

**TALLINN UNIVERSITY OF TECHNOLOGY**  
SCHOOL OF ENGINEERING  
Department of Mechanical and Industrial  
Engineering



**ESTONIAN ACADEMY OF ARTS**  
FACULTY OF DESIGN

## **A tool for work and family balance in Germany**

**TÖÖRIIST PEREKONNA JA KARJÄÄRI PLANEERIMISEKS  
SAKSAMAA ÜHISKONNAS**

MASTER THESIS

Student: Kira Dressel

Student code: 214144MADM

Supervisor: Janno Nõu,

Co-Supervisor: Ruth-Helene Melioranski

Tallinn 2023

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**Department of Mechanical and Industrial Engineering**

**THESIS TASK**

**Student:** Kira Dressel, 214144MADM

Study programme, Design and Technology Futures, MADM10/18

main speciality: Design and Technology

Supervisor(s): Janno Nõu, Department of Design, janno.nou@taltech.ee

Co-supervisor: Ruth-Helene Melioranski, Dean of the Faculty of Design, ruth-helene.melioranski@taltech.ee

**Thesis topic:**

A tool for work and family balance in Germany

Tööriist perekonna ja karjääri planeerimiseks saksamaa ühiskonnas

**Thesis main objectives:**

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2. Explore different concepts.
3. Develop design solution which improves compatibility.

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**Student:** Kira Dressel ..... ".....".....20....a  
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**Supervisor:** Janno Nõu ..... ".....".....20....a  
/signature/

**Consultant:** ..... ".....".....20....a  
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## **List of Abbreviations and Terms**

UX	User Experience
IT	Information Technology
GPT	Generative Pre-trained Transformer
CEO	Chief Executive Officer
HR	Human Resources
VR	Virtual Reality
HCI	Human-Computer Interaction

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# 1. Abstract

The aim of this thesis is to understand the current challenges of combining work and family life in Germany. First, the historical background is considered, then current facts and figures of the German population, workforce and economy are examined. Subsequently, the current user journey of an employee starting a family is outlined in collaboration with interviewed users and the implementation of a co-design workshop. Challenges and corresponding opportunities are identified and examined in more detail. The results show that the current pain point of the journey is the lack of structure and access to information, as well as the lack of space to talk about personal or professional goals. To investigate a corresponding solution space for these challenges, three different prototypes were tested and feedback was gathered. The presented solution is "Architect of your future", a virtual reality (VR) environment in which the employee can create a 3D timeline from hand-sized blocks that can be arranged in different ways. At the same time, a corresponding guide is provided in the form of step-by-step instructions and access to relevant information. Various options are available to the user to discover different future scenarios. The employer also has access to this VR environment and can collect the information needed to guide the employee. Later, the VR environment is used as a meeting space to bring employees and employers together and to structure and reorganize the period of parental leave and return to work. Here, the immersion feature of a VR headset gives the user a space to think about their family goals while in a work environment, or their professional goals while on parental leave.

## **2. Introduction**

In this chapter, my auto-ethnographic narrative is given in order to clarify my personal motivation. This is followed by the aim of this thesis, which provides an overview of the relevance of the topic and the scope of the research. The chapter ends with a positioning statement that provides the reader with a clear understanding of my background and perspectives, while also acknowledging the limitations and biases of my own positioning.

### **2.1 Autoethnographic narrative**

There are several reasons that led to the conception of this study, but during my internship creating a digital platform for employers to support their employees in starting a family, I had a personal experience about the world of work-life compatibility. After delving deeper into the research, it became clear that there are still huge deficits for both employees and employers. The interest in how this situation can be improved therefore struck me so strongly that it became one of the main motivations for developing this thesis. While working on this topic, I spoke to many fathers, mothers, managers and HR professionals, which opened my eyes to the current situation. I grew up with the mentality that I can become anything I want. I can have a career in any field I want and start a family at the same time without having to compromise. I have heard of a time when women were not allowed or expected to have a career and a family at the same time and that this was difficult for them. It was explained to me that women back then struggled to find their own identity and have the freedom to take the decisions of their own lives. As I thought about these stories, I was glad that I wasn't living in that time. During my research on the current work-life balance in Germany, I bitterly realized that the actual situation has still not reached the level of general perception.

Naturally, I wanted to get to work on this topic for my own future, gather as much information as possible, understand the problem in depth and design solutions for it. On the other hand, I quickly realized that not only I would benefit from this, but the majority of women would also have a better quality of life by improving their work-life balance. As things progressed, I discovered that the increasingly involved fathers also have an interest in this topic and that the employer side sees an employee starting a family as a challenge to be solved. It is no exaggeration to say that this work has changed my life for the better and I am grateful to have been given the opportunity to dedicate my design master's thesis to a topic that is so personally close to my heart. When I think about the future of my

professional and family life, I feel much better prepared and educated for it now. In fact, I look forward to the future ahead and all the challenges it might hold.

## **2.2 Aim of this thesis**

This thesis is about creating the smoothest possible experience for employees and employers when employees start a family and meeting the needs of both parties. The target users are employees, which include working mothers and fathers, and employers, who represent the needs of companies, such as managers, HR specialists and managing directors. The context is companies in Germany with around 250 employees or more that operate in the service sector. In 2022, 34.3 million of the 45.6 million people employed in Germany worked in the service sector. The service sector is defined by the fact that it does not produce material goods, but provides services [1].

Thus, the resulting aim of this thesis is: **Designing effective strategies to enhance the work-family compatibility**

The research question is answered with the help of various research methods. Observations and interviews will be used to gain an overview of the topic and analyze the problems. A Co-design workshop will be conducted to get feedback and ideas for design concepts and prototypes.

## **2.3 Positionality statement**

In the last part of the introduction it is reflected about a positionality statement in the context of research to explore the ethical and social responsibilities of designers. To begin the term "positionality statement" will be defined as a statement outlining the researcher's personal and professional experiences, background, and perspectives that may influence the research.

First of all I would like to introduce myself. I am Kira Dressel and I was born and raised in a small village near Munich. In the context of racial categorization, I would be described as "Caucasian" and my ethnicity is German, as I identify with German culture, history and traditions, including the German language and customs of the German people, since my childhood. This personal background, living in this place with a high standard of living and low crime, has shaped my worldview and positioning to an attitude of gratitude and almost guilt when I compare my situation to that of other countries. I grew up with both of my parents sharing childcare equally. One week my father worked and my mother stayed home with me and my two brothers, the next week my father stayed with us and

my mother worked. This resulted in a close relationship between me, my father and my mother, which I consider normal in my world. Compared to my social environment, I have to admit that this kind of upbringing is not the norm. Another experience is that I have been involved in the feminist movement for several years. My mother educated me from a young age about gender inequality. These experiences can lead to assumptions about men, and while the movement focuses on so many issues and inequalities that are mainly caused by men, it risks generalizing men as a whole. Also, I may inwardly condemn other forms of family constellation that are different from my own. The purpose of this statement is to demonstrate that I am aware of my own positionality and am willing to engage in critical self-reflection and revise my views based on new information in order to enhance the credibility and trustworthiness of this research.

## **3. Methodology**

### **3.1 A Structured Approach for Driving Innovation**

This chapter will give an outline and description of the used methodology in this thesis. Shortly the evolution from human-centered design to participatory design over the last years will be explored. To begin it is important to see how the role of a designer has changed over the years. From the functional designer in the time of modernism in 1896, to the designer as change maker in 2010 correlated with the post-capitalism design paradigm. In general it can be observed that the focus shifted from designing an object to something for a living human while considering all kinds of inner and outer factors. There emerged new design fields like transition design and social design [2]. In the area of work-life compatibility, there are "wicked problems" that make designers and their methods particularly suitable for overcoming these challenges. The role of the designer can be seen as a mediator in this context. She analyzes the user's situation using human-centered design and participatory design methods and then works with the user to understand the problem and ultimately develop a solution together with the user.

In this thesis the methodology is based on the book "101 Design Methods" by Vijay Kumar [3] and the Double Diamond as a problem-solving process [4]. Since the design process is nonlinear and iterative it is important to shortly discuss the methodology to guide the reader through the design process of this thesis. It should be noted that the design research was conducted in German and later translated to English for better understanding in this thesis.

The design process is a creative and structured process. It starts with a real-world situation and then leads to a better understanding of it by creating abstractions, conceptual models to reframe the problem. The thinking between the real and the abstract are fluid which is a necessity for this process. The designer Kumar separates the process into four different stages: Research, analysis, synthesis and realization. In the stage of research the real situation is explored. Afterwards this real situation is brought into abstract terms in the stage of analysis. In synthesis those abstract terms are transformed into concepts and in the last stage, the realization, the concept is implemented in the real world.

In detail, the whole process developed by Vijay Kumar is divided into seven steps [3]. The steps applied in this work will now be presented.

### **3.1.1 Research**

**Know the Context:** Here the designer takes a closer look to the environment of the problem.

**Know the people:** This step is the user is analysed and observed closely. The aim is to understand the user and the stakeholders with different methods. Specifically for this thesis semi structured interviews are used to explore the person's needs.

### **3.1.2 Analysis**

**Frame insights:** The data gathered in the two previous steps is here clustered, sorted and organized. A structure is brought into the information and insights are analysed. The methods user journey map and storyboard are used to identify the main insights from the conducted interviews.

### **3.1.3 Synthesis**

**Explore Concepts:** Opportunities are identified and new concepts are explored on the basis of the frame insights. Several different concepts are created and analysed.

**Frame solutions:** Here, the different concepts are organized, combined and prototype tests are conducted with the users.

### **3.1.4 Realization**

**Realize Offerings:** In this step a roadmap is generated for the stakeholders to give guidance on how to implement the concept.



### **3.2 Double diamond**

When the process should be diverging or convergent is suggested by the diamond shape. The four phases here of the process are Discover, Define, Develop, and Deliver which can be compared to the four main phases of Kumars process Research, Analysis, Synthesis and Realization. It encourages designers to consider a variety of possibilities prior to choosing a final course of action, leading to superior outputs that are more efficient and sustainable. While the process also aids designers in comprehending and empathizing with their clients and staying focused on the right challenge to solve [4]. In this work, the double diamond is used to "zoom in" and "zoom out" at different stages of the above mentioned methodology. This helps, in particular, with a broad social issue such as feminism, not to lose the main problem and at the same time not to become too specific.

### **3.3 Collection of data**

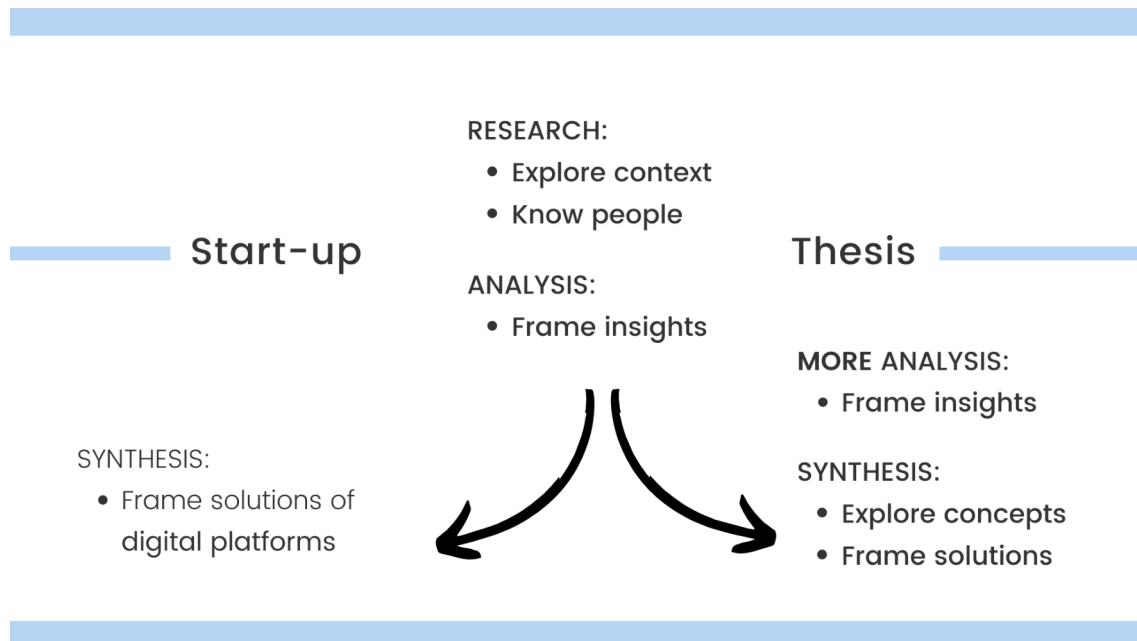
At the outset, it is important to mention that the design research was conducted in collaboration with my internship, where I held the position of design researcher and user experience (UX) designer. The internship took place at the start-up heyPARENTS, a young and small company that wants to create specifically a digital platform for combining family and work. In the primary research, the start-up wanted to explore the context of family and work in Germany and then look at the needs of the users. For this purpose, a questionnaire was created and interviews were conducted with employers and employees. After this step, the thesis and the start-up parted ways, as the following task was to analyse, develop ideas and create concepts. This is illustrated in the following figure:

### **3.4 Interviews and documentation**

For the initial contact with potential users, three different questionnaires were developed, each with around 20 questions, which led to online interviews that lasted an average of one hour. The interviews were conducted individually and with participants living throughout Germany. A recording and transcription of the interviews was made. Interviews were conducted as follows to get a sense of the needs of the various stakeholders:

- 5 Interviews with employees working in Human Resources
- 6 Interviews with Team-leader or CEO
- 4 Interviews with working Parents

The participants had a wide range of incomes, which can be attributed to the different



**Figure 1** The cooperation illustrated of my internship and master thesis.

positions and responsibilities in the workplace, from salaried employees to the managing director. The majority belonged to the Caucasian ethnicity. The associated companies in which the participants were involved mostly came from the service sector and had at least 250 employees. In creating the questions, it was especially important to use open-ended questions that led down unexpected paths and new, additional questions.

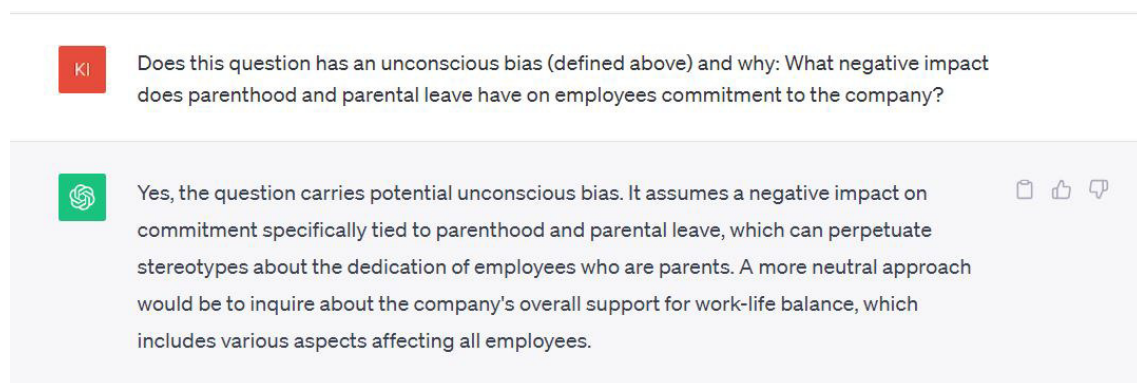
Next, it was also important to check the question for gender neutral language to include all participants. Here, ChatGPT (Generative Pre-trained Transformer) [5] was used to support this task. ChatGPT is a chatbot that uses artificial intelligence to communicate with users via text-based messages and images. Since the German language distinguishes between the male and female gender, care had to be taken to address both genders in the interviews rather than just one gender. Therefore, the questions were rephrased in a gender-neutral way, i.e. male and female employers were addressed. This avoids the questions giving the impression that there are only male employers. For example, in this thesis and design research, the gender-neutral language used is "Arbeitnehmende" (female and male employee) instead of "Arbeitnehmer" (male employee) [6]. Therefore, the three existing questionnaires could be conveniently modified by providing the chatbot with the knowledge of the desired gender-neutral language, formulate the command to change it and then review the given results. The questions were then checked for the following unconscious biases:

**Confirmation bias:** Questions that aim to confirm their hypotheses more than to falsify them [7].

**Socially desirable responses:** Describes the inclination to portray oneself and one's social environment in a way that is perceived as socially acceptable but does not quite correspond to one's true reality [8].

**Stereotypes:** Questions that generalise a group of people based on their social category rather than the skills or competencies of the respondent. In the context of this thesis to focus lays on gender stereotypes, to avoid assumptions like "Men can't take care of children" or "Women are not suitable as leader" [9].

Now, an example is given how the questions were changed together with ChatGPT. One initial question asked, "What are the negative effects of parenthood and parental leave on employees' commitment to the company?" This question already presupposes that the impact is negative and is therefore a one-sided question. This question was later changed to the more neutral "In your experience, what is the impact of parenthood and parental leave on employee commitment to the company?". In general, the accuracy and reliability of all results from ChatGPT were critically assessed, as the data from the AI system may be incomplete.



**Figure 2** This figure shows how the ChatGPT tool was used to detect any remaining unconscious biases in the interview questions.

### 3.5 User journey map

A user journey map was created using the data from the interviews in order to obtain an overview of the current process, the pain points and the opportunities. A user journey map is a tool for structured visualization of the journey, in this case the process from the beginning of a pregnancy to taking parental leave to returning to work, from the perspective of the stakeholders. The main objective of the journey is to gain an understanding of the current process in these companies and the pain points of the users.

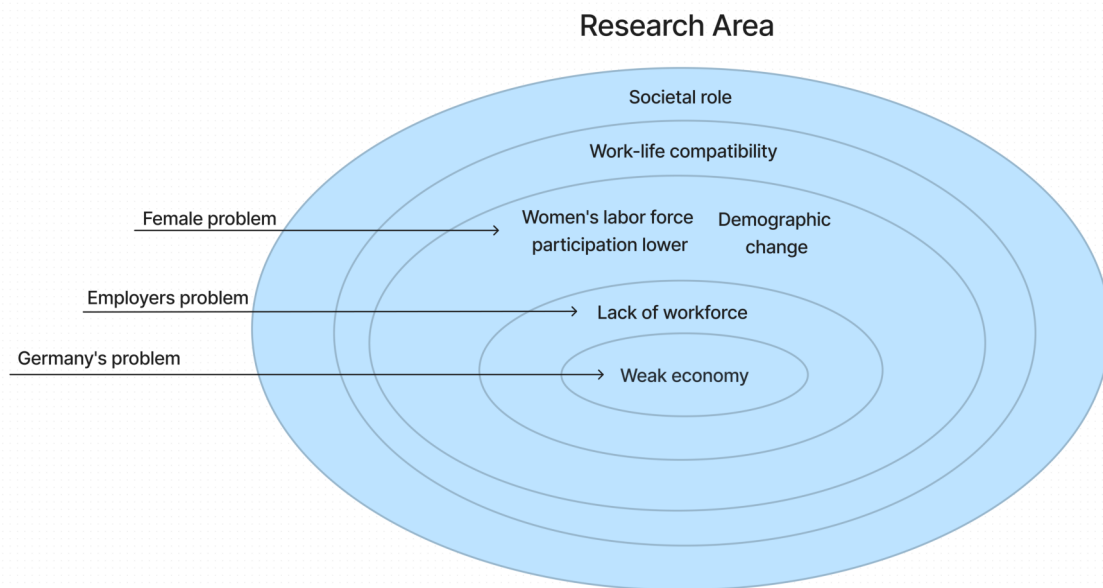
### **3.6 Co-Design Workshop**

One Co-design workshop was conducted with an employee and employer. Co-design is a form of empathic user research and participatory design, where the distance between designers and users is reduced and the risk that the design only reflects the values of the designers is decreased. This differs from the human-centered design approach, in which the user is not actively involved in the design process. The terms co-creation and co-design can be found in the field of participatory design. Co-creation refers to any act of collective creativity applied throughout a design process. In a broader sense, this means that designers and people who are not trained in design actively work together in a design development process. [25]. Co-design was used in connection with a pain point as an attempt to gain insight into the users feelings. A co-design workshop is suitable for providing the user with a playful environment in which they can delve into their own feelings step by step.

## 4. Research

### 4.1 Theoretical framework and context

To begin phase 2 of the design research and to familiarize the context of the thesis, a contextual research plan was developed. This plan provided assistance in clarifying the research areas. The research areas of this thesis are in the context of Germany. The theoretical framework first explains the context with the social role of mothers and fathers, then the work-life balance in today's companies, next the lower labor force participation of women and the demographic change, followed by the labor shortage and the resulting weaker economy. It is important to show the connections and interdependencies between these issues and how they influence each other. Thinking outside the box is also a prerequisite for making this social issue understandable. At the end, it will be described where the design intervention should take place and why.



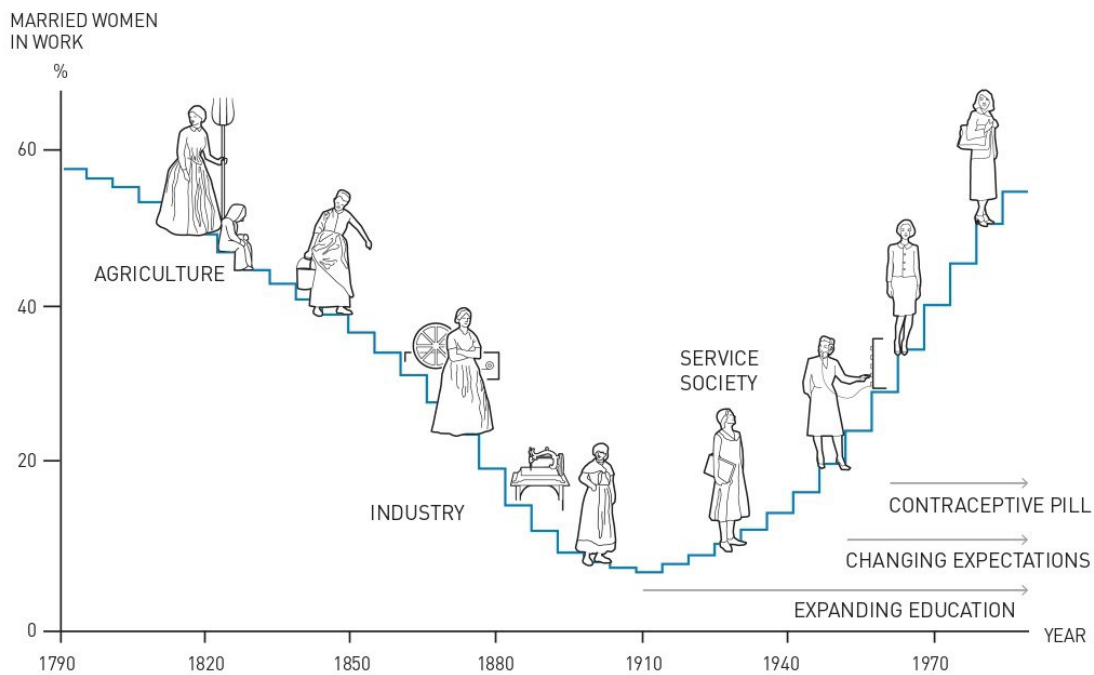
**Figure 3** This is an illustration of the research areas. They can be read from the outside in, the different themes are interdependent. The three main problems are identified: a female's problem, an employer's problem and a problem for the whole country.

#### 4.1.1 Societal role

To introduce the societal roles over time it is especially interesting to look at the changes in the roles of women. In the context the work of the year 2023 Noble Prize winner of economics Claudia Dale Goldin will be discussed. Goldin is an American labor economist

and economic historian and is a professor at Harvard University. Her work was awarded for analysing the root causes of the gender pay gap and "for having advanced our understanding of women's labor market outcomes" as the the Royal Swedish Academy of Sciences states.

The her book from 1990, "Understanding the gender gap: An economic history of American women" Goldin [10] explains how our society has changed dramatically over the last few centuries in the areas of politics, social affairs and technology. Developed countries have experienced steady economic growth since industrialization, and it was previously assumed that women's labor force participation would follow the same trend. Goldin's work shows that this is not the case and provides a deeper understanding of the relationship between economic changes and women's labor force participation. The researcher discovered that information about working women was underrepresented in historical documentation, leading to the current misconceptions. Women's occupation was often stated as "wife", although married women often worked. Fortunately, with new approaches, she was able to close this gap in the data. Prior studies focused only on recent economic changes since the industrial revolution, leading to the false conclusion that as the economy grows, the number of working women automatically increases.



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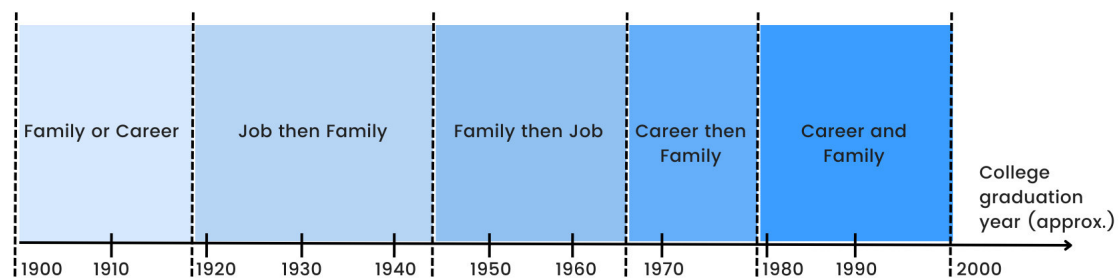
**Figure 4** This figure shows the labour force participation of women in the USA over the last 200 years.

As illustrated in figure 4, looking further back and starting the study in 1790, a U-shaped function can be found. At that time, the employment rate of women was high, as they worked together with their husbands in agriculture or in the family business. Later, with

industrialization, it became more difficult for women to work from home and thus combine family and career. The men moved far away to the cities to work and earn money, while the women stayed at home and looked after the children. Although Goldin showed that industrialization led to many unmarried women working, the overall female workforce declined significantly. This shows that there is no historically consistent correlation between women's participation in the labor market and economic growth [10]. While her work was examined in detail using the example of the United States, the results are also transferable to many other countries such as Germany.

The question is: if women's labor force participation did not increase in the early 1900s due to steady economic growth, how else can it be explained? In her 2006 academic paper "The quiet revolution that transformed women's employment, education, and family", Claudia Goldin argues that the expansion of education, changing expectations and the contraceptive pill made this development possible [11]. In addition, the new York University economics professor Raquel Fernández, together with her colleagues Alessandra Fogli and Claudia Olivetti, found another explanation for women's higher labor force participation. They discovered that the growing presence of a new type of man who grew up with a working mother is an important factor in this growth which will be discussed in the end of the following section [12].

### Expectations, education and the contraceptive pill and a new type of men



**Figure 5** Here the changing expectations of women are illustrated over the last century [13].

Also, in her latest book from 2021, "Career and Family" [13], Goldin takes a closer look at how women's expectations of their careers have changed over the generations and how they can be divided into five different phases from 1900 to the present day. The different expectations result from the fact that women were confronted with different circumstances when making life decisions and learn from their mothers and the experiences of previous generations. In the context of her research, she defines "family" as having a child, including through adoption, and excludes e.g. childless married couples. She defines the term "career" not only as employment, but also as further development, learning, growing, investing and reaping rewards that shape one's identity. In this scenario, she does

not define the term "job" as a source of identity or a purpose in life, but as a source of income and without clear milestones. Now, the five phases illustrated in Figure 5 will be examined in more detail.

The first phase begins when women graduated from university in the years 1900 to 1920. Here, women had to choose between family and career, which means that most married women had children and therefore often did not have a career, while women who had a career were generally not married.

In the second phase, most women were expected to work for only a few years before getting married and then leaving the labor market to focus on the family. Hence it says "Job and then family", which illustrates that the job, as previously defined, was more of a way to earn a salary without an increase in duties and promotions in mind, which makes sense if the position is expected to be left as soon as marriage begins.

The subsequent phase was in the 1950s, when the new expectations were "family then job", although it should be noted that here too the majority of women did not aspire to a career, but to a simple job with the main aim of earning money. Due to social changes, married women started a family first and often returned to work when the children were older. The jobs available were limited to the educational choices that had been made some 25 years earlier and the rapid change of the labor market. Evidently, this led to more primitive jobs than real careers being available due to the often lack of education.

Phase four, who graduated from college in the 1970s, are daughters who saw their mothers, aunts and older sisters re-enter the workforce after their children left the nest. The jobs they landed usually didn't match the ambitious careers the women in phase four aspired to, and their mothers often helped them pursue a different path. At the same time, divorce rates increased, making women more independent, but also increasing the pressure to look after themselves and their children without a husband. These various reasons led to women investing more time in their education in order to then pursue a career and later start a family, which is referred to as "Career then family". As a result, some women were too old to have children once they had made a career or were no longer committed to having children. This delay in starting a family was made possible by the invention of the contraceptive pill.

The last phase of women who graduated in the 1980s and 2000s are now expected to have "careers and families". These women have also learned from the experiences of the previous phase and no longer want to do one thing after the other, but simultaneously. And with the technical invention of in vitro fertilization (IVF), older women also have more



opportunities to start a family [13]. This latest phase demands a work-life balance more than ever before.

In all these different phases, a further factor had an influence on women's labor force participation, as the article "Mothers and Sons: Preference Formation and Female Labor Force Dynamics" by Fernández and her colleagues argues. They provided cross-sectional and dynamic evidence that a man whose mother works is more likely to have a wife who also works. More specifically, the working mother appears to influence her son's preferences, which affects the work behavior of his wife, who is then more likely to be employed [12].

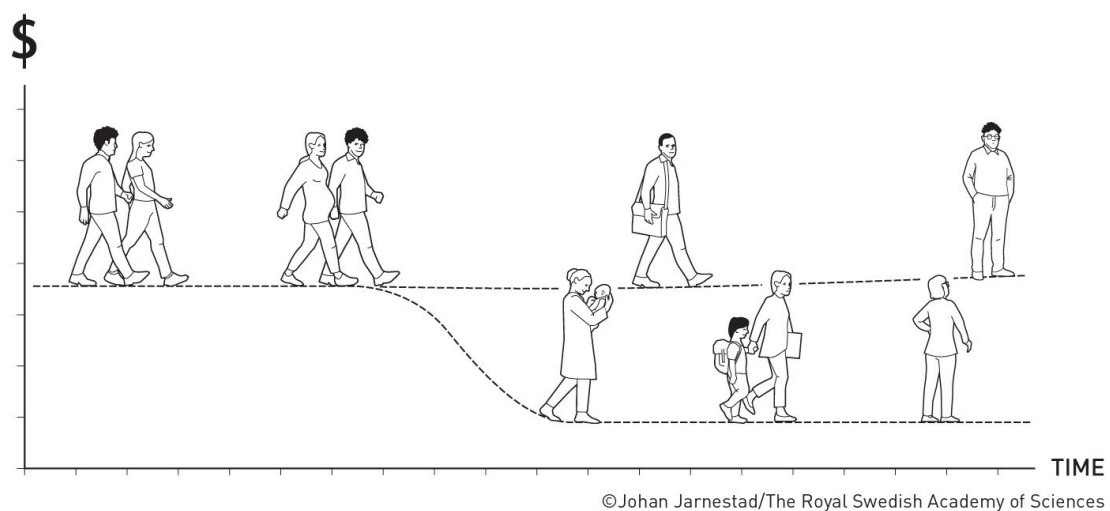
A review of history is important for this thesis in order to develop a deeper understanding of where today's gender roles come from. It illustrates the changing, dynamic nature of these roles, which can easily be forgotten when thinking about current societal norms. The key takeaway when looking at the history of societal roles is that balancing family and work is much more important today than it was before the 1980s. In the past, family and career were separate stages of life and therefore compatibility was not necessary. Today's expectation to have both at the same time underlines the need for a high degree of compatibility. Now that the historical development of the role of women in society has been briefly discussed, the following chapter deals with the current situation in Germany with the most relevant topic of the compatibility of work and family.

#### **4.1.2 Work-family compatibility in Germany**

Now the compatibility of work and family is to be discussed in the context of Germany. To begin with: In 2019, there were 6.9 million mothers and 5.9 million fathers with children under the age of 15 in Germany [14] and 64% of couple families with children under 15 are dual-income families (2016) which means that both parents are working [15]. This makes sense if one considers the previous history and recognizes the fact that we are currently in the "family and career" phase. The research for the theoretical background was defined to focus on the topics of general information about the German labor market, options for working time models, existing family-friendly benefits for employees, employee loyalty, and law and regulations for pregnancy, parental leave, and re-entry. Scientific publications and databases were used to collect information on the above-mentioned topic. Valuable insights were gained from the databases of the German government, like the German Federal Statistical Office [1], the German Federal Ministry of Labor and Social Affairs [16], the German Federal Anti-Discrimination Agency [17] and lastly the German Federal Ministry for Family Affairs, Senior Citizens, Women and Youth [18].

Young women (aged 25 to 34) are more likely to have a higher level of education (32.1% women and 27.9% men have a university degree) and the employment rate for women increased significantly by 11.3 percentage points between 2000 and 2014 (to 69.5%) [19]. In 2023, the employment rate for women is 77.1% and for men 84.9% [1]. An additional issue is the gender pay gap which describes the difference in hourly earnings between women and men. The reasons for this can vary: For example, women work in lower-paid jobs or are less likely to reach management positions than men. Some women are paid less by their employer, even if their profession, educational background and employment history are comparable to those of their male colleagues. The gender pay gap is currently 18% [1].

The aforementioned Nobel Prize winner Claudia Golden also deals with the gender pay gap in her research. She begins with a look into the past and illustrates the historical differences in earnings. The gender pay gap narrowed considerably during industrialization (1820 - 1850) and with the increasing demand for administrative services (1890 - 1930). In the following years, from 1930 to 1980, although the economy grew, the number of women in employment doubled and women's level of education increased, there were no major changes in income inequality and earnings gap [13]. The gender pay gap is relevant to this thesis because it is closely linked to the "parenthood effect". Golden argues that the main reason for the existing pay gap is the fact that still mothers in particular stay at home to look after their child. This is at odds with the general expectations of employers, who expect constant availability and flexibility from their employees.



**Figure 6** This is an overview of the gender pay gap. It is argued that the biggest difference in income arises from starting a family.

The figure 6 shows that the pay gap comes into its full effect when the employee starts a family and has to stay at home more to provide care. The current statistics show that most

women take a year's leave and fathers generally take 2 months' paternity leave [20]. It is interesting to see that these effects work like a vicious circle, a chain of events that reinforce one another through a feedback loop. Women stay at home to care for the children because sometimes they already earn less money, or because of a traditional image of women that later leads to them earning even less money.

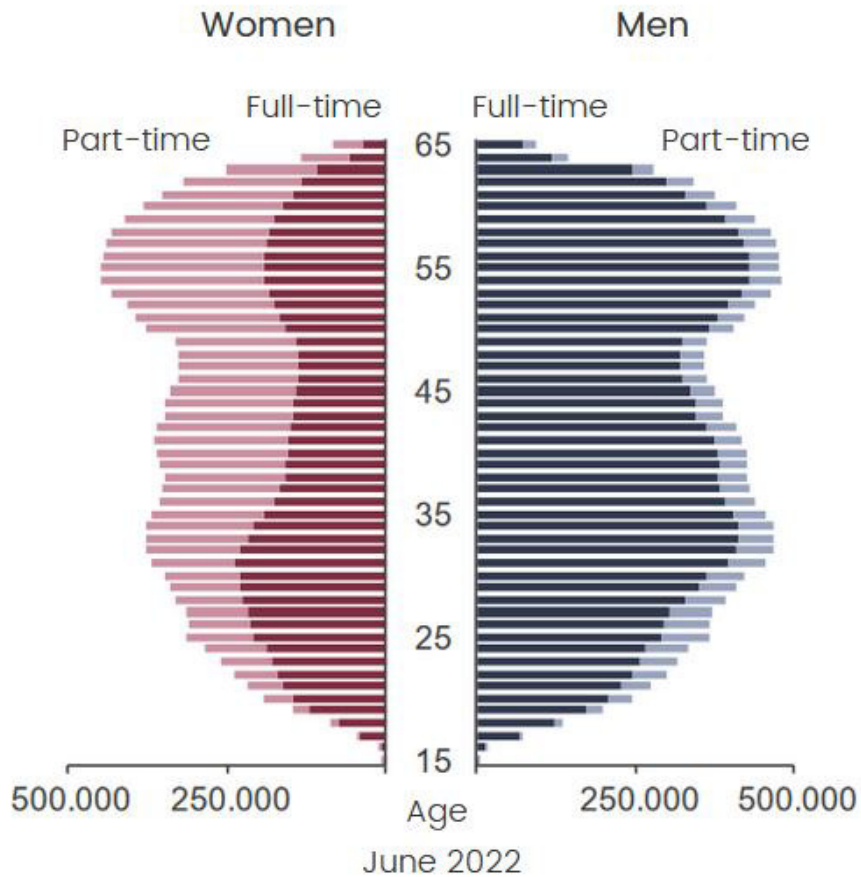
Nevertheless, the fact that the person who stays at home has far-reaching consequences for future earnings and career is something that the scientist Golden criticizes. To mitigate this effect, various methods and offers have been developed that are currently used by working parents. The most important of these is parental allowance, where the government pays parents part of their salary for up to 14 months, depending on their income. Other benefits offered from the employer are flexible working hours and the possibility to work remotely from home [18]. Further specific benefits will be mentioned later based on the findings from the interviews with users.

### **4.1.3 Women's lower labor force participation**

As mentioned in the previous chapter the current women's labor force participation is lower than the men's. Even though it still increased by 11.3 percentage points (to 69.5%) over the period 2000-2014 [15]. Since the employment rate of women and men is almost the same today, it is worth taking a closer look at the figures. The figure below shows that the difference between the genders is that of all employees in 2022, 23% of women work part-time, 24% of women work full-time, 6% of men work part-time and 47% of men work full-time. These figures show that half of all women work part-time and, in comparison, only a small group of men work part-time. It can also be observed that most women start their career with full-time employment, then switch to part-time employment later on and do not return to full-time employment even at an advanced age. [21].

### **4.1.4 Demographic change**

A demographic change is taking place in Germany and most European countries. This means that the number of young people is diminishing and the number of old people is increasing. Currently, every second person in Germany is older than 45 years. Migration has slowed this demographic change slightly, but it is still very much happening. The reason for this change is the declining number of families in Germany; in 1996 there were 13.2 million families, in 2019 there were only 11.6 million families, which corresponds to a decrease of 12%. At the same time, these families have fewer children than before and have an average of 1.4 children. This is strongly linked to the aforementioned work-life



**Figure 7** This chart shows the proportion of women and men working part-time (lighter colour) or full-time (darker colour) in 2022. It is interesting to note that many more women work part-time and do not return to full-time employment even at an advanced age. [21].

balance, of course, with people choosing not to start a family in order to escape the gender pay gap or career deficits [1].

#### 4.1.5 Lack of workforce

Taking into account the lower labor force participation of women, the lower number of children per woman and the resulting demographic change, studies show that Germany needs 400,000 additional workers every year to ensure constant economic growth. In the past, people have immigrated to Germany every year. However, forecasts do not assume that a sufficient number of people will continue to come to Germany every year, but that immigration will decline [22]. Particularly affected are professions in the fields of social work, education and nursing. There is also a shortage of staff in the skilled crafts and IT professions. It is notable that the professions with the greatest shortage of skilled workers have a very unequal gender ratio among employees. This means that the professions are either female-dominated, such as social work, education and nursing, or male-dominated,

such as skilled crafts and IT professions. It is understandable that these professions, in which only half of the population is typically employed due to deeply rooted stereotypes, are the first to be affected by the crisis on the labour market. [23].

#### **4.1.6 Weak economy**

Social role models, the compatibility of work and family, the resulting lower participation of women in the workforce, demographic change and the consequent lack of labor force are among the reasons for a weaker economy in Germany. Historically, the German economy grew strongly in the first half of the 19th century and has slowed down significantly since the 1950s. Due to the severe decline in price-adjusted gross domestic product of 5.7% in 2009 and a corona-related decline of 3.7% in 2020, the German economy experienced the most severe recessions of the post-war period to this day [24].

#### **4.1.7 Design intervention**

This theoretical framework served as preparation for the following phase. Understanding the theoretical situation in Germany based on statistics was the basis for creating the interview questions. It clarified existing gaps in knowledge, e.g. what the exact process looks like when an employee starts a family. It also highlighted the need to look at this journey from different perspectives in order to understand the different needs of those involved, which statistics cannot represent. When conducting the interviews, the level of knowledge was more nuanced and it was possible to ask detailed questions without the interviewee having to give general facts first. It also became clear that better compatibility would also have positive effects for the employer, as it would reduce labour shortages.

Since the theoretical framework of this work is broad and the problem is based on deeply rooted social norms, it is important to define and justify the location of the design intervention. The design intervention took place on the second level of the problem, the compatibility of work and family. This area was chosen with the aim of positively influencing all following levels. In this thesis, a design concept was developed to improve the work-life compatibility, which can increase the labour market participation of women and slow down demographic change. This will alleviate the problem of labour shortages for employers and strengthen the German economy as a whole. Since all of these issues are closely linked, it is important to understand them and analyze how they affect each other. On the positive side, it is very likely that one positive impact in the right place will positively influence others. In addressing work-life compatibility, the side of the two main stakeholders, employee and employer, is looked at closely. It analyzes the work-life

compatibility of the users, what are current problems and pain points and what ideas and wishes are given.

## 4.2 People

After getting to know the theoretical context, it is necessary to work with the people, the users, in order to gain an understanding of the current work-life compatibility. In this chapter, the content of the interviews are explained in more detail. The results of these methods are presented in the next chapter.

Overall, the interviews aimed to gain an overview of the process of an employee starting a family in a corporate environment. Additional, positive and negative aspects of this change were identified and the needs, wishes and ideas of stakeholders were gathered. The interview questions are divided into six sections with the themes of starting questions, employer and employee connection, family friendly benefits, communication, re-entry, and final questions.

In the following, 10 research questions are outlined, which represent the content of the questionnaire. The research question illustrates nicely the objective of the interviews.

- What is the process like from the announcement of the pregnancy to the re-entry?
- What needs do companies have in connection with an employee starting a family?
- What needs do employees have when they start a family as part of their employment?
- How is starting a family related to employees' attachment to the company?
- How does communication between employers and employees currently take place? What problems are encountered? What are the wishes or suggestions for improvement?
- What challenges are encountered in balancing family and career?
- What are the effects of measures to provide support during the process of starting a family/reconciling work and family life?
- What measures to promote reconciliation are currently being implemented and what is the process of implementation? What measures could still be implemented?
- What would a tool look like that meets the needs of companies and parents during family formation?
- What would the optimal process of starting a family look like for companies and employees in terms of compatibility?

These research questions are the general objective, yet the interviews were adapted to the three different stakeholders. The managers or CEOs were asked more general questions

about their company and their work philosophy. Human resources staff were asked questions about facts and figures, such as how many of their employees are pregnant or on parental leave per year, or how many quit their work when starting a family. The questions for the parents focused more on their personal experiences, e.g. what would motivate them to return to work full-time after parental leave.

The interview ended for all participants with the question of the ideal situation: What is the optimal path from pregnancy to re-entry when an employee starts a family? An important question to gain insight into hidden desires and opportunities for the design solution. After finalization of the questionnaire, the interview situation was simulated in order to make a final check of the questions and to measure the duration of time.

## **5. Analysis**

### **5.1 Frame Insights**

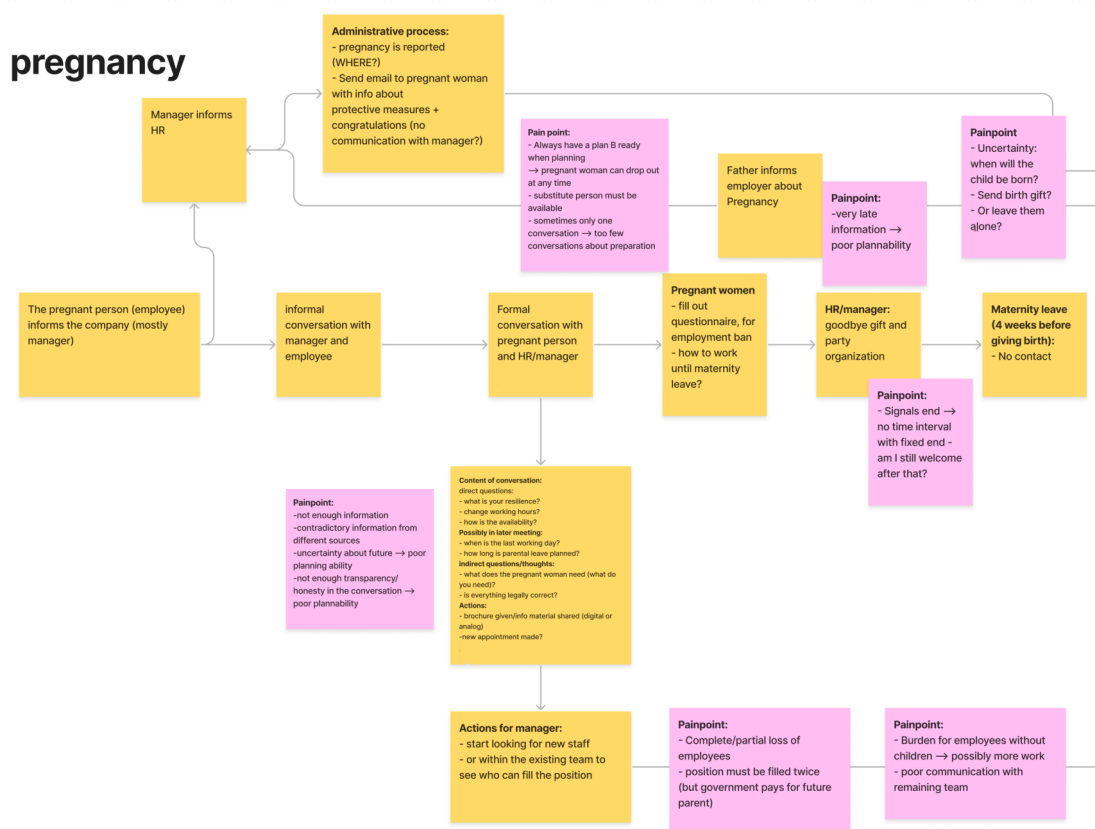
This chapter is one of the core elements of the thesis. Here, all the data from the theoretical context and the close work with users, the 15 interviews, is analyzed. It is about "bringing structure to what has been found" and "sorting, clustering and organizing the collected data", as the designer and author Vijay Kumar states in his book "101 Design Methods" [3]. It's about what information is truly important and what can be disregarded, what the focus of the concept will be and what the core value of my design is.

#### **5.1.1 User journey map**

First, a user journey map was created using the data from the interviews in order to obtain an overview of the current process, the pain points and the opportunities. The involved stakeholders are: the HR specialists, the parent and the employer. To improve readability of the journey map, the employee is defined as a female or male employee starting a family, the HR specialist is a person working in the HR department, and the employer is either the company itself or the employee's next responsible manager.

The journey is divided into three main phases. The first phase is the employee's (or his wife's) pregnancy, which lasts around six months, as women on average announce their pregnancy in the twelfth week, leaving six months until the birth. Then the phase of absence begins, during which the employee takes their parental leave; on average, most women in Germany take around one year and most men around two months [20]. Among the users interviewed, the absence from work ranged from eight months to two and a half years. The final phase is the re-entry into work, the timeframe of which varies widely from person to person, but can be defined as lasting between one and three months. In the following the main activities of the process will be shown visually and then listed chronologically.





**Figure 8** This journey map is a structured visualization of the process during pregnancy.

- Employee is informing the Employer about pregnancy: Normally this takes place in a informal setting where the employee approaches his or her manager.
- Employer is informing the HR department that the employee is starting a family: Here the HR department creates an official report about the pregnancy and sometimes sends information to the respective employee.
- The employer/HR employee and the employee have a formal conversation about working during the pregnancy phase and the parental leave. It strongly varies in content and profundity from the different analysed companies.
- Sometimes: A questionnaire will be send to the employee to get more information or there will be more meetings to talk about the pregnancy and parental leave.
- In the meantime the employer or the HR department start to look for a replacement for the employee.
- A goodbye party is often organised before the birth, at which the employee is presented with a gift.
- Four weeks before giving birth the female employee will stop working and start her maternity leave. This is a legal regulation from the government.

# absence from workplace

woman duration: 8 months to 2.5 years

men duration: approx. 2 months

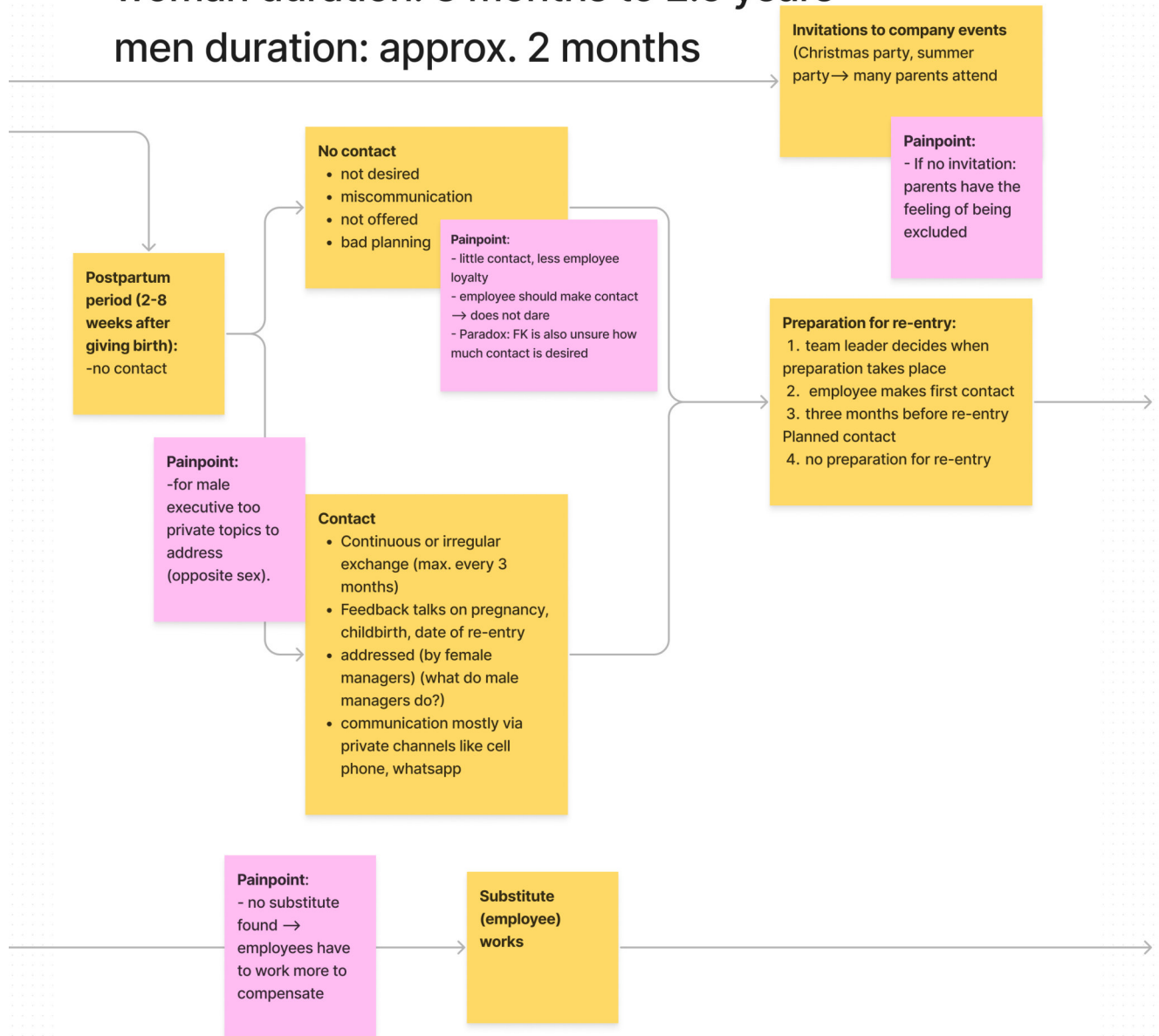


Figure 9 Here, the process during the parental leave is visualized.

# re-entry into the workplace



**Figure 10** In this figure the process of the re-entry is shown.

- The eight weeks after giving birth is the postpartum period and are also a legal regulation from the government.
- Parental Leave: Here the employee takes time off work to take care for their child. In Germany, parental leave can be shared between both parents and can last up to three years per child. During this time, re-entry in the job is guaranteed, and the employee can receive parental leave benefits. Contact between the employer and the employee sometimes occurs during this phase. If there is contact it can vary from a frequent to irregular exchange but no more than every three months. Discussed topics can be well being of the employee and the baby, news from the company and the re-entry. Normally the contact is via private channels like a phone call or WhatsApp messages.
- Employee's replacement: Once a new person has been found, he or she is introduced to the team, trained and takes over the job of the absent employee.
- Preparation for re-entry: Sometimes the employer and sometimes the employee initiates the contact to discuss the planning of the re-entry. Other times the date is set and both parties meet three to one month before re-entry to plan. In other cases, there is no contact and therefore no preparation.
- Re-entry into the profession: Depending on the level of preparation for this phase the re-entry is structure or not structured. The returning employee either starts working in the same workplace, in a different workspace or will terminate the employment. Also the working hours can change from full-time to part-time or different working models like job sharing are applied.

In the journey, the challenges or pain points communicated and discovered by the users are now displayed. A distinction is made between the challenges for the employer and HR side and the working parents' side.

The pain points for the employer and HR side voiced in the interviews are:

- For the first formal conversation there is not enough or contradicting information to prepare and its time consuming. In this conversation plans can be defined but the future can change anytime and the plan is not working anymore. There is sometimes not enough honesty from the employee about their expectations.
- During the pregnancy the employee can be drop out any time due to health issues. There has to be a replacement available which has to be found, trained and integrated into the team.
- There are not enough frequent conversation to plan the absence and re-entry of the

employee.

- The conversations about those private topics are uncomfortable, especially if it's the opposite sex.
- Uncertainty about when to contact the employee and often no clear information when he or she will come back to work.
- In the re-entry the employee is less flexible and available, the priorities change and some quit the employment.
- Potentially has to find, train and integrate new employee to the team.

The pain points are generally lack of access to the right information, not enough conversations with the employee about the topic, lack of a structured plan for the future career of the employee, dealing with a replacement, lack of knowledge of how to communicate about these private issues and the subsequent adjustment to a less flexible and available employee.

The pain points for the employee starting a family expressed in the interviews are:

- Not enough or contradicting information to prepare for the first formal meeting and to present a structure plan.
- Not sure how to communicate the private topics and when.
- Often there is no or few contact during parental leave.
- The focus on family during parental leave can lead to a sense of detachment from the workplace.
- The re-entry fails because of a lack of plan and there is too much or not enough work.
- Possibility of being forced to change the job due to work not compatible with family.

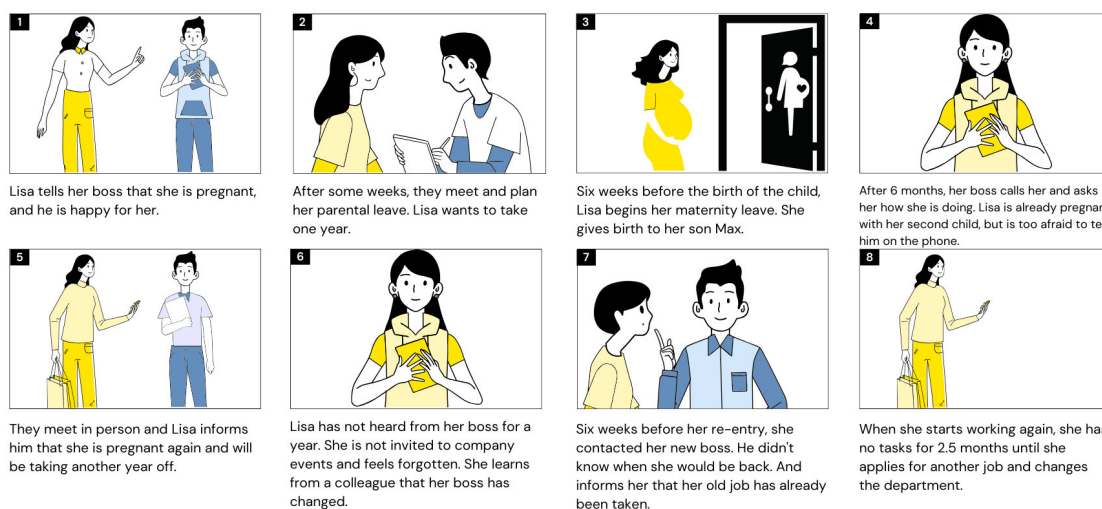
All in all, the challenges of the journey for an employee include accessing the right information, talking about private issues, losing touch during parental leave and the often unstructured and failed re-entry.

### **5.1.2 Storyboards**

Storyboards with personas were created to gain a better understanding of the feelings of the stakeholders. For this, information compiled from the interviews was merged to illustrate what a typical journey currently looks like and how users feel at certain moments.

This storyboard (11) about the working mother Lisa demonstrates how limited access

## Employee's storyboard



**Figure 11** This storyboard from the employee's point of view is intended to visualize the feeling of being overwhelmed, of being forgotten, of having a weaker bond with the employer and of feeling guilty about not working.

to information, inadequate planning and little contact can lead to feeling unvalued as an employee. In an interview, one user emphasized how important it is how your employer treats you, especially during parental leave. A working mother explains:

**"I [as a parent] will always remember how I was treated when I was in the position [...] of contributing nothing to the company's success and not being part of the performance team."**

It is the moment when private issues interfere with professional life and the interviewees explained that questions arise such as: Am I only valuable to my employer in the moment I make revenue, or is it a long-term, sustainable relationship? More than ever, during the transition phase, the question arises as to whether this is really a job I like? Can I support my family with this job? Will I be a good role model for my children if I work in this industry?

The storyboard references the special contact during the parental leave. In this case, it's a phone call and Lisa feels impersonal and doesn't have the confidence to share the news that the initial plan has changed. This shows the power dynamic between employer and employee, between men and women, and between a person having to expose intimate information in front of someone higher up in the hierarchy, all of which apply in this case. As the story progresses, Lisa has not been in contact with her company for over a year. Although Lisa would have preferred frequent contact, she finds herself in this situation due to a lack of sufficient structure. There is a feeling of being forgotten and the bond with the

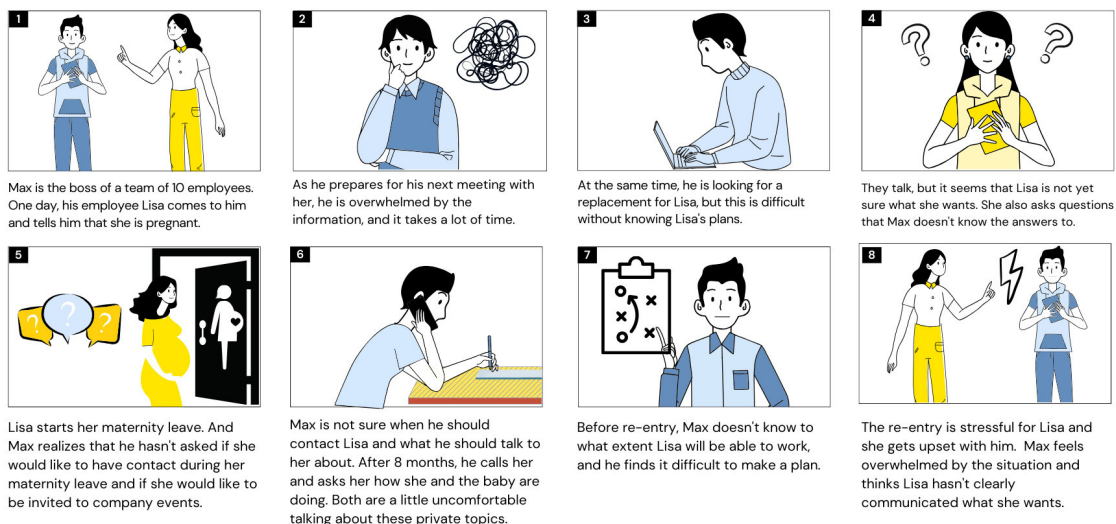
company weakens, as one interviewee says:

**"When you go on parental leave, you no longer feel as connected as you would if you had stayed with the company the whole time."**

This inadequate planning continues during her re-entry and she feels undervalued as she has had no tasks for two and a half months. She feels that her skills do not matter to her employer and questions her qualifications.

In summary, most of the parents interviewed felt overwhelmed, forgotten, left alone, unguided, had a weaker connection with their employer, were unsure of their own qualifications and felt guilty for not working.

## Employer's storyboard



**Figure 12** This storyboard from the employer's perspective is intended to illustrate the feelings of being less connected to his employee, feeling stressed, misunderstood and left alone with the process.

Now the feelings during the employer's journey are to be portrayed. At the beginning, Max, a manager of ten employees, learns that his employee Lisa is pregnant. As he prepares for his next meeting with her, he is overwhelmed by the information and it takes several hours to prepare. He feels stressed because he wants to support Lisa on her journey but doesn't have enough time because of his other employees, and because it is very difficult for him to understand the world of family life. In an interview, an employer says:

**"Don't leave the managers alone, but give us information that we can read and perhaps pass on. It always helps us managers a lot if we don't have to formulate everything ourselves and invest a tremendous**

## **amount of time."**

The formal meeting between Max and his employee is not very efficient, as she hasn't decided much yet. She also asks him something about the working models, to which he has no answer. He feels ill-prepared and a bit incompetent. Later, Lisa goes on maternity leave and Max realizes that they have not yet agreed on contact during the absence and how to archive a successful re-entry. In the following phase, Max feels insecure because he doesn't know when to contact her and what to talk about. It is new for him to talk to his employees about private topics, e.g. how she feels in her new role as a mother and how she envisions a future with family and career. In general, he even begins to forget Lisa's existence a little while working at the office, as he has too much other work to do and Lisa is out of sight, at home. When he remembers this, he feels guilty and left alone with the issue, thinking that as a manager he should naturally know how to deal with it. Later, Lisa comes back to work and since it's stressful for her, she blames Max for it. Max feels helpless and responsible, but doesn't know how to improve the situation for his next employee who is starting a family. In another interview with an employer, the desire for more structure is expressed:

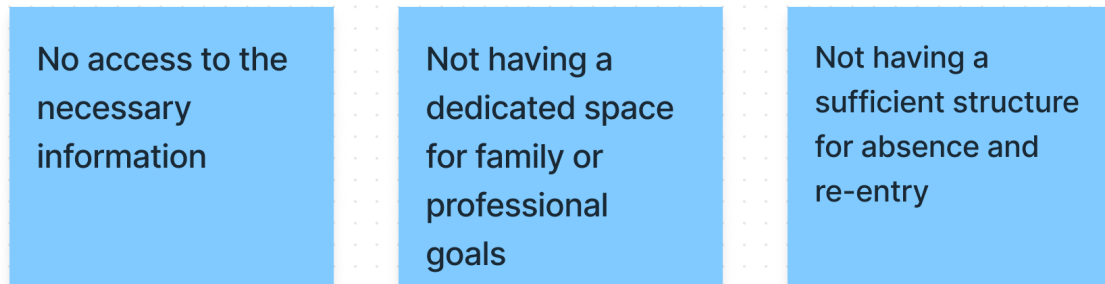
**"There is always the same procedure [during pregnancy and starting a family] and I wish there were standardized processes."**

Altogether, he feels less connected to Lisa as his employee, stressed, overwhelmed, not guided, misunderstood and left alone with this process.

It is interesting to see the two different perspectives and the similar and distinct pain points. For example, the employer is faced with the challenge of finding a temporary replacement for the departing employee, which the employee is not faced with. On the other hand, the employee needs to create a proposal for the future plans of their family and career, which is difficult without the necessary information. The two stakeholders have in common that they both struggle with access to the right information, not enough space for family topics at the office or professional topics when being in parental leave and do not have sufficient structure for the absence and re-entry due to a lack of a plan.

In this thesis, the focus is on the common pain points of both stakeholders, which excludes the employers dealing with the replacement. This decision was made because the concept is focused on a design solution for the employee and the employer to increase the positive impact and create value for both parties. It is interesting to note that all three pain points are either directly or indirectly related to the conversations between the employer and the employee.





**Figure 13** Here are the three core pain points of employees and employers. All three are either directly or indirectly related to the conversation that takes place between them.

The following section takes a closer look at the main pain points from figure 13 mentioned above. The analysis deals with questions such as: Where does the pain point come from, why is it like this, what do the people involved feel when they have this problem, and where is it located on the journey. The result will be a deeper insight into these pain points, which later forms the foundation for creating a suitable frame for the concept development.

### **5.1.3 No access to the necessary information**

This pain point in terms of information arises from the lack of accessibility to personalized information for employees and employers. Currently, it varies greatly whether or not there is information available for those involved. Sometimes the employer has a PDF file with an overview of the regulations for pregnant employees and their rights. In other cases, the employee has access to an intranet with some digital information about laws and regulations and family-friendly benefits. As this is not the norm, most of the users interviewed had to search for the information they needed themselves. Most searched on the internet and were overwhelmed by the amount of information and confused by conflicting information. It seems that an employee starting a family still does not get the attention it deserves and is therefore often forgotten or ignored when designing structured company processes.

The employee needs the information throughout the journey, but especially before the first official meeting where the employee is expected to make a proposal. The employer will need information when they are inexperienced in guiding employees through this journey and need to familiarize themselves with work schedules, laws, regulations, re-entry strategies and company benefits. With increasing experience, the employer will need less information as the process will be similar each time. As mentioned earlier, both stakeholders will need information before the first formal meeting after the pregnancy is announced and also later for return to work planning.

#### **5.1.4 Not having a sufficient structure**

Almost all of the interviewed users complained about not having a structure for this process:

**"To my great disappointment [as an HR employee], [the structure] is a matter of individual negotiation."**

Meetings are currently being held with the employee and the employer or a member of the HR department. They discuss vaguely how the workplace can be adapted to the pregnant employee and how long the parental leave will last. As there is usually no structure, the employee and employer are poorly prepared and cannot make qualified decisions. From the interviews it was discovered that many employees therefore follow the example of colleagues and friends and copy their behavior. The lack of structure becomes particularly apparent when absent for more than three months. The unclarity about the type and frequency of contact during this phase leads to uncertainty and weakens the bond between both parties.

The desire for predictability was frequently mentioned in the interviews by both parties, the ability to know what is coming next and having a sense of control. The paradox of this issue is that while a high level of predictability is desirable, it is difficult to archive due to unpredictable events.

**"How to plan something that can change anytime?"**

The employee often makes decisions and has the desire to change them later because of being insufficiently informed, gaining new experiences or being confronted with sudden events. It is also striking that the still strictly separated life phases of work and family causes the return to work to fail. The reasons for this are that the return to work during pregnancy often seems far away and therefore cannot be planned, nor is it planned by either party during the absence from work, as work would interfere with the demands on time reserved for the family. Due to the lack of structure, the returning employee feels stressed and nervous about the upcoming return and doubts their ability to cope. The employer feels overwhelmed with the task of managing the sudden return and is under time pressure because nothing has been organized beforehand. Most of the times, planning takes place once or twice, during the pregnancy, and is not updated later.

### 5.1.5 Disconnected spaces

In order to obtain a deeper understanding of the private and professional space which is related with the pain point of "not enough space for family topics at the office or professional topics when being in parental leave", a co-design workshop was established.

#### Co-Design

When starting a family, this constructed space of being formal and talking mainly about work-related topics has to be abandoned. It is interesting how, on the one hand, professional life and private life seem to be strictly separated, but on the other hand, the separation can no longer be maintained after starting a family. Several interviewees also mixed their roles as employee/employer and parent. For example, one employer was interviewed to gain insight into his needs and although he was asked to share his experiences as an employer, he shared his experiences as a parent.



**Figure 14** The co-design workshop was conducted with two participants, one employee and one employer. There were various tasks that led to gaining insights into the space for family and professional topics.

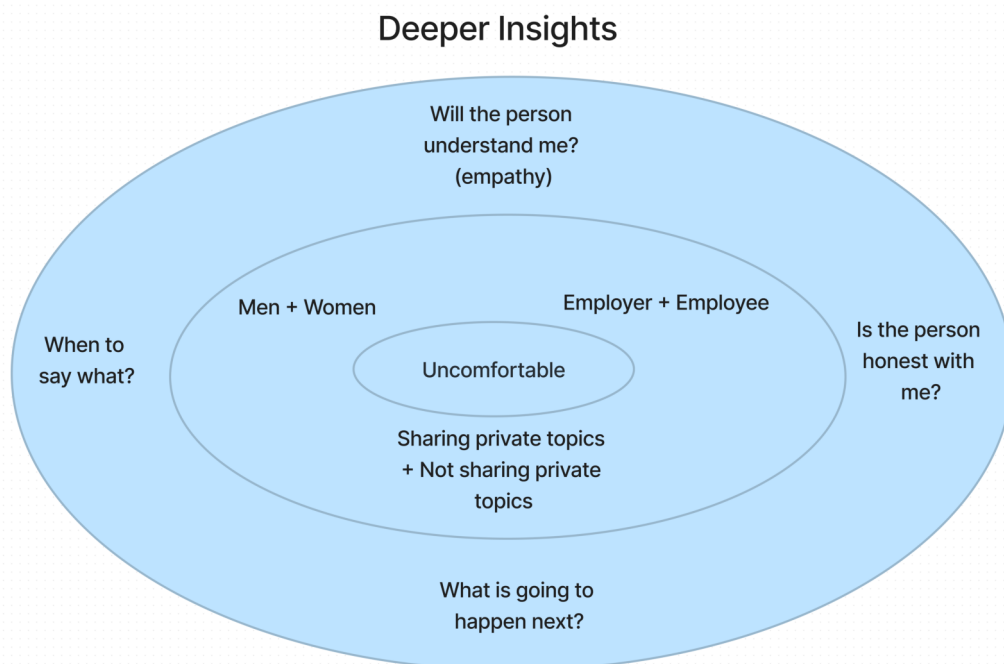
The employee, who attended the workshop, was female, 29 years old and currently works in an international consulting company, which specializes in professional services. She has been working there for three years and wants to start a family soon. The employer and other participant, is male, 30 years old, founded his company five years ago and currently has 10 employees. The workshop lasted about three hours, the participants took part in the workshop together and it was divided into four tasks. The first task was to break the ice and encourage the creativity of the participants. The task was to carry out a "bad brainstorming

session". Its aim was to come up with as many bad ideas as possible within 10 minutes. As this was the first exercise, the intention was to convey the feeling that there is no right or wrong answer and that crazy ideas are also appreciated and encouraged. The participant was asked to think about questions such as:

- What environment would be the worst to meet with my manager/employee to discuss the family and career?
- What would be the useless furniture in this space?
- What would be the worst feelings I could have in this experience?

The following three tasks had a similar structure. Different spaces were given, the private space, the professional space and the adventurous space, which were to be described in three different categories, what the surroundings of the spaces looked like to the participants and which colors could be assigned to them. They were also asked to describe what furniture was present in the different rooms and what feelings the participants had in each space. The tasks were structured in such a way that they progressed from the big picture to the details, the environment should be relatively easy for the participant to answer as it is quite general, when then asked about the furniture, the participant should zoom in a little and describe their idea more concretely. In the end came the most critical part, how the participant feels. This is always a difficult question, but the bad brainstorming and the two previous, easier tasks encouraged, motivated and opened the participants to share their feelings. In general, it has helped to develop an understanding of the feelings associated with a private space and the content of private conversations related to employment.

In one-to-one conversations, it is felt that it would be more comfortable if the conversation took place with a person of the same gender, which both parties emphasize. Those affected would feel better understood because the social expectations of gender are the same. In a conversation with an employer, he explained that he is aware of his power over his employee and tries to keep the relationship formal and professional so as not to abuse this power. When the relationship becomes more private, it seems more difficult for the employer to treat all his employees equally. The employer said there is a fine line between maintaining a good social relationship with their employee and avoiding bringing their own private issues into the conversation. For example, it could be helpful for the employee to know that the employer also has a family, but that their employee's situation is different and not directly comparable. It was also mentioned that conversations about starting a family can be extremely sensitive topics, which can trigger unpleasant feelings on both sides.



**Figure 15** This figure shows deeper insights into the uncomfortable feeling during conversations between employer and employee.

The results of the workshop showed that it was a problem for both participants to combine the world of work and the world of family. The aim of both participants was to strike a balance between the two worlds and try not to delve too deeply into family life and private issues while at work. It became clear that the workspace has no room for these private conversations as everything is geared towards making the employee productive on a professional level. Another finding was that a person who stays at home for an extended period of time also feels that there is no room for conversation or reflection on professional goals due to their involvement in childcare. It is interesting to see that there is a need to connect these still separate worlds of family and work because there is no space for private matters at work and professional matters at home.

## 5.2 Design brief

The insights gained from the theoretical framework and user research during the analysis phase will now be summarized. As expectations of women have changed over time and it is now expected to have a career and family, the experience of a high degree of compatibility between the two is becoming increasingly important. Due to the current often still low compatibility, which means that starting a family and caring for children to date continues to have a huge impact on future salary (gender pay gap) and career opportunities, and the associated demographic change puts the employer in a situation of labor shortage. Therefore, the role of employment is changing and needs to be redefined to improve the attractiveness of the workplace. The theoretical framework research shows that there is a need for innovation in the family-friendly work environment. Some of the core findings from the user research were:

- There is a lack of access to personalized information, which leads to employees and employers searching the internet and becoming overwhelmed and confused by the amount of conflicting information, which takes up a lot of time.
- The inadequate structuring of the entire process leads to poorly prepared participants who are often unable to make qualified decisions, forget to make them or make them too early. This often leads to a weaker bond between employee and employer.
- There is a lack of space for family topics at work and for professional topics at home. This leads to a disconnection between family and professional life, a weakening bond between employee and employer and a lack of honesty and empathy.

This indicates that the new concept should reflect a new experience of working life, focusing specifically on the commonality of the pain points mentioned above, namely the conversations between employee and employer. The concept needs to provide access to information to prepare for these conversations, with a framework for a plan and structure that can be discussed and updated in the conversations, and to be constantly aware of reducing the disconnection of the family and work space.

Another requirement of the concept is the seamlessness of the conversation experience throughout the entire journey, regardless of the meetings location, whether in the office or at home.

## 6. Synthesis

### 6.1 Explore concepts

Having defined the design brief, this chapter will now describe the design process for transforming the compatibility of the work and family. The process will be iterative, prototypes and concepts will be designed and then redefined as they are tested with users to create a holistic offering and seamless experience. This will form the basis for the next chapter, in which the final concept will be presented.

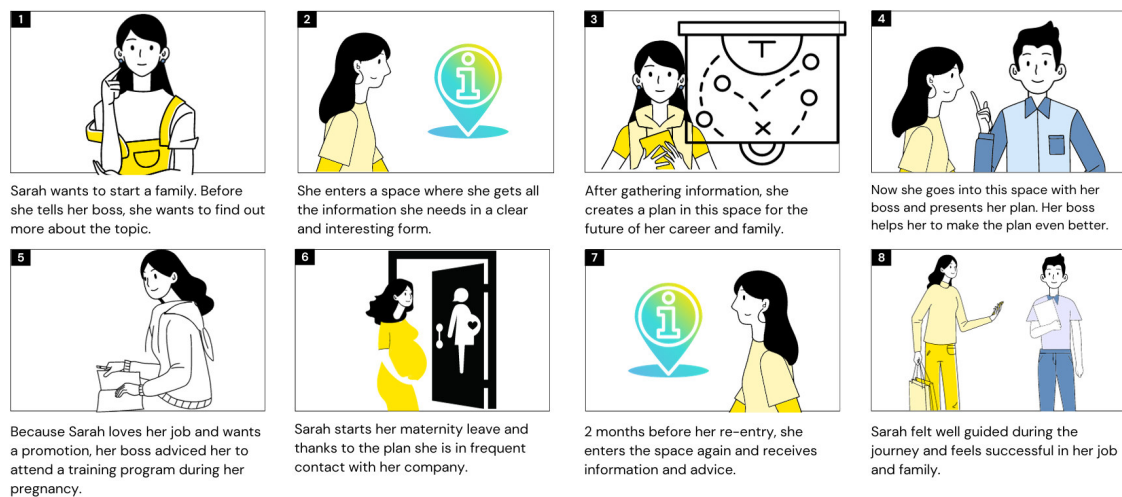
#### 6.1.1 Shifting mindsets: Family AND Career

The purpose of this thesis is to bring a shift in mindset about what family and work represent and how it can be lived. In the previous chapter, the challenges and pain points during the current journey were identified. The following section outlines the wishes described by the users in the interviews and the ideal process. The findings are organized and assigned to the three main pain points. It starts with the wishes related to the desire for more structure and access to information throughout the process. The remaining wishes relate more to the relationship between employer and employee, which is aligned with the pain point of not having enough space for private topics at the workplace and visa versa.

- **Structure and information:** Having a plan of what to do or say when was a wish often expressed by participants. This plan should also have milestones to get an overview and know what is coming next, reminders to prevent meetings from being forgotten and to have enough time to prepare. Frequent check-ups were also mentioned in order to be informed of changes and to be able to adapt the plan. In general, the wish was articulated to have access to information to receive guidance, answer questions, prepare and create a plan proposal and save time.
- **Relationship:** Both stakeholders expressed the desire for transparent conversations in which wishes and expectations could be shared. It was emphasized how important it is to find a solution together as a team and to have a sense of community. Employees mentioned they also want to feel being part of the company during parental leave and always want to be welcomed back. The employer also wants to instill more confidence in the returning employee.

These wishes and ideas are carefully considered when designing the first prototype. It should be noted these wishes are a "call to action", a response to the missing values identified in the previous chapter. To zoom out and understand what the experience could look like, storyboards were created from the employee and employer perspective. It visualizes the core functions, the conversations between employee and employer, the access to information and the structure, but also gives an idea of where they are located in the user journey.

## Employee's storyboard



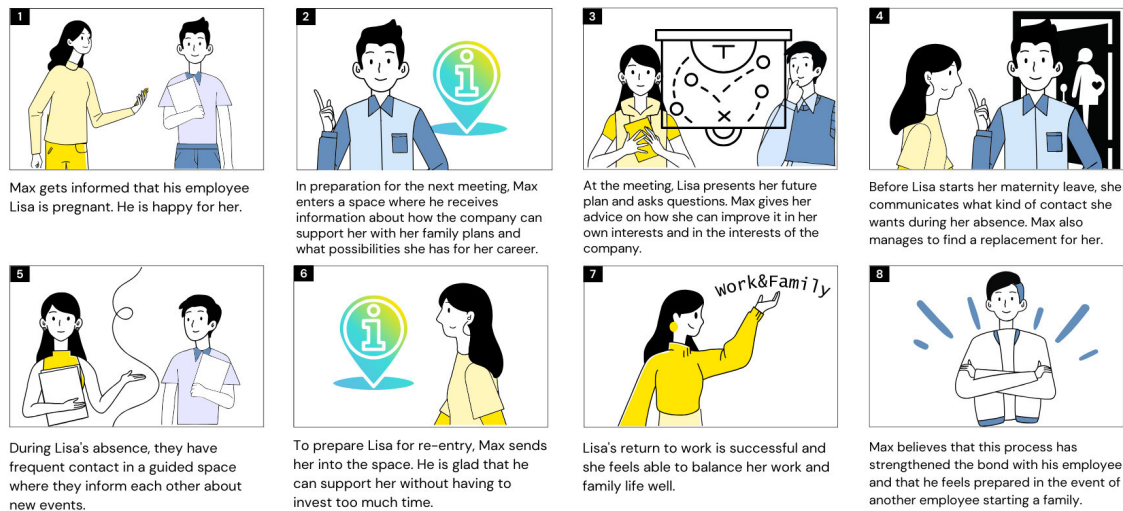
**Figure 16** Here the improved user journey of a working mother is shown.

The storyboard in Figure 16 shows what employee Sarah's journey with an improved compatibility of family and work could look like. She has access to personalized information and can find out what she needs to consider when starting a family. She enjoys the fact she can access this information at any time without anyone else knowing, and she has a dedicated space in her office to think and organize her family goals. This reduces the pressure on her to be confronted with questions from her employer too early. When she has enough information, she starts to draft a plan, which she then presents to her employer. The employer supports her in improving the plan and ensures she does not suffer too much career disadvantages as a result of starting a family. As she would like to be promoted, she attends further training during her pregnancy. During her maternity leave, she is in frequent contact with her employer, they update the plan and prepare her for her return to work. This way, she feels connected to her working life from home and has the space to think about her future career goals while on parental leave. All in all, she feels well guided, valued and important, she knows what to expect and is empowered by her own decisions.

It is also interesting to look at it from the employer Max's point of view, as illustrated in Figure 17. After his employee Lisa informs him that she is pregnant, he has access



## Employer's storyboard



**Figure 17** This figure illustrates the improved user journey from the perspective of the employer.

to personalized information to prepare for the next meeting with her. In particular, he searches information about what his employee's future career might look like and what opportunities are available. In the meeting, Max can improve her presented plan with smart career tips and family benefits. Once his employee is on maternity leave, they have frequent contact to update the plan and prepare her for re-entry. Thanks to the dedicated space for family topics at the office, he saves time and feels empathy to Lisa's family life outside the office. His employee has a successful re-entry, feels able to balance family and career and her bond with the company remains strong. This saves Max money because he is not losing his employee and he doesn't have to hire a new one. In general, Max feels he knows what's coming next, he feels guided, in control, more connected, motivated by his employee's success and confident that he can support his next employee in starting a family.

### 6.1.2 Communication instruments

A further challenge when creating the concept is to guarantee users a seamless and effortless communication space for the entire journey, regardless of whether the employee is in the office or spending parental leave at home. This raises the question of whether a single communication medium or a mixture of several should be used. There are the options of meetings fully manual, fully digital, hybrid and with VR here, which will now be explained in more detail.

The journey could start in the office and involve face-to-face meetings with direct, real human interaction. Later, when parental leave begins, the employee would have to travel to

the office for meetings. This would make it impossible for some employees to participate in the concept as they may not have the time or resources to travel to the office with or without a baby.

Another option would be to establish contact via online chat services such as video conferencing. Staying with this communication technology from the beginning, the user could feel impersonal in a video conference with a communication partner which is located in the same office. As the human-computer interaction (HCI) takes place on a two-dimensional screen, the interaction is limited to verbal and visual feedback.

There is also the possibility of a mixture of real and digital meetings, in which the data is recorded either only digitally or both physically, e.g. on paper or with created objects and digital data. With this type of mixture, the problem of data transfer would arise. The plan created in the office would have to be transferred to a digital format when the employee is at home.

In recent years, a new form of interaction has gained popularity in a business context. This new technology for collaboration is virtual reality (VR), which allows users to interact in an almost lifelike way. It is an interactive, computer-generated experience taken place in a computer-generated environment and includes visual, auditory and even haptic feedback. This new form of interaction has drawn interest from the business world, and companies such as Cisco, IBM, Intel, Microsoft and Accenture have begun experimenting with VR to run their global meetings, seminars, training programs, recruitment campaigns and as well as social events [25]. When considering this technology for employee-employer contact throughout the journey, the opportunities and challenges should be carefully analyzed. The use of this technology would allow those involved to work with the same communication space throughout the journey. It could be used both in the office and at home, with no difference in the space entered. As already mentioned, the almost lifelike interaction would make it interesting to use even if the two users are in the same place as in the office. This space offers infinite possibilities which are presented in more detail in the next section. In general, the space can shape the interaction according to the needs of those involved and can therefore support the transfer of information, the creation and co-creation of plans. Challenges could be the introduction to the new technology for inexperienced users and the need to purchase VR technology. The derived requirements for the interaction are therefore a well-guided introduction to its use, a functional rather than distracting design and a low tech alternative for first implementation steps.

## **Interaction in VR**

In the following, the opportunities created by virtual environments (VE) are analyzed in more detail and whether they are linked to the previously discovered pain points. For this purpose, the work of B. Dalgarno and M. J. W. Lee [26] will be considered. The article examines the characteristics of three-dimensional (3D) virtual environments (VE) compared to 2D environments. It concludes, 3D VEs "provide opportunities that lead to improved spatial knowledge representation, greater opportunities for experiential learning, increased motivation/engagement, improved contextualization of learning, and richer/more effective collaborative learning compared to tasks facilitated by 2D alternatives". [26]. The next aspect to be discussed is whether these facilitations are desirable in the context of this work and if so, which pain point is to be resolved.

One of the main pain point is the separation between the family and work space, the weakening bond between them during parental leave and the lack of trust in each other. Here, the concept needs to focus on a feature increasing the closeness of physically separated people, creates a comfortable atmosphere and provides a sense of teamwork. The research article shows, 3D VEs can be intrinsically motivating and engaging through a high level of personalization, decision making and archiving of goals within the environment. According to psychologist Mihály Csíkszentmihályi, this engagement can lead to a shift in mental focus, away from everyday stress and the environment, in order to concentrate fully on the task which has been given [27]. He describes this experience as "flow", as the user has the feeling of being psychologically immersed in the environment. In the context of this thesis, the resulted mental state of flow aims to distance oneself from daily stress and worries and focus on career and family planning. This can reduce the overwhelming feeling of having to make important decisions for the future and create the comfortable atmosphere mentioned earlier. During parental leave, the employee at home can be reminded of the corporate environment and the employer at the office can relate to the family environment. VE can be a tool for the employer to support the employee remotely during physical separation. The 3D environment encourages greater closeness and richer communication between spatial separated users due to spatial and non-verbal cues, such as gestures and actions. To foster a sense of teamwork between employee and employer, 3D VE provides the opportunity to simultaneously engage and create shared artifacts, such as the family and work schedule, creating a positive interdependence.

Another pain point is the lack of structure, the challenge here is to help the user to be prepared and enable the decision making in the right moment. To archive this, the user has to feel or experience the time ahead, organize thoughts and tasks, and translate the abstract process into something real. The paper from Dalgarno[26] states VE "can be used

to facilitate experiential [...] tasks that would be impractical or impossible to accomplish in the real world", such as the task of making time tangible. The author gives the example of a scientist working in a radioactivity laboratory, measuring the results at the laboratory level and then zooming in and seeing what is happening at the atomic level. In the context of this work, periods of time can be visualized as months and later it is possible to zoom in and look at and structure individual days or weeks. Here, the perception of time can be changed and the user does not have to decide whether they want a detailed plan with mapped days or a less detailed plan with mapped months. Dalgarno and his colleague also explain that the user can create a personal 3D environment in VE to articulate personal abstract concepts, which correlates with the requirement of transferring an abstract process to an experienced reality.

In essence, VR technology is used in this concept to benefit from its immersive properties, ensure virtual contextualisation and make time tangible.

### **6.1.3 Prototype testing 1**

VR technology will be implemented in the final concept, however the prototypes created now will be built in reality and tested in real life to ensure quick results. In this prototype, users are observed as they create a career and family plan utilising 3D objects.

In more detail, the employee is provided with questions to identify knowledge gaps in order to create a plan for the professional and family future. It is structured like a visualized timeline made of 3D objects. The objects representing categories and time intervals. There are two main objects with specific colors and shapes, each symbolizing one month of parental leave and one month of work in the company. In addition, there are other objects representing milestones such as the birth of the child and the return to work, as well as the employee's request for contact with the employer. The employee is guided step by step in the creation of this plan. When the plan is ready, the employee presents it to the employer, who can review it from a career perspective. Later, at meetings during parental leave, the two parties gather with the plan to update each other and adjust the plan.

The interaction with 3D objects to create the timeline was chosen as it is common in the VR environment to give the user the feeling of reality. It should reflect a real environment to create a lifelike experience. This interaction is then linked to processes that the user is already familiar with, for example building with 3D objects when playing board games, resulting in an intuitive interaction. When the user has this intuitive interaction, the immersiveness of VR technology is enhanced even more because the user can interact naturally and behave as they would in reality.

After discovering the advantages of this interaction in connection with the creation of a plan, this should be verified by a prototype test. This involves questions such as: If the users create such a plan, does it then correspond to the desired results from the design brief, such as an adequate structuring of the process enabling qualified decisions to be made and strengthen the relationship and therefore reduces uncomfortable feelings.



**Figure 18** This image shows the three provided modules to create the foodplan. Peanuts represented one month parental leave, pretzels one month working and the fruit physalis milestones like giving birth or the re-entry.

Two prototypes were designed to gain insights into the above questions. The first consisted of three different types of food to experience the boundaries of the social context. Food is often associated with a personal context and there is a common restriction in society to "not play with food", yet the aim was to reduce the seriousness and pressure of the topic of planning for the future and the need to make the one right decision. It was also tested to see if it could also reduce the uncomfortable feeling as food is known as something bringing people together.



**Figure 19** The figure shows the three modules of the chairplan.

The second prototype was designed using three miniature chairs in different colors and a few small stones. The chairs were intended to symbolize the office atmosphere and, in contrast to the previous prototype, bring more seriousness to the topic. Particularly interesting for this test is the comparison of the two prototypes.

The two participants were aged 20-30, one woman and one man, and they were planning to start a family soon. They were in a relationship and employed in two different companies with over 500 employees each, working from the office or home office. To prepare them for creating the plan with the different 3D objects, they were asked these questions:

### Family Goals

- What is the provisional date of childbirth?
- May greetings and presents be sent to the private address?
- Is contact with the employer desired during absence? How often?
- Is project-related information desired during the absence? Via which channel?
- Is company information desired during the absence? Via which channel?
- Are invitations to company and team events desired?
- Expected duration of parental leave:
- Do you want to take advantage of continuing education opportunities during parental leave?
- Do you want to return to your recent position?
- What is your desire for development opportunities during and after pregnancy?
- Anticipated working time model desire

### Career Goals

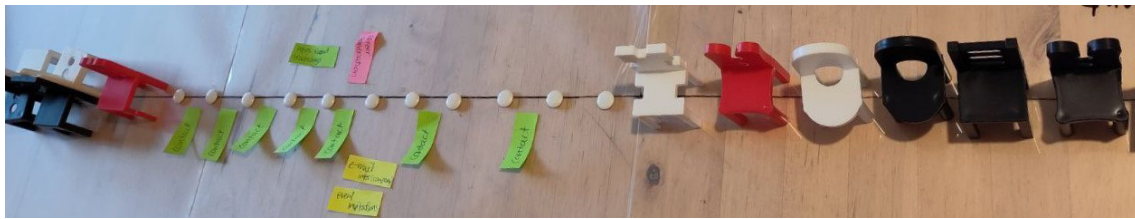
- Do you wish to get promoted to the next level at your current company?
- Do you want to develop a new skill or certification?
- Do you intent to take on a new project or assignment?
- Is it desired to work on a project that makes a difference in the world?



**Figure 20** This image visualizes the finished foodplan from start of pregnancy until the re-entry.

The procedure for the first test with the food prototype was as follows: The employee was provided with various food items assigned to different units and themes. The two main categories are career, represented by pretzels, and family, represented by peanuts, with each item symbolizing a period of time spent with family or career. Particular foods, in this context the fruit physalis, visualize milestones such as childbirth and re-entry. The employee was asked to design the piece of food according to their future plans. Once the

plan was finalized, a photo could be taken and the food could be consumed. The process of the second prototype was similar to the first, but the food was replaced with the miniature chairs.



**Figure 21** Here the finished chairplan is shown.

The findings of the test phase were that both prototypes took the plan from abstract to real, from just written on paper to something that can be experienced and touched. The participants said it helped to get a clear vision and both prototypes were therefore equally suitable for structuring the process appropriately.

Both prototypes also encouraged decision-making. One example of this is that it was not only decided whether contact with the employer was desired during the absence, but also the exact dates for the contact were planned. Nevertheless, the encouragement to make decisions was also perceived as stressful. One participant was more cautious when making decisions and sometimes had difficulty making up his mind. Especially when the participant had to make decisions which were still far in the future, such as how to work after re-entry or whether to be promoted after re-entry, stress was observed. Here it can be stated there is a need to be guided through decisions, which both prototypes still lacked. The challenge is to support the participant in making decisions when they are overwhelmed without influencing their personal will.

In the end, the participants said the prototype with the miniature chairs empowered them and it established a stronger bond with the employer. The finished plan was also seen as a companion for future meetings and a suitable basis for discussions with the employer. The food prototype, on the contrary, did not reduce the disconnection to the employer, but rather intensified it. Even though the food reduced the pressure of the situation and made it more of a fun game, it also distanced the participants from the real situation. This led to careless decisions which then, when the plan was finished, were not suitable as a basis for the discussions with the employer and resulted in an ill-prepared and uncomfortable feeling. The challenges in general with this physical prototype were it was difficult to transport and store. In addition, the shape was criticized in both models because the individual parts could not be connected to each other and did not form a continuous line.

## 6.1.4 Prototype testing 2



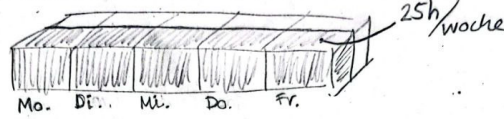
**Figure 22** The colored Duplo blocks were the modules for the second prototype testing.

Due to the decision-making challenges identified in the previous test phase, this will be the focus of the second test phase. The questions addressed are: How to guide the employee through the process of plan creation and how to support them in decision making? A specific prototype was designed with interactive instructions to ensure guidance through the process. When decisions need to be made, options were presented to inspire and inform participants.

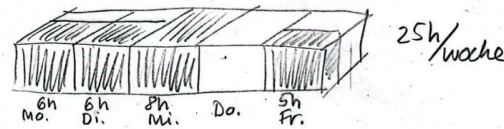
The instructions explain step by step what the participant has to do. The format of the language is personal and is aimed directly at the user. The intention of this personalized language is to create a stronger connection between the user and the system. It should create a sense of connection and empathy and make the user feel valued and respected. Questions are also asked, and if they cannot be answered by the user, they have the opportunity to access additional information or to see options. The options show different working time models in written form and visually with sketches. The information provides a deeper understanding of the topic and the options shown give concrete examples of how a decision could be made. In this instance, the users created the plan from Lego Duplo, which are large Lego bricks. This was to meet the previous desire for objects that can be connected to each other and form a continuous line. The participants were again a woman and a man, both 25-35 years old, who mainly work in the office or from home, in companies with over 50 employees. Both participants want to start a family within the next three years. The two participants carried out the tests separately and were not in a relationship.



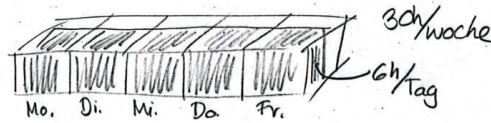
- **Klassische Teilzeit:** Die tägliche Arbeitszeit wird um eine bestimmte Anzahl von Stunden reduziert. Zum Beispiel kann eine Vollzeitkraft mit 40 Stunden pro Woche auf 30 oder 25 Stunden reduzieren.



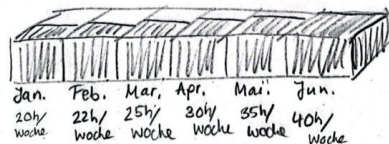
- **Variable Teilzeit:** Die wöchentliche Arbeitszeit ist begrenzt, aber die Verteilung der Arbeitszeit ist flexibel. Zum Beispiel kann eine Teilzeitkraft mit 30 Stunden pro Woche an drei Tagen in der Woche arbeiten oder an vier Tagen in der Woche jeweils nur 6 Stunden.



- **Vollzeitnahe Teilzeit:** Die Wochenarbeitszeit liegt bei 30 Stunden oder mehr. Dies ist eine gute Möglichkeit, den Wiedereinstieg in den Beruf zu erleichtern und gleichzeitig noch genügend Zeit für die Familie zu haben.



- **Abgestufte Teilzeit:** Die Arbeitszeit wird stufenweise erhöht. Dies kann eine gute Möglichkeit sein, den Wiedereinstieg in den Beruf schrittweise zu vollziehen.



**Figure 23** This illustration shows the options for different working time models in written form and with sketches.

The procedure for the second prototype test was as follows: the users were given the instructions and information about the options on a sheet of paper. Shortly afterwards, they were introduced and informed about the material (Duplo bricks) they would be using. The participants were then asked to work independently and without additional verbal help. The aim here was to check whether the material handed out was sufficient to guide them through the process and enable them to make decisions. For better understanding, see the first part of the instructions:

## Welcome to your plan for your career and family future

I am Plop and I will be guiding you through your plan for your career and family future today.

Are you ready to build your future?

### Introduction

The plan is divided into three parts:

1. **Milestones:** In this part, you define important events that are to happen in your future.
2. **Everyday work:** In this part, you define how you want to work after parental leave.
3. **Career:** In this part, you define your professional goals.

### Milestones

Let's start with the milestones.

The first milestone is the expected date of delivery.

Set a red block on the timeline at the right time.

Fill the gap between the present (today) and the first milestone (expected date of delivery) with blue blocks.

Each blue block represents one month of work in the office.

If you are a woman, you are on maternity leave one month before your due date.

Therefore, you can replace one block before the first red milestone with a green block.

Each green block stands for one month of parental leave.

### Parental leave

Now we need to figure out how long you want to take parental leave.

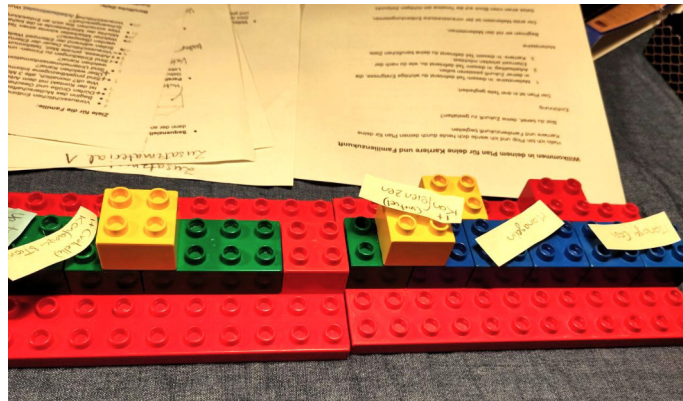
Do you know that already?

If not, look at the options. (additional material 1)

If you have decided on a period for parental leave, set as many green blocks on the timeline as the number of months you want to take parental leave.

Example: 6 months of parental leave = 6 green blocks lined up after the first red milestone.

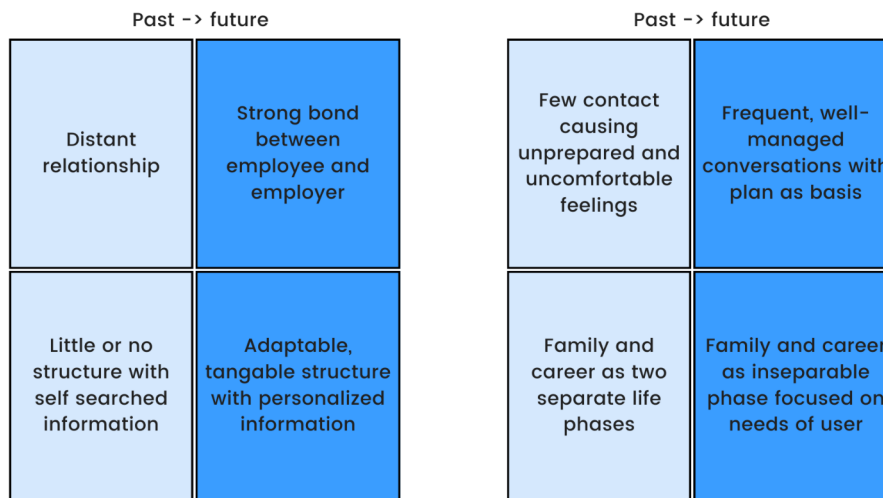
Afterwards, instructions followed on how to build the re-entry part, how much and when contact is preferred and how to plan the career. The complete instructions can be viewed in the appendix 9.



**Figure 24** The finished plan of prototype testing 2 is shown in this figure.

The finding of this second test was both participants were able to create the plan independently and without outside help. They were quickly able to make qualified decisions and understood the instructions easily. The options were also beneficial in helping them to make informed decisions and avoid feeling overwhelmed. They enjoyed the haptic interaction with the Duplo bricks and spoke of a satisfying feeling when arranging the bricks. Both participants suggested a more differentiated design with more different colors to better distinguish the different working models. Both participants mentioned the desire to be able to create the plan together with their partner.

## 6.2 Frame solutions and value creation



**Figure 25** This illustration shows the desired transformation of the design solution.

The conclusion of the concept exploration phase in relation to the creation of the final concept is a rethinking of what family AND work means. The new concept will fundamentally change the relationship between employees and employers. In the phase of starting a family, there will be no feelings of disconnection and excessive demands leading to a distant relationship, but it will strengthen the users, create a sense of teamwork and thus establish a strong bond between them.

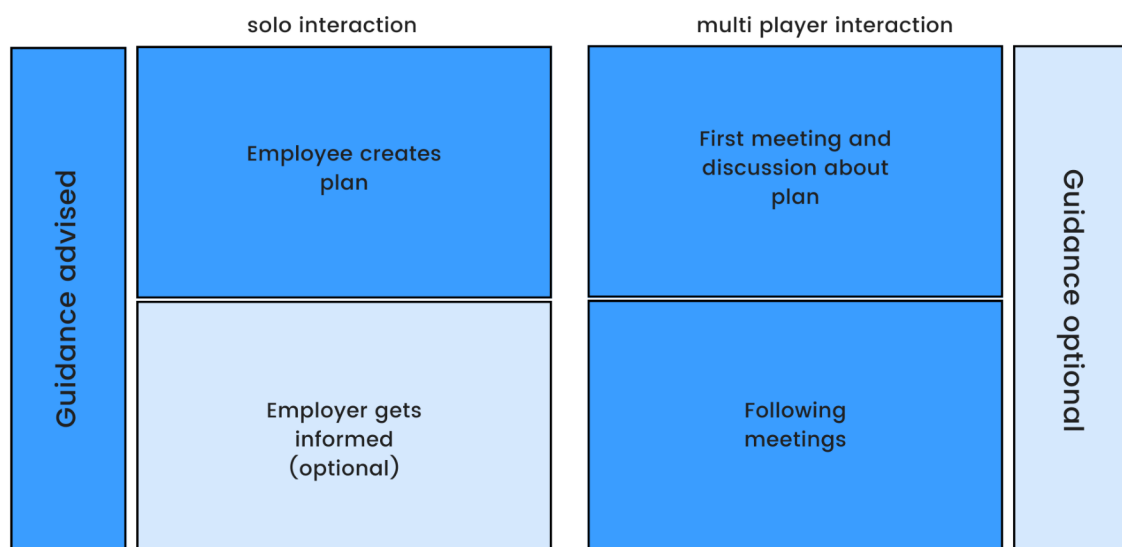
At the core of the final concept will be an unprecedented new structure for the process of starting a family for employees and employers. The experience will change from a process with little or no structure and mostly self-searched information to a adaptable, tangible structure with personalized information. The process will include additional value-added offerings during plan creation that are more engaging through 3D virtual environment interaction.

The newly created plan will serve as the basis for future talks between employee and employer. The situation will evolve from no or few contacts, causing unprepared and uncomfortable feelings on both sides, to frequent, well-managed conversations with an accompanied plan as a basis. Thanks to the new concept, the conversations will be effortless, discussing forward-looking plans and reflecting on past events.

The concept is designed to ensure family and career are no longer seen as two separate phases of life, but as a continuous voyage focused on the needs of employees and employers.

## 7. Realization

The final concept will combine the findings from the theoretical framework, the user interviews, the co-design workshop and the prototype tests. The new work-family compatibility experience will first be presented in the form of an overview of the key features and the benefits for employees and employers. Then the experience is visualized through a customer journey map that incorporates customers' thoughts and emotions.



**Figure 26** In this figure the four interactions with the VR environment are illustrated.

### 7.1 Concept elements

The final solution is "Architect of your future", a virtual reality (VR) environment in which the employee can create a 3D timeline from hand-sized blocks that can be arranged in different ways. At the same time, a corresponding guide is provided in the form of step-by-step instructions and access to relevant information. Various options are available to the user to discover different future scenarios. The employer also has access to this VR environment and can collect the information they need to guide the employee. Later, the VR environment is used as a meeting space to bring employees and employers together and to structure and reorganize the period of parental leave and return to work. Here, the immersion feature of a VR headset gives the user a space to think about their family goals while in a work environment, or their professional goals while on parental leave. The final concept contains five different elements: immersion, guidance, structure, information and

user interaction, which are now outlined in more depth.

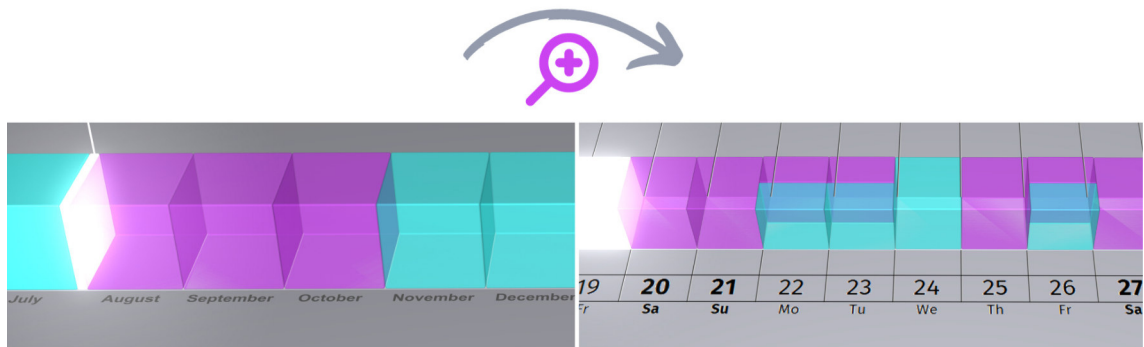


**Figure 27** This image shows the moment of immersion from the reality into the VR environment.  
Source: freepik

**Immersion** starts when the user puts on the VR glasses and immerses oneself in the designed world. This takes the user out of their current environment, e.g. the office or family home, but also shifts their emotions away from the stress of everyday life. This leads to greater user engagement in the task at hand. The effect of immersion through VR technology is needed in this context to bridge the gap between the two worlds of work and family life. As already mentioned, it is still widespread today to see these two worlds as separate and successive phases. Immersion aims to create space to think about family life at work and professional life at home.

**Structure** is provided by placing different colored 3D blocks on a timeline. Here the user has a playful interaction when picking up the blocks, placing them in one location and then rearranging them. Messages like "You have your future in your hands" are here nudged into the user. The 3D objects stimulate the user's creativity and encourage them to try out different combinations. The user is led to think about possible future scenarios by being given options for organising parental leave and returning to work. This creates a greater degree of freedom, as a space is created in which new thoughts can be turned into reality.

The 3D objects also make time tangible and allow the user to experience different time periods. Adding more blocks gives the feeling that time is lengthening as the arranged objects form a longer line. The user is encouraged to switch between different units of time such as months and days while using the zoom function to create a plan at different levels of detail depending on the user's needs.



**Figure 28** This image illustrates the zoom function in the VR environment.

**Guidance** is provided by an interactive text that can be seen in the VR environment. The text can be compared to a straightforward instruction that guides the user step by step through the creation of a plan, the collection of information or the hosting of meetings. As the feedback from the second test phase of the prototype was highly positive, the content and type of language will be based on them. The language is conveyed in the first-person perspective and is therefore aimed directly at the user in order to create a strong connection between the user and the system. The content is reproduced sentence by sentence to create the feeling of having a conversation rather than reading a text. In addition, the text is read out loud to give the user both visual and acoustic feedback.

**Information** is conveyed in an engaging way as the user is asked open-ended questions and, if not knowing the answer, is given access to the relevant information. This gives the feeling of getting information through a conversation, so information is given in small parts and if the user already has the knowledge, it is possible to avoid duplicating information and therefore save time. The research found that some users have difficulty making decisions, hence not just information but also concrete options are provided. These options show information in text form and visualized in 3D about how, for example, parental leave can be shared with the partner or how much or when it would be possible to work after re-entry. This is inspiring for the user and breaks down social norms by presenting alternative forms.

**User interaction** takes place between employee and employer. The users are involved simultaneously and create shared artifacts, such as adding or changing blocks from the family and work plan, which establishes a positive interdependence. Both are equally empowered to act and improve the plan, which builds a stronger bond between employee and employer, even if they are physically separated.

The interaction in a virtual reality environment is now explained. Interaction takes place via a controller that is held in both hands. These controllers have several buttons that can be pressed or held. For example, objects can be gripped and transported to another location. While the object is being held, the arm can be raised, which also moves the position of the object. There is also a buzzing sensation, a haptic feedback that is currently often used as a reward or signal when the user has completed a task. VR technology is constantly evolving and haptic interaction is becoming more sophisticated and realistic.

**Design** is based on minimal shapes and colours in the VR environment. The colours are turquoise for work time, pink for family time, white for milestones and the surroundings are kept in a non-distracting grey. The main shapes are angular, a square table and square blocks. The square blocks were chosen since they offer several advantages when used to represent elements in a virtual reality (VR) family and career planning application. The shape is simple and familiar leading to intuitive interaction and does not distract the user. The scalability and adaptability equips the user with the freedom of creating different arrangements of the timeline and categories can be represented with changing colors. All in all, the general design was chosen to meet the needs of function, a plan created for family AND professional goals and their users, employees AND employers. The design aims to be feminine and masculine with the mix of colours, depicting soft family features such as round cubes and bright milestones with a more organised, formal professional feature of clean surfaces and structure.



## 7.2 Customer Journey

The true extent of the metamorphosis of the new compatibility experience is difficult to grasp through the concept elements alone. Therefore, it will now be illustrated using the customer journey of the employee Lisa and the employer Max.



**Figure 29** The company decides here to work with "Architect of your Future" to improve the compatibility of family and career. Source: canva.com and craiyon.com

Lisa and Max's company has difficulties finding new employees and also loses employees when they start a family. As a result of the labour shortage in Germany and the growing importance of work-family compatibility in Germany. The company therefore decided to improve its work-family compatibility and began working with "Architect of your future" to support its employees in starting a family and to help its managers to successfully organise their return to work and promote their career after starting a family. In order to start providing the VR technology and software, the possible career opportunities and family benefits need to be added and updated. Here, the company defines in the software which main career paths are possible depending on the department and which working time models are available during pregnancy, parental leave and after returning to work. A VR room is then set up in the office where employees can use the technology and borrow it for usage at home.

The employee Lisa is 30 years old and has been working at the company, which has around 250 employees, for four years. She likes her job, where she mainly works in the office but also has the opportunity to work from home two days a week. Her daily tasks include acquiring new customers through phone calls, emails or networking, maintaining existing

customer relationships through visits, phone calls or emails and executing customer orders. One day, she and her long-term boyfriend took a pregnancy test and received the happy news that they were going to have a baby. Lisa immediately begins to wonder how she can reconcile a family with her current work situation. She remembers "Architect of your Future", a planning tool that her company offers for such situations. She borrows the VR technology and enters the VR environment at home with her boyfriend. After a 20-minute overview, she feels that she can manage a family and her professional life well. As suggested by the "Architect of your future" software, Lisa turns to her manager Max when she is 12 weeks pregnant and tells him about it. He is happy for her and they agree to meet in the next few weeks.

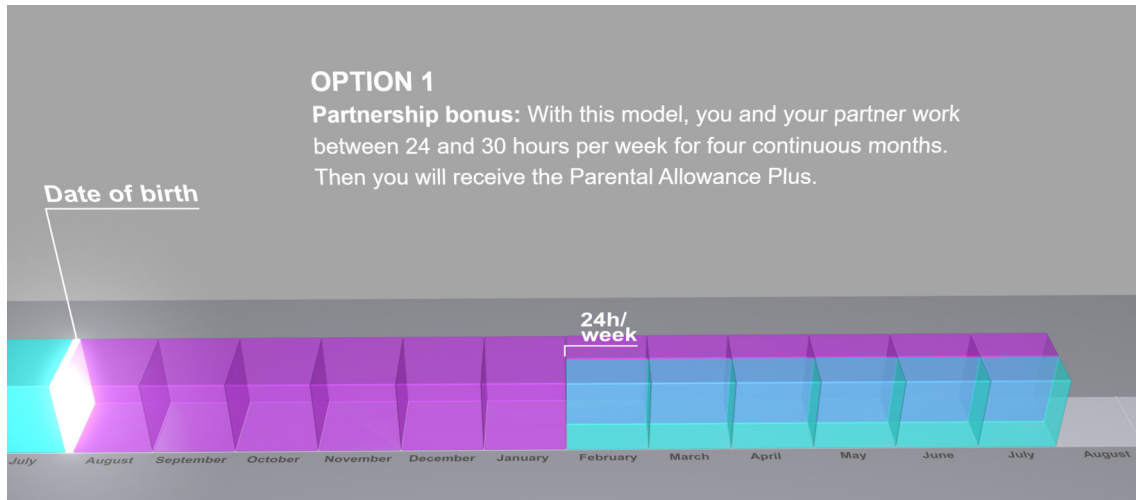
Max is 35 years old and responsible for 10 employees. He was recently promoted to Manager and is very happy with his new position. He is particularly committed to building a positive and motivated team. His daily tasks include planning and prioritizing tasks, communicating and collaborating with team members, managing performance and providing feedback.



**Figure 30** Here, the user is welcomed into the "Architect of your Future" VR space. The 3D model designed with the software Autodesk Alias is shown.

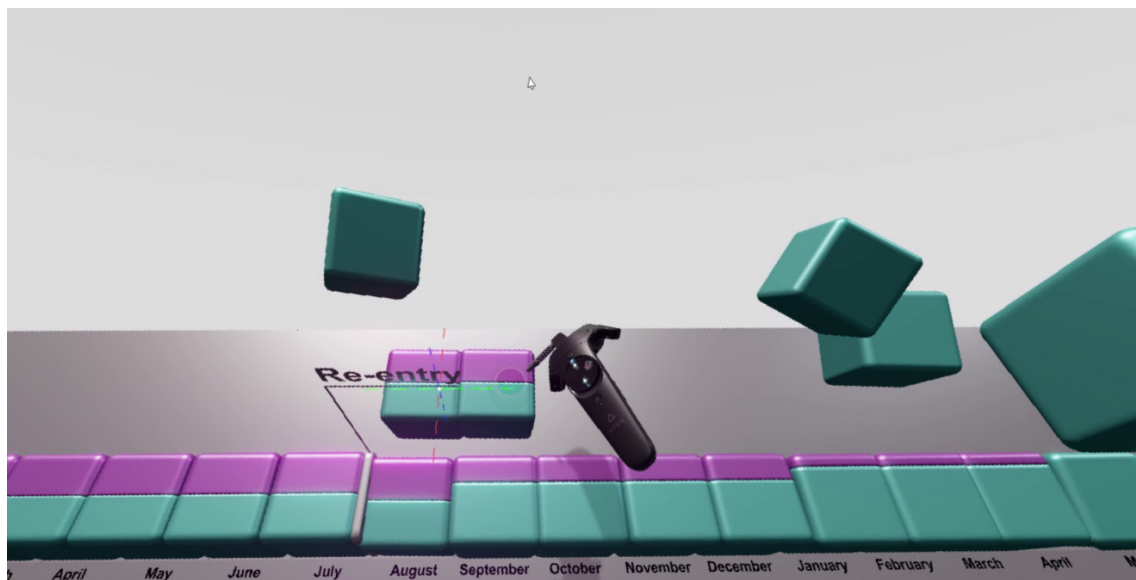
Lisa is asked to prepare herself for the upcoming meeting with her manager and therefore enters the "Architect of your Future" space. By immersing herself in the VR environment, Lisa feels like she finally has a space where she can think about her future, especially her future family, even though she is currently in the office. She is completely drawn into the task of creating a plan and forgets about her daily life. At the beginning, she is greeted by a text read aloud by a friendly computer voice. As the text speaks directly to her, she immediately feels comfortable and guided. Step by step, she builds a timeline using medium-sized blocks and follows the instructions. She starts by placing a glowing

milestone on the expected delivery date and filling the gap between the milestone and the present with blue blocks, each representing a month of work.



**Figure 31** This figure shows an example of the provided working model options.

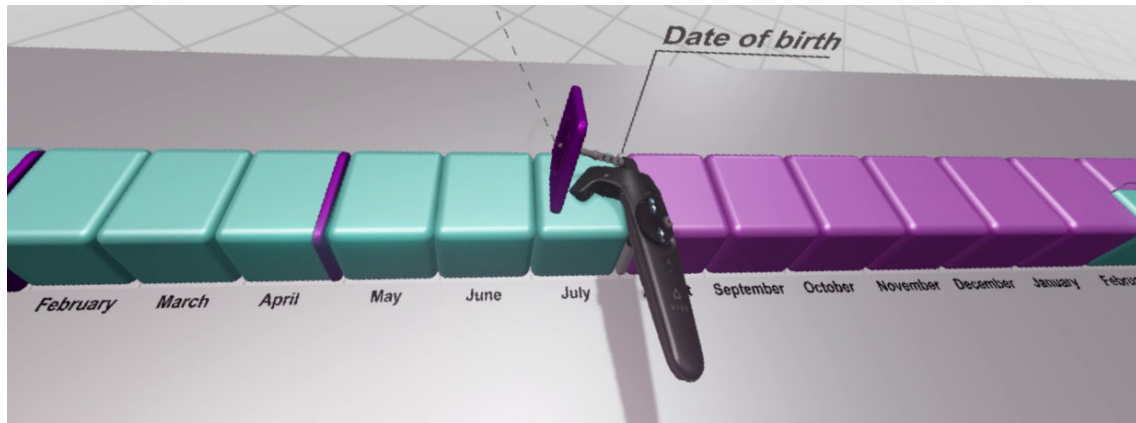
She is then asked whether she already knows how to organize her parental leave, to which she denies. As she doesn't know yet, she is presented with various options and the relevant information. She can click through the options and get some inspiration. She finally decides on the option of taking a total of one year's paid parental leave, staying at home for the first six months and working 24 hours a week for the last six months. This decision is in line with her boyfriend's needs and enables her to make a step-by-step transition back into working life. She is then asked to set the next milestone, which is her return to work.



**Figure 32** In this figure, the user explores various future scenarios of how working hours can be organised after re-entry. The 3D model looks like this through the VR glasses.

Again, she is asked whether she has already thought about how she would like to organize her working hours after returning to work, to which she again replies in the negative. She

is again given information and options. Here she also discovers the option to zoom into the plan and change the displayed month to days. This is very useful when she discovers the option to only work on selected working days. She opts for the incremental working model, where the weekly working hours are increased each month. In this way, she would return to work full-time in November.



**Figure 33** In this figure, the user decides when contact with the company is wanted.

Next, she should think about when she would like to get in touch with her company and have a meeting with her manager Max. To do this, she selects the blocks for the contact and drags them to the corresponding times on the timeline. She decides on a contact in the middle and at the end of the pregnancy to discuss and plan her parental leave and a three-month contact break after the arrival of the baby to recover and concentrate fully on the family. During the following three months, she sets blocks for monthly contacts that are particularly important to her to stay in touch with the company even when she is at home. The last contact blocks are set before and after her return to work to organize and reflect on it. She also sets additional rules for the flow of information: during her absence, she wants to receive the company newsletter to keep up to date, invitations to events and a reminder of her upcoming meetings.

At the end, she is asked to reflect on her professional life. She is asked to answer questions such as: Would you like to return to your previous position or change departments? Do you want to be promoted? Are you willing to attend training, virtual training or conferences and if so, when? As she answers the questions, she drags the words to the appropriate block on the timeline. She feels reassured as she reflects on her professional life that it is possible to have a career and a family at the same time. Since her company has a promotion once a year, she would prefer to be promoted before she goes on parental leave, so she wouldn't have to wait another year. Now the plan is ready, she leaves the VR environment and takes off the glasses.

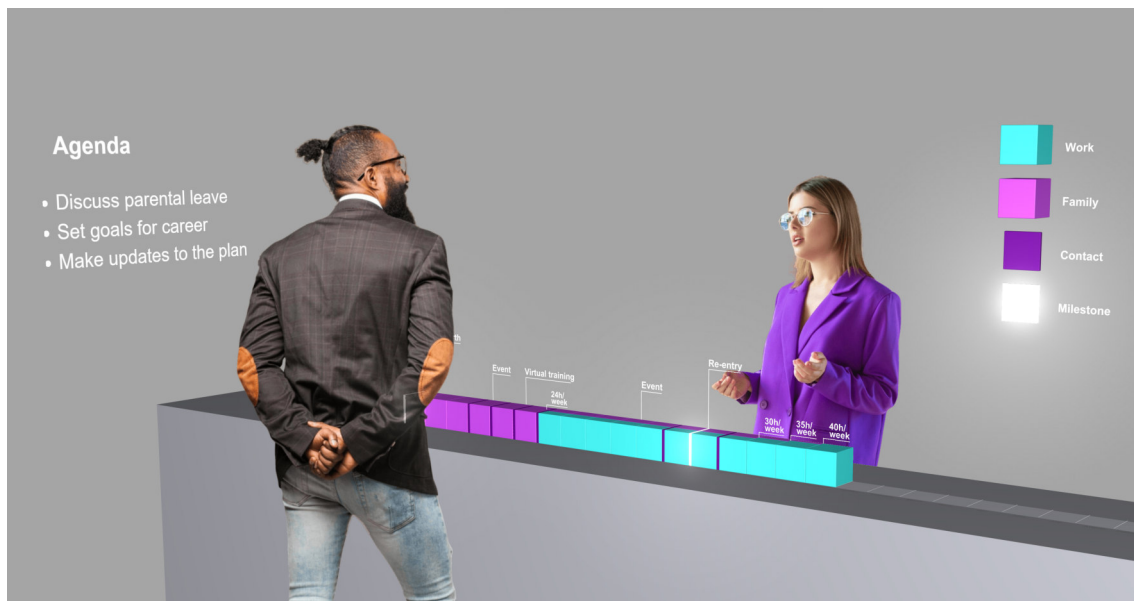


**Figure 34** Professional goals are in this figure added to the timeline.

In the days following, she discusses the plan with her boyfriend at home to make sure it is suitable for both parents. Her boyfriend agrees with her idea of how she wants to organise her parental leave and return to work and suggests that he could also stay at home for the first three months after the birth. He argues that he will be involved in family life right from the start and that it will be easier for him to stay alone with the baby later on. Lisa agrees and supports his decision.

At the same time, Max is briefed on the technology and content of "Architect of your Future". Lisa is his first employee to start a family, and as Max has not yet become a father himself, he is unfamiliar with the organisation and requirements of parental leave and returning to work. He is also curious about Lisa's career options while he considers taking a break from work and reducing his working hours. The moment he puts on the VR headset, he immerses himself in the world of the family and for a moment forgets his everyday office life. He is greeted and the training begins. The on-boarding includes instructions on how to use the technology and information, plans from previous employees and options. When he leaves the space after 30 minutes, he feels much closer to the topic of work-family compatibility and feels well prepared for the meeting with Lisa.

After a few weeks, Max and Lisa meet at the "Architect of your Future". They both put on the VR headset and meet in the VR space with avatars that look realistically like them. Max explains that the avatars were generated from images and can only reproduce facial expressions to a limited extent, but that they are constantly being improved and that the interaction will be comparable to real meetings in the near future. Next, Lisa starts to talk about the plan she has drawn up. Max is glad that he now knows what Lisa's



**Figure 35** This figure shows the meeting of employee and employer in the VR. Source: freepik.com

expectations are, so he can adjust to them and organize a replacement for the period. They don't just talk to each other, but actively take up blocks, change positions and talk about different scenarios and their advantages. As Lisa mentions the promotion she wants, Max explains to her that she would have to fulfill the requirements of several training's and attend a conference for him to consider her promotion. She agrees to do the extra work, and together they find a convenient time for the training and conference.

After leaving the space, Lisa feels excited about her upcoming future and well supported by her manager. Max, on the other hand, is confident that he has found a good balance between Lisa's needs and those of the company and that he will be able to cope with her absence.

In July, Lisa starts her maternity leave and gives birth to a baby boy. She receives a gift and a congratulatory card from her company, which she is very happy about. Over the next months, she immerses herself in the world of the family and learns step by step how to become a mother. When three months have passed, Lisa has her first contact meeting with her manager Max in "Architect of your Future". When she puts on the VR headset, she feels torn away from her everyday life of caring for her baby and senses that she can reconnect with her workplace and her professional life. Max immerses himself in Lisa's family life when he enters the VR environment, and as he interacts with her. Through this resumed contact, he has reconnected with his employee after a period of disconnection. The meeting has similarities to the first, so the two not only interact verbally, but adapt the plan to new changes. Max informs her about new upcoming events and a virtual training course that might be of interest to Lisa. Lisa wants to attend the events and training, so

they add it to the schedule. They then meet again at the scheduled times to discuss and adjust the plan.

Two years after Lisa announced her pregnancy with Max, she returned to work full-time. Looking back, she is proud that she was able to balance family and career and take the appropriate measures. When she thinks about having a second child, she has no doubt that she will manage it just as well as she did with her first child. The bond between her and the company has grown stronger as a result of this positive experience. Max has learned a lot about family during Lisa's journey and is now confident in supporting other employees on their journey to starting a family.



**Figure 36** During the journey there are frequent meetings to up-date the plan. Source: freepik.com

## 8. Future work



**Figure 37** This figure shows the first phase of implementation where Architect of your Future is used through a desktop application. Source: Canva.com

How to turn "Architect of your Future" into reality? The two phases of implementation will now be discussed more closely.

In the first phase "Architect of your Future" would be usable through a 2D Desktop application. This would guarantee wider access and adoption since the widespread availability of computers and smartphones at private homes and companies. The interface and interaction would be familiar to the user and therefore more intuitive and easy to navigate. The development cycles would also be faster since a desktop application is typically faster and less resource-intensive than developing a VR experience. The objective here is to improve the current concept and develop a comprehensive 2D desktop application which will be then the foundation for the VR implementation. Also user feedback would be gathered and the application would be iterated based on the users needs and preferences. The application would miss one of the core elements, the immersion, but would still be valuable to equip the employee and employer with information and structure. Another challenge is interacting with the plan while the employee and employer are in the office. As mentioned earlier, it is essential that both users are involved at the same time, recreating and adapting the plan together to create a positive interdependence. In this situation, the plan could be viewed on a touchable screen to achieve the desired form of interaction.

The initial creation of the plan would then take place as a desktop application, where a 3D plan is created in a computer and later discussed with the employer on the touchable display. In the time of parental leave, when employee and employer are spatially separated,





**Figure 38** This image shows an employer and working father adjusting his created plan. Source: Freepik



**Figure 39** This illustrates how an employer and a working mother have an online meeting during parental leave. Source: Canva.com

the interaction would take place over a online video meeting were both users are able to work on and adjust the plan. This could be realized in the next year to further test the design solution and optimizing it, to make it then available with the VR technology in around five years.

In the second phase the 2D desktop application would be converted into the VR environment. While already having the insights and user feedback from phase one, here the focus of the application can lay on the immersive and interacting capabilities to provide a more engaging experience. The transition would be straightforward and efficient due to the previous desktop application. This would enhance the user's connection to the company or family life and create an entitled space for it. The objective here would be to have a seamlessly integration of the VR application into the existing 2D desktop platform and to gather more detailed user feedback. As VR technology matures and becomes more accessible, the demand of VR application in the business context will increase highly.

## **9. Conclusion**

To conclude, a research study was conducted to design effective strategies to enhance the work-family compatibility from the perspective of employees and employers in Germany. To this end, 15 interviews were performed in which the current process was outlined and wishes and challenges were analyzed. The main challenges identified were the lack of access to information, structure and a dedicated space for family and career planning. Therefore, a virtual reality (VR) solution called "Architect of your Future" was developed to address these challenges. This solution provides employees with information and guidance and allows them to create a schedule of 3D cubes that represent their goals. Employers can also enter this VR environment to access information and find out how they can support their employees. During the period of parental leave and return to work, the timeline can be used to structure and reorganize the process while providing a medium for contact between employee and employer. The results have shown that the structure of the process, guidance with step-by-step instructions, engaging and relevant information, interaction with the user and immersion in the world of family and work are effective strategies to reduce work-family conflict, improve the employee-employer relationship and increase productivity. These findings are of great importance to organizations looking to create a supportive work environment and improve employee engagement and loyalty. Overall, this research has provided valuable insights into the problem area of work-life balance and discussed a corresponding solution space.

## References

- [1] *Das Statistische Bundesamt*. Last accessed 16 October. 2023. URL: [https://www.destatis.de/DE/Themen/Querschnitt/Demografischer-Wandel/\\_inhalt.html](https://www.destatis.de/DE/Themen/Querschnitt/Demografischer-Wandel/_inhalt.html).
- [2] Ruth-Helene Melioranski. *Design issues, lecture 1*. 2022.
- [3] Vijay Kumar. *101 design methods: A structured approach for driving innovation in your organization*. John Wiley & Sons, 2012.
- [4] Magda Kochanowska and Weronika Rochacka Gagliardi. “The double diamond model: In pursuit of simplicity and flexibility”. In: *Perspectives on Design II: Research, Education and Practice* (2022), pp. 19–32.
- [5] OpenAI. *AI-powered language model developed by OpenAI*. Last accessed 16 October 2023. 2023. URL: <https://chat.openai.com/>.
- [6] Lucie Rolfes. “Geschlechtersensible Sprache”. In: (2023).
- [7] Yikang Zhang et al. “Confirmation bias in simulated CSA interviews: How abuse assumption influences interviewing and decision-making processes?” In: *Legal and Criminological Psychology* 27.2 (2022), pp. 314–328.
- [8] Nicole Bergen and Ronald Labonté. ““Everything is perfect, and we have no problems”: detecting and limiting social desirability bias in qualitative research”. In: *Qualitative health research* 30.5 (2020), pp. 783–792.
- [9] Ioana M Latu, Marianne Schmid Mast, and Tracie L Stewart. “Gender biases in (inter) action: The role of interviewers’ and applicants’ implicit and explicit stereotypes in predicting women’s job interview outcomes”. In: *Psychology of Women Quarterly* 39.4 (2015), pp. 539–552.
- [10] Claudia Goldin. *Understanding the gender gap: An economic history of American women*. gold90-1. National Bureau of Economic Research, 1990.
- [11] Claudia Goldin. “The quiet revolution that transformed women’s employment, education, and family”. In: *American economic review* 96.2 (2006), pp. 1–21.
- [12] Raquel Fernández, Alessandra Fogli, and Claudia Olivetti. “Mothers and sons: Preference formation and female labor force dynamics”. In: *The Quarterly Journal of Economics* 119.4 (2004), pp. 1249–1299.
- [13] Claudia Goldin. *Career and family: Women’s century-long journey toward equity*. Princeton University Press, 2021.

- [14] Bettina Sommer and Tim Hochgürtel. “Datenreport 2021 Vereinbarkeit von Familie und Beruf”. In: (2021).
- [15] DARE TO SHARE–DEUTSCHLANDS WEG ZUR. “Dare to share–Deutschlands Weg zur Partnerschaftlichkeit in Familie und Beruf”. In: (2016).
- [16] *Bundesministerium für Arbeit und Soziales*. Last accessed 16 October. 2023. URL: [www.bmas.de](http://www.bmas.de).
- [17] *Antidiskriminierungsstelle des Bundes*. Last accessed 16 October. 2023. URL: [www.antidiskriminierungsstelle.de](http://www.antidiskriminierungsstelle.de).
- [18] *Bundesministerium für Familie, Senioren, Frauen und Jugend*. Last accessed 16 October. 2023. URL: [www.bmfsfj.de](http://www.bmfsfj.de).
- [19] OECD. *Dare to Share – Deutschlands Weg zur Partnerschaftlichkeit in Familie und Beruf*. 2017, p. 240. DOI: <https://doi.org/https://doi.org/10.1787/9789264263420-de>. URL: <https://www.oecd-ilibrary.org/content/publication/9789264263420-de>.
- [20] Corinna Frodermann, Andreas Filser, and Ann-Christin Bächmann. *Mütter kehren meist schneller auf den Arbeitsmarkt zurück, wenn ihre Partner Elternzeit nehmen: Elternzeiten von verheirateten Paaren*. Tech. rep. IAB-Kurzbericht, 2023.
- [21] *Bundesagentur für Arbeit*, <https://statistik.arbeitsagentur.de>. Accessed: 2023-01-11.
- [22] Johann Fuchs and Brigitte Weber. *Fachkräftemangel: Inländische Personalreserven als Alternative zur Zuwanderung*. Tech. rep. IAB-Discussion Paper, 2018.
- [23] Helen Hickmann and Filiz Koneberg. *Die Berufe mit den aktuell größten Fachkräftelücken*. Tech. rep. IW-Kurzbericht, 2022.
- [24] *Das Statistische Bundesamt*. Last accessed 20 October. 2023. URL: [https://www.destatis.de/DE/Presse/Pressemitteilungen/2023/06/PD23\\_N032\\_81.html](https://www.destatis.de/DE/Presse/Pressemitteilungen/2023/06/PD23_N032_81.html).
- [25] Joy J Godin and Jeannie Pridmore. “Using design thinking strategies and virtual reality in global virtual teams”. In: *Issues in Information Systems* 20.4 (2019), pp. 104–106.
- [26] Barney Dalgarno and Mark JW Lee. “What are the learning affordances of 3-D virtual environments?” In: *British journal of educational technology* 41.1 (2010), pp. 10–32.
- [27] M Csikszentmihalyi. “Flow. The Psychology of Optimal Experience. New York (HarperPerennial) 1990.” In: (1990).

# Appendix 1 - Instructions for prototype 2

## Welcome to your plan for your career and family future

I am Plop and I will be guiding you through your plan for your career and family future today.

Are you ready to build your future?

### Introduction

The plan is divided into three parts:

1. Milestones: In this part, you define important events that are to happen in your future.
2. Everyday work: In this part, you define how you want to work after parental leave.
3. Career: In this part, you define your professional goals.

### Milestones

Let's start with the milestones.

The first milestone is the expected due date.

Set a red block on the timeline at the right time.

Fill the gap between the present (today) and the first milestone (expected date of delivery) with blue blocks.

Each blue block represents one month of work in the office.

If you are a woman, you are on maternity leave one month before your due date.

Therefore, you can replace one block before the first red milestone with a green block.

Each green block stands for one month of parental leave.

### Parental leave

Now we need to figure out how long you want to take parental leave.

Do you know that already?

If not, look at the options. (additional material 1)

If you have decided on a period for parental leave, set as many green blocks on the timeline as the number of months you want to take parental leave.

Example: 6 months of parental leave = 6 green blocks lined up after the first red milestone.

### Re-entry

After parental leave comes the return to your profession.

Here you can use a red milestone again.

Set it after the green blocks on the timeline and use it to mark the time of your return.

### Everyday work

Now let's deal with your daily work routine after your re-entry.

How do you want to work?

If you don't know yet, you can look at different options (additional material 2) and get inspired.

Have you made a decision?

Then add green and blue blocks to the timeline now, depending on how many hours you want to work per week.

Example: 25 hours/week = one half green and one half blue block.

### Contact

How much contact do you want during your parental leave?

Add the contact blocks (yellow) at the respective times.

### Career

What about your career?

Do you want to go back to your old job after reintegration?

Do you want to learn something new and switch to another department?

Do you want to be promoted, and when?

Are you willing to take further training during pregnancy or parental leave?

Write your wishes on the paper and stick them to the corresponding times on the timeline.

### Conclusion

Now we are finished.

This plan looks great.

Remember that you can improve and update it at any time.  
Are you ready to present this plan to your employer?  
They can certainly give you some good tips for a career path.



## Metadata

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