V. The Imaginative Remedy

5.1 Dreaming of Bright Futures

From the field diary 6 February 2020

I am looking for a prototyping lab on the edge of the Berliner Ring, just behind a large park within the city. I discovered this lab on the internet and found the name appealing and seemingly meaningful, so I subscribed to the newsletter. Now, a few days per week, I receive around five e-mails inviting me to laser cutter workshops, wood workshops, or 3D printer workshops and so-called 'meetups' where already successful entrepreneurs explain how I can 'realise [my] dream of [my] first product' (e-mail invite via the e-mail distribution list). Sounds ambitious to me.

I walk along a street with container buildings—the residential area ends here—and I try to find the lab. Everything is relatively inconspicuous, with no descriptions, no signs to show the way and no house numbers. I enter a fenced area, walk towards the first container hall, and find a small sign: 'M.lab'.

Here, I will interview one of the lab's founders. I enter the hall, and the atmosphere changes abruptly. It is the soundscape of a school gymnasium. People run around, greet each other, quickly ask each other how things are going, and disappear behind retracted walls and grids—their workspaces, as I would later learn.

All kinds of equipment are standing around, and the place is chaotic and untidy: high ceilings, tables, old sofas, and many tools. I stand in front of a bar and ask for my interview partner. […]

This excerpt from the diary reflects one of my first impressions of a prototyping lab. It is not an incubator but a form of collectively managed space that one can rent monthly to realise one's idea materially. Individuals and teams can find a space and use tools according to their abilities and needs, such as the laser cutter described above. The monthly rent covers the use of the tools, with the sole security measure being the necessity to attend pertinent workshops to enable their use. The lab I vis-

ited housed two large container halls during the interview period. The operators partitioned one of these halls into plots for storing and distributing products of pre-existing start-ups. The other hall houses several teams that are still working on their prototypes. At the entrance, there is a bar and a communication area for exchanging ideas, planning, and eating, and next to it are other plots. On the one hand, there are 'offices', which some call their plot, and on the other, various tools such as 3D printers and workbenches. There are further levels, which I reach via industrial metal stairs. The hall offers more space than one would expect from the outside. It seems labyrinthine, and I repeatedly discover niches where people are working on their projects. This place is a place of fulfilment for some, while for others, this is where the realisation of their dreams begins. The sentence that jumps out at me in one of the invitation emails to the *Inventor's Night*, 'How you realise your dreams', comes to life here for one or the other person. Through casual conversations with the inventors in this lab, I gained insights into the ideas they plan to implement here. I meet sex toy creators as well as inventors of new bicycle drive models. What unites them is the full conviction of the value of their idea and the belief that they are pursuing a greater purpose.

In conversation with Christian, one of the founders of M.lab, it becomes clear how the idea of something better and bigger manifests itself in the objects:

> What would an inventor or innovator be without his idea? After all, the idea is what innovation is all about. An [can be a dream of a better world]; it somehow carries the character of utopia. In general, the idea always refers to a "could-be". *(Interview from 06/02/2020, Christian, Founder of M.lab, own translation of the German transcript)*

The conversation with Christian clearly shows that the idea is part of the inventor, that it defines them. They speak for each other situationally; they mirror each other's experiences and (emotional) values and pictures of *a* future. Further, in each phase of the idea's development, these imaginations are a projection screen for inner and outer negotiations. As subchapter 4.1. described such makerspaces as giving space to the countless hypotheses someone has developed in his imagination – a 'could-be'. These visions of the future may be dreams of a better world, as Christian says, utopias and potentials of possibility. At best, the idea and the potential result should improve the world and change it for the 'better', although what precisely 'better' means is not further defined. However, it depends on temporary collective value definitions, and the reference to an improved state of the world is by no means exaggerated. The fact that, in addition to the state of possibility, reference is made here to the enhancement of utopia makes it clear how inherent this desire is in the description. Consequently, it can certainly be more than the mere and supposed improvement of something already existing.

Figure 8: Inside the M.lab – Container One aka Utopia

Utopia as a 'non-place' and counter-design to the status quo thus describes what does not yet exist. *Utopia is the prototype as an artefact that has not yet been realised*. Space and things become blurred; the prototype becomes the expression of a utopia; as a part, it originates from the vision of the non-place. The idea space 'topos uranios' (see subchapter 4.1.3) is the heavenly place where the idea dwells. In this way, the place of innovation can equally be perceived as a utopia, whereby the prototype is a parvenu of this place, which can only come about through one's imagination. The incubator or the makerspace thus does not yet make a utopia: it needs people and their imagination to make this place their own and try to bring their ideas to life and, consequently, to enliven the space. This form of resuscitation requires a commitment that arises from intrinsic motivation. Where this motivation comes from ultimately varies from individual to individual, as will be shown in subsequent sections. However, one aspect is already visible: emotions, fears, insecurities, dissatisfaction or anger, and sheer passion or inflamed conviction often accompany motivation. All these accompanying emotions say something about our relationship with the world in which we live. They represent our attitude to what we have experienced, and the ideas we develop are ultimately a reaction to them.

This assessment also aligns with Karwen's statement. As an innovator and private investor, he does not immediately speak of imagination but notes that it is indispensable for the idea's process.

> To be honest, I've never thought about imagination but rather creativity. But well, when I'm thinking about it now, I guess without imagining something, it's just or probably not possible. So, it's just not possible that I want to invent something and don't think about it beforehand. Something always happens beforehand somehow, then I think about it, and then I usually know what I want to do. Or, also in another way: sometimes, in a conversation or something, I suddenly think, wow, that doesn't exist yet. We have to do that! It's a sudden idea that just comes to me. Of course, I didn't think about it for so long, but the idea is still there. It's also fun, somehow. *(Interview from 18/06/2021, Karwen, Private Investor & Innovator, own translation of the German transcript)*

Karwen describes the process between the inside and the outside world, the oscillating moment of perception of the outside that becomes *an* experience, from which one, in turn, nurses one's ideas and thoughts (see subchapter 3.1.1). Franz Brentano calls these psychological phenomena the outside world that is sensually perceived, and if one does it consciously, John Dewey would speak of *an* experience. From his point of view, Karwen mentions that something that triggers his imagination first has to happen. Hence, it takes conscious perception to evoke something in himself – an *object of inner perception*. The conscious act of perception arouses the act of creativity (see subchapter 3.1.2). In doing so, he describes the idea in two ways.

On the one hand, something takes time, progresses further and goes through a conscious process. The creative act may stem from new *additions* to what already exists or from new *combinations* (see subchapter 4.1). The ultimate assessment of these constructions as innovative hinges on the evaluating actors' ability to compromise and the acceptance behaviour of a society. However, as shown later, much of these evaluation practices depend on a culture and a narrative that emerges from it that contributes to the character of a product.

On the other hand, something emerges suddenly as an idea and becomes manifest, which Byrne calls *insight* (Byrne, 2005: 193 f.). This is a spontaneous idea that arises at the moment. Byrne would say there might be no reflection beforehand; however, the creative moment remains a reaction to my surroundings. Later in the conversation, Karwen clarifies that ideas take time to develop. Whether the sparking idea suddenly appears or only solidifies over some time says nothing about the subsequent development process.

Either way, it ought to solve something—either a problem or a lack of something. Consequently, it means a disruption, the moment of 'creative destruction' (Schumpeter, 1942) that develops something that renews what previously existed. In our interview, Christian elaborates on how individuals in the lab manage their ideas and the origin of their desire for disruption.

C: Mhm, you are always confronted with something. With us, it's usually like this: people come here and already have a mental picture [Vorstellung] of what they want to do. Then, they need tools. [...]
I: Let's go back to their mental picture. Can you describe in more detail what you mean by that? Are these already finished ideas, or how do I best envision them?
C: Yes, not necessarily finished ideas, I think. From what I hear, they have concepts about what their thing should do or be able to do. That's clear. You know, that "Swiss army knife" ["eierlegende Wollmilchsau"] thing. Something super great, perfect. *(Interview from 06/02/2020, Christian, Founder of M.lab, own translation of the German transcript)*

He indicates that the desire for change is already inherent in the imagination, more so for disruption, in terms of the 'Swiss army knife' he mentions. As Christian says, the idea is an all-rounder, at least in the imagination, able to fulfil every exposed need. In the vision, obstacles do not arise, or if they do, only very incidentally and not as an insurmountable problem, along the lines of 'I have identified a problem or a shortcoming and have the solution up my sleeve in my imagination'. Hence, utopia lies in my imagination. In this place, the idea is already an independent entity that develops a metaphysical reality. In this reality, the idea is present as an entity that also acquires agency, but it equally contains my values (see subchapters 3.1.1. and 3.1.2.). Through the ability to direct feelings towards something in my imagination or to revive emotions that I have felt through a lived experience, I can create a connection between myself and the outside world. More than that, I can even review my feelings from the past and reconcile them with my values in the present. The moment I decide how to solve a problem through an idea is already the situational judging moment of a problem or a disproportion. I consciously experience and feel, and after that, I judge and am motivated to make something different out of it.

It can be observed that for Karwen and Christian, as well as for the innovators in the incubator, the underlying canon of values inherent in the idea forms the basis for an initial narrative of creation, which comprises arguments for implementing an idea that a larger group supports whose needs or even just wants are addressed. I will follow up on this later in Chapter VI.

Justification patterns for inventive purposes emerge from this value complex. The purpose is the solution to an experienced, observed problem in everyday life, and it is justified by its curing effect.

5.2 Seeing Problems, Being Radical

As previously described in theory, the data material shows a clear tendency for problems that are perceived in everyday life to give rise to a notion of a 'problem'. In the

following section, various interview excerpts show that creativity or the will to develop something often stems from observing everyday problems. As previously indicated, one can hardly separate the imaginative act from experience. They mutually reassure and condition each other, shaping the emotional attitude towards oneself, the external world, and one's actions. The pragmatistic triad manifests as thinking, acting, and feeling. Thinking corresponds to what we previously described as conscious perception. In this context, acting transforms into a creative act based on my experiences and ideas. Finally, feeling integrates with the other two principles. I cannot think or act without feeling. Experience morphs into a reality from which my attitude and actions are derived. I *root* for the problem; I become – in the best sense – *radical*.

In a conversation with a consultant from the incubator, who assists the teams in planning milestones and provides advice on their daily tasks, it quickly becomes apparent that:

> This question, "Where does the idea come from?" is already being discussed. Usually, from the recognition of a professional – from a professional recognition. From everyday life. Especially now with clinical researchers. As a rule, they see the potential for improvement in their everyday work. It is rarely something artificial. So, someone says, "I sat down and did a brainstorming session, a design thinking process, and then I came up with this and that great thing." That's not really the case. Rather, people come from everyday working life. That's why it's so interesting to work with clinical researchers. They have their everyday lives. They see patients. And from that, yes, they do. So, that's the overwhelming number – if not all. I can't give you numbers. But it is clearly the majority. Improvements recognised from everyday life. Often, the scope of an idea is not yet clear. That's not an issue, either. First of all, it's about concretely improving something. This can be big or small.
> *(Interview from 13/07/2020, Felix, Consultant at Health Hub, own translation of the German transcript)*

The physicians who develop their ideas in this incubator have previously applied for this accelerator programme with an existing solution to a problem. It works in the following way. Firstly, the medical doctors who work in the clinic discover an unfavourable circumstance, problem, or deficiency. Medical practitioners can formulate this discovery in an application at any time and must include a concrete solution in the proposed solution section of the application. By doing so, they apply for a multi-year funding period that enables them to (partially) step away from the daily clinic routine and conduct research. If the proposed idea is logical and adds value to the incubator, the program accepts the doctor. After a further process, a team is put together capable of practically implementing the idea and making it usable. Later, the product should be sellable. In recent years, several institutions and even uni-

versity hospitals have established similar experimental rooms and makerspaces in complete accordance with the objectives outlined by the BMWi at the time (subchapter 4.1.1.).

Therefore, becoming radical is to be understood in an exclusively positive way. These experimental spaces are created to scrutinise problems that are already known or to track them down. The protected space can help solve a problem by isolating a circumstance. The protected space, the 'lab' or the incubator cannot provide a simulation of everyday life. Everyday life is outside, in the world that I actively experience.

In the following quote, Bahar explains concerning her project that the biggest problem in her everyday life in the clinic was to remind the patients after a knee or hip operation that they should not put more than 15 kilos of weight on their affected side for several weeks to avoid consequential damage. Today, she and her team are developing an insole with sensors that measure the weight applied on each leg.

> The basic idea was always that our patients had to bear a partial load of 15 kilograms on their feet after the operation, i.e. they were not allowed to carry more than 15 kilograms, and actually, they didn't know what they were doing. They are allowed to do that for six weeks, but of course, nobody knows what 15 kilograms is. The physiotherapist says that once and then after six weeks, he [she] says "goodbye and have fun". And then sometimes they come back with nasty complications and don't know what the problem is. And these digital soles were meant to control this pressure management. The problem is that the soles were made for athletes at the time, and the studies that were running were always with super digital people in their mid-20s. When I somehow collected the last digital sole that I had borrowed from Brandenburg because the patient had dropped out of the study again, I thought, well, it can't be that these are the only soles that exist. And then, I did some research and found out that they can't measure weight. They only measure pressure. They can't say what five kilograms are; they say it's three minutes somehow. *(Interview from 30/01/2020, Bahar, Physician & Innovator at Health Hub, own translation of the German transcript)*

In this excerpt, she describes the predecessor models that could not solve the observed problem. They were insoles that could measure pressure but not weight and were not practical, especially for older people. The problem and the lack of a solution made her reflect, and finally, she tried to develop an insole herself. It was elementary at first, a preliminary prototype that her sister welded together with a few components in the basement before they both went to the accelerator programme of the incubator. At this point, it also becomes evident that Bahar developed this idea using a different approach than what Karwen described for some ideas. In her case, it was not a spontaneous idea but a more protracted process of (re)consideration that led to a potential solution to the perceived problem. This discovery approach also

confirms Felix's observation that most of the ideas of those who apply to the incubator originate from their everyday work.

Figure 9: Sketch by Hendrik explaining the Prototype's Genesis

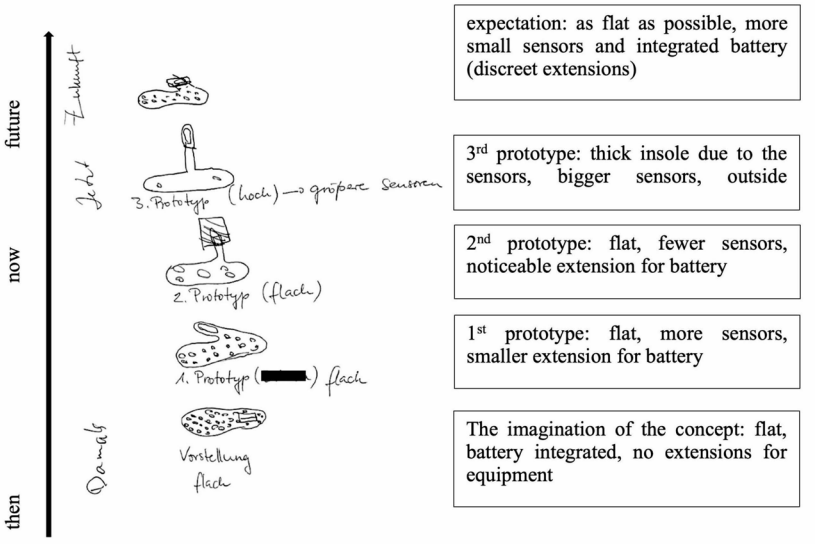

Figure 9 shows the prototypical course of the insole for hip or knee surgery patients with post-operative restrictions. With the first conception (at the bottom) and the first prototype, Bahar, a medical doctor, and her sister applied to the incubator in 2018. The bottom drawing shows the first presentation before there was a prototype. The subsequent pictures show the first, second and third prototypes and Hendrik's vision of the future product (top). When I asked Hendrik to make a sketch showing the prototypes, he did not embed it into the otherwise existing narrative, showing the mixed nature of the work steps taken until then. He took the direct route and only drew what was present as a materialised form.

Viktor is the product developer of this project and joined the team in 2019. He worked on a similar idea on his own before he joined the team. To realise his idea, he joined the incubator and the team to have a funding opportunity. In the interview, he tells me how he came up with the idea of developing an insole with sensors.

[...] In 2018, I moved from Singapore to Berlin with a program called Entrepreneur First. It was an accelerator. [...] It didn't work out for me. It was a very interesting program. You brainstorm, you get a couple of thousands of euros just to brainstorm for three months with 50 people, and you do pairs. So, very interesting process. And

> then, that didn't work out. I was still in Berlin. I started working on my idea. I had a couple of ideas like all hardware related, you know, one with bone conduction, another thing with an insole and the insole stuck with me. The way that this project started, in my mind, was in a hospital in Singapore. There were frailty patients who would not get out of bed, and we were there with the type of system meant to rehabilitate them [...] after frailty. Frailty is a disease that has different factors combined, and the moment that you get there, it's a combination, let's say, of muscle fatigue or muscle weakness and depression and other things. *(Interview from 04/02/2020, Viktor, Developer at Health Hub)*

Figure 10: Third Prototype of the Insole

Viktor is an entrepreneur, innovator, and product developer, not a physician. He was asked to develop another product for a hospital through his previous work at MIT in Singapore. Through his hospital experience there, he was aware of specific patient ailments and problems and later drew on them in his work to look for solutions.

As Viktor describes the approach, being an innovator is about collecting problems and finding the potential for bettering the world. To achieve this, one must thoroughly understand a problem's everyday complexity. This evaluation implies that a problem is not a static phenomenon that consistently manifests similarly. It changes with its actors or the bodies of its actors, with the different ways of dealing with it, and with the times of the day. A problem is never just 'one'; it has several facets and is rarely uniform. However, for both Bahar and Viktor, it is the starting

point for their solution and is also highly emotional. In the subsequent sections of this chapter, I will show how problem perceptions are linked to emotions.

5.3 Emotional Motives

Experiencing a problem emotionalises and can be the seedbed for the creative moment whereby these moments from which a motive arises are individual, and socialisation and everyday life shape the motive for an idea (subchapter 3.3.1). Emotional motives occur in the individual frame of reference or a thought collective (Ger. *Denkkollektiv*). Motives and emotions are mutually dependent since a problem is evaluated individually within the framework of what has been socialised and learned. Thus, the problem evokes a feeling in the person concerned. Simultaneously, the innovator responds to the problem and the evoked feeling with a solution from the same frame of reference. These answers reflected in the prototype are the materialisation of their reference system of feelings.

In their personal accounts, the interviewees vividly express their *frustrations* with the shortages. They recount instances where they have had to grapple with poor or missing problem solutions for diseases they encounter in their daily lives. These shortages, be it in equipment, staff, or time, often intertwine, causing a significant impact on their work or a sense of *compassion* and *burden*. Their motivations, they reveal, oscillate between idealism and the desire to create something valuable and marketable. In a figurative sense, as per Arlie Hochschild's theory, inventors' solutions are grounded in their respective referential systems; their proposed solutions are part of a controlled system fitting into a manageable society without intrusive (Hochschild, 2012: 4). Furthermore, these solutions only reveal the aspects that the inventors are prepared to disclose. This constraint through control is the nature of emotions and the innovations they inspire – both have their limits.

Bahar, the doctor at the incubator, shares a poignant *experience* that underscores the emotional consequences of shortages. She recounts a situation where a medical need for sensory soles was not met. As a result, complications arose after surgeries as patients did not fully comply with the recommendations. This situation, she admits, filled her with *anger*, which became her driving force in developing a product that could address this grievance.

I: Where does your motivation come from?
B: To do that?
I: Yes. Or where did the original one come from? How did it come about, this post-op?
B: It's always a bit stupid to admit it like that. But I was incredibly angry that there were no soles that I could use. […] I was very angry, and I couldn't afford other soles

either because I didn't have any funding yet. And for me, anger is a good motivator.
(Interview from 30/01/2020, Bahar, Physician & Innovator at Health Hub, own translation of the German transcript)

Interestingly, she remarked that it is 'stupid' to express her emotion, i.e. her anger. When asked later why she thought it was stupid, she replied that it sounded pathetic and pathetic sounded trite in the context of her profession. The passage can only exemplify that the expression of emotions in connection with scientific work has a tense relationship (subchapter 3.3.). However, the emotional context is indispensable for expressing the motive. In this case, it even provides credibility. Bahar sees herself as an assertive young doctor who feels an inner drive. She describes her anger as a strong motivator. According to this, there is a direct relationship between her feelings and the work or the motive for her idea.

Figure 11: Trying Out the Insole in an Orthopaedic Shoe

Contrary to the common expectation for scientists to depersonalise their work, Bahar's display of emotion challenges this norm (Daston & Galison, 2007: e.g. 52). This contradiction suggests a departure from the traditional scientific practice of maintaining emotional neutrality, highlighting the potential for personal and emotional engagement in scientific endeavours.

It emphasises that scientists like Bahar are not just detached individuals but also have their own emotional responses and personal perspectives. This 'personalisation' underlines the emotional dimension of scientific research and innovation, making it a more human-centric and relatable process. This interview with Bahar is more than just a language exercise. The journey reveals the transformative power of personal context and emotions in scientific discourse. As Bahar shares her scientific work, she does not limit herself to objective reporting. Instead, she weaves her everyday experiences and the emotions they evoke into her narrative. This linguistic turn in her storytelling changes the content and choice of words and alters her thinking and feeling in relation to the prototype. It is a testament to the profound influence of personal context and emotions on scientific discourse and research.

Bahar's product developer, Viktor, initially also had a similar idea that he wanted to implement independently of the project. He ultimately points to several motives and emotional connections. First, he describes a feeling of *confinement* related to his experience in the Singaporean hospital.

In this interview excerpt from the 15th of January 2021, he solely refers to his medical product ideas and motivation. The feeling of constriction he describes indicates a sense of *compassion*, a sense of *empathy* that he feels for a problem situation, that is, the ability to put himself in a situation and here, above all, the reference to imaginative power becomes evident as it takes imagination for one to be able to put oneself in an (emotional) situation (e.g. Barbalet, 2005: 178; 2006: 51; Villanueva, 2012: 139). Furthermore, Viktor shows what matters to him and in what he is willing to invest feelings. In subchapter 6.1, we will discuss the incubator as a place where individuals exchange motives, ideas and feelings that they are willing to show and negotiate (Hochschild, 2012). The incubator is a space where individuals can share their emotions and thoughts with others, and these exchanges can lead to the development of new ideas and perspectives. By actively engaging in these conversations, individuals can gain a deeper understanding of themselves and others, ultimately leading to personal and professional growth 6.1. The interview with Viktor highlights that the purpose plays an important role. He repeatedly mentions purpose and impact in the interview, which will be addressed in more detail later. At this point, it becomes evident that he opens up a personal reference, which again refers to a highly emotional situation. He thinks of his grandmother and refers to the walking behaviour of older people, which he perceives as everyday difficulties:

I: Did you feel some kind of compassion, or why did you think you could or wanted to develop a solution for this?

V: Yes, probably. There were a lot of problems, a lot of things were connected, and you have a feeling of confinement. […] So, then, from healthcare, my motivation was to help members of society who have difficulties, let's say, visually impaired was the time when I switched to healthcare. And I said, "Okay, that would be really

useful. And it would make more sense for me to do that." And then I switched to [the] elderly because, for example, one reason was my grandma. You know, I noticed that people who are older have a different way of walking, and I thought this would be really easy to understand and to monitor and detect differences in the way of walking [...]. *(Interview from 15/01/2021, Viktor, Developer at Health Hub)*

It is clear from both the conversations with Bahar and Viktor that a *personal connection signifies* and points to an (at least initial) idealism whereby *compassion* plays a role in both. Through this compassion, they are connected to the patients on an emotional level and draw their motivation from this. In this context, compassion becomes a compass or navigator and has a guiding effect. It provides an ideational destination route.

In the following excerpt from the interview with Ryan, who is also working in the incubator but on a different project, Ellie, the motive is self-referential. His emotional motive differs from the other two in that it is not about a personal relationship or an idealistic attitude towards an observed deficit. The original motivation for his current activity refers to him and his memory from his childhood. However, it is precisely due to the memory and the resulting nostalgia in his narrative that the motive is no less emotional. In this excerpt, I ask him why he followed his supervisor's idea to apply to the incubator *Health Hub* and what made him so enthusiastic about it:

I: Okay. So, how did you actually suggest taking his idea to the incubator? [...] What was your intention, or your motivation, rather?

R: Well, the intention goes back quite some time because, as a kid or basically going through medical school, I always wanted to build something. As a doctor, you're a user, which means people and companies build these technologies and products, and you, as a doctor, you use them without really any thought of how they were built. What do they actually measure? How are these systems updated? What's the technology in it? I just get it, I use it. I have to trust, okay? A value comes out. And I just, I have to just know, and this, for the most part, 95% of physicians, imagine they're happy with this. I'm just in the small cabinet of physicians and say, I actually want to build the thing. I don't want to just be a user. And as a kid, I always wanted to build robots. I was always interested in building computers and robots. I never went to informatics, unfortunately. Kid of the eighties, my parents didn't see much value in computers, which, again, I'd recommend this for a kid now, get them learning right away. So, I entered medical school. I learned everything. I was much more interested in science with it. And just, I guess it's just a coincidence. I happened to be at this one anaesthesiology Department with a boss who had this idea that needed someone to actually use it. And the benefits where I can finally get out of the clinic, I can actually build something. If it works, then there's an instrument in every single operating room. And I can say, okay, I had a

hand building this instead of just purely just using the stuff. *(Interview from 15/10/2021, Ryan, Physician & Innovator at Health Hub)*

First, he talks about a childhood experience. His memory, a source of emotive forces (see 3.1.1), reflects an experience that he, in turn, links to a will to create. The act of creativity is emotional for him because it triggers a feeling of *excitement* in him.

Above all, Ryan is motivated by the idea of creating something by himself and not just relying on others' technology. He talks about 'trust' and 'value' in this context and opens up to perspectives that seem relevant to him: the user and the builder. Ryan compares the two persons and provides them with attributes of passivity and activity. He thinks the doctor is ultimately just using the technology provided to him without thinking about how it works and what it does. Consequently, the user must trust the technology's functioning to generate value on which he builds or justifies his further work. Thus, Ryan counts himself among a minority of doctors who oppose this. He considers himself part of an active minority and sees this as founded in his childhood because he 'always wanted to build robots […] and computers'. He now sees an opportunity in the development of the device. He considers this satisfying his interests, which is why he feels so much *enthusiasm*; he sees the work as *fulfilment* and himself as a medical researcher instead of a practician. If it works and the idea becomes an implementable success, he will have created a value according to his moral concept. Value projections of this nature are present in every operating theatre.

The feeling of enthusiasm can also be observed in Karwen's explanation, although he justifies it differently. Admittedly, he also speaks of a purpose to be fulfilled and mentions idealism, although the latter aspect seems to have a half-life. He told me that if a project seems hopeless, he will not develop it further or invest effort in it. Idealism does exist, but more in the uniqueness of an idea than in providing a solution for a given need. For Karwen, it is about demands, not necessities, and the attraction lies in developing something that does not yet exist. Additionally, it is about marketability. Karwen's ideas do not 'just' involve inventing something; his approach is practical, and he has to be able to make a living from it.

I: What is ultimately the motivation for your development or ideas?
K: That depends.
I: On what?
K: (Laughs) Look, most ideas are supposed to have a purpose. Of course, it can be idealistic, maybe even most of the time. (I: Mhm.) And then you also want to sell the things, of course. You don't make the effort if you don't hope to get anything out of it. Inventing things just for the sake of it is not so much fun.
I: So, what, does the idealism disappear over time then?
K: Yes, I don't know…let's say that the idealism of being able to live from it is higher, isn't it?

I: OK. Let's go back again. When you think about your last project, what originally fascinated you about it then?
K: That it doesn't exist yet. It's the most beautiful thing to do, something that no one has thought of yet. That's the best, you know. This really—I don't know—I really love that kind of feeling. It's a—yes, it gives me power.
I: Oh, that's a lot of emotion there. What is the ideal scenario? Is it the one where you're able to invent something that doesn't exist, and you're able to sell it?
K: Yes, defo.
I: And if it's not sellable, you won't go further with it?
K: Ehm, then you might ditch it sooner. Sure, it's just a matter of eliminating some deficiencies. You build a platform because it should help people, it should make everyday life easier, and should connect people who benefit from each other.
(Interview from 18/06/2021, Karwen, Private Investor and Innovator)

Karwen's financial success is evident in his ability to invest in other start-ups as a private investor, often in the five-digit range, when convinced of the project's potential. During our interview, Karwen often mentions the factor '*fun*'. Something should be fun, for example, inventing an idea, as he describes in the previous excerpt. Innovating as an end in itself, on the other hand, is not what he prefers. He talks about purpose, but I get the impression that, to him, purpose purely refers to marketability. However, this does not diminish the feeling of *excitement*; it just has a different impetus. If one tries to define the word excitement, one encounters descriptions such as: 'an endeavour that gives pleasure' or an 'activity or situation that makes one feel happy'. Accordingly, Karwen feels *joy* when he perceives himself as a 'first discoverer' and successfully convinces others of his invention. 'It gives him *power*', he says. His creativity, actually discovery, takes possession of him, which is a feeling he *loves*.

Whether Bahar, Viktor, Ryan, or Karwen all show their motives for taking on a problem and finding a solution are emotional. Even if the motives are different in that they do not seem exclusively altruistic, they remain emotional in their description. The same applies to the discovery of the problem. Even if Ryan did not encounter the problem himself, he found access to it through his supervisor and took it on, whereby the emotionality nevertheless remains. In his case, it is not only his own discovery that makes the motif emotional but also the fact that he can identify with it or develop empathy, that is, create a state in him that develops an awareness of the problem and thus opens up space for an emotional reaction.

5.4 Conviction, Purpose, and Impact

As has become apparent in the interviews, purpose plays a prevailing role for the interviewees. Overall, the interviews make clear that belief in a 'good' idea is a pre-

requisite for innovation. In this context, 'good' refers to the understanding of the respective speakers, and they have a relatively concrete idea of it.

> So, I had this start-up experience. And then, after my PhD, I needed to go in one direction, you know, to do something else. It's called, let's say, post-PhD depression, you know, where you want to… you achieve something, it's ready, it's beautiful, your creation, but now you have to find another goal. So, after that, the postdoc was a kind of transition. And after that, I wanted to do something more meaningful, let's say, with more impact. […] back then, when I did the Facebook app, it certainly had a huge impact in my country, because I was going on the street and everybody knew the app, and I was just doing random sampling. Everybody knew it, you know. So, that's a very high impact. However, let's say my opinion has changed. And even at that time, I had some problems with my conscience, the fact that it's not making people very [much] smarter or better. So, at that time, in 2009, I had these types of issues. And yes, what I'm doing right now, I believe, it's a different level of impact. It's high. It's difficult to quantify exactly the impact, first of all. But this is combining, right now, different types of interests of mine. *(Interview from 15/01/2021, Viktor, Developer at Health Hub)*

In one of our conversations, Viktor tells me how much he has been influenced by his past developments, such as a social media app he developed in his home country in the early 2000s. He is also aware of the high level of impact, but after his PhD, he realised that a *different kind of impact* is more important to him. He speaks of 'huge impact' and 'high impact' but is aware that what he, in fact, describes is not possible to measure but rather refers to a felt impact of what he considers worth doing. He thus develops a moral component for himself as a means to a 'good' idea. He summarises the different forms of influence under impact but now attaches importance to something I propose calling *moral impact*. He criticises his social media app for not making anyone 'smarter' or 'better'. Nowadays, he talks about high impact, focusing more on his interests. As he explained, he is concerned with improving people's lives with medical problems related to their walking ability.

Susan, the founder of The Believer School's creative space, also tells me how much meaning must be contained in work to develop something valuable for society. She talks about how she does her work on a more abstract, general level:

> […] People don't explore inside them; they explore outside them. And I think that part of, that's the most important part of what I do. In fact, it's like, I really want people to love themselves, to think about who they are, all they've been through, all they've survived, and to be hopeful about what they can contribute to the world. And I use technology, you know, (?) chain learning, and computer vision VR [Virtual Reality] to get them to reflect on those things. Because otherwise, I wouldn't do it. So, that's kind of, I don't know, how I'm approaching this stuff. […] I think it's

important for people to create something that comes from things they care about because also it's difficult to finish things, and people start things all the time that they don't finish. And I think that if you have a purpose and a reason for finishing, because it's something you care about and you want to explore, then you're more likely to finish. *(Interview from 12/08/2020, Susan, Innovator & Founder of The Believer School)*

Figure 12: Exploration Phase One at the Creative Space

When Susan leads projects, she must initiate a process of self-reflection among individuals, guiding them towards understanding their contributions, motivations, and passions and illuminating the path forward. In addition, she frequently emphasises social and moral components during the interview. However, there remains ambiguity regarding what individuals prioritise and value. It can be the question of my own emotional life, in the sense that I ask myself what is important to me, or also the question of what I wish for society and whether I can do something to support it. As with Bruno Latour (e.g. Latour, 2004), Maria Puig de la Bellacasa (Puig de la Bellacasa, 2017), or the ground-breaking work of Joan Tronto (Tronto, 1993), the subsequent taking care of my idea is not left out. However, this gives rise to several interpretations of care. Even if Tronto thinks that care has no self-reference (Tronto, 1993: 102), I would like to express a slight doubt concerning this since, even if there is self-reference, caring for others can still be encompassed within it. For example, a participant in Susan's workshop may well be interested in a solution to a problem of his or her own and want to work towards it if, in addition, the need for others is equally present. The phrase 'I care' is the phrase of multiple commitments expressed in an idea, problem-solving, and general participation in social life. In addition, it is also the responsibility for an idea that I am willing to take on beyond its 'birth into

the world'. Even an invention needs further care later, especially when introduced to others. In the words of Annemarie Mol:

> It [the logic of care] assumes that things are just as unpredictable as people. It does not take technologies to be "mere" instruments. Instead, good care involves a persistent attempt to tame technologies that are just as persistently wild. Keep a close eye on your tools, adapt them to your needs, or adapt yourself to theirs. Technologies do not subject themselves to what we wish them to do, but interfere with who we are (Mol, 2008: 50).

Further, she establishes a compelling connection between the meaning of work, which one must recognise oneself, and the completion of a product. She believes that one's own conviction is necessary for later potential success.

As with Viktor and Susan, one's conviction generates the purpose—this is also evident in the narratives about the prototypes or products. Conviction or belief itself has several objectives. First, one's conviction is necessarily a prerequisite for being active. It requires overcoming uncertainties to take an active role altogether. It becomes a vital function for surviving the process of innovation, and in addition, it can mean the conscious adoption of responsibility.

Johann, the founder of a company that develops hydrocephalus valves, tells me that the basic prerequisite for developing an idea is a firm belief in its functionality. He mentions that his professor's idea immediately convinced him; at that time, there was no model or prototype but purely physical knowledge about the general functioning of valves. The idea was to make these functions fruitful for the so-called hydrocephalus.

J: I didn't become a passionate engineer in the first place, but that's how I learned in my studies how wonderful the engineering profession is. Although today I am very fond of it. And that's also how I felt about becoming an entrepreneur. I wasn't afraid of it because I felt relatively secure in my social status. I've already mentioned my economic calculations, and I thought others would go under, but I wasn't so threatened by having 100,000 Deutsche Mark in debt. I think it will be all right, as an engineer you will find a good job. Yes. And then, meeting people, I often succeeded in discussing things that people asked about instead of saying: "Oh, I won't talk to him any further." So, what is the reason now? We have to ask them. I can only say that I think I was convincing. I was convinced, and I could answer questions. I was able to, and I also, I stood up for the cause. [...]
I: You also talked about self-confidence, and before that, you talked about risk. Does this self-confidence mean belief in the product?
J: In the idea.
I: In the idea. Just in the idea?
J: Yes, I would say now that it might even be less than the idea, actually, in the approach that already came from this professor.

I: You already believed in that?
J: Yes.
I: Would you say that believing in one's idea plays a big role in innovating in general?
J: I think so. Did Steve Jobs know that an iPod, iPad or iPhone, before it was developed and shown on the market for the first time, would be successful? I would say his answer would be: "Yes, I knew it." So, he may have known it, which he has not tried. Unless he knows what others don't know. *(Interview from 11/02/2020, Johann, CEO of Hydro, own translation of the German transcript)*

Thus, the sequence of feelings in this process oscillates between one's own experience and the development of an idea as one's conviction of its necessity ripens.

While developing, uncertainties can arise, e.g. through the anticipation of external doubts or because problems occur. As a result, an idea, a model, or a prototype is adapted, also to avoid further criticism. The conviction and belief in the necessity remain, however, whereupon a narrative is developed for the product. The narrative serves to manifest one's own conviction and, beyond that, the conviction of others (subchapter 4.2.2). Situationally, the narrative can be adapted to be convincing and strong. At an advanced stage, I can generate a form of 'knowledge' by transcribing my belief into a narrative, and this is when I can take features of my previous work as given without assuming that I cannot fulfil them.

As previously discussed, religious parallels are not far off the beaten track, especially when talking about meaningfulness, faith, and influence.

This is a matter of unselfish surrender since innovation is an uncertain undertaking that often fails. In this respect, a parallel with Georg Simmel's description of religious belief can be seen, if not entirely, at least in part. It is also true for fervent desire, humility, exaltation, sensual concreteness, and spiritual abstraction (Simmel, 1905). These Simmelian descriptions of the tension of religions also occur in the belief in one's own idea that is to be successfully realised, producing an ardent desire. Innovators can be humble – as we will also see – in adapting to external circumstances, including problems of implementation and feasibility, criticism, and financing. At the same time, moments of elevation take place, e.g. through unbreakable faith, manifestation in the narrative of the same, and convincing others. The sensual immediacy is the play with my idea, the constant confrontation of my perceptual world with the outside, and the non-sensual abstraction is the attempt to realise all that idealism in the real world despite all the adversities that come one's way.

In one way or another, both Viktor and Johann are convinced of and dedicated to their idea. Both Viktor and Johann are convinced of and committed to their idea in one way or another, whether it is the moral influence, as described, involving the

obligation to contribute meaningfully to society or Johann's dedication articulated in the interview. The latter also holds moral significance, as it can be inferred that complete commitment and discipline would not be directed towards an endeavour that did not align with established rules or norms, particularly if it served no further purpose for a group or society.

Figure 13: Hydrocephalus Valves in Different Stages of Development