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Using Empathy-Centric Design in Industry: Reflections from the UX Researcher, the Client, and the Method Expert

Luce Drouet
luce.drouet@uni.lu
University of Luxembourg
Esch-sur-Alzette, Luxembourg

Froukje Sleeswijk Visser
f.sleeswijkvisser@tudelft.nl
Delft University of Technology
Delft, Netherlands

Carine Lallemand
carine.lallemand@uni.lu
University of Luxembourg
Esch-sur-Alzette, Luxembourg

ABSTRACT

Empathic design provides tools and frameworks supporting designers to understand users' experiences with products or services. However, how does one hand over this empathic understanding of users to other internal stakeholders shaping the service experience? In this contribution, we reflect on a three-year implementation of an empathy-centric design approach in an industrial context with a low user experience maturity from three different professional viewpoints: ours as UX researchers, the one of a company manager, and an expert researcher on empathy in design. These narrative introspective accounts unveil some of the main benefits, opportunities, and challenges of implementing an empathy-centric design approach in the industry. We discuss and confront them to prior work. We contribute to the field of empathic design with rich in-situ research insights and principles for a successful empathic approach.

CCS CONCEPTS

• **Human-centered computing** → **HCI design and evaluation methods**; **User centered design**.

KEYWORDS

Empathic design, Service design, Empathy-Centric Design, Empathic research methods, Industry insights, Introspection

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1 INTRODUCTION

"If the people within the organization do not share the attitude or mindset that is needed for doing empathic design, then the effort is likely to strand." - Postma et al. [31]

Since the 1990s, empathic design methods [11, 15] and frameworks [13, 16, 37] support designers to step into users' world and step out [16]. The empathic design approach aims to deeply understand users' experiences [8, 21, 26]. Empathy is the art of taking users' perspective ("stepping into their shoes") [17] and enables designers to know what users think and feel [11], as well as what they say, do, and make [35]. In the service industry, prior work has documented the positive influence of empathy on service quality, customer satisfaction, loyalty, and forgiveness [2, 4, 23]. Empathic research supports business and innovation objectives such as generating user insights for opportunities, learning and refining ideas and prototypes, and estimating potential solutions [11].

Design researchers have developed empathic methods for collecting creative and inspiring user insights that support the design of user-centered solutions. However, other stakeholders, like engineers or frontline workers, also shape the user experience of services but have limited skills in design or research. If empathy has a positive influence on the relationship between users and service employees [43], it seems essential to help these employees to approach users with an empathic mindset. At the organizational level, increasing empathic understanding might lead to more acceptance and integration of user insights in an innovation process. Service industry value is created in use. Consequently, it is easier for a customer-centric driven organization to integrate UX insights [33, 41, 45]. According to Patnaik [29], empathy needs to be *"widespread throughout the large organization."* The author defined principles for companies to develop their empathic approach: hiring their customers, or if not possible, adopting strategies to step into users' shoes. Meeting users face-to-face is key as it triggers emotional memories that will guide companies in the design of their solutions.

A successful empathic approach in the industry involves multiple challenges, like switching from a rational approach to an empathic one, turning users into partners, or engaging stakeholders in user research [31]. Deploying such an approach requires first convincing the company management and involved stakeholders about its relevance [31]. The stakeholders are then inclined to open their minds and develop an interest in the users' experiences (first stage towards empathy in design [16]). This creates opportunities to engage stakeholders in user research, in a way that they would envision users as long-term partners with expertise in the service [44]. However, involving stakeholders in user research requires training their research skills [31]. Non-experienced people usually focus on part of the findings only, taking into account individual users' problems instead of patterns, and struggle to translate insights into solutions. The ability to take others' perspectives and to switch between perspectives (self/other distinction [6]) throughout the design process is challenging for novices [38]. Beyond research skills, Manrique et al. [22] identified six strategies to engage stakeholders in such an approach: managing their expectations, facilitating their understanding of the design process, making them participate, creating a high level of excitement (developing an *"enthusiastic mindset"*),

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establishing trust in design professionals, and translating users' insights.

In practice, design researchers rely on empathic methods and techniques to establish an empathic approach inside projects and get stakeholders engaged like empathy probes [24, 25], generative techniques [35], ethnographic and mapping methods [10, 39], and co-creation workshops [1, 39]. Being able to assess stakeholders' empathy and the effects of specific interventions can be an asset in supporting the success of the empathic approach. The specific challenges related to the measure of empathy in the field have been discussed by Drouet et al. [9]. While empathic design has been developed in academia, design practitioners still lack guidance on how to convey this to- and with- other internal stakeholders. Information on how to successfully implement an empathic approach to conveying user insights/inputs in the industry is limited [14, 31]. What should be avoided and what needs to be anticipated in stimulating empathic understanding through involving users or conveying user insights with stakeholders inside companies? More literature on applying empathic approaches inside companies would guide practitioners in designing user-centric services and technologies in closer collaboration with stakeholders. Documenting and reflecting on the hands-on experiences of user researchers and designers with empathic design in various industries would deepen the research understanding of empathy in design.

This paper aims to reflect on the deployment of empathic design interventions within a company with low UX maturity in the railway industry. These interventions focus on 'stepping in' the users' world part of the empathic process. Building on work by [16], this process originally aims to develop designers' empathy towards users through four stages; (1) discovery, (2) immersion, (3) connection, and (4) detachment. Our interventions focus on techniques to convey user input and insights to teams in the industry. They act as a way to raise service employees' interest (discovery stage) in users and develop an empathic understanding. We offer reflections on these interventions from three viewpoints; our perspective as UX researchers, the client represented by a company manager - and those of an expert in research in empathy. Observations are discussed from their experience, a key theme being the challenge of eliciting interest and a sense of purpose in participating in the empathic process interventions among the employees of the company.

The originality of our contribution lies in sharing a detailed rich description of the resistances that empathic design and user-centric design can encounter in the industry, as well as opportunities and success factors. This paper is conveying an empathy lens to evaluate the three interventions in corporate reality. We contribute to the empathic design field by documenting the experience of using empathic design methods with service stakeholders rather than their typical focus on designers' empathy. The insights we share might inspire the research and design community on adapting and renewing empathic research design methods to help other stakeholders involved in user experience than designers to get an empathic knowledge of users. Noteworthy, this contribution does not report each study's findings, documented in previous work or ongoing publications. We first introduce the context of the company and the techniques used in the interventions. We then navigate between viewpoints from the three actors of our project. These introspective accounts unveil some of the main benefits, opportunities, and challenges of implementing an approach to empathically convey user insights in the industry.

2 APPLYING AN EMPATHIC APPROACH IN INDUSTRY

2.1 The railway company context

The studied railway service is an established public company. Over the years, the shift from freight service to passenger transportation required adapting the service offer (e.g., trains frequency), expertise, processes, and company culture. The company recently redefined its service strategy to place the passenger at the center of innovation. With about 5000 employees, the passenger side of the company mostly includes technicians and engineering professionals. Service quality is represented, but there are no designers and only a few creative profiles working on corporate communication and passenger information. We assessed the company's UX maturity at the start of the project [27] as "limited" (phase 2), *"UX work is rare, done haphazardly, and lacking importance"* [30]. This aligns with the awareness phase of Chapman and Plewes [7]: *"the organization may be considering UX design, but applying very little structure around UX activities. Often there is a significant amount of misunderstanding surrounding the real nature of UX design."* The company management viewed their maturity as rather "emergent" [27], defined as *"a growing belief among the leadership team of the value of design [...] and investments are being made in professional hires"* [7]. Despite an awareness of the need to increase UX competencies and to involve the passengers' opinions in their innovation process, the company's UX knowledge is low. User research is not systematically implemented. There is no UX strategy, nor measures of the results of UX work. Our project paves the way toward a user-centered approach to the service.

2.2 Our Empathy-Centric Design Approach

We deployed an empathic approach to convey user input focused on valorizing users' insights and developing empathy towards users inside the organization. Based on the empathic design literature [11, 15, 16, 21], we selected user research methods to collect passengers' experiences. A main requirement was their potential for empathically handovering our findings inside the organization (i.e., conveying empathy through the dissemination of user insights) (Figure 1). We used three user research techniques, from the most processed/synthetic to the most direct: (1) a physical journey map (synthesis of user insights), (2) the love and breakup method [12] (raw user data), and (3) co-creation workshops based on generative techniques [35] (direct contact with users). These methods embed empathic characteristics [15]: user-centered, visual and tactile, cheap and low tech, playful and fun, interpretative, tested in reality, and creative components [20]. We also selected the methods according to the opportunities brought by the project and user research needs from the company (e.g., exploring passengers' needs, co-creating information with passengers). To measure the success of our approach we developed the Empathy in Design Scale (EMPA-D) [9], a self-reported measure of service stakeholders' empathy towards users. We administered this scale to the railway employees before and/or after our interventions. We additionally studied the

employees' level of empathic ability through empathic accuracy techniques [5], and ad-hoc measures of their willingness to improve the service and their interest in passengers.

2.2.1 Intervention 1: Interactive showcase of passengers' journeys. Based on existing passengers' feedback collected through satisfaction surveys, previous workshops with users, and customer complaints, we created a multimedia installation showcasing passengers' journeys [18]. As a method, a physical journey map refers to an installation where curated user research data is staged through various mediums and sensory modalities to represent the journeys of the users of a service or a product [18]. The experience was staged to follow the temporal journey of the train passengers (Figure 1). Scanning a ticket, visitors embark on the journey of three passengers, able to discover their identity, follow their actions, hear their thoughts, feel their emotions, and understand their pain points. At the end of the experience, the employees were invited to generate ideas and take action to improve the passenger experience. This physical journey map is a dedicated tool to help employees navigate through passengers' insights and immerse themselves in the passengers' experience. This immersion act as a mean to convey empathy [16]. The prototype has been developed and showcased to the client. Yet, due to COVID-19, only a virtual version was tested with five employees.

2.2.2 Intervention 2: Broadcasting passengers' love and breakup declarations. We shared passengers' feedback on their service experience with employees (N=230), as part of a mandatory information session. We strived to trigger empathy towards the passengers by broadcasting six passengers' love and breakup declarations to the service (out of 53 collected). We hypothesized that passengers' emotions elicited by the declarations would resonate with employees and generate empathy. After each declaration, employees filled out a questionnaire about the passengers' emotions. One empathic accuracy exercise [6] consisted in recognizing the emotions expressed by the passengers. Measuring their emotional resonance, we asked employees to select emotions they felt while listening to the declaration. They then reported the main ideas they remembered, and rated their learning, interest, and perceived ability to improve the service. We measured the baseline level of employees' empathic ability using the EMPA-D scale [9] before the session. After the intervention, we used a shorter single-item measure inspired by [36]; "On a scale form 1 to 7, how would you rate your level of empathy* for these passengers? (1=No empathy, 7=High empathy) *empathy = putting yourself in the other person's shoes". Finally, we shared a synthesis of user insights introducing the passengers' needs expressed in the declarations.

2.2.3 Intervention 3: Co-creation workshop employees and passengers. We sought to trigger empathy through direct contact between 14 employees and 15 passengers during co-creation workshops. We used generative techniques [35] to facilitate a dialogue on the specific issue of passenger information during railway maintenance. The workshops entailed two experience mapping activities (mapping the current information devices used by passengers along their journey and how their experience with information could be improved) and the co-design of an information poster. These activities aimed to provoke discussions with the users and to convey empathic understanding through this direct contact. We measured employees' empathic ability before and after the workshop with the EMPA-D scale [9]. A few months later we presented the findings to the employees, focusing on users' habits, expectations of the service as well as potential design directions. We asked them to fill out an online questionnaire including EMPA-D and open questions related to what they learned about the passengers, their interest, and their ability to help improve the passenger experience.

To reflect on our journey of implementing an empathic approach in the industry, it is useful to make the assumptions underlying our work explicit. At the start of the project, we expected that: (a) creative and narrative methods would facilitate employees' understanding of passengers' experiences and trigger empathy, (b) the user research methods used by designers could be transferred to stakeholders with similar prerequisites and benefits, (c) a change in empathy could be measured as a result of our empathic design interventions and inform on their effectiveness. The company was at first solution-oriented and expected prototypes and new designs without being interested in user research as a process. The company did not directly see what to expect from the empathic approach.

In the next sections, we rely on our own experiences through three complementary perspectives to illustrate the benefits, opportunities, and challenges of implementing an empathy-centric design approach in the industry. We do not report the findings of each study but focus on the overarching experience of applying an empathic approach in a company.

3 VIEWPOINT OF THE UX RESEARCHER

In this section, we present an introspective account of our experience leading empathic design interventions in an industrial context. We documented these experiences using written notes and through frequent exchanges with the research team both during the intervention (reflection-in-action) and retrospectively after the intervention (reflection-on-action). This section aims to reflect on our personal experience as researchers, acting as mediators of empathic understanding of users. "Designer's personal experiences refer to *"the collections of their individual experiences derived from their direct observation of past real-life events and activities, as well as their interaction with design artifacts and systems"* [46]. Zhang and Wakkary [46] explains the relevance of such practices in our field and their contributions to technology design.

3.0.1 The credibility of empathic design. A striking moment in the project has been the reaction of a few employees to the passengers' declarations. We imagined that the playful, emotional format of declarations would trigger employees' empathy towards passengers, yet the breakup declarations generated some revolting comments among employees, e.g., "stupid", "seriously?!?" or blasts. The audience was calmer while listening to the love declarations. After the session, participants questioned the reliability of the content presented, "53 interviews is not a lot", "are the declarations stories or real customers' feedback?". Although these reactions were scarce, we felt disturbed to the point of questioning the credibility of our empathic approach. This was fortunately balanced by individual employees' positive messages after our design interventions (e.g., "this is the reality", "thanks for this experience.") An employee

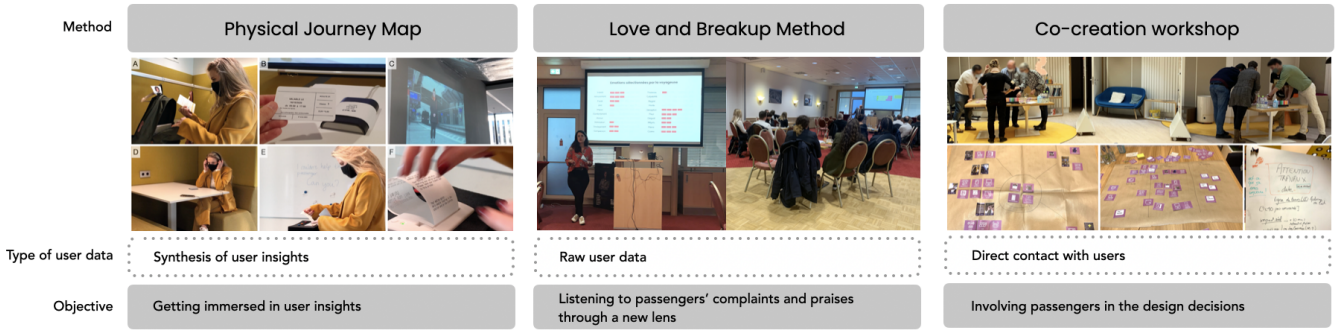

Figure 1: A synthetic view of our empathic methods choices

recognized us on the train station platform and shared that they had an interesting experience listening to passengers' declarations. Regarding the few negative reactions, the person explained that frontline staff is facing "crazy situations" (e.g., drunk people that frontline staff needs to manage) with customers at times. The co-creation workshops did not lead to any comments questioning the technique. Only one employee refused to participate in one activity comparing employees' and passengers' points of view as they did not see the value of the exercise. This anecdote raises questions about the relevance of activities for stakeholders. They participated in our intervention with the expectation to learn something rather than for the sake of interacting with users. This resonates with Walther et al. [42]'s work on training engineers' empathy: our empathic methods should take into account stakeholders' expectations and teach them that human interaction builds knowledge for their profession. It requires convincing them that direct contact with end users provides valuable knowledge for their innovations [40].

3.0.2 Stakeholders' engagement. Besides navigating stakeholders' busy schedules, avoiding the pressure to participate was a concern. The company's hierarchical structure imposed us to approach employees through their managers. Attending the declaration session was mandatory. Yet, being present does not guarantee being sensitive or adhering to the approach. The challenge thus lies in engaging the stakeholders in the intervention. 356 employees attended the sessions. Noteworthily, 66 did not give consent to participate in the research. It is hard to know whether this results from concerns about sharing data with researchers associated with their hierarchy, a refusal to engage in the research, or simply a lack of attention to the checkbox in the form. We eventually collected 151 fully completed questionnaires. The research design involved some redundancies and reduced the engagement of the stakeholders. We adapted the protocol after the first sessions, striving for a trade-off between academic soundness and engaging restitution of insights. This echoes [22]'s strategy of creating a high level of excitement all along the approach. The topic of stakeholders' engagement also led us to wonder: to trigger stakeholders' empathy towards users, should researchers first strive to show empathy towards the stakeholders? Once the researcher is recognized as an ally, sharing users' insights becomes easier. The voluntariness of employees to attend such sessions seems like a prerequisite to establishing a trustworthy space where emotional interest and empathy can grow. Then, how do we trigger their interest and curiosity in the first place? In our case, empathic methods seemed to provoke debate among employees. Debate in itself might be fertile ground to change the mindset, leading eventually to empathy. An empathic approach would thus require building relationships with stakeholders first before focusing on the objective of increasing empathy toward users.

3.0.3 Data curation. The curation of which user data extracts to use was a point of reflection. We selected six extracts of passengers' declarations to broadcast, out of 53 full interviews. Similarly, the physical journey map was a showcase of selected information. Which criteria had to prevail? Stronger emotional data to trigger empathy? Frequent or generic issues which would resonate with a large part of employees? Unusual findings to trigger curiosity? Should the representativeness of the aspects raised by passengers matter? We ended up broadcasting a love declaration first, to avoid demotivating stakeholders or creating reactance. While selecting specific user data to trigger empathy, we wondered to which extent we stayed faithful to the reality of the passenger experience.

3.0.4 Scalability of the empathic approach. Throughout our interventions, we often wondered how to reach a maximum number of employees. While disseminating user research findings from the declarations could be done at a large scale with low cost, co-creation workshops are harder to imagine at a large scale. The time investment felt frustrating compared to the ratio of employees put in direct contact with users. We however thought of this initiative as an experimental testbed, which could be replicated. The stakeholders participating could also possibly become ambassadors of the empathic approach within the company. We invited the client to observe the sessions. If the company envisioned the workshops as mostly solution-oriented, we saw them as a way to initiate awareness around the benefits of user contact beyond pragmatic aspects. More technological interventions such as the physical journey map opened new opportunities but also challenges. On the one hand, the client envisioned using the immersive installation during the training of employees, particularly newly hired ones. The installation would not require the presence of the user researchers. It could be accessed by anyone and raise curiosity thanks to its original

format. On the other hand, to stay up to date and continuously feed empathic understanding, the techniques used need to provide up-to-date data (e.g., live stream data instead of archival data in the installation). We thought that the material used needed to be easily accessible and the approach flexible enough to get new stakeholders on board all along the process (e.g., due to the turnover of teams). We also reflected more globally on the implementation of our approach: which techniques to use? and in which order? targeted at which audience? or how to best combine them. In particular, are some techniques more adapted to the context of a low UX maturity than others? For which reasons? Part of our concerns for measuring the empathy level of stakeholders related to this idea of understanding the mechanism behind empathy-building and how specific techniques were instrumental to this endeavor.

3.0.5 Triggering empathy rather than frustrations. In reaction to the declarations, some employees shared judgmental comments about passengers instead of showing understanding, e.g., "Being nice [to passengers] doesn't always pay off", "Take scissors to chop headphones" (to force passengers to listen to audio announcements in trains and stations), "They [passengers] always bring up the same topics." Could empathic methods be counterproductive? Or can it be successful for the majority yet not effective for some? We collected similar answers after the co-creation workshops, e.g., "I have empathy for customers. Unfortunately, empathy is not enough for them." Interestingly the workshops triggered employees' comments related to their own need for customers' empathy, e.g., "I agree with customers but we also have constraints and it is important to accept them too," "the exchange was more humanized" (than exchanging with passengers at the station). During the workshop, some employees also realized that passengers did not understand the designed solutions. The processes of empathy seem to be enhanced when there is a mutual exchange: both parties step into each other's worlds. However, the employees still had the tendency to explain to passengers why the service worked in this way. In both interventions, employees concluded that the solution is to "educate" users of the railway jargon. This is due to the fact that service systems are usually designed from the system perspective: *"the service action flow thus goes from the organization to a customer and not the other way round"* [39]. Isn't the role of the UX researcher above all a mediator or negotiator? To avoid alienating employees with such approaches, UX researchers would need to welcome these comments with a particular open-mindedness and skillfully deconstruct them with facts, e.g., educating 16.6 million passengers per year does not seem realistic - clarifying messages on information displays in stations seems easier.

4 VIEWPOINT OF THE CLIENT

In this section, we report on the viewpoint of a manager of the company on our empathic interventions. We gathered their perspective through a questionnaire including sentence completions [19] – "At the idea of using the love and breakup declarations method inside the organization, I expected...", and open questions – e.g., "What are the advantages, limitations, and challenges of using the love and breakup declaration method inside the organization?".

4.0.1 Strategic use of the collected insights. The manager/client has been positively surprised by the richness of the passengers' input provided by the declaration method and its relevance. The playful format helped the company to talk about the underlying problems. As explained by Rutkowska et al. [32] the playful aspect is one of the nine qualities of insights (e.g., inspiring, memorable, experiential) to reach the actionability of design research. An employee later reused the passengers' insights during a strategic meeting and the synthesis of the declarations is used for strategic orientations. The main challenge of this intervention has been to distill insights on passengers' needs from the declaration to get clear and significant messages to share internally.

4.0.2 Credibility of the findings. Despite interviewing 53 passengers, findings needed to be combined with a quantitative study to validate the insights. The empathic methods deployed were not sufficient to eliminate entrenched beliefs. There are still employees being unreceptive and uninterested in passengers' experience. In particular, the physical journey map method raised questions about the return on investment of such an installation and its real impact on frontline employees. The manager expressed concerns about employees' reactions, anticipating potential skeptical reactions.

4.0.3 Scalability of the empathic approach. The love and breakup declarations were memorable to the client, because of the impact they left on the company. During the session, employees laughed out loud in a good mood while listening to passengers. These laughs also demonstrated employees' understanding of issues in the service. The authenticity of passengers' declarations stayed memorable within the organization. According to the client, the co-creation workshops have been an interesting method to confront employees' and passengers' perspectives on the passenger experience. They revealed the gap between the employees' assumptions and the actual passenger experience. It increased employees' awareness of customer needs. Users are involved in the design process of solutions matching their needs. The memorability of the method was however limited to the employees who participated. For others, the presentation of the findings has been less memorable and powerful. Unfortunately, among employee participants or those who attended the presentation, few are still reluctant to users' insights. The challenge lies in knowing how to present findings without demotivating the staff. From the client's perspective, the declaration method seemed more impactful than the co-creation workshop which affected a smaller population within the organization. Does changing a company's mindset and approach require empathy techniques to spread users' insights easily across the entire organization? Both techniques seem relevant and complementary in an empathic approach. One aims to change the rational approach at the organizational level, the other focuses on changing the mindset of a specific team. It echoes the transformative power of techniques to convey user insights described by Rutkowska et al. [33].

5 VIEWPOINT OF THE DESIGN EXPERT

We interviewed an external expert with 15 years of experience in empathy in design to put our empathic approach into perspective in a broader design practice, as well as industrial and societal contexts. The expert is a University professor with an Industrial Design

Engineering background, also working as an independent designer for the industry and the public sector. Not involved in the presented case study, the expert shared memorable moments around the use of deploying empathic processes within several UX/design projects. They unveiled challenges and good practices from their experiences.

Reflecting first on our process, the expert pointed out that our design interventions only stepped into the users' world. However, the empathic approach includes also the act of stepping out of users' world to be able to design with users' perspective [16]. Among the design interventions used, the journey map as a technique seemed the most empathic. By synthesizing user research, journey maps facilitate the appropriation of users' feedback and expertise for novice stakeholders in research. The love and breakup declarations tell raw user stories, which makes the empathic understanding more tedious. Regarding co-creation, its main purpose is not to trigger empathic understanding, but to create a context in which stakeholders participate in the process with users and listen to users' stories, implicitly could develop an empathic understanding.

The expert shared their own experiences with similar projects to put our case study into perspective. A striking memorable moment happened during a three-year project in collaboration with an international company. The main goal was to help the company turn into a customer-centric organization over a period of ten years. Time and budget were allocated to enable user researchers to convey users' insights properly (e.g., a database of videos about users' home visits and organized workshops) and guide product teams in using users' insights to design solutions. While the project was well advanced and the stakeholders (designers, managers, and engineers) seemed well involved in the project, one of the designers made a comment about the users' lifestyle, which illustrated his prejudiced view on users, despite having seen and worked with various user insights. After all the work achieved to improve their understanding of users, how was it possible to stay so narrow-minded? If even design professionals struggle at times to stick to the mindset of empathic understanding, expecting it from stakeholders when first exposed to user declarations seems unrealistic. Favorable conditions should be set to prepare the organization and the individuals to embrace empathic understanding. This includes starting small, explaining the value of this approach, and helping the stakeholders consider users on an equal term.

In contrast, a rewarding achievement happened while working with another company that wanted users' insights for their innovation. The design and strategic teams were happy and involved in the project. The developers' team was invited to join, and voluntarily attended follow-up presentations and workshops about user insights. They became more and more enthusiastic because they could see direct implications and directions for their everyday work. One example is that after a workshop on journey maps of different segments, the developers voluntarily initiated a hackathon to develop prototypes based on these journeys. As compared to the railway company described, the expert notes that an organization with a higher UX maturity is likely to integrate empathic interventions better. Overall, this case demonstrates the necessity of emphasizing that such processes require an open mindset, and a willingness to change perspectives, from those involved.

6 DISCUSSION

In this paper, we documented how an organization with low UX maturity reacted to different interventions in their innovation process to promote empathy towards their users. Similar to Postma et al. [31] who reflected on the challenges of empathic design at a consumer product company, our work contributes to understanding how the empathic design approach fits within the reality of an industrial organization. We reflected by unraveling three different viewpoints on this case. What do these viewpoints teach us? This case study unveiled the main benefits, opportunities, and challenges of conveying user insights in the industry empathically. It conveys a rich description of the potential resistances that researchers and designers can encounter while using empathic methods with service stakeholders. It also provide insights into the suitability of several empathic methods for corporate reality.

First, this three-year intervention illustrated the inherent inertia of organizations. Conveying empathic understanding requires a careful staging of activities and communication (as done by [31]), and does not produce immediate observable results at the company's scale. Empathy measurements made during or after each intervention hint at an effect on the employees involved in some dimensions of empathic understanding. Note that it is beyond the scope of this contribution to report on these findings, which are documented in work ongoing publication. Altogether, our three interventions led the company to a first step into the users' world [16] for the employees participating in the design interventions. These interventions mainly triggered awareness of the value of users' insights but also illustrated challenges around the credibility of empathic design within the company. Similarly to Postma et al. [31], some employees were hesitant to use and trust our data which led the company to run additional quantitative studies to validate our conclusions. Employees realized the gap between their vision of passenger experience and users' reality. However, not all of them connected with user insights emotionally, and many even struggled to hear and embrace the feedback provided.

At the organization level, the passengers' declarations were described as the most memorable empathic design intervention thanks to the long-lasting impression left (including critical comments) and the wide reach of employees. Comparatively, the co-creation workshops and the physical journey map involved fewer employees. The declarations created a form of empathic understanding, which can be attributed to their narrative qualities [3]. However, the declarations provoked comparatively more debate and the feeling of not reaching a comprehensive overview of the meaning of the findings. This aligns with [22, 31] showing that raw data is less intelligible for non-researchers. The employees struggle to transfer users' creative input into solutions or actionable inputs. Our physical journey map, as a design synthesis instrument, might mitigate this shortcoming. By facilitating personal connection with the users [28] and triggering empathic responses, it might inspire new user-centered solutions Mattelmäki et al. [26]. The direct contact between stakeholders and users during the co-creation workshop raised awareness and self-reflection on the gap between perspectives. Direct contact is known for increasing the quality of user-centered solutions [40], and hence the employee participating in the workshops later improved their solution based on the user inputs.

In their current state, our interventions paved the way for deepening the employee's emotional interest toward users and willingness to get immersed in their experience (discovery and immersion phases of Kouprie and Sleeswijk Visser [16]). However, throughout the interventions, we noticed some tensions between the value as perceived by the user researcher and the one seen by the client. This echoes Manrique et al. [22]'s recommendation to manage the client's expectations to engage them in user research. It also highlights a crucial step, which we missed, of introducing to stakeholders the goal of an empathic approach before deploying specific empathic techniques. Aligned with [31], we believe that this could support a move from 'informing' stakeholders to 'engaging' them.

6.1 Limitations and Future Work

Besides the ones already discussed, our empathic approach involved several limitations. While we aimed at reaching as many employees as possible, we have at times lost sight of setting up the open-mindset key to developing an empathic approach [34]. Starting with a smaller group of volunteer and open-minded stakeholders could have built a solid core team to deploy the empathic design interventions, which ended up more disparate and dispersed. When using empathic interventions with employees whose attendance is required, it is even more important to clarify the objective of such approach to anticipate the resistances. Furthermore, as pointed out by the design expert, our design interventions focused mostly on activities stepping into the users' world, overlooking activities for stepping out (in reference to the connection and detachment phases of [16]). We thus acknowledge that our findings do not reflect the entire empathy-centric design process with stakeholders. Regarding the generalization of our findings, it would have been interesting to run the same interventions in other companies' contexts to investigate patterns of effects and reduce the subjectivity of our findings. Although our contribution is not grounded in a traditional rationalist HCI research, our reflections contribute to the field of empathic design by addressing the need for more designers and researchers' personal experiences research [46]. Mapping empathic design methods according to which empathy characteristics they embed and which effects they produce is an interesting avenue for future work. Such an analytical overview should be supported by empirical studies conducted with an experimental outlook. It would support designers in making informed decisions about which empathy-centric interventions to use in a specific context.

6.2 Principles for Using Empathy-Centric Design in Industry

Building on our researcher experience and prior work on empathic design, we summarize some take-away messages and implications for design, which we encourage the community to consolidate in future work. These principles are not to be understood as validated experimental findings, but as the result of an introspective and reflective analysis of a longitudinal field intervention.

6.2.1 Creating a favorable environment. The empathic approach requires a favorable and open-minded environment. Companies willing to adopt such an approach need to be introduced to why design thinking, co-creation activities, and user involvement can be relevant to their business and innovation processes. For instance, companies with a low UX maturity might attempt to collaborate with users without success if they organize product-oriented co-creation workshops instead of basing them on user experience. Such an approach may deliver product ideas but will not develop empathic understanding. To leverage an open-minded attitude from stakeholders, the challenge lies in opening them up and creating the appropriate mental space. This open mindset goes hand in hand with considering users on an equal term. As users are experts in their everyday service and product use, their knowledge needs to be considered valid and legitimate.

6.2.2 Starting small. Facilitating an empathic approach starts with small groups of users and stakeholders. Setting up a plan involving every stakeholder would run the risk to slow down the process (e.g., by continuously postponing the start of user research). Simple techniques aiming to step into users' shoes, such as role-playing, are excellent onboarding steps. At the start, (quantitative) research can be used to back up the first users' insights to increase the approach credibility perception of the stakeholders.

6.2.3 Sustaining the empathic approach. The key to sustaining an empathy-centric approach lies in emphasizing the value of empathic understanding for the company (e.g., business and innovation) and for the stakeholders (e.g., counting on users' expertise). The main strategy to convey the "why" is to share best practices, successful examples, and business stories. "User research led to this solution that generated millions of revenues". Nonetheless, one should prevent stakeholders to believe that initiatives are limited to product-oriented thinking. The empathic understanding of users requires stepping out of the stakeholders' professional role to engage and connect with users' emotions. It is not expected for stakeholders to go as far as a user researcher would, but simply to experiment with the empathic approach and grasp its meaning. Empathy is not a simple check-off task but implies a continuous process of connecting with others varying with the contexts.

6.2.4 The empathic approach is not a substitute for user research. The integration of user insights is key to user-centered innovation. A crucial part of user research is guiding stakeholders in the sense-making of the users' input, and the fact of taking the perspectives of end-users of the products and services they provide. Empathic understanding is one aspect supporting a smooth user insights integration, yet it should not be seen as a holy grail within organizations. The empathic approach is solely a part of user research but does not replace other relevant techniques. Involving a variety of profiles is needed, including some that mainly focus on solving complex technical problems while others focus on humans. Both approaches feed on each other. The user researchers remain guarantors of ethical and critical research all along the process.

7 CONCLUSION

In this paper, we synthesized reflections about empathy-centric interventions conducted in an industrial context within the past three years. We presented and discussed three different viewpoints on this case study: our perspective as UX researcher, the client represented by a company manager - and those of an expert in research in empathy. Through this contribution, we deepened the understanding of empathic approaches' challenges and limitations

when deployed in a company. We derived principles that can support designers willing to implement an empathy-centric design approach in a company. The insights we share might also inspire the community to adapt and renew empathic research design methods in order to help the service stakeholders, beyond designers, to get an empathic understanding of users.

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