VII. Emotions as Valuta

This final empirical chapter delves into a significant aspect of innovation- the role of emotions. It explores how emotions are not merely a part of interpersonal product developments within and outside the team but are also managed as a form of currency. This novel perspective assigns emotions a moral value that can be commercialised and capitalised on, thereby shaping the innovation process in unique ways.

This section thus identifies emotions as commodities and asserts that capitalist logic has shaped a distinct emotional culture (subchapter 4.1.2.), particularly regarding the initial aspect of IP—namely, the legal ownership and interpretation of ideas, reflected in the diminishing of ideals throughout development. Once an idea has created a goal, it is a matter of commercialising it. It is vital for the parties involved to clarify questions about IP and shareholdings. These situations are conflictual, emotional, and often justiciable.

In the further course of this process, the importance of knowledge about a future product becomes visible. How a product is conceptualised and narrated and how these dreams and narratives are further developed points to communication systems with a social function (see subchapter 4.2.), be it a corporate identity or a specific habitus that develops within a team. As discussed earlier, these values develop within a group and promote reciprocal expectations in social interaction. It becomes a social system that is reflected in the prototype whereby both the corporate culture and the communication concerning a product are emotionally managed. Ultimately, so-called *demo days*, a term commonly used in the accelerator industry, convey this through a show where teams present their achievements. Special tools and drama lessons help teams to systematically prepare to present themselves and their prototype as effectively as possible. Such demo days are where markets arise, commercialising the belief in oneself and the product. Ultimately, this partly reflects the strategies of innovators who know how to reify emotions. Barometers are a measuring method at these events: the applause or a vote selects the best development. Demo days are usually exclusive events, sometimes held in an intimate atmosphere, that only invited guests are allowed to attend.

Accordingly, in this chapter, we find different forms of appropriation preceded by an evaluation of the artefacts: claims of partnership, communication systems of (self-) realisation, and performance methods.

7.1 Claims and Ownership

As Chapter VI described, some potential conflicts and flashpoints can occur during the innovation process and within teams. In this chapter, however, a different type of conflict is introduced, which can also be of an interpersonal nature, although this is of secondary importance in the analysis. In connection with a consideration of emotions, which is dependent on commercial purposes, we encounter, above all, insecurity, perplexity, and sometimes fear. Why are these emotions related to commercial purposes? In my observations and interviews, one subject emerged prominently: disputes over funding, intellectual property, and patents trigger emotions. These conflicts arise later in the development process and become pertinent once the value of an idea becomes apparent, rather than remaining a vague notion, precisely because these issues are not (or cannot be) resolved in advance. With the significance of a technical device, the questions of participation and IP increasingly come to the fore as the ownership shares determine who gains power over the product and, thereby, decision-making power. However, the appropriation of a thing already counts as a value judgement, and the mere expectation that something will bear fruit produces a property interest.

Viktor, for example, tells me that he finds the discussions around equity particularly exhausting. He thinks that founding a start-up would bring enough uncertainty. The discussions about equity, i.e. the question of how much one would financially benefit from one's idea, are frequent and very stressful for many.

V: And especially with, let's say, equity or ownership. Like, that's a big issue. And it was always an issue with these accelerators. Like, you know, what's the percentage they should get? If you go into that, which I don't recommend, it's a can of worms, you know. It's the most difficult topic that every start-up here doesn't want to discuss. […] And it [the question of equity] also provides uncertainty. Because I was in different accelerators, I know how much uncertainty it is and how many problems people have with this, as in emotionally. I think it's a huge burden. So, like from energy, you're probably a creative person or a young person full of energy. You want to do stuff. And when you have no idea how much equity you would get out of this work because the funding situation in equity (I: Exactly.) is uncertain, this is a huge burden and energy.

I: Does it drain you?

V: Yeah. And you don't want that because making a start-up is already hard, and then having an uncertain environment is harder. *(Interview from 14/06/2020, Viktor, Developer at Health Hub)*

For Viktor, in particular, the situation is unusual because he has an employment relationship with the incubator, which means he is an external contributor. In the meantime, his team has disbanded, and he is the last remaining member of the original team. He cannot be a team leader due to the incubator's regular structure, even though his original idea was very similar, which is why he was hired in the first place. He brought the necessary know-how as a developer; he was independent and was already familiar with the vision. Now, however, the incubator is primarily available to doctors at a particular clinic, so he only has a temporary employment relationship. Although he invests his ideas, knowledge, and time in the incubator – and at present almost exclusively – he has no claim to share the finished product as the rights are the incubator's prerogative. Viktor speaks openly about his insecurity, which he accepts in exchange for continuing to work on the idea. To what extent does he build a plan B on this? He only lets on to a limited extent, although he seems to have some plans. Although he is not pleased with the situation, the incubator does seem to be a stepping stone for Viktor.

Nevertheless, he is aware of the precarious situation, which entails a great deal of uncertainty for him. He had hoped for more, especially in financial terms. In his current situation, he feels functionalised and not valued. He is aware of the discrepancy between his work performance and the share assets that do not exist for him. This discrepancy results in disdain for him as a person and for his output precisely because he is the only remaining team member—apart from the original head doctor, Bahar's mentor—who has continued to monitor the project's progress.

Ryan, who works in the same incubator, describes a similar conflict, although he is still in the early stages of his product development. In his work, the conflict becomes even more concrete and justiciable. The technical development team, a company that receives orders from Ryan to technically realise the idea, is paid with funds from the incubator and claims ownership itself. The conflict emerged through the former collaboration of a chief physician with the tech company, who was initially involved in developing the idea before he transferred it to Ryan. Hence, the company was already involved when Ryan was yet to be accepted into the incubator with this idea. The problem could not be solved so far, and previous talks have yet to lead to a solution. Ryan feels pressured and is afraid that the project will fail.

[Health Hub] has said, "don't do publications until the IP is secured. Don't publish anything. Don't say anything". And so, my boss would, my boss is, he's a professor. He lives on publications. He wants to publish stuff. The [incubator] said, "rather not, don't do it until there's a kind of commercialisation or IP". So, again, this is also another conflict with my boss [...]. And I think my boss is also a bit under the

> circumstance or the idea that this is also just a big research project as well, which it is not. It's more of a commercialisation project. *(Interview from 04/12/2021, Ryan, Physician & Innovator at Health Hub)*

Furthermore, Ryan emphasises a significant challenge stemming from this conflict: he is presently unable to publish papers on the idea or data until the IP issue is resolved. In the course of this, he explains that he and his supervisor would like to do this after all because they see it as part of their medical research profession. As before, he refers to the *Theranos* problem, which suffered, among other things, from the fact that no data were published. However, both Ryan and his mentor are urged to remain silent because the conflict with the other company is unresolved.

Consequently, Ryan is not only unable to contribute to the scientific discourse, but he also increasingly feels under pressure. Not only does he feel like a team lead, as he tells me later, but he is sometimes involved for days at a time in playing a mediating role between the two parties, namely between the incubator and the external tech company. This wastes time that he could otherwise use to progress in his work and with the team. Further, it disrupts his work and causes him to feel pressurised. The resulting feeling of irritation relates to an uncertain work terrain in which he does not know whom to confide in, where to disclose and where not, and where the pitfalls lie. He works cautiously and often feels demotivated as a result. In general, another problem becomes visible: the incubator, which is supposed to create security through its integration and advisory services, becomes an insecure employer due to its set-up, primarily because public funds finance it. Not only is the incubator accountable for what happens to the money and what the incubator and its teams use it for, but there is also the problem that it cannot act freely in business connections: whether equity or IP, the incubator wants to refrain from entering any cooperation, which it would have to justify.

In a conversation with the head of the incubator, it also turns out that the incubator did not originally intend to fund vague ideas but only advanced ones. However, this could not be enforced in the past, and thus particularly immature ideas were also supported. The situation with Ryan's idea is, therefore, ambivalent. If it had been very immature at the time of the application, there might not have been any conflicts with the tech company, but on the other hand, the incubator would have had to promote the idea for much longer than it had intended.

Consequently, insecurity in the workplace and conflicting situations in which loyalty ties dissolve can lead to misjudgement of development factors that can put entire projects at risk. At the same time, this increases the susceptibility to manipulation. If team members no longer feel committed to the incubator and loyalties dissolve, the consequences can be far more extensive. The supposed rationalisation of this process, i.e. looking at a product without understanding interpersonal relationships, their communication as well as emotional aspects, results in the alienation of

the team from its product. It is not only the artificial isolation of the artefact from its origins but a subsequent privatisation that becomes the opposite of a preceding creative process as an existential activity. The product is alienated and is no longer an idea in the original sense. The idea belongs to the innovator, which they take to the outside world. Even if the idea is inspired by the outside and triggered by experiences that take place consciously, as Dewey described, it still has a human creative origin that is de-idealised in the expropriation. In this way, the innovation process relinquishes a potential that it could otherwise harness. The awareness of the problem that precedes the creative process means the closeness and empathy of people with each other. This intimacy is given up through the constant process of reduction through the product's commercialisation. The artefact could be an expression of interpersonal understanding, but in this process, it does not remain so.

7.2 Evaluations: From Self-Fulfilment to Gilded Futures

In the context of innovating and prototyping, evaluation processes are constantly at stake. The prototype itself is reviewed, goes through test phases (subchapter 4.1.3.) and is adapted correspondingly to its actors' actions. Similarly, this happens within a team, the incubator, or with external business angels. The team, it seems, develops parallel to the prototype, evaluates itself, argues, and re-evaluates itself, and the incubator does the same as it evaluates and advises the team (subchapter 4.3.1.). However, there is a clear difference as the financier is dominant, and everything that serves commercialisation purposes has special significance in evaluation processes. Therefore, the question is to what extent incubators or funders see themselves as part of the formed moral economy of a team. Related to this is the focus of the evaluation logic for a product. Ultimately, a defining factor is the evaluation logic applied both in the course of development and especially at the end of development. This phase corresponds to the last opening of an iteration in which (perhaps) final changes are made or a narrative is adapted.

Incubators now follow market logic, which in medical production must meet specific standards, such as the *Conformité Européenne* (CE) seals or the US *Food and Drug Association* (FDA) regulations, for accessing the US market. What is also concerning is the often-lacking perspective of potential users, as suggested with CTA, which occasionally matters but is often disregarded.

In this subchapter, I focus on my interviewees' perceptions of incubators' or financiers' assessment practices. Therefore, I look at the perspective of incubators or external advisors who are not part of a team but evaluate the products.

First, Felix, the incubator's externally contracted consultant, discusses how the incubator decides whether a project is eligible for its assessments. He compares this

process with the evaluation processes for students' advancement to the next level of their education.

> The accelerator's main task is not the demo day but to filter out which teams are still worth funding. And I always find it like school. Who gets into the next class or is allowed to take the Abitur [A-levels] or something? And that is determined by the ability of the students. And, of course, also on the potential of the product that someone builds. Is it a world-changing product? Then, of course, you can put a lot of effort into it. Not only about the student. And this further support – I think it's called phase 2 support. This follow-up support. There are teams that in turn have funding and need further support. But it is entirely up to the team to decide whether they want to work with me or not. […] I have to sell myself or my services.
> *(Interview from 13/07/2020, Felix, Consultant at Health Hub, own translation of the German transcript)*

He describes different stages fundamental in this incubator, with the initial challenge revolving around the successful application, followed by a subsequent phase determining the extent of additional funding for the project beyond the initial project period. In this context, capitalist evaluation criteria play a significant role, which Felix describes with the question: 'Is it a world-changing product?' In concrete terms, this means that the team's previous milestone plan must be adhered to, an initial market analysis must be available, initial data must be available to confirm the market analysis, and the incubator must ultimately see an opportunity to find a buyer for this product in its network. However, as an external consultant, Felix also has his own interests to represent, and he is subject to the team's evaluation processes, as he has already revealed in the excerpt. Even if the incubator initially hires him for a team and is available for it, he says he has to 'sell himself' and his service. He is also subject to performance pressure to have his work and its value recognised. If a team does not want to accept his work later, as Bahar's team decided, he obtains fewer contracts from the incubator. Accordingly, he, too, is interested in promoting the projects, especially because they value him and his work and regard him as an asset.

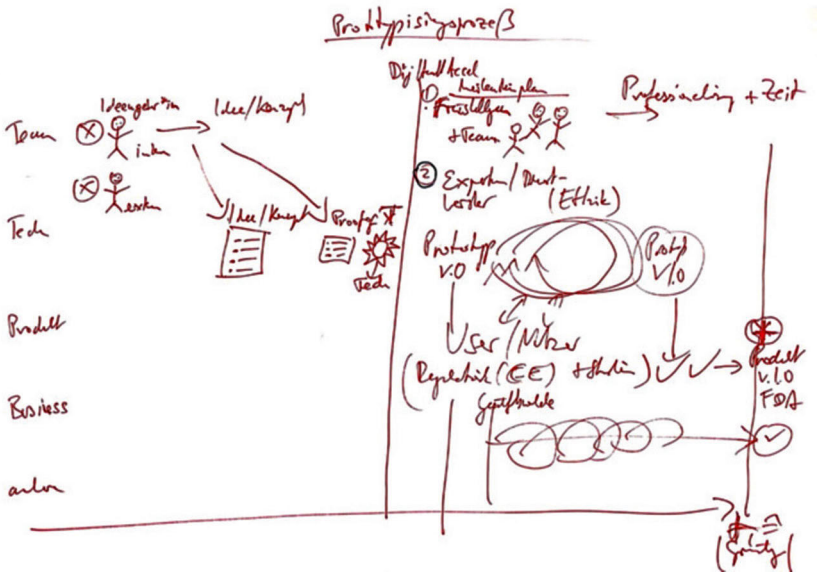
The interests of the incubator go far beyond the successful out-licensing of the later products. Jan, the head of the incubator, tells me which overriding interests matter: he also focuses on the out-licensing of projects; however, this aspect is new and one of many essential points for a profitable business. Because public funds finance the incubator, it adheres to other constraints and bureaucratic structures. Unlike any private investor, the incubator is accountable. Moreover, it is a pilot project of the federal government and a German federal state that has to be worthwhile. The project, which has received funding amounting to several million euros in recent

years, is not only obliged to keep expenditures transparent but is also accountable for expenditures and losses.

> This means that we are now increasingly attracting the interest of the [federal] state (..) when new companies are established here that create jobs with the ambition of paying taxes, which is good for the location. So, now we are at the interface of technology transfer or translational medicine "digital" – home of the digital lab. [...] These are regularly presented to external juries, external bodies that can cover medical aspects, clinical, technological, and so on and so forth to assess which projects are more promising or which should be funded rather than others. This is how we select the projects. *(Interview from 13/08/2020, Jan, Head of the Accelerator Programme at Health Hub, own translation of the German transcript)*

Accordingly, as Jan states in this excerpt, the accelerator programme must be worthwhile to guarantee continued funding and convince the federal and state governments, alongside a parallel private excellence initiative, of their value. If the investment is worthwhile and the incubator can shine with successful out-licensing, it will continue attracting doctors who want to realise their ideas. The incubator thus becomes a flagship incubator that uses public funds to promote the biomedical field.

Figure 15: Jan's Perspective: From the Idee to Selling the Product



Thus, the justification pattern revolves around the potential success of out-licensing or the emergence of companies from the projects. These companies then establish themselves in the region and contribute taxes to refinance the public money invested. To ensure the success of the ideas and projects, external juries are invited to the aforementioned demo days to give a guiding opinion that should help them succeed. The jury members are people from the public sector with a professional and related background, health insurance companies, and other experts from the health sector. The jury members change with each demo day.

Felix allows an insight into one of his projects with regard to the work processes:

> At the moment, the focus of our work is that we are developing a piece of software and are currently helping the team to get funding by working out the necessary paperwork and launching the first version of the product that they are talking about as a test version. That's happening next week. And this test product will then be run with various doctors and therapists – it's a therapeutic, physiotherapeutic product – as a so-called closed beta, i.e. for a closed circle of users, in order to be able to recognise whether it will be accepted. On the one hand, by patients, on the other hand, by therapists and also accompanying specialists. To use the numbers that are generated in the context of fundraising. By being able to say, hopefully, that this is encouragement, or we call it, traction. And one can use that as an argument in fundraising. That's what I'm doing as a focus at the moment, with a team. *(Interview from 13/07/2020, Felix, Consultant at Health Hub, own translation of the German transcript)*

This insight is the first time patients have been included in a test, although it is only a handful. 'Closed beta' is the process name Felix describes above, testing the prototypes. It is a test scenario in which different actors come together with their expertise and now communicate with each other around the artefact and evaluate it together. These processes were previously impossible for reasons of patient and data protection. In this evaluation process, the product undergoes assessment from various perspectives. However, the patient evaluation is only gradually included at this point because the end consumer is a specific one, and it is a medical device. If this were not the case, an end consumer would be invented.

Nevertheless, the invention in question here aims to address a specific medical condition and is assigned a unique role in this context. Accordingly, suffering is an independent experience that any other person cannot otherwise comprehend; it is itself an intentional phenomenon as it is a personal, subjective state that generates its own form of knowledge and truth. The state itself is thereby autonomously emotional. If more space were allowed for the patient's perspective in general in this process, as the CTA concept recommends and as I highlighted in subchapter 5.4., a different dynamic would emerge that would generate a far greater empathy aware-

ness. If one follows a philosophical view, suffering is a denied state of will, thereby describing a state of inadequacy. At the same time, this state can cause completely different states of activity to eliminate or alleviate the state. Ultimately, however, the discovery of the problem is insufficient to fully exploit the creative process. Hence, if the person who lives with a problem would be involved in solving it, far more could be accomplished. The problem of a lacking or diminished user perspective is considered again in the following subchapter.

7.3 Demo Day: Performing Emotion

The reduction processes continue. In the previous subchapter, I looked at the perspective of the incubator and external advisors. Therefore, in this section, I focus on the teams themselves. Just as the reduction processes occur in developmental de-idealisation, we reencounter them when communicating the prototype. The dream is initially idealised and is also later functionalised for practical reasons. In this subchapter, I deal with the demo days mentioned previously, during which the ideas become a projection surface for more *purposes*.

At the same time, the presentation on the demo day serves as self-realisation, which then gains social recognition with the term *purpose*. Whether in Berlin or other major cities, terms and phrases such as 'self-fulfilment' and 'make your dream come true' characterise the start-up scene. Unlike in Chapter V, it is not about the initial imagination that already draws a picture of the future but rather concerns changing narratives that are adapted. These narratives are directed at developers and the product itself to establish a purpose while simultaneously adapting this purpose to an existing or emerging market.

In this context, it is no longer about what the innovators and developers feel in the production process but much more about how a prototype, isolated from its original idea, can be developed into something that can generate a market and attract consumers. In this respect, it is not about the narrative of self-realisation but the narrative of purpose realisation. This ambivalence, in turn, does not follow the emotional self-expression of those from whom the idea springs but is about creating a sense of well-being in those who will ultimately encounter the final product. The focus thus lies on creating a feeling of well-being that results from the artefact and elicits it in the consumer. However, this feeling of well-being is not judged by the consumers themselves but evaluated on their behalf. Reconsidering the sketch in subchapter 4.3.1, we observe the last step of parallel development, in which new value development standards are established. As shown in this subchapter, the now emerging parameters arise in the context of final iterations.

Figure 16: In Preparation for the Demo Day during the COVID-19 Pandemic

Figure 16 shows the preparation for such a demo day, which took place online, so participants and technicians checked the necessary equipment when I took the photo. A small collective from the M.lab organised this demo day, and after much effort and overcoming regulatory hurdles, they found a space and let the long-planned demo day take place. Some had been waiting so long to present their projects that they were worried about finding a purchaser. Especially during the COVID-19 pandemic, financing phases ended, and some lived on their savings, as access to interested parties and markets was difficult.

During my empirical study, I visited several demo days, both small and intimate ones, as portrayed in Figure 16, both in person and online, and bigger ones organised by giant tech companies. The atmosphere is tense and exciting, especially on the

bigger demo days. People who, I believe, are developers, designers, and innovators run around, looking for people to explain something to them at the last minute and greeting one another. Microphones are installed just before stage appearances, full headlights are turned on, a team lead is introduced, and the product is presented.

Bahar tells me about her experience on the first demo day at the Health Hub incubator. The incubator rented a particular location for this event; there was a stage and technical equipment such as microphones, large screens, and cameras. She talks about her nervousness, which she also explicitly trained with a drama teacher beforehand. After the presentation of the prototype and the idea behind it, many of the jury members and guests approached her.

> There was a special day when we had to present everything we had developed. And then everyone approached us. The health insurance companies were interested. And there might have been funding and so on. The first LOIs [Letters of Intention] came in, and so on. *(Interview from 30/01/2020, Bahar, Physician & Innovator at Health Hub, own translation of the German transcript)*

She tells me in conversation that she was asked many questions that displayed a particular interest and occasional hints on what else to look out for in the development were provided. She briefly summarises the interests of the individual actors:

> This is a microcosm here. Everyone wants to get something specific—me, a product that corresponds to my idea. [The incubator] wants to know that we are developing something worthy of being funded. The insurance companies want a safe product, which is why we have the Johner Institute on our side [...]. *(Interview from 30/01/2020, Bahar, Physician & Innovator at Health Hub, own translation of the German transcript)*

A good impression must especially be made in front of potential customers, i.e. health insurers, and it must be possible to assure them that the product is certifiable. Concerning the latter aspect, there is a German institute, Johner, which takes care of the fulfilment of the criteria. As another external consultancy, it advises projects such as Bahar's in the med-tech sector and is familiar with the regulations for medical technology. It helps the incubator and the teams review the safety criteria and the quality segment up to the product's approval.

Bahar continues to talk about the dilemma she faces in reconciling the different interests of the patrons.

> You always have a goal where you see, okay, you've completed something again, and what you've done is rewarded because you get funding again. And then everything between these periods is what you have to do with the funding, that's

> always difficult. […] Especially with the milestone plans, you often think that the patients are actually missing out. *(Interview from 30/01/2020, Bahar, Physician & Innovator at Health Hub, own translation of the German transcript)*

On the one hand, she is pleased about the recognition and financial resources that every presentation success brings her. On the other hand, she says she feels tremendous pressure to perform, and she finds it challenging to work toward meeting the expectations of others. It is a marathon, as Viktor also described earlier. As Bahar herself said, the actors have different interests. On the demo day, the incubator expects her to deliver a performance that arouses so much interest among the guests, ultimately leading to buyers for her idea. Her idea and her original interest in producing an insole supporting patients after knee or hip surgery is only in the foreground as the development context is now reduced to a narrative she can perform.

Nevertheless, she notes that the patients are not the ones who are actively involved in the development process, and the presentation on the demo day features the product in isolation as the patients are not present and play no role in it. In the spotlight: an advertised product without being demonstrated to its intended user, the patient, through whom the problem becomes apparent in the first place. However, if patients are not at play, they are theorised by the isolation, and the once practical reference recedes into the background.

Ryan tells me how the preparation for demo day works and mentions that many people are very nervous beforehand and that the pressure to perform is exceptionally high on this day. One wants to deliver a good presentation oneself, and the incubator also wants you to deliver a respectable presentation. Thus, there are lessons and exercises to help individuals to say the right thing at the right moment and to tell a story, preferably an emotional one. In this excerpt, Ryan shares what the workshop and training were like:

> **R:** She [drama teacher] gave us before we were supposed to do this pitch, this presentation, she all gave us kind of a seminar in how to present, which is great. I had a lot of fun doing that because you're not just supposed to stand up there and just click through a bunch of slides and say, okay, I'm X going to explain this publication. What's more, I'm trying to sell something. I want to deliver emotions to something. […] How do you connect with these people? How do you look into someone's eyes and say, okay, this is the best thing ever? And here's, it's going to change everything. That was really good. And that gave me a lot of confidence when we had to do these pitches because I was not nervous at all. […]
> **I:** So, what would you say is what is it about? So, you said confidence is something you'll be trained in or anything else?
> **R:** The clarity of your message and not getting caught up in the scientific details of something, but really just on an emotional basis. What is it you're trying to do? […] You're going to be presenting this. There's going to be cameras there. There's going

> to be lights there. You don't want to freeze. You want to be able to think on your feet and kind of just flow and that. And I think that was [...] the part of the workshop that really stood out to me. *(Interview from 04/12/2021, Ryan, Physician & Innovator at Health Hub)*

Ryan clearly says that it is ultimately about delivering; it is a performance in which one is supposed to tell a story that triggers emotion. It is strategic storytelling, how you tell it, and what words you choose besides body language. The scientific facts are irrelevant at that moment – Ryan was not presenting the actual inability of the prototype nor the IP problems. You want to convince, despite all the nervousness. The cameras, the lights, the many people you have to address. You are given a strategy to overcome all that and stay in the flow. It is the story that counts.

The field notes in my diary, as well as the interview excerpts from Bahar and Ryan, show how performers have to functionalise emotions on the demo day. This insight is well-known, as we have understood advertising for decades. What is more intriguing is the recognition that emotions are assigned a value that cannot be replicated through other means. Emotions serve as mediators of value and must align with the zeitgeist and the audience. In addition, the story around the prototype must make the problem it solves tangible. In this context, problems are easy to emotionalise. The performers must, therefore, recognise and address desires.

7.4 Emotions as a Product

Apart from the aspect of performance, i.e. the way something is conveyed, the content comes into focus. According to this, a potential customer is not only convinced by one's appearance but also by the narrative itself, the chosen words, and how the narrative is symbolically and emotionally loaded. It is not only about 'performing' but also about a speech act, 'performing a narrative', which ultimately becomes a 'performing emotion'. Physical performance, speech act, and symbolic wordplay become one, blurring into each other. In this narrative, however, not only is a potential increase in turnover or sales value expressed, but the approach to the artefact. First, such narratives express a creative force charged by one's experience, goal, and purpose. It becomes an object of knowledge (Dickel, 2017; Knorr-Cetina, 1997), successively enriched by multiple perspectives, by further experiential knowledge added to the object. A reduction process can occur parallel during this accumulation of knowledge, expressed in the artefact with its changes. As shown in the previous sections, the level of idealisation is reduced, and functionalisation occurs.

In subchapter 3.3, I described the 'rise' of emotions and renewed attention to them through (neo-)pragmatism, which resulted in their increased importance since the 1990s. Moreover, emotions have been given a great deal of space at various

levels in the social sciences, philosophy, and psychology. They are perceived and analysed in knowledge accumulation processes, considered in negotiating a moral economy and are part of the agreement, whereby the moral economy helps a group to be its reference system on which it agrees.

In the process of reduction, however, emotions change their meaning as, although they are still world-making, they have become flexible in marketing a product. While they used to be significant in communication within a team around an artefact, they are now functional companions.

The following three interview excerpts show how a narrative changes to reach more people because its former content is unsuitable for a wider audience.

On the demo days and in the conversations, it becomes clear that the pressure from incubators or financiers can be tremendous if an idea fails to meet the desired criteria. This pressure can, as described above, move developments in predefined directions that the teams do not intend but ultimately follow to continue receiving funding.

During our last conversation, I asked Karwen about his familiarity with these experiences and sought confirmation regarding the necessity of adapting and imbuing narratives with different significance to ensure a continuous flow of funds.

There was once an invention – but it wasn't mine – about a sensor, haptic models. I got involved as an investor, and later as a partner. Why? […] [I come from a country where there is corruption and war. I have always said to myself, nothing that has to do with these things. No war!] This sensor thing – it doesn't exist anymore like that […] (laughs) – we wanted to use it in the rehab, health sector, I won't say exactly what, because – it's too delicate now, ok? (I: Sure.) We needed more money from a certain point on. So, pitch after pitch and so on. So, the OEMs [Original Equipment Manufacturers] came, the car manufacturers. And then, of course, it was somewhere more obvious to say, okay, we're also going in this direction. Although we still wouldn't have pushed it so hard. Because it was not an emotional, important topic for us. […] And then it was like, hmm, I don't know if we want to go into the car industry now. […] That they said: OK, they think it's great, they see the potential there. We should somehow continue to work on it. And that has also influenced us, but of course, it also comes together a bit with the fact that we have also, so to speak, rationally considered for the company, what else can we do, how does it make sense? […] And so, I left later. (I: Why?) I'll tell you why. The thing was, as soon as it landed at Bosch or a larger car company, and that went quickly – amazing when it comes to money – but, somehow, I got worried. I thought, if they get this, then it can also be used in tanks, on rifles etc. I didn't want that. *(Interview from 08/02/2022, Karwen, Private Investor & Innovator)*

He tells me about a former invention, haptic technology, which he and the developer wanted to use in psychiatric rehabilitation medicine. Although he had already co-founded, new investors were needed as they still did not raise enough money to push the idea further. Subsequently, they came into contact with so-called OEMs and presented their idea to them. The diversions via the automotive industry were not planned this way but made it possible for Karwen and his partner to continue with their business. Later, he says, he became sceptical and dropped out. Because of his background and his experiences in his home country, he was worried that the idea would be repurposed and implemented as war technology. He could not reconcile himself with that and is no longer part of the company. The invention has taken a different path than initially planned as a prominent vehicle manufacturing company bought the idea and its related technology.

Bahar tells me about her invention in adapting narratives, which has had the same name from the beginning, although the explanation of its origin is now different. The fact that the topic of war matters to both Bahar and Karwen – as can be read in the excerpt below – is a coincidence. However, it is interesting that both come from countries that have suffered or are suffering from (civil) wars. The connotation of war evokes negative feelings in both of them, and thus, they do not want a war associated with their invention or for it to potentially be misused for this purpose through application in the armaments industry. Bahar tells me that the name of the project and the prototype that is being created originally came from her mother tongue and the Latin word for foot. With her sister, who developed the first prototype with her in the living room at the beginning, there is a lot of personal and emotional content here. It is not only an emotional matter for Bahar, as she initially describes, to develop such a product for her patients. It is also a private matter with her sister, who includes part of her identity in the name, in the object itself. Together, they stand in their pyjamas in the living room, as Bahar tells me, tinkering with their prototype and giving it a name that – for them – has an identity character.

> At the time, my sister and I chose [product name[1]], and [x1] means [x2] in Kurdish. We googled it back and forth a bit and came up with a pun on foot. [x3 is x2] in Latin. And then we had a Kurdish-Latin word. In the meantime, we have changed it for the public. Because Kurdish always sounds like a national war. Accordingly, we now say that [x1] comes from foot linguistics and has analytical foot design. We understand the language of the feet, that's how we frame it now (laughs).
> *(Interview from 30/01/2020, Bahar, Physician & Innovator at Health Hub, own translation of the German transcript)*

1 Words are left out for confidentiality purposes.

Bahar and her sister, who dropped out of the course of the project due to her medical studies, superficially give up this identity-forming part for the public, as Bahar says. A Kurdish word, she thinks, would not sell well in the public perception. It sounds, as she says, like a national war and thus cannot generate an outlet or high sales figures – at least, that is her assumption. Even if the identity-creating character is only superficially abandoned, it has a clear objective as the name remains, but the rationale in the narrative is adjusted.

In the interview with Ryan, things become more concrete about the commercial aspects, whereby he first talks about the reduction processes as described above:

> […] The narrative completely shifted, completely. (I: Can you tell me how this shifted?) So, again, with this original idea, it was just the company, my boss and I are like, hey, wouldn't it be cool to have this? And it's probably going to help patients after surgery; it's going to help. It's just going to help, it just broad, like, oh, […] we can monitor brain perfusion. Finally, it's just going to help everyone. The narrative shifted during the first phase of this accelerator program, where we had intensive mentoring where people ask like, "Okay, we're not going to fund something that sounds good. Will people buy this? […] Will hospitals want to actually give you money for this? How can you actually integrate this into a healthcare system?" You can't just say, oh, this is a cool thing. It has to have some value to it. And going through these talks of, again, this is this wonderful thing about this program where you take a doctor, and then all of a sudden, they're confronted for the first time with building a narrative, building a motto, building a business, having more of a business side of view. This really starts putting a lot of reality and roadblocks in front of you. And so, the narrative shifted from wouldn't it be cool to have this, it would be the best thing ever to really saying, okay, what does it actually do? Why would you want to pay for this? What's the story we're trying to give this? What's the use case scenario? And so, the narrative has been a lot more refined now, as opposed to saying, oh, this is going to help elderly people. So, there is no data on delirium after operations, too, saying we can actually pinpoint possibly where the profusion deficit lies. So, the anaesthesiologist can intervene and, therefore, outcomes or hemodynamic outcomes for all patients will be improved. And so, that's kind of the story. And so, we say, okay, for the first time ever, the anaesthesiologist can measure this for the first time ever. It's going to be a breakthrough in everything, and this is why a hospital should buy it. So, again, my boss never had this idea, I've just been doing the work thing. Okay. […] How can you convince someone to spend money on this? *(Interview from 04/12/2021, Ryan, Physician & Innovator at Health Hub)*

As Ryan has described before, the incubator has a great deal of influence on the development, which Ryan perceives as putting him under pressure at times. Furthermore, he outlines how much the narrative has been adapted throughout progress and what questions the incubator asks to guide this process. First, it is the enthusi-

asm that he, his supervisor, and the developing technical company feel for the intentional idea. In our conversations, Ryan always emphasises how great he thinks the idea was at the beginning and how excited he is to build something, research, and create something with his hands. This is where the aforementioned will to create is active, primarily of an idealistic nature. The solution to a problem and helping the patients is in the foreground. Although the plan sounds good, it is not enough. With Ryan's successful application to the incubator, hurdles are now coming his way. A product whose idea sounds good is replaced by capitalist market logic, expressed in the following questions: 'Will people buy this? Will hospitals want to give you money for this? How can you integrate this into a healthcare system?' The inquiries are now concretising the objectives, and consequently, there is a narrative specification.

The rationalisation process turns the object of knowledge and emotion into an instrument. The outer shell, the new narrative, remains emotionalised to sell it. However, in terms of content, it diverges from the original intention. Rationalisation leads to a return from the emotion object, which becomes the knowledge object, to an archaic stage of being a thing (Knorr-Cetina, 1997). Ultimately, this reduction and rationalisation serve the purpose of raising external expectations. Presumably, it is reloaded in further dealings, in the sense of a continuing sociality with the object, and thus gains new meaning in a new context. However, this transfer of knowledge and emotion needs exploration in further study.

Ryan's presentation on the demo day also provides an intriguing insight. Whereas during the first minute, he talks about avoidable patient harm during anaesthetic operations, the second minute focuses on the costs that potentially harmed patients incur due to anaesthesia during an operation. Overall, 10% suffer perioperative complications that lead to prolonged hospital stays and Intensive Care Unit (ICU) care. Ryan continues with facts and figures: 45 million operations took place in the EU in 2019, 5 million of which experienced severe perioperative complications, resulting in €200 billion in extra healthcare costs.

It is striking that despite their fact-rich description, the narratives cannot avoid underlying the facts – as far as they are such – with emotions. The idea, the motif, and the associated emotions economise during the reduction process. Whether in the incubator or supported by other business angels, the 'idealist' has to surrender to capitalist economic logic in the end.

The ongoing reduction processes, as elucidated earlier, redefine the value of the prototype, departing from the initial values attributed by the inventor, innovator, or team. The standards differ in the course of the iterations or by their end. As we have already seen with the demo day, it is about an emotional performance that grips the audience. The product narratives function similarly, as they are not solely performed, yet they must convey the content effectively to move the audience. Yet, as I described, the narratives or stories are adapted to an audience, their world of experience, and acceptable emotions, which depends on where the narratives occur. Some

benefits are emphasised, while others are relegated to the background if highlighting them does not seem justifiable at the time.

We have seen that Bahar adapted the story to her product name as she suspected and felt that a name of Kurdish origin would be less saleable. Possibly because concerns about inherent racism in evaluation patterns concerning her product are not far-fetched, and the Western world would instead source consumerist goods from its own climes? Addressing this question in detail would provide plenty of evidence. In any case, her assumptions and concerns are an expression of socialisation or part of the experiential world of a given group.

Karwen, on the other hand, decided against producing technology suitable for war, among other things. He maintained this ideal for himself, which is why he abandoned his team and the idea. Maintaining his ideals eventually came at a price.

Finally, we encounter Ryan, who also describes the transformation of the narrative, albeit in favour of saleability. As he recounted earlier, narratives are adapted but include the weakness that they did not – at least at times – point out that part of their promise was based on speculation but simply accepted this for popularity.

All three are confronted with the functionalisation of emotions, not necessarily in a moral manner, but to create a want or perhaps satisfy a need, but always with the purpose of being relatable and saleable.

Ultimately, it is remarkable that rationalisation during the development and production of a technical artefact, such as medical technology, is invariably countered by emotionalisation. Ungrateful remains the abandonment of emotions, which are supposed to be excluded during the reduction processes, the ruptures that arise due to rationalisation. However, emotions are only requested when a calculating purpose benefits them.