month in which they should be performed in the future. According to him, this makes it easy to get some rough structure, while still being flexible enough to not cause problems. He could imagine using Trello for that purpose, but this time creating the columns based on months. The tasks should be updated regularly, but he argued that this shouldn't be too detailed. Some form of milestones or

intermediate steps would suffice. He mentioned, that tracking the progress of each task could prove beneficial.

In the end, the interviewee was asked to confirm whether they didn't use defined roles for the team members. The interviewee confirmed this, but mentioned that there were differences in the type of tasks each member performed. For example, two of the members only worked on the event itself. And the first person interviewed was responsible for the volunteers. Additionally, during the event itself, the roles were more narrowly defined. But they all still considered each other as equal.

4.2.3. Learnings

Trello was considered by both as one viable solution for the next hackathon

Both said, that they could imagine using Trello as the main tool for the next hackathon. An advantage they both identified is the possibility to sort tasks into multiple lists. They both agreed, that this helps to provide a better overview. There were more advantages to using Trello than disadvantages. Additionally, the disadvantages seemed to stem from the late start.

Updating an additional tool creates overhead

This was only mentioned by one of the interviewees. In his opinion, the extra work needed to keep a task list or something similar up to date is problematic. He said that this leads to people not updating tasks and subsequently leads to a list that doesn't represent the current progress. The other interviewee didn't regard this as a problem meaning that a possible solution should be easy and fast to update. Additionally, an integration into existing mail applications might be a good solution, so that one doesn't have to launch an additional application. Although those points might help, when an up to date overview is desired, team members must be told to keep updating their tasks.

Explicit roles didn't exist in this process

In the planning process, only a few people were involved in the team. Moreover, they didn't use explicit roles and they all had equal access rights to the documents, because they know and trust each other. Therefore, a potential tool doesn't need distinguished access rights. Instead, everybody should be able to change everything.

Email for communication is indispensable

As expected, email for communication, especially with external partners can't be completely replaced. However, some of the internal communication might be replaceable with a new tool. But none of the interviewees suggested this.

Finding the right email is sometimes complicated

One problem identified by one of the interviewees, is that he sometimes had problems

4. Approach

to find specific emails. This stems from the fact that most of the emails had chains of 'Fwd' and 'Re' as the subject. He suggested a tagging feature, where one can assign tags to e-mails. In most email clients, some basic form of manual tagging is implemented. He said that automatic tagging might be better, so that one doesn't have to do it manually. Also, a possible solution might be to let users assign the emails to tags or tasks in another tool. This would be possible by forwarding the mail to a specific address, with information about where to sort it. Alternatively, an add-on for the most popular email clients could perform this task.

Editing documents online is advantageous to locally

During the planning of the hackathon, the team decided that an online solution for document storage, where one can edit the documents without downloading and reuploading them, is better suited. Most of the documents that were used the last time can't be replaced, since for example contracts are still needed. Meaning, that a possible tool should be able to integrate documents from such online document storages. This could be done by including links to the documents or maybe even embedding them into the tool.

Every team member should be able to get an overview

Both interviewees said that they would like to have an overview of the current progress of the planning. But both also said that they don't want too detailed descriptions. One of the interviewees mentioned that milestones would be a possible solution.

Everyone should be able to filter out tasks of other people

In the second interview, the interviewee said that he would want to be able to filter all tasks, to only show those where he is assigned to.

Sorting Tasks by Category helps identifying additional tasks and provides a nice overview

In Trello, the team sorted the cards in lists by their respective category. According to one interviewee this was really helpful since it allowed them look at categories and think about what is still missing.

Tasks should be sorted by month in which it should be performed

The second interviewee said that if they would use Trello the next time, he would use it differently. He would label the lists by months, so that he can sort tasks by the month they have to be performed. This is contrary to the previously identified advantage of sorting tasks by categories.

The structure of tasks often can't be defined beforehand

One of the interviewees argued that tasks often are not completed in the way it was planned beforehand. This makes it difficult to completely plan the whole process in ad-

vance. But both mentioned that there are some tasks that usually run according to the same schema.

Not all tasks are repetitive

A lot of the mentioned tasks have to be performed only once. This means that creating templates for those tasks probably isn't that advantageous.

Defining responsibilities for tasks is useful

Both interviewees identified the possibility to assign tasks to people as the main advantage of using Trello. Although one mentioned that this could be achieved in a spreadsheet, by adding an extra column.

Only some tasks have fixed deadlines

Deadlines that are fixed and can't be overstepped were, according to the second interviewee, not that common. Most tasks were scheduled to be performed in a certain timespan. This could be considered as a deadline, with the last day of the timespan as a deadline. However, as the second interviewee pointed out, those tasks that are planned for a certain timespan often take longer than expected. And those tasks where a real deadline is present, can't be late. Therefore, a distinction between hard deadlines and scheduled timespans should be made.

Hard deadlines should be highlighted

When there is a deadline, it is usually really important. Therefore, those tasks that are nearing their deadlines should be distinctly highlighted so that one can't miss them.

Notifications are only useful if there is a problem with a task

Questioned about notifications, the second interviewee mentioned that he only would want them if something is going wrong with the task. A possible solution would be to allow manual triggering of notifications. Although this wouldn't be that much different from writing a short email instead.

A history of completed tasks could be useful for improving the process for next time

Both interviewees said that after the event has happened, a history of the completed tasks with timestamps could be useful. This could be used to analyze whether some stages of the planning process could be improved. One specifically mentioned the possibility to track how long one sponsor took from the first interaction to the signing of the sponsorship contract. This could be used to prioritize sponsors that were faster.

A history of completed tasks could be useful for identifying the knowledge of every team member

One of the interviewees additionally mentioned, that a history could also be used to do research on who has knowledge about a task, by looking at the assigned person.

4.3. Workshop

In the following sections, the structure of the conducted workshops is explained. Then, a short summary of the workshops is provided. At the end, the key learnings from the workshops are listed.

4.3.1. Workshop Structure

To further analyze the hackathon planning process, a requirement workshop was prepared. The workshop was conceptualized as one on one sessions with relatively short duration. Both workshops were planned with a duration of one and a half hours. The people that were interviewed previously were again asked to participate, which both agreed to. The workshop took place in the same meeting room as the interviews. Again, the permission to record audio was given by both participants. Additionally, photos were taken during the workshop, which both participants consented to.

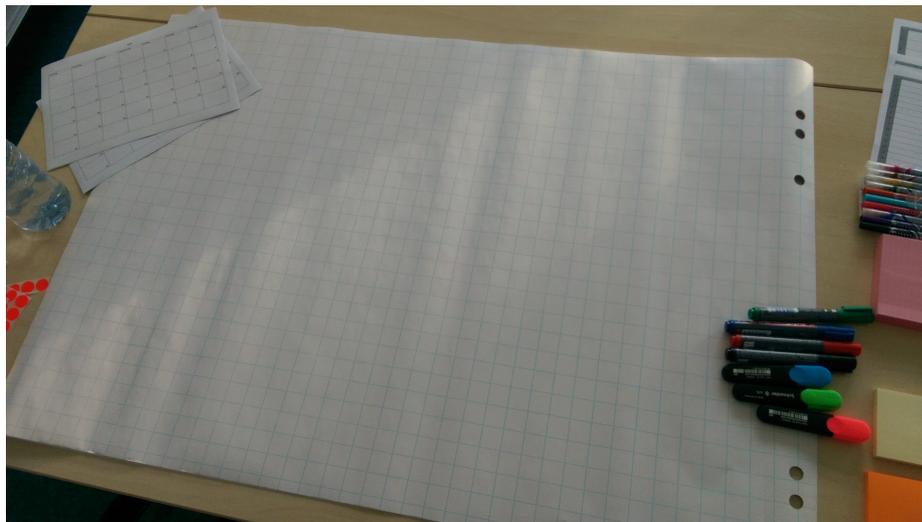


Figure 4.1.: Setup for the first Workshop

The requirement workshop was set up containing only one activity. During the activity, the participants were asked to simulate the planning process for the next hackathon. They were told to use an approach which they would deem the most fitting. For that, the participants were provided a range of materials. They had one big paper underlay, pens in different colors and sizes, index cards and post-its in five different colors. Additionally, a calendar with a monthly view and multiple spreadsheets were printed out. Figure 4.1 shows a picture of the setup from the first workshop. They were told to use those materials

as they see fit, and as they can be used to support their planning approach. Additionally, they were asked to explain everything they are doing in the session.

This activity was inspired mainly by contextual inquiry (chapter 3.5), generative toolkits (chapter 3.7) and blank model prototyping (chapter 3.8). The main difference to contextual inquiry, is that the participants weren't performing real work, instead they only simulated it. The creation of artefacts by the participants was inspired by generative tools. Although the protocol per which the activity was performed by, was taken from blank model prototyping. Which could be considered a form of generative toolkits.

The goal of this approach, was to stimulate the participants to think more intensely about the last planning process, than in the interview. Ideally, this would lead to the participants remembering aspects that they didn't think about in the interview. Additionally, it allowed us to observe how the participants would plan the next hackathon, without any constraints that any tool would have provided. Because only then, one could observe how the participants would really go about planning their event. At the same time, it should be possible to extract which data they deem most important in their approach, by looking at what they wrote down. Additionally, the created artefacts might be used as inspiration for the development of a new solution.

4.3.2. Workshop Execution

First Workshop The first Workshop took 65 minutes to complete. At the beginning, the participant started by writing down the main points that she first remembered. She pointed out, that these are topics that should be discussed in the first meeting. For that she used the big paper underlay and wrote down a simple list as seen in figure 4.2. After she wrote down the first points she remembered, she started to use the calendar to continue planning. First, she wrote into the calendar at which weekend the hackathon would take place. After the date was set, she tried to determine how early the rooms would have to be reserved. She also added that onto her list of points to be discussed in the first meeting.

Going back to the calendar, she determined, that the registration for the participants would have to be opened two month before the event in September and wrote it into the calendar. She argued that because of the open registration, the posters advertising the event should be put up the week afterwards. To be able to hang up the posters, she put printing the posters a week before that into the calendar. Because of that, she said that the sponsors would have to finally commit at least a week before that.

Then the participant remembered, that the volunteers for the event would have to be included to the registration. She mentioned that this time they would include the volunteers earlier than last year. Therefore, she added getting to know the volunteers at the beginning of October. Then she added contacting the caterer in June, which she justified with the caterer's flexibility to adjust the order. Additionally, she added getting quotes from different caterers to the original list.

Afterwards, the participant decided that the registration should close at the end of October. In the days afterwards, she added printing nametags and other general preparations for the event into the calendar. At that time, she remembered, that email templates that would later be sent out to the participants would have to be created. Since this should be done earlier, she added it to the list of points to talk about in the first meeting. She then remembered, that t-shirts and lanyards have to be organized. But since this was dependent

4. Approach

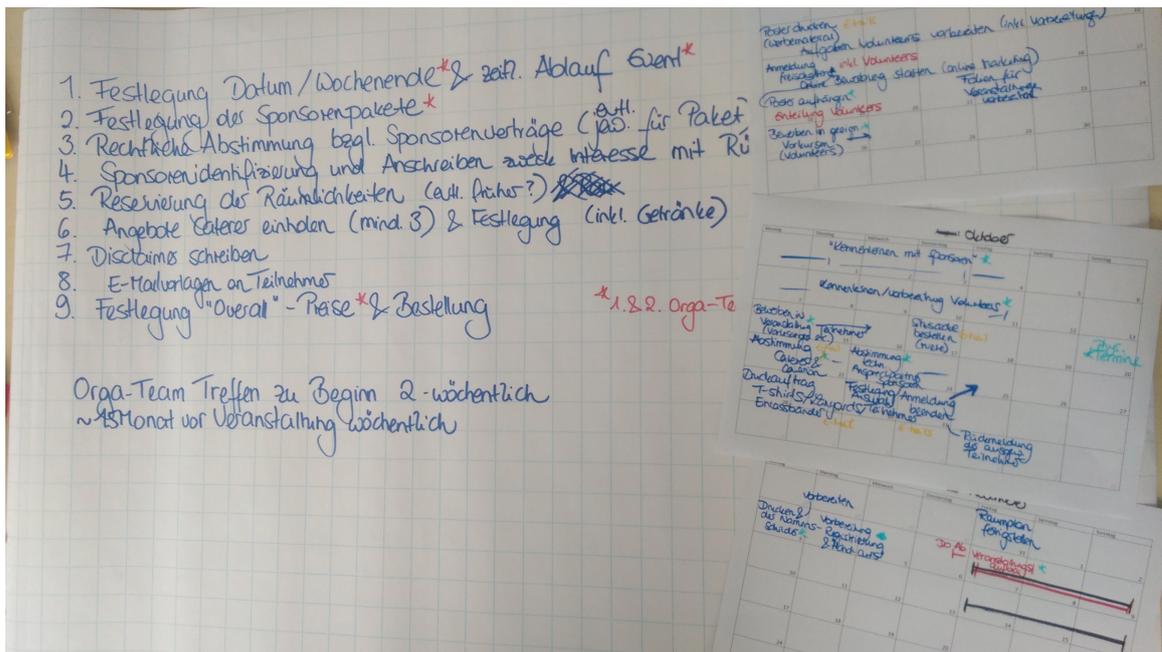


Figure 4.2.: List created by the participant in the first workshop

on the finished registration for the participant, she moved the closing of the registration up one week and added lanyards and t-shirts in its place.

The participant then noticed that in the prior week, there was not much planned. This lead her to add coordination with the caterer to this week. At this point, she explained that everything that she wrote into the calendar was meant as in this week, not the exact date. She then thought about the time that the sponsors would need before committing to the hackathon. She decided that one and a half months would be fitting, therefore she determined that they should be given time until the end of August, which she wrote down into the calendar.

At this point, the participant continued planning the event. But now she started from the beginning of the planning. She added the first meeting of the team at the end of May. Then she reserved the next two weeks to sort out the legal framework. Afterwards, she considered whether the end of August deadline for sponsors to commit would be early enough to plan the marketing strategy. She decided that it would be better if the deadline was one week earlier, which she adjusted on the calendar. Afterwards, she added online marketing and opening the registration into the calendar at the second week in September. At the end of September, she added advertising the event in preliminary courses, since they take place at that time. After the deadline where sponsors should have committed to the event, designing the website was added to the calendar. She noted that after the deadline, there should be some time allocated for legal coordination with the sponsors. For that she marked two weeks after the sponsors committed. When this is done, the posters can be printed.

The participant noted that two weeks before the event, they would have to coordinate the technical requirements with the sponsors. She then added planning the volunteers'

tasks at the beginning of September into the calendar. While looking over the calendar, she noticed that she planned to reserve the needed rooms in the middle of July and thus added coordination with the building management company the week after.

At this point, the participant mentioned that her initial planning is now complete, since she couldn't think of other tasks to be performed. Therefore, the initial stage of the workshop was completed. Afterwards, she was asked to mark appointments and tasks on the calendar, so that they could later be differentiated. While doing that, she mentioned that usually the team should meet every two weeks, but that she didn't add this to the calendar.

After that, she was asked about the tools they could use to track progress regarding the sponsors' answers. She said this could be done many ways, but they would have to establish a solution at the beginning. The most important aspect would be that everyone in the team can look it up. This is also the reason that simply using emails wouldn't work. She additionally stressed how important a shared document space is, since contracts and similar documents must be accessible by everybody on the team.

The participant mentioned that she thinks her approach of using a calendar to plan backwards in time was a good idea. Although she conceded that the created calendar could not be used to coordinate the whole planning. Instead she argued that extracting the tasks from the calendar and assigning them to the weeks in which they were written would work. She mentioned that she could imagine using Trello for that, since tasks can be assigned to people. As an alternative, she mentioned that MS Sharepoint or a simple spreadsheet could also work. The one disadvantage of using Trello, according to her, is that finished cards either take up too much space of the board or are completely forgotten if archived.

Second Workshop The second workshop took 120 minutes to complete. At the beginning, the participant created a spreadsheet in which he wrote down the sponsors from last year's hackathon. He said that in this spreadsheet he would collect the amounts of money that each sponsor contributed last year. This spreadsheet would only be used as an orientation as to which sponsors could be contacted this time. After that, his next step would be to create the packages that the sponsors can book. Afterwards, he added an appointment with the PR team to the calendar. Additionally, he added creating the overview of last year's sponsors and a meeting with the legal department to the calendar.

As a next step, the participant created two more spreadsheets, which both can be seen in figure 4.3. First, he created a list for all sponsors that have been contacted. In this sheet, he wrote down 'Sponsor', 'Kontaktperson', 'Wer hat kontaktiert' and 'Status' as rows. This sheet is used to track the sponsor's status. Additionally, the sponsors contact information is included. The second sheet he created was a financial calculation of the whole event. Therefore, it contained the income through sponsors, planned expenses, real expenses and some formulas to automatically calculate the financial situation. The participant stressed, that those two sheets are the most important documents for planning the event.

The participant added a meeting with his supervisor to the calendar. In this meeting, the supervisor would approve the planned sponsor packages and general strategy. Because the packages must first be created, he added another appointment to the calendar a few days before the meeting with the supervisor. During this appointment, the whole team

4. Approach

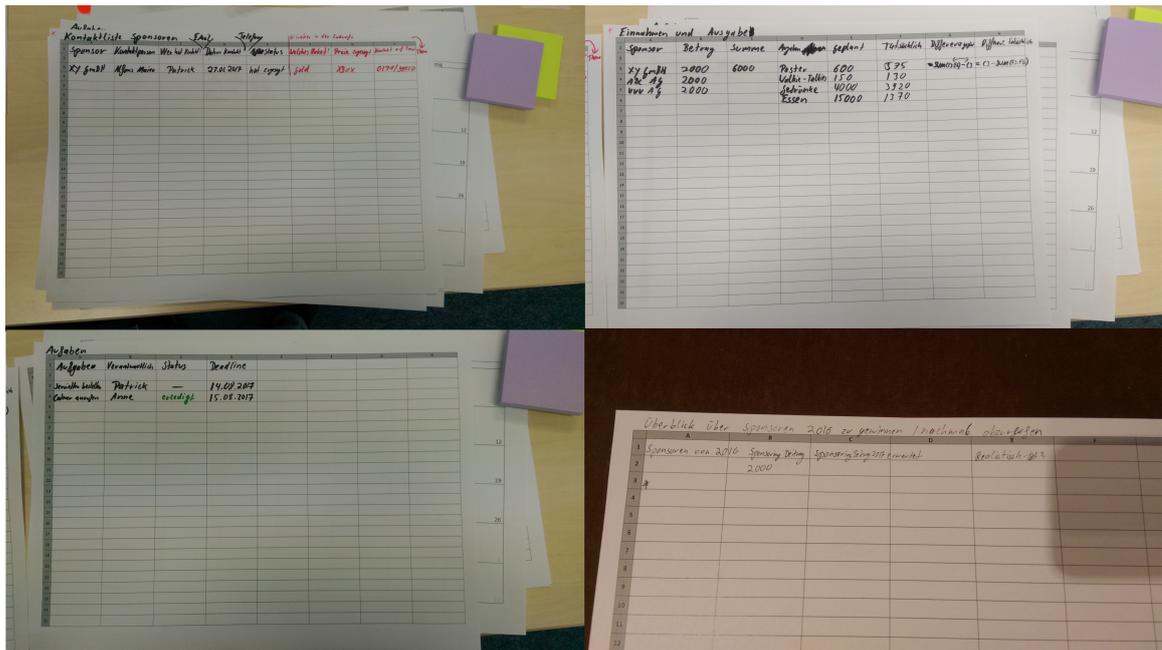


Figure 4.3.: Four different spreadsheets created by the participant in the second workshop

would brainstorm ideas for sponsor packages. The participant turned to the flipchart to show us how they would perform the brainstorming session. He first started off by writing down the minimum and maximum payment they would expect from the sponsors. After that, they would jointly come up with ideas about what they could offer to potential sponsors. Afterwards, they would create some packages by combining the ideas. He mentioned that they would have to decide which packages to include. He proposed an approach, where every team member gets a few small stickers, which they could stick next to the ideas that they like the best. Afterwards, the packages with the most stickers would be chosen. In figure 4.4, the flipcharts from the brainstorming can be seen.

After the brainstorming session, the participant added another appointment to the calendar, where the information material for the sponsors should be created. According to the participant, in the time after the creation of the material and packages, the team would contact different sponsors and fill out the spreadsheet created earlier. He added multiple post-its to the calendar, which should represent the timeframe when the calls should be made.

After that, the participant created another spreadsheet, which he called Tasklist. In this spreadsheet, he would add all tasks that have to be performed before the event. For each task, he wrote down the title, the assigned person, a status and a deadline. Although he mentioned that often the status would be empty until the task is completed. At this point, he said that this spreadsheet is not that dependable, because it usually isn't updated enough. Then, he said that now that the packages are defined, the informational material created and tasks distributed, the team would have a meeting every two weeks. He added this to the calendar as a note.

Next, the participant started another brainstorming session. He wanted to plan the

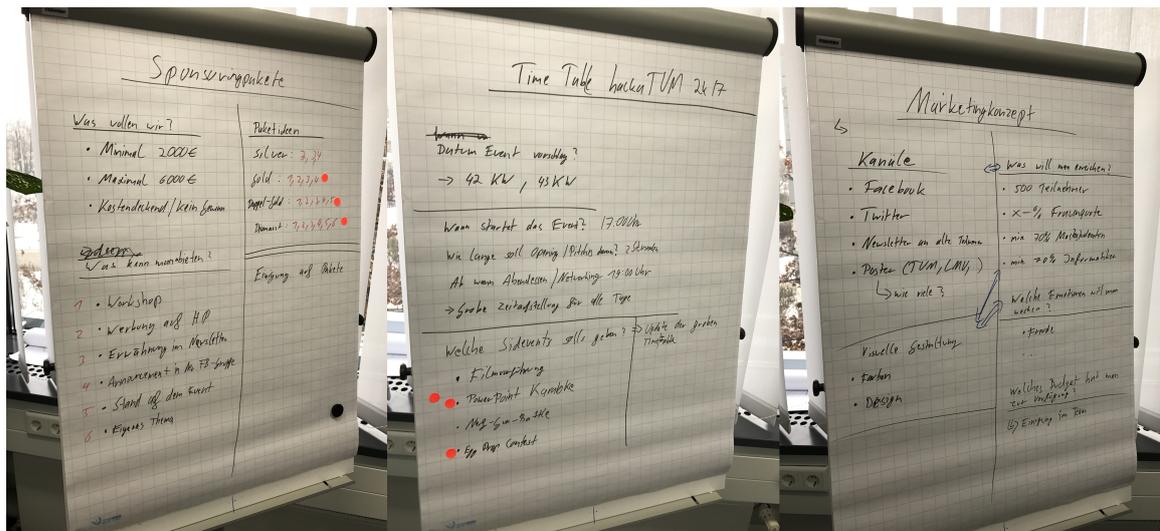


Figure 4.4.: Examples of brainstorming activities carried out by the participant in the second workshop

timetable of the event itself. He used similar techniques as with the sponsor packages. He said that this timetable must be finished at least a month before the event itself. At this point he noticed that he never included processing last year's feedback. Therefore, he added this to the calendar, shortly before the brainstorming session for the packages.

The participant mentioned that at this point in time of the planning, new tasks would be added to the task list regularly. Then, he added updating the website as a task into the calendar, the day after the creation of the information material. And one day after that, he additionally added collecting feedback from the team about the website. Then, he added presenting the hackathon in lectures, and opening the registration for the volunteers into the calendar in September.

After that, the participant started another brainstorming session. In this session, the marketing concept for the event should be defined. According to him, this would not be a traditional brainstorming session. The main point, that the team has to agree upon in this meeting, is how much money they're willing to spend on marketing. He added the session as an appointment the day after the sponsor's packages should be approved.

At this point, the participant mentioned, that he hasn't included the volunteers. He said, that after they have registered, there would be two meetings. In the first meeting, the volunteers and team members could get to know each other. In the second meeting, the volunteers would get their tasks assigned. The participant mentioned, that the volunteers' tasks would be organized in a similar spreadsheet as the task list. But, additionally to the information in the task list, this task list would include a starting time and an end time for each task.

At this point, the participant stressed again that the spreadsheets with the financials and the sponsors are by far the most important documents for them. According to him, the task list is in theory also pretty important, but it usually wasn't updated regularly. But in principle the task list was handy, since it would be used in meetings to check whether any important points have been forgotten. At this point, he mentioned that timing all tasks

4. Approach

early on didn't really work for them, since usually, too much changed in their execution. He also mentioned that in the weeks before the event they increased the number of meetings to weekly and used another task list on a weekly basis.

Afterwards, the participant was asked to describe how sponsors are acquired in detail. He said that at first a potential sponsor is added to the sponsor spreadsheet. Then, contact information and the person who contacted the sponsor is added to the sponsor. At the beginning, all sponsors in this spreadsheet have an empty status. The status is then changed after a team member talks to someone at the organization. The status could then change to something like 'declined' or 'has interest; still unsure'. An alternative process would be that the sponsor calls first. In this case, the list would be used the same way, but the sponsor would be added already with the other information and a status. The information in this list must always be up to date, since a different person might call the sponsor next.

At this point the time for the workshop ran out.

4.3.3. Learnings

Using a calendar to plan backwards in time

In the first workshop, the participant decided to use the calendar to plan tasks backwards in time, starting from the event. She explained this approach by arguing that a lot of the tasks have to be completed at a certain amount of time before the event itself. Also, this helped with including reasonable amount of time for tasks. Additionally, a lot of tasks are dependent on the completion of others. This is easier to plan using a calendar. A lot of the time, when she identified a new task and was thinking about a possible time to complete it, she turned to the calendar. Looking at the calendar, she identified weeks where only a few tasks have been assigned to. These weeks were then filled with the identified tasks. Of course, this only works if tasks are independent from each other.

Generating tasks from the calendar based planning

Again, in the first workshop, the participant explained that after completing the calendar, she would put all tasks in some form of task list. The calendar was thus used as a way to plan the time of all tasks. But for keeping track of these tasks and documenting them, the calendar wasn't considered that useful anymore. For the task list, she listed Trello and Excel as examples of tools that would work for that.

Using a lot of spreadsheets

In the second workshop, the participant used multiple spreadsheets to structure his approach. He created 4 different lists as seen in figure 4.3, but mentioned more that could be created later on. These spreadsheets included, a list of all sponsors, a list of last year's sponsors, a financial overview and a task list. In his view, the advantage of using spreadsheets for these lists is that one can filter and sort each list by one of the columns. Additionally, in the case of the financial calculation, the possibility to use formulas to automatically calculate expenses was important. Some items were included in more than one list. For example, a sponsor would be included in the sponsor list as well as the financial spread-

sheet. Minimizing these double occurrences might help to lessen the overhead. Later, the participant mentioned that the sponsor list and the financial calculation are the two most important spreadsheets for the planning process. Consequently, those always have to be updated.

Tasks were only roughly documented

When planning the overall structure of tasks that need to be performed, both participants didn't get too detailed in describing the tasks. This aligns with the statement from the interview, that too detailed planning doesn't make sense in the beginning. Because tasks often are not completed the way that was imagined at the beginning. Additionally, tasks are often delayed in their execution.

The task list was used in meetings

Even though the task list was not considered reliable, the second participant mentioned that it would still be used in meetings. There the whole list would be studied, including finished tasks. This was done to check whether every task was considered. He mentioned, that in those meetings the list usually were updated.

Later, a weekly task list was created

The second participant also mentioned, that during the later phase of the planning process, a weekly task list was created and used for tasks that are short lived. This also was a consequence of the original task list becoming outdated and too confusing.

Decisions about the event were made during meetings

In the second workshop, the participant mentioned, that making general decisions about the event was usually done in meetings of the whole team. In his approach, he showed how they would brainstorm those questions, using a flipchart. The typical methodology to generate ideas was a classic brainstorming session. Afterwards, to reach consensus, everybody would be handed a limited number of stickers to add them to the ideas they like best. The ideas with the most stickers in the end were chosen. Examples of these flipcharts can be seen in figure 4.4.

Starting off with the basics

In the first workshop, the participant started out by writing down the first steps to perform, that came into her mind. This list was expanded during the rest of the planning process. Some of those points were questions that should be answered in the first two meetings. The rest of the tasks were also present in the calendar.

List of sponsors contained distinct attributes

The list of sponsors didn't include the same columns as the task list. The columns can

4. Approach

be seen in the top left of figure 4.3. They contained the name of the sponsor, the name of the contact at the sponsor, who first contacted the sponsor, date of the first contact, contact information of the sponsor, the current status of the request, which package they chose, what price they promised and contact information for a contact person at the event. Most of the attributes for each sponsor didn't change. Only the status usually changes over the course of the planning. Additionally, the participant mentioned that potentially an additional column for general information should be included. This column would for example contain information about the sponsor's technical needs.

Managing the volunteers in an additional spreadsheet

The second participant also mentioned, that shortly before the event an additional spreadsheet was created. This was used to assign tasks to all the volunteers that helped. The list itself would, according to the participant, look similar to the usual task list. With the addition of timeslots for each task.

Milestones were created on the fly

The milestones of tasks, that were used to track the progress of each tasks, usually couldn't be named beforehand. In the spreadsheet, the status cell was freely editable. The same principle was present in the sponsor list. The only status that all tasks eventually reached was the 'completed' status. This means that predefining each step in a task is not sensible. Instead the status should be free form text, but should include a finished state that is same at each task.

Timeslots for tasks aren't set in stone

In the first workshop, the participant sometimes changed the timeslot for tasks. This happened for example, when she discovered that in the current timetable the sponsors might answer too late. This means that the timeslots for tasks must be easily changeable. This is in accordance to the statement by the second participant, that tasks can't be planned with to detailed timing.

Different Colors for different categories

In the first workshop, the participant color coded different categories on the calendar. Although she didn't do this from the start, she later mentioned that if she would do it again she would do that from the beginning. Her reason was that one can more easily comprehend it that way.

Calendar was used for multiple reasons

Although only the first participant based her whole approach on the usage of a calendar, both used it in some capacity. In each case the calendar was filled with appointments, deadlines and timespans for tasks. These different types must be easily distinguishable.

Sponsor acquisition stays the same

The second participant argued that for each sponsor the acquisition process always runs by the same scheme. Although there are differences in some of the steps, the overarching process stays the same. Of course, there is a distinction by whether the sponsor ultimately agrees to participate, but this is only a simple XOR split. The data stays the same for each sponsor, which can be seen when looking at the sponsor list.

Confirmations of interview statements

Some of the other statements from the interview were verified. Trello was again mentioned as a good solution to manage the tasks. The second participant again stated that task lists are often not updated enough. The importance of shared online space for documents was again stressed by the first participant. Tasks were usually assigned timespans in which they should be performed. And some tasks got hard deadlines assigned.

4.4. Paper Prototype

The next step is to use the learnings identified in chapter 4.2.3 and chapter 4.3.3 to create a paper prototype of the proposed solution. The prototype should be low fidelity, since it will be only used to test the developed concepts. A paper prototype is useful in this case, since the users that will test the concept can simulate usage of the system. First, the concept of the proposed solution will be developed and afterwards a paper prototype based on that concept.

4.4.1. Concept Development

The proposed solution will build upon the general concept that is also used in Trello. In Trello, the user can create cards that each correspond to a task. Those cards are then sorted into a list of lists. This approach was deemed sensible by both participants in the interviews and workshops.

In this concept, each card on the board should represent one task. Therefore, each card needs to have a title. Additionally, each card gets a status line, in which the current status of the task can be described. This status should be a freely editable line, where users can use flexible statuses. When the status line is empty, the card in the overview should hide it. When the user has performed some work, and wants to update the card, he can write a short sentence, that describes the current status. The freely editable status is included, because in the workshop the participant used the same approach in his spreadsheets for tasks and sponsors. Additionally, in the interviews it was often mentioned, that the exact course of a task can't be defined beforehand. A freely editable status line should provide the needed flexibility. Although there should also be a 'finished' state, that is the same for all cards, to enable a differentiation between active and finished cards. For each card, it should be possible to get an overview of all the statuses, including the time it was changed and the person that changed it. This could look like a typical activity feed.

Each card should additionally get three main attributes. These are a category, a timeslot

4. Approach

and a deadline. A category is needed to group the cards by it. One of the interviewees identified this possibility as helpful for identifying new tasks. Additionally, these categories should be color coded to make the distinction more obvious. The timeslot of each card should correspond to the month in which a task should be executed. The coordinator of the last planning suggested this approach as a sensible compromise to structure the tasks by the time they should be executed, without being too strict. But since some of the tasks still possess a hard deadline, where they must be completed, it should be possible to additionally assign a deadline for the task. The advantage of including both a timeslot and a deadline would presumably be, that if deadlines aren't assigned to every task, they would be taken more seriously.

Additionally, users should be able to assign people to tasks. This was identified by both interviewees as one of the main advantages of using Trello. And in their spreadsheets, they also assigned people to each task. In this concept, it should also be possible to assign multiple people to one card.

It should additionally be possible to add attributes to cards. These attributes could be Strings, Booleans, Dates or numbers. This could then be used to create cards that represent more complex tasks like acquiring sponsors, where in the workshop a spreadsheet was created. In the sponsors spreadsheet, columns for different attributes were added. It should be possible to include these in the proposed solution as attributes. Additionally, since these type of cards sometimes would be created multiple times, it should be possible to save a card as a template. These templates could then be used to create a new card with the same attributes, although only the names, not the values would be included in the new card.

The lists in which the cards are sorted should be based on two different views. In one view, each list represents one of the categories. In this case, all cards with the same category would be included in one list. The participants used this method to sort their cards in Trello. One of the interviewees said that this helps to get an overview of each category. The sorting in the list should be time based. Meaning, that at the top are the cards, where the month in the timeslot is the next. Inside each month, cards with deadlines should be prioritized, meaning they are at the top of each month in descending order. The other view is based on the proposed approach by one of the participants. In this view, each list is based on a month and contains all cards where that month is assigned in the timeslot. In these lists, the user should be allowed to change the order of the cards, giving him the possibility to prioritize by his own volition. If cards are not assigned to a category, an additional list is included where 'no category' cards are collected. Similarly, when the timeslot of a card is left empty, the additional list would be called 'unscheduled'. In both views, when a card is created, it should automatically get the category or month of the list, in which it was added, assigned. The order of the list of lists should be changeable by the user in the category view. In the month based view, the lists should be ordered in ascending time from left to right.

As one of the participants pointed out, he wouldn't always be interested in seeing all cards. Sometimes it would be better to only view the cards that were assigned to him. To achieve that, a filter should be provided to the user, where he can choose to see all cards or only the ones where he is assigned to. Additionally, a filter based on the status of the card should be added. This filter would allow the user to either see all cards that were ever created on the board, or only the ones that haven't reached the 'finished' state. The

cards that are finished would be displayed at the bottom of the list. Where they would be sorted as if they'd still be open. The finished tasks then should be visibly divided from the open cards. This could be achieved by coloring the cards in grey to distinguish them. The possibility to view either all cards or only the open ones was added because one of the participants identified this as a problem in Trello. There cards are either active or forgotten if archived.

To complement the task board, an add-on for most email clients should be created. This add-on would allow users that received an email, which is relevant for one of the tasks, to add it to the board. If the add-on is used, the user should have the possibility to either add the email to an existing card, or create a new one. In this add-on, if either creating a new card or updating an existing card is chosen, the add-on should allow the user to edit the attributes and status of the card. If an email is attached to a card, the email and all changes to the card should be included in the activity feed of the card. This idea was added to the concept because of two reasons. First, one of the participants mentioned that being able to find emails to certain tasks would greatly improve the visibility of those emails. Second, he also mentioned that updating an additional tool always is additional work and thus often neglected. With this integration, updating tasks right after an email with new information is read, should be facilitated.

Finally, one of the key limitations was that in the hackathon example no explicit roles were present. To compensate that, one can think of some roles that would be possible to include in the planning. For example, the two employees that mainly worked at the event, could be defined as event support. Both of the participants could be considered coordinators that are responsible for assigning tasks. Similarly, one of the team members was mainly responsible for executing tasks that were assigned to her. Her tasks mainly involved communication with the building management company. She could be considered as the building liaison. From this, a pattern emerges, where some of the team members are responsible for the overall coordination and some are responsible for executing only the tasks that they were assigned to. This could be portrayed in the system by including two technical roles. One would be the coordinator, who has complete access to the board. The other role would be that of a worker, who can see the complete board, but only change cards that he was assigned to by a coordinator.

4.4.2. Building the Prototype

The next step was to create a paper prototype based on the concept. To represent the board on which the cards are sorted, a big paper underlay was used. This underlay is made of one sheet of a flip chart. At the top of the sheet, a post-it was glued, on which the title of the board should be written. On the sheet, spaces for each list were hinted at, by adding small lines drawn with a pencil. In figure 4.5 the board is shown with cards already added to the list.

At the top of the underlay, some control elements were added. On the right, a small portrait was drawn with a name under it. This should represent a menu where the user's settings could be accessed. This was not added to show functionality, instead it was simply added to convey the feeling of a real tool. More importantly, on the top left corner, the control elements for sorting and filtering were added. The control element for sorting the cards was added by writing 'Sort by:' on the sheet. Next to it a folded paper piece was

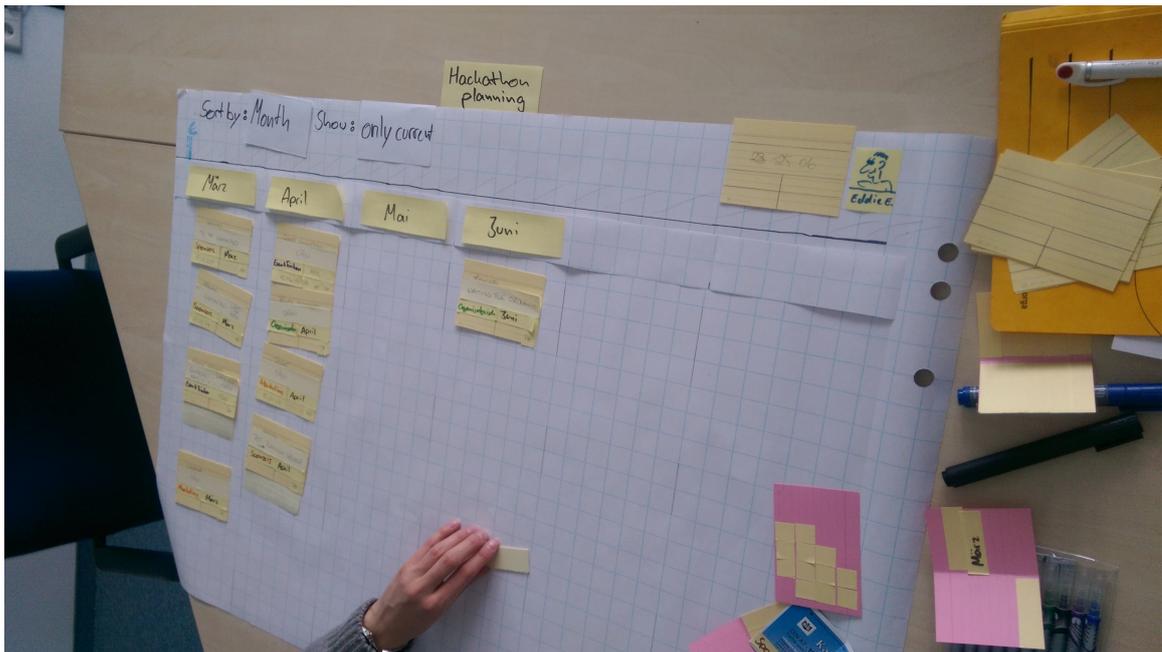


Figure 4.5.: An example of the paper prototype in use

added, which had 'Month' written on one side and 'Category' on the other. Depending on which side was on top, the lists would be sorted by category or month. Similarly, next to the sorting control element, the filter control element was added. On the sheet 'Show:' was written. The piece of paper next to this read 'all cards' on one side and 'only current' on the other. Depending on which side is on top, the finished tasks would be added at the bottom of the lists or removed from the board. Under the control elements, a big line from one side of the sheet to the other was drawn. This was done to emphasize the division between control elements and the list of lists.

For the lists, the indicated separations between the lists was added to visibly divide them. On the top of each list either the category or the month would have to be written. To allow flexible changes to the lists, the titles were not written on the sheet itself. Instead post-its were cut to a fitting size and glued at the top of each list. This allowed changing the names and the order of the lists. To facilitate quick changing between a category based sorting and a month based sorting, two big paper strips were created on which the list title post-its could be glued instead. Because of that, in the case of switching between the views, only the strip would have to be replaced.

The cards from the concept are represented by index cards in this paper prototype. Index cards were chosen instead of post-its because they are less fragile and more easily moved around. In figure 4.6 an empty card and a filled-out card are shown next to each other. Each card has room at the top to write down the title of the card. In the section under the title, space for the status of the card is left. The status should be written on post-its that have been cut to the right size. These post-its can then be glued on the card. That way, when the status is updated, the new status can be glued on top of the old. At the bottom of the card three spaces are marked for the category, the month and the deadline.

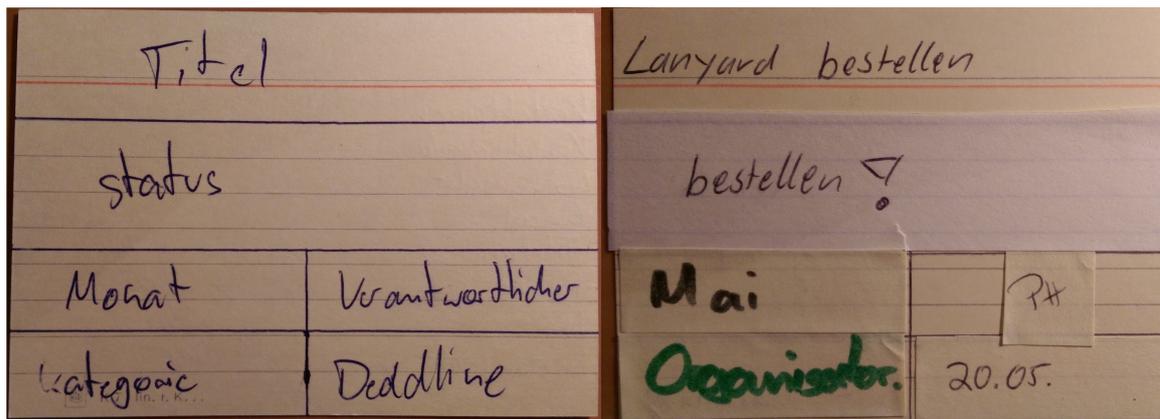


Figure 4.6.: Index Card of the paper prototype

For these spaces, smaller post-its have been cut to fit them. The fourth space at the bottom is reserved for assigned users. Although the space on the card is the same size as the three other spaces, the post-its for users are smaller. This was done to allow multiple users to be assigned to each card. On the backside of the index card, no special preparation was done. There, attributes and their values can be written on the lines of the index card. These attributes would only be visible in a detailed view of the card. Thus, they are not visible on the board.

Finally, a mockup of an email inbox was created. It consists of one sheet of paper where inbox is written on the top. Emails are represented by post-its, which are glued onto the paper. The size of the post-its that represent emails was chosen, so they would fit on the back of the index card. That way, to represent attaching emails to cards, these post-its can be glued on the back of the index cards.

4. Approach

5. Concept Evaluation

To evaluate the feasibility of the paper prototype, both participants from the interviews and requirement workshops were asked to participate in the evaluation. First, they both performed a usage simulation of the prototype, using exemplary tasks. After that, they were asked questions about the usefulness of the features that were part of the concept. Afterwards, the gathered knowledge was used to refine the concept. The refined concept was then implemented in a Balsamiq mockup.

5.1. Paper Prototype Usage Simulation

Simulation Structure

To introduce the features of the paper prototype, a quick usage simulation of the paper prototype was performed. In this simulation, both participants were asked to perform some of the work that they'd have to perform to plan another hackathon. To facilitate the simulation, tasks that should be performed were defined beforehand. This was done using the knowledge obtained from the interviews.

Both simulations started off, by explaining the main concepts of the prototype. The general approach of using list of lists was explained first. Next, it was explained that empty lists for the categories sponsors, food and drinks, marketing and organizational were created beforehand as examples. Afterwards, the layout of the prepared index cards was introduced. It was explained, that the title should be written directly onto the card, whereas deadline, month, category, assigned people and the status should be written on post-its and then glued onto the cards. The control elements at the top of the paper prototype were not explained at the beginning. After the prototype was introduced, the participants were told that they would simulate planning another hackathon, which should be held in four months. The participants then were asked to create cards for some of the tasks that are needed to plan the hackathon. They were asked to create cards for catering, organizing a drinks supplier, lanyards, posters, renting rooms, final cleaning, website and two imaginary sponsors. They were asked to assign them months, categories, deadlines and people as they see fit. The first participant added categories, people and months to every card. The second participant assigned deadlines and months only to some of the cards. Of the sponsors, only the first was created using the standard index card. After it had been created, the participants were asked to add attributes on the back of the index cards. The other sponsor was then created using index cards, where the attributes were already written on the back. Since both participants assigned at least some deadlines, categories, months and people to cards, it wasn't necessary to request them to do that. In figure 5.1 both boards after the creation of the initial cards are shown.

After the first cards had been added to the board, the view was changed to the month based sorting. To do that, the paper strip with the categories glued on was exchanged

5. Concept Evaluation

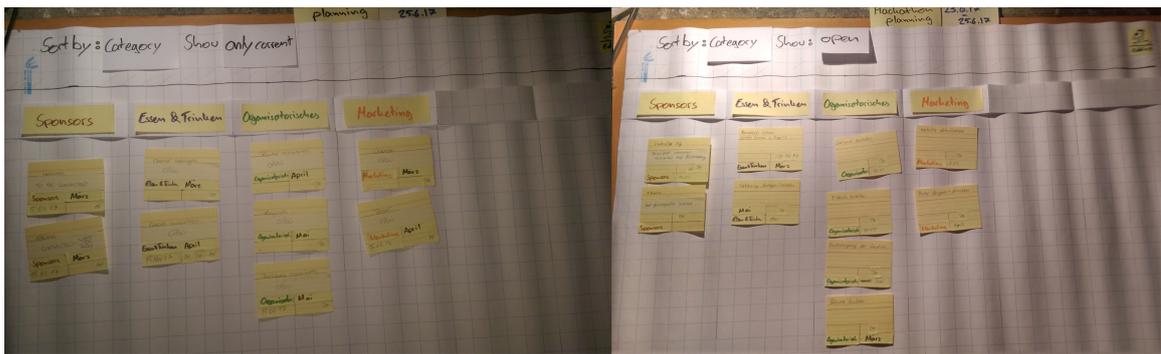


Figure 5.1.: Paper prototype in category view from both usage simulations

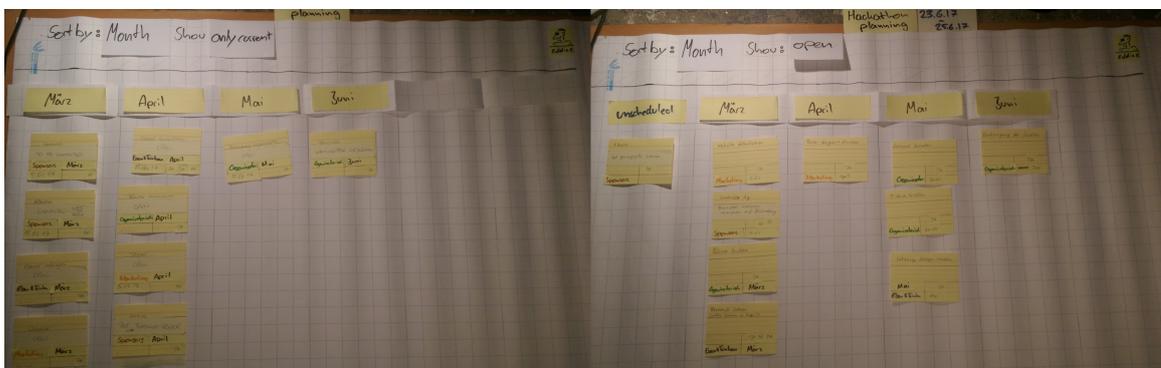


Figure 5.2.: Paper prototype in monthly view from both usage simulations

for the other paper strip with the months glued on. After that, the cards were sorted to match the new view. In figure 5.2 both boards can be seen after the view was changed to month based. Since the first participant put months on every card, all cards were sorted into month based lists. The second participant had created cards where no month had been assigned. Because of that, a list for unscheduled tasks was added.

In the next step, the participants were told that three potential caterers were contacted but have yet to answer. Both participants wrote some variation of '3 caterers contacted; waiting for replies' as the status. Then, the participants were told that the lanyards' design was finished but they would still have to be ordered. Both participants updated the status for the cards with some variation of 'ready for order'. With both status updates, the participants decided to include a minimal description of the next step.

Afterwards, the participants were given the prepared mockup email inbox. They were told that they can create new cards where an email would be attached, or simply attach it to an existing card. The first email in the inbox was by a made-up caterer, who provided information on their pricing. Both participants opted to attach the email to the catering card by gluing it to the back. In both cases, the status of the card was updated. The evolution of the status from the catering cards can be seen in figure 5.3. The second email was by a mad-up sponsor that had learned about the event and wanted to know more, because he'd be interested in participating and providing a challenge. Both participant

created a new card for the sponsor using the index cards with sponsor attributes on the back. Both also opted to attach the email to the card. On the left side in figure 5.2, the card with the attached email can be found at the bottom of the April list.

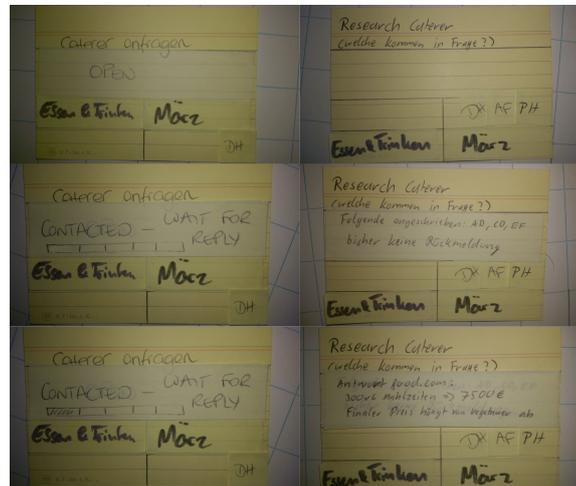


Figure 5.3.: Evolution of the catering card in both usage simulations

Finally, both participants were told, that the person in charge of renting the rooms has rented the rooms. In both cases the card was considered as finished and the status updated accordingly. Since the control element for filtering cards was set on showing only current cards, the updated card was removed from the board. It was then explained to both participants, why the card was removed. Afterwards they were shown how they could display all cards, including the finished cards. Both simulations took place without major problems.

Changes to the Prototype

After the first interview, some changes were made to the prototype. First, the proposed date of the hackathon was added at the top of the prototype. This was done, because it in the first interview the participant had to repeatedly ask, when it would take place. Then, another option was added to the 'Show: ' filter. The option was called 'overdue' and if chosen, only cards with deadlines or timeslots from last month or earlier are shown. This was proposed by the first participant. Also, a completely new filter was added to allow the user to only show cards where he is assigned. This was already part of the concept, but forgotten in the initial paper prototype.

Because of the changes to the prototype, in the second interview the usage of those additions was shown at the end. Since there wasn't much time left, those features were only shortly demonstrated by explaining the idea and sorting the cards according to the filter. With only overdue tasks of the user himself, only three cards were left on the board as can be seen in figure 5.4.

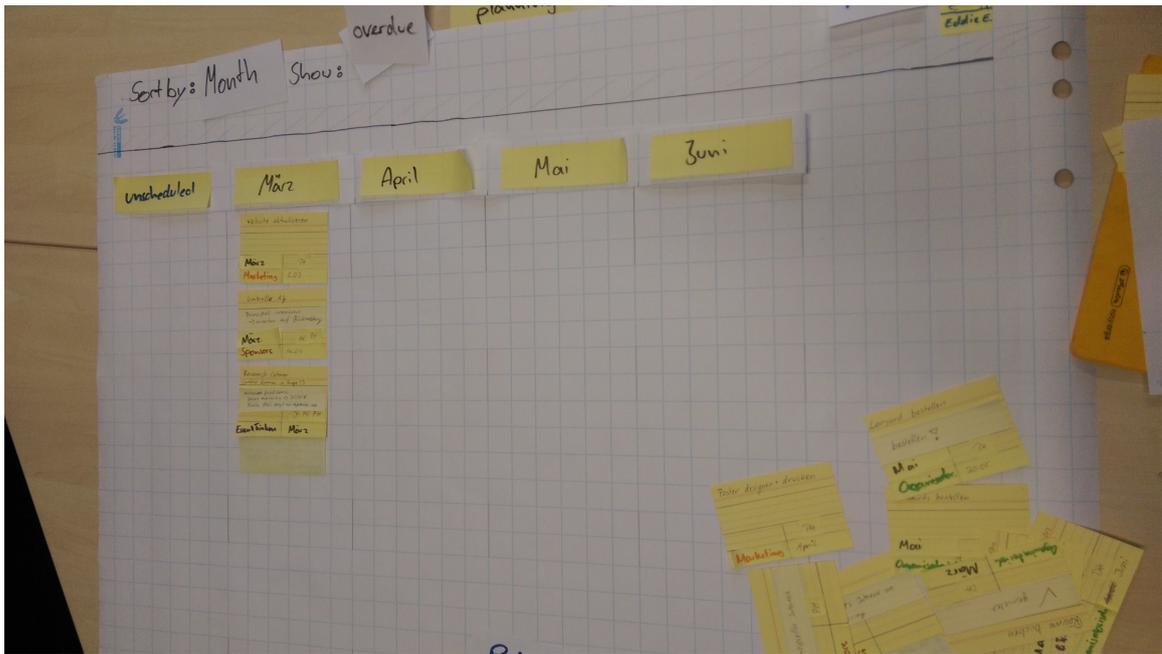


Figure 5.4.: Paper prototype with overdue tasks by one user

5.2. Evaluation Interview

After the paper prototype interview, the participants were asked a set of questions. Since only two participants were available, a quantitative analysis wasn't feasible. Therefore, a semi-structured approach was used in the interview. This allowed enquiring specific details in each interview, although both participants were asked the same core questions, which corresponded to certain parts of the concept. First, the answers to these questions will be discussed. Afterwards, detailed questions, that only occurred in one of the interview will be discussed. The whole interview transcript can be found in Appendix B.

5.2.1. Main Questions

1. Is the general approach of using a list of lists useful?

Both participants answered that they think this approach is useful.

2. How do you feel about the category view?

Both participants liked the category based view. One mentioned that this helps to get an overview of all tasks related to one organizational point. She also mentioned that this view would be especially useful in the beginning of the planning, when tasks have to be identified. The other participant mentioned that this would probably be his main view. He also mentioned that all cards inside one list should be sorted descending by date. This was already part of the concept, but it wasn't explicitly stated in the walkthrough.

3. How do you feel about the monthly view?

The monthly view was considered at least somewhat useful by both participants. One mentioned that he might not use it that much and instead use the category based view. The other participant identified this view as useful. She mentioned that after the board is set up in the beginning, using the category view, the monthly view would be used during the execution. She argued that it might be useful to allow tasks to be assigned to the weeks in a month. According to her, using normal calendar weeks for that would be difficult, since she usually doesn't know in what month a calendar week is located. She mentioned that a good alternative would be to allow the selection of a calendar week based on the month a task was prior assigned to. The sorting in a month based list should then incorporate the week. According to her, an additional view based on calendar weeks isn't necessary. Finally, both Participants agreed that using a month for the timeslot is better than assigning a start date and an end date. One participant proposed that a card, where the assigned month has passed, should automatically slide to the next month and be visibly highlighted.

4. Would you like to have additional views?

A team member based view was considered useful by both participants. In this view, each list would contain all tasks of one of the team members. This could help to check, whether a person is already responsible for too many cards. Although one of the participants argued that this would get confusing if a team consist of very many people.

5. What do you think about using a status line in each card?

Both participants mentioned that they really liked this concept. Both argued that this provides the needed flexibility in describing intermediate steps. One participant mentioned that he would like it if the status would automatically update, when a related email gets received. Since it came up during the walkthrough, both participants were asked whether they would like the possibility to define statuses for certain templates. These would then be accessible via dropdown or autocomplete while typing a status. Both participants said that they generally could imagine using that. Although one of them argued that dropdown menus might get messy and that he'd prefer the autocomplete solution.

6. How do you feel about the possibility to create cards from templates?

Both participants agreed that this is a great addition. Tasks like acquiring sponsors or ordering something for the event were listed as tasks that would benefit from that. Although they both mentioned that it would be more helpful if they could somehow access the information of all cards that use the same template in a summarized way. One interviewee was additionally asked whether changes to a template should be applied to all tasks of that template. She argued that as long as only an attribute would be added, and she wouldn't have to fill them in for all cards, it would be good if all cards were updated.

7. Do you think the distinction between deadlines and a timeslot makes sense?

Both participants were generally content with this distinction. Although one participant mentioned that if a task is assigned to a whole month, one can be sure that it usually will be performed at the last day of said month. But he still said that this is a good way to structure tasks, since deadlines are often ignored.

8. Would it be useful to only allow some users to edit cards that they are assigned to?

This wasn't part of the prototype simulation, since they didn't rely on roles in their planning. The concept was only introduced theoretically. One participant argued that she'd miss the possibility to restrict reading access to some people, since sometimes sensitive information could be stored. The other participant argued that this is forcing behavior that is usually expected from colleagues. But he mentioned that this could be helpful in bigger teams. Although for him, it would be sufficient if he could retrace who changed a card.

9. How do you feel about the possibility to attach emails to cards?

Both participants really liked this possibility. One of them even mentioned it before other questions could be asked. The other participant argued that this would be a good way to make emails, that were sent to one person, available to the whole team.

10. Do you think this would facilitate more frequent updates?

Both participants mentioned that they think this would be the case. One participant mentioned that to facilitate this even further, a one click solution would help. He additionally mentioned that it would be great if the tool could automatically extract information from the email and fill in the attributes of a card.

5.2.2. Additional Information

Dependencies between cards

One participant mentioned that between some cards dependencies exist. As an example, he mentioned that printing posters would only be possible if all sponsors have formally allowed the usage of their logo. He argued that if a dependency exists, he would like to be able to see it when clicking such a card. But he also realized, while explaining his idea, that this is more complicated than he first thought. In his example with posters and sponsors, it wouldn't be possible to define this dependency by using the status of the card. In this case, some sponsors give an informal approval to use the logo, and others require a signed contract.

Reverse email lookup

The participant also mentioned, an addition to attaching emails to cards. If an email was attached to a card, and at the same time some attributes added, he'd like to be able to get to the email by clicking on the attribute.

Overdue Tasks View

The first participant mentioned that she'd like to have a possibility to quickly identify overdue tasks. She argued that she'd prefer an additional filter for that, instead of adding another list to the monthly view. Because of that, this filter was added to the prototype, before the second interview. In the second interview, the participant said that he likes this filter. According to him, it would help to identify tasks that aren't moving forward, especially if there are many cards on one board.

5.3. Final Changes to the Concept

After the evaluation, some final adjustments of the concept were made. These are mainly additions to the existing concept, since none of the proposed features were considered bad. Although, some of the proposed features won't be part of the final mockup, since more research has to be performed to include those features.

Overdue filter

The overdue filter was proposed by the first participant in the evaluation and considered useful by the second. This filter should be added to the existing filters, where either all cards or only the open cards are shown.

Team members based view

The additional view, where lists are generated using tasks that are assigned to users will be added. This view is an alternative to the category based view and the monthly view. Cards that have been assigned to multiple people would be added to every user's list.

Predefined statuses in templates

This wasn't part of the paper prototype. When a user edits the status of a card, possible statuses are proposed to the user by autocomplete. The proposed statuses are all statuses that are or were used by cards that use the same template.

Reverse email lookup

The second participant in the evaluation proposed this addition. When attributes were added during the attachment of an email, a link to the email will be added to the attribute.

Adding calendar weeks to months

This change was proposed in the first evaluation. But adding the possibility to select certain calendar weeks of a month is complicated. Calendar weeks often are part of two months. How those weeks should be treated must be properly researched before addition.

Dependencies between cards

Including dependencies in the concept was proposed in the second evaluation. But, as the participant himself noticed, this concept is not that easily implemented. Showing those dependencies would be more easily implemented. But whether this alone would provide a real advantage, without becoming too complicated, should be thoroughly researched before implementation.

5.4. Final Mockup Iteration

Considering the final additions to the concept, a new mockup was created. This mockup contains all learnings from the interviews, workshops and evaluation. The mockup was created digitally, using a mockup software called Balsamiq. The board from the first evaluation was created as an example. Figure 5.5 shows the complete board.

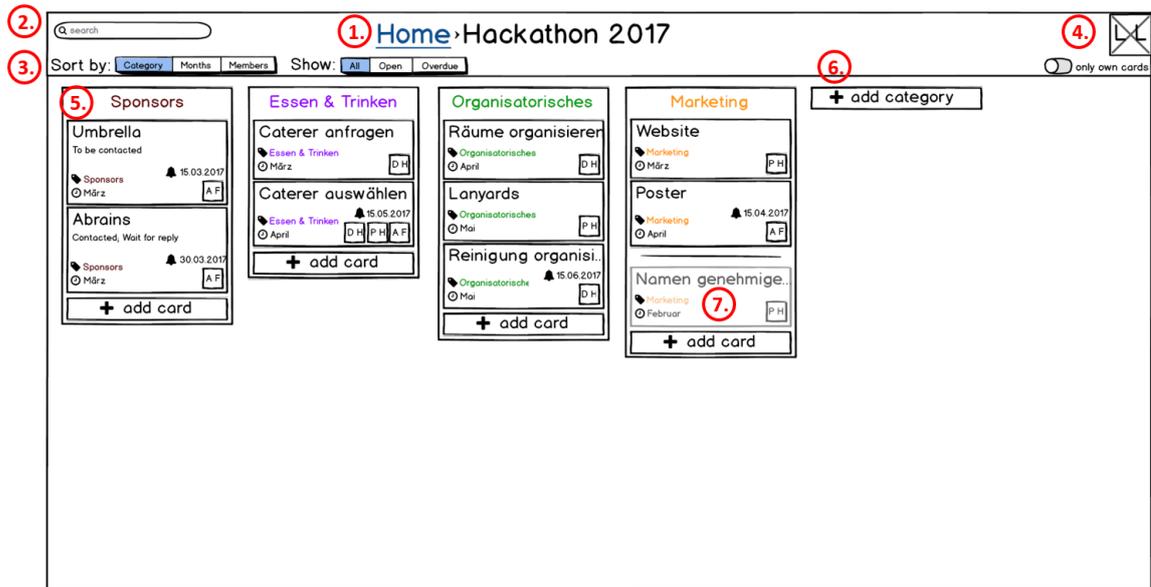


Figure 5.5.: Balsamiq Mockup: Overview of the board

Task Board

At 1, the title of the board is shown. The title is part of a breadcrumb, which provides navigation to the board. At 2, a search bar was added to allow searching the board for all cards. Next to 3, the 'Sort by:' element allows one to switch between the different views. Next to that, the cards can be filtered with the options to show all cards, only open cards or only overdue cards. At 4, the users profile picture is shown. Clicking on it should allow the user to access his personal menu. Below is a filter that allows the user to only show his own cards. 5 shows one of the lists that contains all cards of one category. In this case, it is the sponsors category. Below 6 is the button that lets one create a new list, which automatically adds another category. 7 shows a card that has already been finished. Because of its finished state, it is greyed out and listed at the bottom of the list.

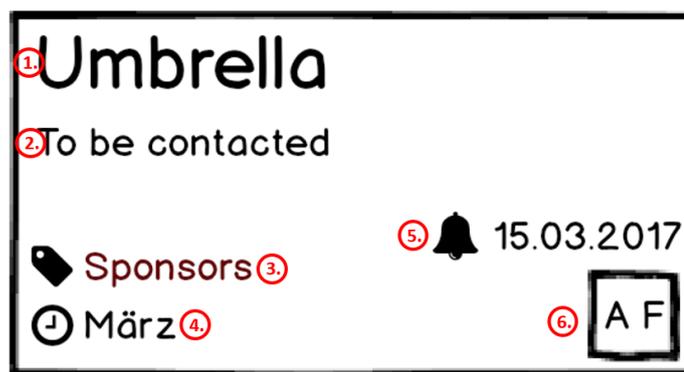


Figure 5.6.: Balsamiq Mockup: Small Card view

Figure 5.6 shows an enlarged version of the small card as it is shown in the board

overview. At 1, the title is shown using a bigger font. Below at 2, is the current status of the card. At 3 and 4, the category and the scheduled timeslot of the card is shown. On the right side, next to 5, is the scheduled deadline for this card. It is marked with a bell. Below, at 6, are the assigned users of the card. Each user is represented by a small icon. The icon consist of a rectangle with the users initials on top. If the user has a profile picture set in his options, the rectangle would be filled out with the profile picture. If multiple users are assigned to the card, more of those icons would be shown.

Detailed Card View

Figure 5.7 shows the detailed view of a card. In this figure, an email attachment has already been opened. The main view of a detailed card would be figure 5.7 without the email on the right.

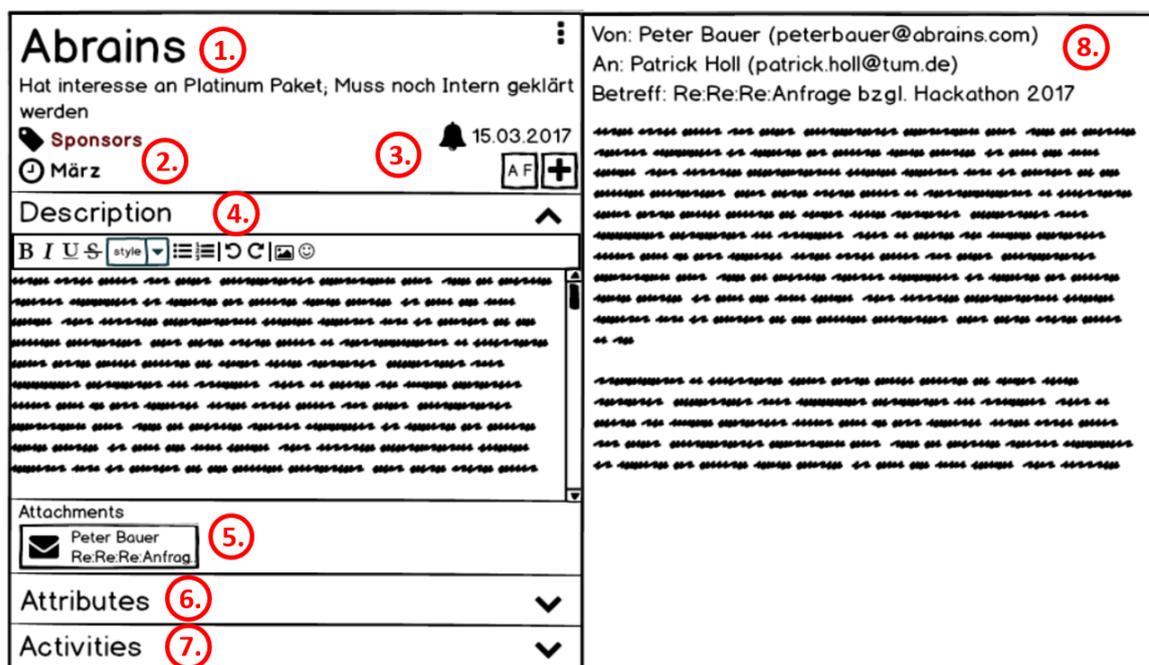


Figure 5.7.: Balsamiq Mockup: Detailed Card View 1

At the top of each card, left to 1 is the title of the card. Below the title, the status of the card is displayed. On the top right corner of the card, the three dots form the menu button. In this menu, options to save the current card as a template are provided. Left to 2, the labels for category and timeslot are displayed. Next to 3, the deadline and the assigned members are shown. Clicking on the plus sign allows one to add more people to the card. At 4, the part where the cards description is shown can be collapsed. The description view is the default view for each card. Below 4, a toolbar with basic text formatting options is added. Below that, the content of the description can be seen. Next to 5, at the bottom of the description, all attachments of the card are displayed. In this case, an email is labeled by the mail icon. Next to it, the sender and the subject of the email are shown. If the email is clicked, the right part in figure 5.7 is shown. There at 8, the complete email can be

viewed. Below the description area, at 6 and 7, the two other sections of the card can be opened. Clicking on one of them opens the view.

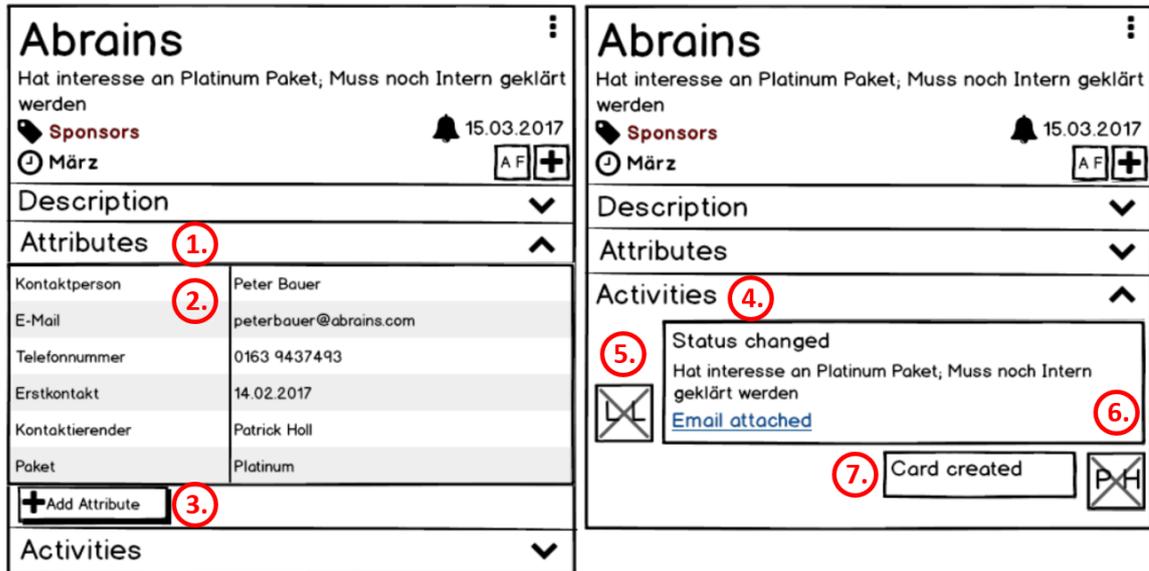


Figure 5.8.: Balsamiq Mockup: Detailed Card View 2

In figure 5.8, the two other views are shown. On the left, the attributes of a card are shown. At 1, the user can collapse the section by clicking on it. At 2, the attributes are listed. On the left is the title of the attribute and on the right the value. Below, at 3, a button to add more attributes is added. In the activities view on the right, the activities can be collapsed by clicking on the area around 4. Below, a history of the activities performed on the card is shown. At 5, a user with the initials L. L. has changed the card's status. As he included an email, a link to the attachment is included in the update. At 7, the first activity is shown, which is the creation of the card by a user with the initials P. H.

Part IV.

Conclusion

6. Conclusion

6.1. Summary

In summary, different human-centered design approaches have been described. Additionally, techniques that are usually used in those approaches have been studied. With the knowledge of those approaches and techniques, a custom design research approach was created. As an example for project management, the planning of a hackathon at the university was chosen. This example was then researched, using the custom design research approach. Multiple design ideas were identified during interviews and workshops with users. These ideas were then combined to develop a concept for a project management tool. This concept was then implemented in a paper prototype, which was used to evaluate the complete concept. The concept was considered useful by the users, but they proposed some additions. Finally, those additions were incorporated in the concept.

6.2. Limitations

As described in chapter 4.1, the example process had some limitations as an example for collaborative work. Additionally to those, there are also some limitations in the used approach. First, there is the limitation that only two people from the team were involved. Both of them had a similar role to play in the planning. Although they performed tasks from different categories, they both played a role in coordinating the team. Because of that, it would have been better if people that only performed their assigned tasks were included. Since both of the interviewed team members coordinated the planning as well as performed tasks, this limitation isn't that bad.

Additionally, the activity in the requirement workshop was designed with concepts borrowed from contextual inquiry. Although it was tried to simulate their real work, it is not the same as observing real work. This wasn't possible since the planning was at that time finished and hadn't yet started for the next hackathon. Therefore, the context of work isn't completely included in the design research. Although, it would have been questionable how much more could have been learned if an observation of the first planning process were included.

Finally, generalizing from one process to all processes in the same category, doesn't work. Even if all limitations of the process itself are considered, there are still too many possible variations in each process.

6.3. Conclusion

In conclusion, a tool to manage the task distribution of a team was designed. The designed tool provides an overview of all tasks in a project to the team's coordinator. The coordina-

tor has the possibility to get the overview in different views, which are useful for different cases. Additionally, each user can view only his tasks, to allow quick identification of one's own tasks. The designed solution also provides a way to assign tasks in timeslots to structure the whole project. And finally, the tool was designed to support a team's approach in a project. Thus, the designed tool should be usable for this approach, without having to change the approach to fit the tool's.

6.4. Future Work

While most of the final additions to the concept could be incorporated, some of them are in need of a more thorough investigation. The question remains of how weeks could be included in the timeslot. This is a problem that has no initially obvious solution. Thus, multiple concepts could be developed, but they'd still have to be tested with users. Intensive testing with users is important for this, since an unintuitive solution would hamper the usability of the monthly view. Similarly, including dependencies between cards should be researched further. A possibly easier approach would be to evaluate whether simply showing those dependencies, without them impacting the status of a card, would be sufficient. Alternatively, if they should be used as a form of process modelling, further research would be needed.

Although, a first mockup of a potential solution was created, further iterations are required. In design thinking, multiple iterations in every phase of the development lifecycle are needed [33]. Since only one process was used, the results represent only a solution to this specific process. An event planning might be too different from other collaborative processes. This is not only the case with this process, rather one shouldn't generalize findings from research into one process.

One point where additional research is needed the most, is incorporating roles to the tool. This should be researched, using a process that includes explicit roles. Otherwise usability might be neglected. For this, contextual inquiry, as described in chapter 3.5, might be a good solution.

Including some form of observation of real work, in general, is something that is missing from this approach. This was due to the fact, that the example process was at that time not performed. But ignoring the context of real work might still lead to problems later, when the development of the system is finalized.

Appendix

A. Interviews

A.1. Interview with Participant A

Welche Tools wurden bei der letzten Planung eingesetzt?

Wir haben E-mails geschrieben, das Intranet (Tricia), Excel und Google Docs benutzt. Zum Ende hin auch noch Trello.

Habt ihr auch Mailinglisten benutzt?

Nur im Kontakt mit Teilnehmern, Volunteers und Sponsoren.

Wie wurden die Tools konkret genutzt?

Zu Beginn haben wir eine Intranetseite angelegt, um grob den Ablauf zu strukturieren. Davon ausgehend, schauen was für die einzelnen Punkte erforderlich ist. Dort wurden auch Dokumente abgelegt (Sponsorenliste). Mit der Zeit wurden nur noch die Excellisten benutzt. Die Intranet Seite wurde nicht weiter gepflegt, da das Dokument zu groß und unübersichtlich wurde. Da das hoch und runterladen der Dokumente zu umständlich wurde, wurde auf Google Docs gewechselt.

Trello wurde dann eingesetzt, um genauere Verantwortlichkeiten definieren zu können. Ein weiterer Vorteil war, dass so die Aufgaben klassifiziert werden konnten. Zum Beispiel welche Punkte beim Thema Essen noch zu erledigen sind und wer dafür zuständig ist. Praktisch dabei sind auch Deadlines in Trello gewesen.

E-Mails wurden nie abgelöst, da sie zur Kommunikation nach aussen hin, und um intern die Informationen weiterzureichen, benutzt wurden.

Wurden E-mails intern auch zur Absprache benutzt?

Alle Tools wurden nur intern eingesetzt. Sämtliche Kommunikation mit externen fand über E-Mail statt. Diese E-Mails wurden an alle weitergeleitet. Zur internen Besprechung wurden sie auch genutzt.

Wurden die Tools wie vorgesehen eingesetzt oder anders als vorgesehen?

Trello wurde gefühlt nicht voll ausgeschöpft, da es strukturierter eingesetzt hätte werden können. Vermutlich wäre es am besten gewesen sich gleich zu Beginn auf ein Tool festzulegen. Oft wurden die Tools gewechselt weil es gerade nicht mehr so gut funktioniert hat. Weil Trello erst so spät eingesetzt wurde, konnte es nicht voll ausgeschöpft werden.

Welche Methodology wurde in Trello benutzt?

Die Karten wurden eigentlich fast gar nicht verschoben, sondern es wurde eher statisch genutzt. Es wurde auch nur vielleicht zwei mal Unterpunkte innerhalb einer Karte eingesetzt. Was eigentlich nicht schlecht war, da das gesamte Trelloboard sehr groß und unübersichtlich wurde. Hauptzweck war eigentlich, dass man eine Liste hat und die Aufgaben an Perso-

nen zuweisen kann. Wahrscheinlich hätte das mit einer Excelliste auch funktioniert. Bei Aufgaben mit mehr als einem Verantwortlichen, wird es allerdings dann schwieriger zu filtern (da man dann für eine Person mehrere Einträge auswählen muss).

Was wäre wichtiger, die Information besser zu strukturieren, oder den Prozess besser sichtbar machen?

Wenn es einen definierten Prozess gegeben hätte, wäre das gut. Aber da es zum ersten mal stattgefunden hat, gab es keinen definierten Prozess den man abbilden hätte können. Wenn es einen geben würde wäre das aber ein guter Ansatz, um zu sehen wo man gerade steht und was noch zu erledigen ist.

Kann man in Zukunft den Ablauf vorher genau festlegen oder ist dieser zu variabel?

Im Grunde ja, da man z.B. bei dem Anschreiben der Sponsoren eigentlich immer gleich vorgeht. Es kann dann zwar unterschiedlich weiter gehen, aber eigentlich immer mit einem bestimmten Vorgehen (z.B. je nach gewähltem Sponsorenpaket müssen bestimmte Schritte als nächstes durchgeführt werden). Beim Catering ist das ähnlich. Man überlegt sich im vorhinein was man haben will und schreibt dann mindestens drei verschiedene Caterer an. Beim letzten mal wurde das Essen allerdings ständig neu diskutiert werden, da die Menge der Teilnehmer und das Budget nicht richtig beachtet wurden. Dies sollte aber in Zukunft hoffentlich nicht der Fall sein.

Habt ihr in Trello die Reihenfolge der Karten in einer Liste zum Priorisieren der Aufgaben genutzt?

Eigentlich nicht, aber vor allem weil die Listen sowieso relativ kurz waren und auf einem Blick zu erfassen waren (ca. 4 Karten maximal pro Liste). Die Motivation Trello zu benutzen war die Sortierung in Kategorien, um diese gut erfassen zu können.

Wer war alles an der Planung beteiligt?

Zu Beginn waren es ich, Frau Kortbruck und der Praktikantin Nina Matthes (erste 2 Wochen; Hat Intranet Seite aufgesetzt). Frau Kortbruck arbeitet im Bereich PR. Sie ist nach kurzer Zeit ausgeschieden, dafür ist Doris Hermann ins Team gekommen. Zu der Zeit ist auch Patrick dazu gekommen. Später ist Felix Michel noch dazu gekommen. Und ganz kurz vor dem Event sind noch Klimm und Manoj dazugestossen.

Gab es eine feste Rollenverteilung?

Patrick war der Hauptverantwortliche, vor allem da er gerne daran mitgearbeitet hat. Er war auch der technische Ansprechpartner. Die Doris hatte Aufgaben wie Caterer organisieren, Räume buchen, alles was organisatorisch mit dem Gebäude (Caverion) zu tun hat übernommen. Wobei letztendlich Patrick den Caterer organisiert hat. Ich habe mich um alles was dann noch so anfällt gekümmert (Registrierung, Sponsorenkontakt auf dem Event). Felix hat dann versucht etwas mehr Struktur in den Prozess zu bringen. Klimm und Manoj waren vor allem bei der Durchführung des Events beteiligt, was dann auch nochmal richtig viel zu tun war (inkl. Poster aufhängen etc.).

Wie habt ihr die Aufgabenverteilung gestaltet?

Auf dem Event selbst habe ich das gemacht. Während der Planung gab es nur die Verteilung

auf bestimmte Zuständigkeiten.

Was für Aufgaben gab es sonst noch?

Wesentlich ist eine gute Internetpräsenz mit einer einfachen Anmeldung für die Teilnehmer muss geschaffen werden. Man kann jetzt nicht wirklich davon sprechen, dass Marketing betrieben wurde, aber die wenigen Punkte die angestoßen wurden waren genau die richtigen. Eine große Sache war auch mit der Rechtsabteilung die Sponsoringverträge auszuhandeln (war langwierig und sehr schwer).

Während Event: Räume kontrollieren, Essensausgabe machen, um Snacks kümmern, Alternativprogramm organisieren, Ansprechpartner bereitstellen

Wie viele Volunteers waren beteiligt und was haben diese gemacht?

Es waren ca. 40 Volunteers. Ein paar sind dann auch wieder abgesprungen. Sie haben eigentlich nur auf dem Event Aufgaben übernommen. Im Nachhinein wäre es aber auch praktisch gewesen, diese auch schon für Aufgaben wie Namensschilder eintüten praktisch gewesen.

Gibt es sonst noch Aktivitäten, welche immer nach dem selben Schema ablaufen?

Bei den Sponsoren die Identifikation potentieller Sponsoren, Anschreiben dieser Sponsoren, Antworten abwarten, Verträge verschicken (unterscheidung ob man an diesem Punkt noch die Rechtsabteilung involvieren muss), abstimmen des Auftritts und nach dem Event Feedback einsammeln.

Gibt es einen Standardvertrag, welcher für alle Sponsoren verwendet wird?

Nein, es wurde dieses mal einer erarbeitet, welcher aber nicht unbedingt ein Standardvertrag ist, da für das nächstes mal die Konditionen noch angepasst werden müssen. Ziel wäre aber einen Standard zu entwickeln, damit dann alle den selben haben und nur unterschreiben müssen. Einzelne Firmen wollen aber Abweichungen in ihren Verträgen (oft ein Extrablatt zum Standardvertrag). Vorstellbar wäre, dass beim nächsten mal besser darauf bestanden werden kann, da man auf einen erfolgreichen Hackathon zurückweisen kann. Evtl. kann auch mit dem Feedback vom ersten Event ein besserer Vertrag geschaffen werden, der von den meisten auch angenommen wird.

Standen die Pakete für die Sponsoren schon vorher fest?

Nein, wir sind da nicht mit diesem Bewusstsein rangegangen. Es war zu beginn klar, dass manche Sponsoren aufgrund der Projektnähe nichts bezahlen werden und da es keine Referenzveranstaltung gab wurden am Anfang Sponsorings zu günstigeren Konditionen angeboten. Mit diesen und denen die darüber hinausgingen haben wir enger schon zusammengearbeitet. Alle weiteren haben ein allgemeines Sponsorenpaket bekommen. Für das nächste mal wären Sponsorenpakete mit unterschiedlichen Tätigkeiten vorstellbar (z.B. Gold Paket darf ein Thema stellen, Silber nur einen Stand aufbauen, etc.).

Gab es bei der Koordination der Planung irgendwelche größeren Schwierigkeiten?

Eigentlich nicht, da das Team recht klein war und räumlich sehr Nahe.

Wenn mehr Leute involviert wären, könnte es dann irgendwo Probleme geben?

Wenn die Volunteers früher eingespannt werden würden, dann müsste da auch eine Kontrolle der Aufgaben umgesetzt werden.

Habt ihr verfolgt wer welche Aufgaben erledigt hat und ist dies hilfreich?

Für die Nachbereitung wäre das wahrscheinlich nicht schlecht, auch um Prozesse zu identifizieren und etablieren. Aber genau aufschreiben, wer was genau gemacht hat, um die Person wieder anzusprechen wäre nicht sehr hilfreich. Hilfreich wäre aber zu wissen, dass die Person bestimmtes Wissen einbringen kann. Diese Person sollte auch dafür verantwortlich sein, zu dokumentieren welche Schritte dafür getan werden mussten.

Habt ihr bei Trello die Karten regelmäßig aktualisiert?

Für uns war Trello am Ende overhead. Es wurden ein oder zwei Iterationen gemacht wo Karten noch hinzugefügt wurden oder der Status aktualisiert wurde. Jetzt ist allerdings das Trelloboard noch auf dem Stand von vor dem Event.

Lag das eher an der inkonsequenten Nutzung oder war das Format unpassend?

Ich glaube, dadurch das es erst so spät benutzt wurde, wurde das Format nicht optimal benutzt. Es war dann eigentlich nur eine Gedankenstütze um sich bewusst zu machen, woran noch gedacht werden muss. Alleine das Aufschreiben hat schon geholfen um sich alles bewusst zu machen. Nicht um zu wissen was schon erledigt wurde.

Wäre es dann das Ziel einen Überblick über die offenen und erledigten Aufgaben zu bekommen?

Ja, die einzelnen Aufgaben die zu einem Prozessschritt gehören abzubilden fände ich super wenn man das sauber abbilden könnte. Zum Beispiel zur Vorbereitung, bei den Sponsoren, die Schritte Pakete klären, klären wen man anschreiben möchte, etc.

Haben alle das selbe Interesse an dem Stand der gesamten Planung?

Bei dem kleinen Team war es sehr gut, dass alle eine generelle Übersicht hatten. Aber z.B. beim E-Mailverkehr mit den Sponsoren war ich nicht inkludiert und das für mich auch nicht relevant. D.h. ich halte es für wichtig, dass über den aktuellen Stand alle grob informiert sind aber nicht allzu tief ins Detail gehend. Also z.B. wäre die Information, dass alle Ansprechpartner angeschrieben wurden aber nicht wann, wer, welche Email geschrieben hat.

Was waren die größten Probleme bei der Planung?

Die Unstrukturiertheit, wodurch sehr viel Arbeit in der letzten Woche noch angefallen ist (Poster aufhängen, Plakate anbringen, Namensschilder fertig machen, Rollups fertig machen). Wenn es eine Struktur gegeben hätte, hätte man das auch alles früher machen können.

Welche Aufgaben waren am Zeitintensivsten?

Auf jeden Fall die Rechtsverträge waren sehr Zeitintensiv. Der Austausch mit den Sponsoren auch, dieser war aber trotzdem angemessen, da sie ja auch Geld für eine Dienstleistung zahlen.

Design, Poster Internetseite und ähnliches war auch sehr Zeitaufwendig, aber dazu kann

Patrick wahrscheinlich genaueres sagen. Davon mussten auf jeden Fall mehrere gemacht werden und wieder angepasst werden, da Sponsoren nicht alle von Anfang an feststanden. Bei manchen gab es da noch extra Aufwand um die Logos verwenden zu dürfen.

Wurden Tools eher zur Unterstützung in Meetings genutzt oder war es ein Toolbasierter Ansatz?

Die Tools sind eher in Meetings eingesetzt worden um dann Sachen zu identifizieren und dokumentieren und nicht um das Team zu organisieren.

Ist die Historie nur in bestimmten Bereichen interessant, oder auch von dem Gesamtablauf?

Ich glaube bei diesem mal, da es so unstrukturiert war, wäre es nicht allzu interessant. Aber wenn das jetzt besser etabliert wird, könnte man daraus jedesmal wieder lernen.

Waren die einzelnen Aufgaben stark voneinander Abhängig und konnten nicht unabhängig voneinander bearbeitet werden?

Es gibt zwar schon eine gewisse Abhängigkeit (z.B. Sponsorenanzahl → Teilnehmeranzahl → Anzahl der benötigten Räume) aber letztendlich müssen Räume an sich so oder so bestellt werden.

Werden bei Trello die Karten angelegt und dann wieder gelöscht oder eher modifiziert?

Sie wurden auf jeden Fall modifiziert nicht gelöscht. Wenn sie gelöscht worden wären, hätten wir es nicht dokumentiert. Da kein Tracking des Aufgabenfortschritts vorhanden war mussten sie stehenbleiben damit man Überblick behält. Allerdings wäre es bei einem etablierten Prozess gut vorstellbar, dass erledigte Aufgaben nicht mehr auftauchen.

A.2. Interview with Participant B

Welche Tools habt ihr bei der letzten Planung benutzt?

Ich fange mal mit Trello an. Trello wurde eigentlich eingesetzt um einen Überblick über den Status zu haben. Aber wir haben es jetzt nicht Kanban artig benutzt. Wobei ich auch sagen muss, dass die Nutzung nicht sonderlich aktiv war. In dem Meeting wo wir das aufgesetzt haben, war es ganz gut um zu sehen, was noch gemacht werden muss und was noch offene Punkte sind. Aber das war es dann eigentlich auch. Für manche Sachen wurden zwar Deadline gesetzt und die wurden dann nach den Deadlines erst gemacht. Es ist also nicht strikt eingehalten worden.

Es hat also mehr als Momentaufnahme geholfen?

Ja genau. Ansonsten haben wir viel die Excel Sheets in Google Drive benutzt. Da war die wichtigste Tabelle, denn da steht immer drinnen was die Ausgaben waren, was wir eingenommen haben und ob der Cashflow gerade positiv oder negativ ist.

Sind Exceltabellen auch für etwas Anderes als Kostenberechnung eingesetzt worden, beispielsweise zur Aufgabenverteilung?

Eigentlich nicht. Ansonsten hatten wir das Wiki (SocioCortex Tricia) eingesetzt. Da hat die Nina Matthes ganz am Anfang einen groben Ablaufplan erstellt. Also was, wie, wann, wo

gemacht werden muss bzw. sollte. Das war zwar sehr ungenau und es hat vieles gefehlt bzw. war falsch eingetragen, aber die grobe Struktur haben wir bis ungefähr ein Monat vor dem Ende schon eingehalten.

Also war es für den Anfangsplan gedacht?

Genau, es war z.B. über die Sponsoren oder bis wann die Flyer gedruckt werden sollen, bis wann sollten die Räume organisiert sein und solche Dinge. Aber es hat sich mit der Zeit viel geändert. Es wurde ziemlich inkonsistent.

Würdet ihr nächstes Mal wieder so beginnen?

Es wäre wahrscheinlich schon besser etwas strukturierter zu beginnen. Also z.B. so einen Ablaufplan - also was muss im Juli gemacht werden, was im August und was im September - sowas würde ich jetzt vielleicht in einem Excel Sheet machen. Vielleicht auch wieder im Wiki, das haut auch darin ganz gut funktioniert. Es muss halt irgendwie in einer Tabellenform sein.

Warum in Tabellenform?

Ist halt einfach übersichtlicher meiner Meinung nach, wenn man z.B. eine Spalte für Januar hat, eine für Februar und so weiter.

Also auch besser als in einem Kalender oder Gantt Chart oder sowas?

Ja, das ist halt zu viel Aufwand meiner Meinung nach. Es würde zwar sicher funktionieren, aber bei uns lief das eher so ab, dass wir regelmäßige Meetings hatten und da die Tabelle aufgemacht haben. Da haben wir dann geschaut was schon gemacht wurde, oder was vielleicht noch gemacht werden muss und so hat sich die Tabelle dann gefüllt.

Also nur eine grobe zeitliche Einteilung?

Ja.

Ist das dann noch genauer geworden mit der Zeit, also z.B. mit Deadlines?

Also die Deadlines die wir in Trello gesetzt hatten, das haben wir ungefähr ein Monat vor dem Event gemacht. Das waren dann schon harte Deadlines. Ich habe zwar vorhin gesagt, dass die oft nicht eingehalten wurden, aber oft wurden die nicht eingehalten, weil es einfach nicht ging. Weil z.B. die AGBs nicht rechtzeitig bereitgestellt werden konnten oder weil Getränke noch nicht geliefert wurden, oder ähnliches.

Habt ihr auch Word Dokumente in Google Docs benutzt?

Eigentlich nur für Verträge. Wobei es sein kann, dass Anne das verwendet hat bei den Volunteers.

Nochmal zu Trello. Was waren da die Vor- und Nachteile?

Der Vorteil, wenn man es richtig benutzt ist, dass man sofort einen Überblick hat was noch gemacht werden muss, was offene Punkte sind.

Das dann, wenn man einen Kanbanansatz verwendet?

Ja. Bei unserem Ansatz haben wir die Spalten benannt, z.B. Catering ist eine Spalte, Räume

sind eine Spalte, und so weiter. In dem Sinne war es schon praktisch dies einmal fixiert zu haben. Man sieht halt schnell welche Punkte zusammengehören. Und man kann schnell User hinzufügen und auf Karten zuordnen.

Die Anne sagte zu mir, dass Trello am Ende viel Overhead wurde. Siehst du das auch so?

Ja, deswegen hat es auch niemand mehr gemacht am Ende. Also so war mein Gefühl. Das wir es einmal benutzt haben um die Dinge zu fixieren und dann war es gut. Und danach haben wir es eigentlich nicht mehr großartig benutzt. Und deswegen hat es wahrscheinlich niemand mehr gemacht.

Woran könnte das gelegen sein?

Das Problem, also vielleicht ist das ein Problem von mir, aber ich hatte eigentlich im Kopf schon gewusst was ich machen muss. Und in dem Moment wo ich es dann noch zusätzlich aufschreiben muss ist das schon Overhead.

Ging das dann, weil ihr nur ein kleineres Team gewesen seid?

Ja genau. Also wenn man ein größeres Team ist geht es wahrscheinlich nicht anders, aber in unserem Fall war es noch so machbar. Also es war auch nicht so, dass jeder für sich irgendwas gemacht hat. Wir haben uns schon oft getroffen und das alles dann in Person abgesprochen. Und das Trello Board war dann am Ende nur noch dazu da um nachzuschauen ob noch ein Punkt offen ist. Ansonsten haben wir noch viele Emails geschrieben.

Hat das Tool euch bei den Meetings unterstützt oder war es ein Tool getriebener Ansatz?

Es hat uns eigentlich eher unterstützt in dem Fall. In den Meetings haben wir einen Laptop angesteckt und haben dann die Karten zusammen durchgesprochen. Aber die wurden nicht aktiv upgedated. Es war also nur eine Momentaufnahme. Ein weiteres Problem war, dass wir die Sachen zu feingranular aufgeschrieben hatten. Also z.B. zehn verschiedene Spalten für irgendwas und am Ende hätten es wahrscheinlich auch drei oder vier getan. Dann hätte man alles besser auf einem Blick erfasst. Und so Kleinigkeiten wie Servietten besorgen, des muss gemacht werden, aber das ist am Ende nicht die Rede wert.

Habt ihr die Funktionen innerhalb einer Trello Karte benutzt? Also z.B. Checklisten und Text?

Checklisten haben wir mal verwendet für die Technik die wir von der RBG brauchen. Also Ethernetkabel, Kabelbinder, Mehrfachsteckdosen und solche Sachen. Dazu war die Checkliste schon gut geeignet.

Ist dieser Ansatz mit einfacher grober Übersicht und dann detaillierte Karten sinnvoll?

Ja im Prinzip wäre das schon gut. Das Problem ist halt, dass immer wenn ein User etwas aktiv updaten muss, besteht meiner Meinung nach schnell die Gefahr das er es halt nicht tut. Also das es in der Theorie ziemlich gut ist aber in der Praxis nicht umgesetzt wird. In dem Fall bräuchte man wahrscheinlich einen Projektmanager der das mit aller Härte forciert. Das Problem ist halt - zumindest beim Hackathon war es so - wenn man ein Punkt aufschreibt und den machen will, dann passiert es oft, dass er zwar erledigt wird

aber auf andere Art als vorher gedacht. Zum Beispiel bei den Servietten dachten wir, dass wir die irgendwo kaufen müssen. Zum Beispiel könnte man dann da aufschreiben, dass man zur Metro fahren muss. Aber am Ende war es nur ein zwei Minuten langer Anruf beim Caterer und es war erledigt. Das war bei einigen Dingen so.

Aber lag das dann daran, dass es das erste Mal war das ihr den Hackathon plant?

Ich glaube teils, teils. Zum Teil, weil es das erste Mal war. Aber ich denke das es immer Punkte gibt bei denen es unkontrollierbar ist. Beispielsweise wenn man jetzt kurz vor Schluss noch einen Sponsor findet der dann doch auch Router bereitstellen kann. Oder irgendwas Anderes.

Wie lange habt ihr euch für die Planung genommen? Und was habt ihr dafür alles machen müssen?

Ich glaube Ende Juli oder Anfang August bis dann im November. Am Anfang war die Sponsorenakquise der große Punkt. Dann noch die Webseite erstellen und das Setup zur Anmeldung. Dazu kommt noch die Kommunikation mit den Teilnehmern. Die lief über Mailchimp, das war auch ein oft benutztes Tool. Damit kann man Mails in großen Mengen verschicken. Plakate und Flyer müssen auch noch erstellt werden. Zuerst muss natürlich erstmal der Name des Events festgelegt werden. Der stand am Anfang noch nicht fest. Dazu muss das Branding auch erstmal entschieden werden. Dann müssen natürlich Räume gemietet werden. Die Plakate müssen aufgehängt werden, auf Facebook muss Werbung gemacht werden, eine Facebook Gruppe für die Teilnehmer muss aufgesetzt werden. Dann mussten noch die Themen mit den Sponsoren zusammen erarbeitet werden. Hinzu kommen noch die ganzen Vertragsverhandlungen, dabei gehört natürlich dazu, dass die ganzen Verträge erstmal aufgesetzt werden müssen. Dabei musste auch viel intern mit der Rechtsabteilung verhandelt werden. Nachdem dann die Leute sich angemeldet haben muss man noch aussuchen wer am Hackathon teilnehmen kann, da sich mehr Leute angemeldet hatten als Plätze frei waren. Dazu mussten dann nochmal viele Emails rausgeschickt werden. Dazu kommen noch Sachen wie das Catering bestellen, wobei man davor erst noch das ganze Essen erstmal planen muss. Dann muss ein Fotograf organisiert werden. Dazu kommt noch das ganze PR Zeug. Für die T-Shirts musste erstmal ein Design erstellt werden und dann bestellt werden. Lanyards und Kontrollbänder müssen bestellt werden. Es muss sichergestellt werden, dass das Internet überall funktioniert. Dann müssen Preise organisiert und Urkunden erstellt werden. Dann kommen noch die Volunteers dazu. Die müssen eingeladen werden und man muss mit ihnen alles besprechen. Diese mussten dann noch in Zeitslots zum Arbeiten eingetragen werden. Nach dem Event müssen dann die ganzen Fotos in der Facebook Gruppe veröffentlicht werden oder überhaupt irgendwie online zur Verfügung gestellt werden. Dann muss noch eine Dankesmail mit Feedbackbogen am Ende verschickt werden.

Was musste beim Caterer alles beachtet werden?

Also zunächst mal gibt es da die Regel bei der TUM, dass bei Aufträgen die über 500 Euro kosten mindestens drei Angebote eingeholt werden müssen. Davon muss dann das billigste genommen werden oder alternativ sehr gut begründet werden warum man sich für einen anderen entschieden hat. Bei dem Essen hatten wir sechs Mahlzeiten, jedes Mal mit vegetarischer und nicht vegetarischer Option. Am Ende hatten wir drei ver-

schiedene Caterer bzw. Lieferanten. Einer hat die Mahlzeiten, Kaffee und Tee bereitgestellt. Zusätzlich hat einer Getränke und ein weiterer nur Energy Drinks bereitgestellt.

Ist die Anzahl der Teilnehmer von Anfang an festgestanden?

Also, ganz am Anfang war es für 90 Teilnehmer geplant. Aber da war eigentlich schon klar, dass das zu wenige sind, auch für die geringe Anzahl an Sponsoren bzw. die fünf Challenges. Deswegen haben wir es gleich auf 120 erhöht bevor es öffentlich gemacht wurde. Die 120 waren aber auch gleich nach zwei bis drei Tagen voll. Nachdem die Webseite online war kamen nochmal einige Sponsoren auf uns zu. Eigentlich ungefähr die Hälfte der letztendlichen Sponsoren kam dann auf uns zu. Dies hat dann die Akquise einfacher gemacht, da sie schon mit dem Wunsch mitzumachen auf uns zugekommen sind. Am Ende hatten wir dann insgesamt 15 Sponsoren und knapp 300 Teilnehmer.

Kann man den gesamten Planungsprozess irgendwie sinnvoll in Phasen aufteilen?

Ja, das kann man auf jeden Fall einteilen. Also die erste Phase ist die Sponsorenakquise. Beziehungsweise der absolut erste Punkt ist eigentlich erstmal mit der TUM abzuklären ob überhaupt ein Hackathon stattfinden kann. Dann kommt die Sponsorenakquise. Bzw. vor der Akquise müssen erst noch die Sponsorenpakete und Verträge erstellt werden. Das wäre quasi die interne organisatorische Phase die man auch von allem anderen trennen kann. Anschließend kommt die Sponsorenakquise. Danach wird's dann immer feingranularer bis es dann irgendwann zum Branding geht. Wenn nächstes Mal wieder dasselbe Branding verwendet werden darf fällt das weg. Wenn das Branding dann steht kann man erst mit Sachen wie der Website, Lanyards und Kontrollbänder usw. beginnen.

Nachdem ihr da jetzt Erfahrung gesammelt habt, würdet ihr sagen, dass die Planung nächstes Mal schneller gehen würde? Oder würdet ihr euch eher noch mehr Zeit nehmen?

Ich denke mal die Zeit hat eigentlich ganz gut gepasst. Wenn man die 3 Monate vorher hat sollte das eigentlich schon reichen. Trotzdem würde ich jetzt vielleicht noch ein bisschen früher anfangen - nicht allzu viel früher - aber schon ein bisschen früher. Vor allem die jetzigen Sponsoren wissen ja schon, dass das nächstes Jahr wieder stattfinden wird. Insofern kann ich ja, sofern die Pakete feststehen, die einfach direkt anschreiben und fragen. Das könnte eigentlich theoretisch schon im Februar oder März der Fall sein, solange die Pakete stehen. Ansonsten hat es von der Zeit her eigentlich schon gut gepasst. Schneller würden auf jeden Fall zumindest einige Punkte gehen. Beispielsweise beim Essen haben wir lange dran gearbeitet etwas zu finden, wo Kosten und Qualität passen. Da würden wir wahrscheinlich einfach wieder denselben Caterer nehmen, da bei dem eigentlich alles gepasst hat.

Bei den Aufgaben die öfters erledigt werden müssen, gibt es da welche die immer nach demselben Schema ablaufen?

Also eine Sache die man öfters machen muss und immer nach demselben Schema abläuft, ist die Webseite updaten immer wenn ein neuer Sponsor hinzugekommen ist. Das heißt dann das Logo auf die Seite packen, updaten und es ist erledigt. Sachen die man nur einmal machen muss ist eigentlich die ganze Vertragsgestaltung. Wenn der Vertrag einmal unterschrieben ist dann war es das eigentlich. Es kann zwar sein, dass einzelne Verträge leicht abgeändert werden, aber da geht es dann nicht um die Leistung, son-

dern eher um Compliance Fragen. Anderes das nur einmal vorkommt, ist das Catering bestellen. Das mussten wir zwar zwei oder dreimal machen, weil die Essensrationen angepasst werden mussten, aber das lag daran, dass das Event dynamisch gewachsen ist. Das würde ich nächstes Jahr versuchen zu vermeiden. Also von Anfang an eine hohe und gute Teilnehmeranzahl mit den Sponsoren kommunizieren, und sobald genügend Sponsoren vorhanden sind kann man dann direkt die Anmeldung öffentlich machen. Ansonsten fallen mir außer der Webseite keine Tasks ein die immer wieder wiederholt werden musste. Gut, die Meetings finden noch regelmäßig statt.

Bei den Verträgen hat es dann schon ein festes Muster gegeben?

Ja, es haben eigentlich alle Sponsoren den gleichen bekommen. Es gibt einen Standard Sponsoringvertrag von der TUM. Der wurde von uns ein bisschen angepasst, damit er auf das Event passt. Zusammen mit der Rechtsabteilung wurde der dann noch angepasst und anschließend so an die Sponsoren rausgeschickt.

Bei den Verhandlungen mit den Sponsoren ging es dann also eher darum sie zu überzeugen mit dem Vertrag teilzunehmen?

Ja, wobei man schon sagen muss, dass der Vertrag ziemlich offen ist. Da steht jetzt nichts Schlimmes drinnen und er ist auch nur vier Seiten lang. Da geht es vor allem umso Sachen wie einfache Haftungsfragen.

Gibt es Abhängigkeiten zwischen den einzelnen Aufgaben? Also z.B., dass erst, wenn man die Sponsoren hat, man die Teilnehmeranzahl anpassen kann?

Also irgendwas gibt es bestimmt, aber mir fällt gerade eigentlich nichts ein. Die Anzahl der Themen, also es ist nicht unbedingt nur die Anzahl der Sponsoren, es gab ja auch welche die kein Thema gestellt haben, sondern auch zwischen der Anzahl der Themen und der Teilnehmer gibt es einen Zusammenhang. Wir hatten beispielsweise 15 verschiedene Sponsoren, aber nur zehn davon haben auch ein Thema gestellt, was im Gesamten gut aufging.

Gibt es bei den Aufgaben Fälle in denen Abweichungen vom Standardablauf vorkommen?

Ja, zum Beispiel können wir laut Vertrag normalerweise das Logo der Sponsoren für das Event unbegrenzt benutzen darf. Manche Sponsoren wollen dann aber eine extra Klausel haben, die besagt, dass das Logo nur ein Jahr lang benutzt werden darf. Ansonsten kann es vorkommen, dass ein Sponsor bestimmte Hardware braucht. Diese Sonderwünsche haben sich aber eher auf das Event selbst bezogen.

Was ist das Ziel in Bezug auf eine bessere Unterstützung bei der Planung?

Also gut wäre wenn meine Emails automatisch getaggt werden würden, zum Beispiel das ein Vertrag in der Email enthalten ist. Damit ich sofort sehen kann welche Emails einen Vertrag enthalten und danach meine Emails filtern kann. Es ist nämlich auch nicht immer aus dem Titel erkennbar, ob eine Email einen Vertrag enthält weil der Titel oft aus einer Reihe von Res und Fwds besteht. Oder auch bei den Sonderwünschen der Sponsoren, die kommen auch meistens in Emails, und wenn ich später nachschauen will was genau er geschrieben hat wird das schwer zu finden. Es wäre also praktisch die Emails so zu klas-

sifizieren, dass ich sie später nach den entsprechenden Aufgaben ordnen könnte.

Es geht also hauptsächlich darum mehr Übersichtlichkeit zu schaffen?

Ja, aber wie gesagt geht es mehr um die Klassifizierung in der Email, nicht um ein extra Tool in das ich das eintragen kann. Das geht zwar auch, aber wenn ich das irgendwie automatisieren könnte wäre es schon praktisch.

Also geht es um die Grenze zwischen Emails und einem hypothetischen extra Tool, dass man dann aufwendig manuell pflegen müsste?

Ja, auf jeden Fall.

Habt ihr den Bedarf, die zeitliche Planung genauer festzuhalten?

Ich überlege gerade wie das bei uns konkret aussehen könnte, wenn wir das irgendwie anders festgehalten hätten. Das Problem ist dann halt der Fall, wenn eine Deadline nicht eingehalten wurde. Dann wird es halt schnell inkonsistent. Bei unserem Trello Board war das auch so. Da hatten Tasks Deadlines zugeordnet. Am Ende war das gesamte Board nahezu komplett inkonsistent, so dass man die Zeit eigentlich auch gleich weglassen hätte können. Also theoretisch wäre das natürlich schon gut, wenn man sowas hat, aber in der Praxis stellt sich immer die Frage wie sowas tatsächlich umgesetzt wird.

Wäre dann als Alternative ein Prioritätsbasiertes System vorstellbar?

Ja, das würde gehen. Also wie gesagt, bei den Trello Tasks waren überall Deadlines dran geschrieben, aber es gab Sachen die erledigt werden mussten, da es sonst nicht anders geht. Diese waren dann auch zur Deadline erledigt. Aber es gab auch so Aufgaben wie Servietten bestellen, dass dann nicht zur Deadline erledigt wurde. Aber es gibt schon Sachen, wo eine Deadline extrem viel Sinn macht. So ein Punkt war zum Beispiel die Bestellung der T-Shirts. Die brauchen zwei Wochen bis die gedruckt sind, also muss man die mindestens drei Wochen vor dem Event bestellen. Das wäre vielleicht auch ein Punkt, dass wir erstmal klassifizieren wo eine Deadline überhaupt wirklich Sinn ergibt und wo nicht.

Ist eine Verbesserung der Übersichtlichkeit über die Aufgaben ein Punkt der noch verbessert werden könnte?

Ja, und auch die Einteilung in Personen. Also vielleicht wäre das auch bei Trello gegangen, aber ich will zwar schon den gesamten Überblick auch haben, aber zum anderen würde ich auch gerne sehen können, welche Tasks konkret ich habe. Und wenn die Tasks mit wirklich wichtiger Deadline noch viel auffälliger markiert werden.

Wäre es sinnvoll, dass alle Tasks durchgehend upgedated werden, damit man eine immer aktuelle Übersicht hat?

Also es wäre schon besser, wenn man das hat. Man müsste halt die Leute dazu forcieren das auch zu machen. Es ist aber auch beim letzten Mal nichts schlimmes falsch gelaufen. Bis auf die Sachen wo harte Deadlines existieren. Das war schon manchmal nicht so optimal. Gut wäre da vielleicht auch, wenn man dann eine Email bekommen könnte, da das das Medium ist, dass auf jeden Fall konsumiert wird. Trello muss man halt erstmal aufmachen. Für das nächste Mal würde ich es wahrscheinlich wieder mit einer Exceltabelle

versuchen. Mit den Tasks in Monate eingeteilt in denen sie erledigt werden sollen. Da hat man dann eine relativ harte Deadline, also in dem Sinn, dass es in dem Monat erledigt werden muss. Ich würde wahrscheinlich auch mehr forcieren, dass jeder die Liste regelmäßig aktualisiert. Aber als essentiell würde ich das jetzt auch nicht ansehen.

Aber wie gesagt, oft ist es so, dass irgendwie drinnen steht der Sponsor soll bis zu einem Datum geklärt sein. Aber wenn man anruft, findet man dann raus, dass er die nächsten zwei Wochen im Urlaub ist. Dadurch verschiebt sich dann die Aufgabe einfach um zwei Wochen, weil man da nichts tun kann.

Warum würdest du in der Excelliste die Tasks in Monate aufteilen?

Zum einen, weil es so leicht zu erstellen ist. Man hat dann auch eine Gesprächsgrundlage. Wir haben die Sachen dann schon auch immer in den wöchentlichen Meetings abgehakt.

Wäre Trello grundsätzlich geeignet, wenn ihr es von Anfang an eingesetzt hättet?

Ja, wobei man vielleicht auch die Spalten nach Monaten benennt. Dann hätte man das was wir in der Tabelle gemacht hätten.

Wäre es dann sinnvoll, wenn jeder aus dem Team bei seinen zugeteilten Karten genau festhält, was er gemacht hat?

Ich glaube da fängt dann die Faulheit an beim Eintragen. Wenn ich jetzt beispielsweise einen Sponsor angerufen habe will ich nicht jedes Mal das Board updaten müssen. Wenn das automatisch gehen würde, dann OK, aber manuell würde ich das nicht machen. Als Projektmanager würde mich das jetzt auch nicht interessieren, wenn es funktioniert. Wenn es jetzt nicht funktioniert, dann wäre es schon praktisch etwas zu haben wo man nachschauen kann warum es gerade nicht funktioniert. Dann kann man es aber auch mit der Person selbst klären.

Wäre es besser, dass dann mit größeren Milestones oder Zwischenschritte zu machen?

Ja, so könnte man das schon machen. Wir hatten bei den Sponsoren zum Beispiel auch einen Status wie Vertrag gesendet, Vertrag unterschrieben und Vertrag unterschrieben zurück. Sowas ist schon wichtig. Oder auch allgemein ob ein Sponsor zusagt oder absagt, dass muss man schon irgendwo festhalten. Aber ich würde es nicht allzu feingranular machen.

Wäre es auch interessant am Ende nachschauen zu können wann eine Aufgabe begonnen und wann sie beendet wurde?

Ja, das wäre schon wichtig. Also zum Beispiel, manche Sponsoren brauchen länger als andere. Und wenn der jetzt drei Monate braucht bis er eine Zusage geben kann. Dann muss ich wissen, dass ich ihn mindestens vier Monate vorher anschreiben muss.

Waren die Exceltabellen gut geeignet um Daten zu sammeln?

Ja, das hat eigentlich schon gut funktioniert.

Die restlichen Dokumente die ihr benutzt habt, waren das eher welche die nur von einzelnen Personen benutzt wurden, oder wurden die auch zu Planungszwecken eingesetzt?

Ja, also wir hatten ein geteiltes Google Drive. Da war zum Beispiel der Timetable für das Event drinnen. Das war schon ein Dokument, was irgendwann mal angelegt wurde, was auch von unterschiedlichen Personen mal gebraucht wird. Ein anderes Dokument war der Raumplan, dieser musste auch mit allen geteilt werden. Eigentlich alle Dokumente die mit dritten kommuniziert werden müssen, sollten in einer geteilten Ablage sein. Dafür war Google Drive gut geeignet.

Aus dem ersten Interview habe ich erfahren, dass ihr eigentlich keine richtigen Rollen definiert habt. Siehst du das auch so?

Ja, würde ich auch sagen. Wobei Manoj und Klimm nichts mit Sponsoren gemacht haben. Die waren eigentlich nur auf dem Event tätig. Wobei, Klimm hat auch einen Sponsor akquiriert. Ansonsten gab es eigentlich nicht so richtig Rollen. Wobei, Anne war zum Beispiel für die Volunteers zuständig. Während ich mehr oder weniger fast alleine mich um die Sponsoren gekümmert habe.

Wie gut hat die Integration der Volunteers funktioniert?

Also wie gesagt, den Großteil davon hat die Anne erledigt. Aber ich glaube das war schon ziemlich viel Arbeit im gesamten. Das könnte man vielleicht schon irgendwie vereinfachen. Also was ich zum Beispiel weiß, dass ein Problem war, war, dass die Leute eingeteilt wurden und dann noch viele abgesagt haben. Deswegen mussten die wieder komplett neu eingeteilt werden.

Hattet ihr dann am Event selbst genauere Rolle definiert?

Je eigentlich schon. Manoj und Klimm haben die Volunteers gemanaged. Anne hat den Infopoint gemanaged und auch mit den Sponsoren zu tun gehabt. Ich habe auf dem Event die Abgabe der Teamprojekte organisiert. Das war noch ein Punkt den wir für das nächste Mal verbessern sollten. Das Ganze habe ich ein bisschen unterschätzt wie lange das gedauert hat. Sonst, Manoj und Klimm waren immer nachts anwesend, Anne und ich tagsüber. Und Anne hatte ja vorher schon sich um die Volunteers gekümmert. Die war dann sozusagen Head of Volunteers am Event. Sie hat die grobe Einteilung vorgenommen und Manoj und Klimm haben dann quasi eine Stufe darunter sich um Sachen gekümmert.

B. Evaluation Interviews

B.1. Evaluation Interview with Participant A

Hilft eine Aufteilung der Aufgaben in eine Liste aus Listen die Übersichtlichkeit zu verbessern?

Ja, Ich finde das ist eine gute Möglichkeit.

Wie findest du die Aufteilung nach Kategorien?

Ich finde es sinnvoll das in Kategorien zu haben. Das widerspricht aber auch nicht dem das ich es gut finde, dass man das auch in Monate aufteilen kann. Weil es einen schönen Überblick gibt was noch für einen Organisationspunkt zu erledigen ist.

Wie findest du die Aufteilung in Monate?

Mit den Monaten ist wirklich sehr schön, dass man sehen kann was in dem Monat noch alles gemacht werden soll. Man kann also am Anfang des Monats gut überblicken wie viel Arbeitslast in dem Monat bezüglich dieser Organisation noch auf einen zukommt.

Da du im Workshop den Kalender so viel benutzt hast, empfindest du dies als adäquate Alternative?

Was vielleicht noch ganz nett wäre, wenn man in dem Monat dann vielleicht noch zwischen erster, zweiter, dritter und vierter Woche unterscheiden könnte. Vor allem, wenn man wie ich beim letzten Mal über einen so langen Zeitraum plant. Dass man dann, wenn man eine Karte erstellt, diese in die vierte Woche hängen kann und dann automatisch die Deadline von der vierten Woche übernommen wird.

Wir hatten überlegt zusätzlich zu der Aufteilung nach Monaten noch eine Aufteilung in Kalenderwochen zu ermöglichen. Wie wäre es damit?

Da finde ich ist der Ansatz mit dem Monat oben besser, den würde ich auf keinen Fall wegmachen. Aber auch weil ich nicht in Kalenderwochen denke.

Wäre es dann eine Option den Monat auf der Karte durch eine Kalenderwoche zu ersetzen? So dass man immer nur die Kalenderwochen von dem zuvor gewählten Monat auswählen kann.

Auch da fände ich es besser, wenn da nicht nur die Kalenderwoche steht. Solange auch der Monat dasteht, fände ich die Kalenderwoche auf jeden Fall ausreichend. Man braucht kein Datum, sondern eher eine Kalenderwoche.

Man könnte als Alternative auch zwei Felder zur Verfügung stellen und einen Zeitraum mit von bis angeben. Wäre das besser?

Ich weiß nicht ob das notwendig ist.

Zum Beispiel monatsübergreifende Karten wären davon stark betroffen.

Genau, das wäre dann die Frage, zum Beispiel bei dem Caterer, wenn ich da jetzt angebe von Anfang April bis Mitte Mai. Wo würde die Karte bei der Sortierung dann angezeigt?

Eigentlich immer im ersten Monat. Aber das könnte man natürlich noch diskutieren. Was würdest du dir wünschen?

Auf jeden Fall, dass sie dann im April ist. Ich möchte ja des es da gemacht wird. Also wenn es quasi losgeht. Wenn der April dann vorbei ist, wäre es schön wenn es sozusagen einen Monat weiter rutscht und auffällig markiert wird. Da müsste ich mir noch Gedanken machen. Ich glaube aber ich würde es dabei belassen, also einen Monat in dem es gemacht werden soll, aber zusätzlich eine Deadline die über den Monat hinausgeht. Und wenn der Monat dann abläuft, und es noch nicht gemacht wurde, die Karte dann markiert wird.

Wie findest du die Option Karten aus Templates erstellen zu können?

Finde ich gut. Vor allem bei solchen Sachen wie den Sponsoren, dann spart man sich das Speichern in einem extra Dokument und hat dann direkt alle Informationen an der Karte.

Würdest du bei Anpassungen am Template alle Karten mitanpassen wollen?

Also ich fände da vielleicht eine Frage, ob man auch alle anderen anpassen will gut, weil ich in manchen Fällen nicht die ganzen anderen Karten nachpflegen müssen will. Aber wenn dann das Feld einfach leer bleibt wäre es auch so OK. Es sollte bei allen da sein, aber leer bei denen die ich nicht nachpflegen möchte.

Reicht es diese Informationen auf den einzelnen Karten anzuzeigen, oder bräuchte man noch irgendwo eine Zusammenfassung aller Karten eines Typs?

Ja, das wäre natürlich ein schönes add-on, wenn man dann zum Beispiel sagen könnte, dass alle Sponsoren nach ihren Paketen sortiert, ausgegeben werden sollen.

Das nächste ist jetzt nicht Teil bei der Hackathon Planung. Im Konzept wäre es eigentlich Möglich manchen Leuten nur einen Beschränkten Zugang zu geben, mit dem sie zwar alles sehen können, aber nur die Karten, denen sie zugewiesen worden sind, bearbeiten können?

Also im Rahmen von der Hackathon Planung kann ich mir da kein Szenario vorstellen, wo man das bräuchte. Insgesamt fände ich es eher sinnvoll, wenn da gewisse lesende Beschränkungen möglich wären. Dass man zum Beispiel bei einem Sponsor den Status sieht, aber zum Beispiel die Emailadresse sollte nicht für alle sichtbar sein.

Wie findest du die Möglichkeit Emails an Karten anhängen zu können?

Finde ich gut. So werden auch Emails die an mich gesendet wurden für alle zugänglich gemacht, ohne dass ich sie extra weiterleiten muss.

Denkst du dies erhöht die Wahrscheinlichkeit, dass die Karten regelmäßiger aktualisiert werden?

Ja, das kann ich mir gut vorstellen.

Hast du sonst noch irgendwelche Kommentare oder Fragen?

Also, dass Datum des Hackathon sollte irgendwo besser sichtbar gemacht werden. Im Titel wäre da eine Möglichkeit.

Aber dieses Sortieren im Allgemeinen finde ich gut.

Könntest du dir noch andere Ansichten neben der Monatsansicht und der Kategorie Ansicht vorstellen? Zum Beispiel nach Personen wäre es noch vorstellbar.

Also das kommt wahrscheinlich auch auf das Team an. Bei uns, mit den ca. 6 Personen im Team macht das schon Sinn, wenn man dann sehen kann wie ausgelastet die Personen sind. Ansonsten höchstens noch so etwas wie 'welche Karten sind die dringendsten' oder 'welche Karten sind überfällig' zum Beispiel. Aber ich finde, wenn man es anlegt, also zu Beginn, macht die Ansicht nach Kategorien mehr Sinn. Aber zu wirklichen Plan dann ist so eine Monatsplanung wirklich was Schönes.

Würde es Sinn machen, für Karten die überfällig sind eine extra Spalte zu machen?

Nein, die würde nicht dazu passen. Ich würde das eher bei dem Filter oben hinzufügen.

Wie intuitiv fandst du es am Anfang mit den Karten zu arbeiten? Es ist ja ähnliches Prinzip wie bei Trello.

Es ist schon sehr nahe dran. Dass mit der Kategorie auf den Karten hat natürlich erst Sinn gemacht als dann die neue Sortierung eingeführt wurde. Aber doch sehr intuitiv.

Wie findest du das Prinzip mit der Statuszeile bei den Karten? Also ein Anfangsstatus, dazwischen angepasste Status und ein Enddstatus.

Also anpassbare Status finde ich gut. Das habe ich ja auch bei den Sponsoren gleich ausgenutzt.

Wäre es sinnvoll bei Templates auch Zwischenschritte für den Status anzulegen, welche dann auf der Karte ausgewählt werden können?

Ja, das kann ich mir auch gut vorstellen. Wenn ich auch aus unterschiedlichen Templates wählen kann, dann ist es gut.

B.2. Evaluation Interview with Participant B

Hilft eine Aufteilung der Aufgaben in eine Liste aus Listen die Übersichtlichkeit zu verbessern?

Ja, aber was ich richtig gut finde ist, dass ich die Emails an die Karten anhängen kann.

Wie findest du die Aufteilung nach Kategorien?

Auch gut. Also ich würde wahrscheinlich eher nach Kategorien sortieren als nach der Datumsanzeige. Also es sollte nach Kategorien sortiert sein und innerhalb der Liste dann nach Datum.

Findest du dann die zusätzliche View nach Datum überflüssig?

Also überflüssig finde ich ihn nicht, aber es wäre nicht meine Hauptansicht. Für mich wäre die Aufteilung nach Kategorien die Hauptansicht.

Wie findest du das Prinzip mit der Statuszeile bei den Karten?

Ich finde das gut, denn dann kann man besser ausdrücken was wirklich der Status ist. Oft gibt ja die Situationen wo ein Zwischenstatus erfüllt ist, aber eben mit einigen Einschränkungen.

Cool wäre wenn sich das automatisch updaten würde, auf Basis von meinen Emails. Also die Email kommt rein und automatisch ändert sich der Status von der entsprechenden Karte.

Wie wäre es wenn eine Auswahl an möglichen Status bei einem Template definiert werden, und diese dann in einem Dropdown Menü auswählbar wären?

Das müsste ich live testen ob ich das machen würde. Also prinzipiell mit zum Beispiel Autocomplete, wenn man was anfängt einzutippen, kann ich mir schon vorstellen.

Dabei fällt mir was ein was ich auch gut fände. Bei den Karten sind manche ja nicht unbedingt komplett unabhängig. Also z.B. Poster designen und drucken geht eigentlich erst wenn alle Sponsoren zugesagt haben. Gut wäre, wenn ich dann auf die spätere Karte draufklicken kann, und einen Link zu der Karte bekomme, wegen der es nicht weitergehen kann. Also Abhängigkeiten zwischen Karten irgendwie miteinschließen.

Da wäre dann die Frage, wie kompliziert darf das dann sein von der Benutzung her? Also wie fügt man die Abhängigkeit zu einer Karte hinzu?

Also bei den Postern zum Beispiel wäre die Abhängigkeit dann relativ einfach. Das wären da alle Karten die in der Kategorie Sponsor sind und zugesagt haben. Dann hängt es halt vom Status ab, wenn der Vertrag unterschrieben wurde ist die Abhängigkeit erfüllt. Wenn er noch nicht unterschrieben wurde dann nicht. Also das ist schon schwierig, denn da gibt es Fälle wo man das Logo erst benutzen darf wenn der Vertrag unterschrieben wurde, und andere wo es eigentlich schon vorher erlaubt ist. Ist im gesamten schon schwierig. Am besten wäre da natürlich wenn es ein automatisches Matching gibt.

Wie findest du die Option Karten aus Templates erstellen zu können?

Ja, des ergibt auf jeden Fall Sinn.

Was wären denn Beispiele für Templates, die du dir beim Hackathon vorstellen könntest?

Also die Sponsoren machen natürlich Sinn. Ansonsten vielleicht auch beim Caterer, also beim festlegen des Caterers könnte man reinschreiben welches Essen festgelegt wurde und wer der Ansprechpartner ist. Oder auch immer, wenn man irgendwas bestellt, den Preis, wo man es bestellt hat, wann man es bestellt hat und ob die Rechnung bezahlt wurde.

Bei dem Caterer hat man ja eigentlich drei Schritte, die aufeinander folgen. Wäre es sinnvoll, wenn man da ein großes Template benutzt, dass die anderen erst aktiv werden, wenn die vorherigen fertig sind? Also quasi eine große Karte, welche die kleineren kombiniert.

Ja, also die erste Karte fürs Catering existiert ja eigentlich nur um zu zeigen, dass sie existiert. Die hat ja eigentlich keinen Status. Also ja, ich glaube schon, dass das Sinn machen

würde.

Wie findest du die Unterscheidung zwischen Deadlines und Erfüllungszeiträume?

Also wenn man einen Erfüllungszeitraum März festlegt, dann kann man davon ausgehen, dass es am 31.3. dann erledigt ist. Aber ja, ich finde die Kombination eigentlich schon gut. Also, ich habe oft erlebt, dass die Deadline nicht genau eingehalten wurde, sondern es zwei bis drei Tage später erst fertig wird.

Reichen dir für die Zeiträume die Monate oder wäre dir ein von bis lieber?

Also ich glaube, dass die Zeiträume schon Sinn ergeben. Je länger es vor dem Event ist, umso mehr Zeiträume und weniger Deadlines würden wahrscheinlich benutzt werden. Wenn es dann näher ans Event geht wären es wahrscheinlich weniger Zeiträume und dafür mehr Deadlines.

Das nächste ist jetzt nicht Teil bei der Hackathon Planung. Im Konzept wäre es eigentlich Möglich manchen Leuten nur einen Beschränkten Zugang zu geben, mit dem sie zwar alles sehen können, aber nur die Karten, denen sie zugewiesen worden sind, bearbeiten können?

Damit forciert man eigentlich das Verhalten, dass man sowieso erwarten würde. Bei einem größeren Team könnte das schon sinnvoll sein.

Die Alternative ist, dass man sieht wer was an jeder Karte geändert hat.

Ja in einem kleinen Team sollte das reichen.

Denkst du die Karten würden häufiger aktualisiert werden, wenn es aus einem Emailprogramm herausgeht?

Ja, ich glaube schon. Also, im allerbesten Fall macht das Emailprogramm das irgendwie mit einem automatischen Matching. Wenn das nicht der Fall ist, sollte es möglichst mit einem Klick gehen. Aber ich würde es schon gut finden. Vor allem bei so Research Sachen wie bei den Caterern oder bei den Sponsoren.

Also vielleicht sogar so feingranular, dass wenn ich zum Beispiel bei einem Sponsor in den Attributen ein Paket hab und dann da drauf klicke, ich die Email angezeigt bekomme, in der er gesagt hat, dass er das Paket will.

Wäre es für dich hilfreich, wenn du außer den zwei bisherigen Dimensionen noch zusätzliche hättest? Also zum Beispiel eine Sortierung nach Kalenderwochen?

Ich glaube Kalenderwochen würden mir nichts bringen.

Und eine Aufteilung nach Personen?

Ja, ich glaube das wäre schon gut. Aber nur als Alternative.

Ist der Filter, mit dem nur überfällige Karten angezeigt werden, für dich hilfreich?

Ja, dann weiß man auch wo es hängt. Und man müsste schon intensiv nach den überfälligen Karten suchen, wenn da gerade besonders viele Karten sind.

Hättest du noch zusätzlich gerne eine Ansicht, in der die Tasks in einem klassischen Kalender angezeigt werden?

Ich glaube das kommt auf die Person an. Mir persönlich würde es keinen Mehrwert bringen.

Hast du sonst noch Fragen oder Anmerkungen?

Wie gesagt, möglichst viel davon automatisieren wäre gut. Das wäre schon ein richtig großer Schritt für Projektmanagement Tools. Also schon alleine die Email Verknüpfung, wenn das Programm mir da die Attribute automatisch aus dem Text rausziehen würde und den Status updated wäre genial.

Noch etwas, auch wenn das auch eher kompliziert ist. Wenn man eine Karte bei einem Sponsor hat, der Prinzipiell Interesse hat aber noch auf das Werbematerial wartet. Wenn ich da dann auf einen Button klicken könnte und mir automatisch eine Email formuliert wird die ich dann schicken kann. So ähnlich wie bei Inbox von Google, das gibt einem drei Möglichkeiten zum Antworten, nachdem es die Email gescannt hat.

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