

Approaches and Challenges of Inclusive UX Practices in the Software Industry

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Abstract: This study examines how UX professionals in the Icelandic software industry include users in their work practices. Through interviews with five professionals, the study explores the approaches used, challenges faced, and strategies employed to overcome these challenges. The results reveal that time constraints, limited user involvement, lack of participant diversity, and inadequate knowledge about UX pose significant challenges. To address these issues, interviewees suggested involving users early in development, exploring different approaches, and obtaining more support from managers. This research provides valuable insights for practitioners and decision-makers, facilitating the integration of users in software development and fostering more user-centred outcomes.

Keywords - User Experience (UX), user-centred design (UCD), UX practices, UCD approaches, UCD Sprint

1. INTRODUCTION

In this study, interviews were conducted to understand how UX professionals in the Icelandic software industry engage users in their projects and how they work towards ensuring a good user experience.

The integration of user experience (UX) practices is crucial in software development, as challenging user interfaces create difficulties for users. Implementing UX practices improves usability, user satisfaction, and overall UX, leading to favorable business outcomes [1]. Common practices in the software industry include user testing, card sorting, and user interviews [3]. Informal approaches like user blogs and prototype feedback are also used [5]. User-centred design (UCD) approaches are widely embraced by usability professionals, as observed in a survey in Sweden [4].

UX has gained great recognition, leading to the emergence of experienced professionals. Gulliksen's study revealed that many UX professionals transition from software development to UX [4]. However, challenges persist. Vredenburg highlighted collaboration difficulties between UX designers and developers managing multiple projects [2]. Chamberlain emphasized the struggle between developers' priorities and designers' focus on user needs [7]. Cajander and Larusdottir found challenges in conducting user research and integrating usability [9]. Other challenges include developers' perception of usability and integrating

UX practices [8]. Time constraints, limited resources, and lack of senior management support aggravate these issues [2].

Efforts focus on implementing UX practices in software development. Gulliksen suggests enhancing stakeholders' understanding through knowledge-sharing and increased awareness. Reinforcing explicit management support for usability roles and activities is crucial. Emphasizing user demands for high usability standards is vital [4].

Studies have shown that aligning UX with agile software development practices benefits from using UCD approaches like personas, scenarios, and storyboards [10]. These tools facilitate communication, guide design decisions, and foster collaboration within teams. Still, more studies are needed on how UX professionals integrate UX practices in their work.

Knapp et al. [17] introduced the Design Sprint as a 5-day collaborative process for design ideation, prototyping, and inclusion of users in a fast process suitable for agile software development [11]. The Design Sprint involves a small team with diverse backgrounds guided by a facilitator. The process includes team collaboration and discussions, individual idea generation, and seeking input from experts. User input is gathered on the final day for prototype evaluation. The Design Sprint emphasizes individual idea generation and quick visualization. It provides specific steps including UCD approaches

for each phase, making it accessible to non-designers. Participants and facilitators require dedicated time, with pre-sprint planning for the facilitator.

The User-Centred Design (UCD) sprint is a well-structured design sprint process that incorporates UCD methods [12, 15]. It has evolved over several years and has been used in courses and industry settings. The UCD sprint consists of 18 steps divided into three phases: Discovery, Design, and Reality check. It aims to understand user needs and provides a predefined structure with clear goals and deliverables with the aim of including users more frequently in the design sprint than is done in the traditional sprints by Knapp et al. [17].

The study described in this paper was conducted in Iceland. It aimed to answer three research questions: (RQ1) What approaches do UX professionals use to include users in their work? (RQ2) What challenges do they experience while implementing these approaches? (RQ3) Do they see potential improvements in using design sprints?

2. METHOD

2.1 Gathering Interview Data

Two UX researchers from Reykjavik University conducted interviews using a selective sampling approach. Five individuals participated, with three directly contacted based on relevance to the research topic. The remaining two joined after being informed by the initial participants.

The structured interviews covered three topics: backgrounds, methods for including users, and feedback on the UCD sprint process. This allowed for a comprehensive exploration of participants' expertise, user-centred practices, and opinions on the UCD sprint's effectiveness in the Icelandic software development industry.

2.2 Interviewees' Profiles

Five individuals within the Icelandic software development industry were interviewed: two product managers (participants 1 and 4), a project manager (participant 2), a UX consultant (participant 3), and a participant with expertise in healthcare app development and emergency service operations (participant 5). More information on their background can be seen in Table 1.

2.3 Data Analysis

During data analysis, the interview transcripts were examined using the Braun and Clarke method [11]. Transcripts were read multiple times, and observations were noted. The transcripts underwent a comprehensive labelling (coding) procedure to

capture significant ideas. Emerging themes were reviewed and refined, ensuring accuracy and specificity.

Table 1: Background of Participants

Participant Number	Background		
	Job Title	Education	Work Experience and Projects
1	Product Manager	MBA (Business Management), BA in French	HR Director
2	Project Manager	MS in IT, Design, Communication and Media	Climate change project
3	UX Consultant	BS in Computer Science	Website for cosmetics
4	Product Manager	BS in Computer Science & HCI	Web and app development
5	UX Consultant, Project Manager	MS in Psychology, Computer Science, HCI	Web development for 112 and 911 operator

3. RESULTS

3.1 RQ1: Approaches Used to Include Users

Participants employed various approaches to involve users in the development process. Design sprints were prominent, with four participants adapting them for specific projects. Workshops, user interviews, and user testing were also utilized.

Participant 1 adapted the traditional design sprint by adjusting time allocations, adding icebreaker activities, and using a detailed sprint script. Participant 3 developed a customized process for improvement-focused projects instead of relying on the traditional sprint. Participant 4 shifted towards a continuous discovery-based design process but still selectively used sprints. Participant 5 adopted a four-day structure for their design sprint, involving idea validation, user engagement, and prototype iteration.

All participants acknowledged the significance of involving users in the development process. Participant 1 shared an example highlighting how users often bring up points that the development team overlooks.

"The team can be so focused on something when developing that something gets totally lost. And then the users came and said like for whom is this equipment?" (Participant 1)

Participant 3 advocated for user involvement in their company's development process, highlighting the

potential time and effort savings that come with user feedback.

Additionally, participants highlighted the potential disparity between development assumptions and user needs, emphasizing the importance of actively involving users in the development process.

3.2 RQ2: Challenges Faced While Including Users

Participants reported experiencing challenges due to time constraints, lack of diversity in sprint participants, and lack of knowledge about UX.

Time Constraints: Participants unanimously expressed that design sprints do not provide sufficient time to understand users, gather background information, and make informed decisions about the feasibility of designs or plans.

“But my main issue with the Sprint is it’s you almost do the discovery in day one, but I feel that the discovery needs much more time.”
(Participant 4)

Additionally, Participant 2 highlighted the difficulties faced in recruiting interviewees due to the time-consuming nature of interviews.

“Interviews are time-consuming, and it can be challenging to fit into work hours.” (Participant 2)

Lack of User Involvement: Another challenge identified was the lack of user involvement during design sprints. Participant 5 stated that there isn’t a lot of “getting to know the user” in design sprints. They also observed that the focus of sprints was primarily on driving progress rather than addressing the users’ needs.

“The focus and the use of the sprint was more to break this inertia rather than to be user-focused. And get a proper user input into, but rather to just in a few days we create something that would take months to do.” (Participant 5)

Lack of Diversity in Participants: Participants emphasized the criticality of a diverse team composition, particularly in design sprints, highlighting the significance of incorporating varied expertise and positions while involving users.

Participant 1 recalled an instance where a sprint skewed towards developers, resulting in a technical focus rather than considering the user’s perspective.

“you have to make sure that you have a good mixture of somebody from marketing, a good designer. Not too heavy on the developer side.”
(Participant 1)

Participant 4 conveyed that a diverse team composition can provide different perspectives, and therefore lead to better results

“Mixing it up so the opposite of groupthink is like to have five people solve the same problem in five or six or seven different ways, that also, you know, you can create things like increase empathy” (Participant 4).

They also brought up the need to have people of different managerial levels participate in sprints.

“It is important to have decision-making people, the CEO, because they’ll make sure things don’t go wrong. Product managers are needed to get people aligned and excited about a new project.”
(Participant 4)

Lack of Knowledge about UX : Finally, participants also expressed concern regarding the lack of background knowledge and experience in UX in the Icelandic software industry.

“In an Icelandic project, only 3 out of 7 responses mentioned users or any sort of user research”
(Participant 5)

Participant 5 stated that practitioners and clients frequently demonstrate a lack of familiarity with the UX practices utilized by professionals in the field. This highlights a gap in understanding among clients regarding the essentiality of UX practices in achieving optimal outcomes.

3.3 RQ3: Potential Use of the UCD Sprint

All participants mentioned the potential in gaining a deeper understanding of users through the UCD Sprint. Participants also acknowledged that the UCD Sprint would provide opportunities for individuals to express their opinions. Participant 1 expressed that the UCD Sprint would facilitate collaboration and overcome negative sentiments.

“You can’t say like I hate you people for not choosing my suggestions because everybody had their chance.” (Participant 1)

This highlights the industry-wide potential of UCD Sprint in improving collaboration dynamics among development team members.

Participants also highlighted the importance of establishing clear goals and limitations before initiating UCD Sprints. Participant 2 acknowledged the challenge of adhering to sprints in a business context, conveying the need for a well-defined project idea to effectively execute sprints.

“I think that maybe for business it can be difficult to fit these sprints so strictly. The only time we can really create defined Sprints is when we know what we’re going to do.” (Participant 2)

Similarly, participant 5 mentioned the influence of budget constraints on sprints, underscoring the importance of aligning resources and objectives before undergoing the UCD Sprint.

Another concern that arose was regarding the time constraints of the UCD Sprint. Participant 3 stated that while the sprint is a valuable tool for generating ideas, it often requires post-sprint changes due to limited research opportunities and access to vital information. This highlights the need for additional time to address these constraints.

“It’s more like a tool to give you an idea what it could look like, but I have never finished a product after Sprint and it’s what we came up with in the Sprint, it’s always a lot of changes after. Also, in four days we cannot do the research to get all the information that we need to know if this is possible.” (Participant 3)

In addition, participants expressed the need to involve more employees in user interactions. Participant 4 proposed exposing more individuals within the company to end users, suggesting that observing user testing sessions can foster empathy and enhance understanding.

Moreover, participants mentioned that assembling a multidisciplinary team enhances the sprint process and facilitates a broader range of perspectives.

“It has to be a team that comes from, you know, across the company. And people who have different viewpoints.” (Participant 5)

However, participant 5 noted that securing full commitment from teammates requires top management support.

“You can only get that if you have the go ahead from top management. That can, you know, free your people’s time.” (Participant 5)

In summary, the participants’ insights highlighted the potential of UCD Sprint in facilitating a better understanding of users, the importance of clear goals and limitations, concerns regarding time constraints, the need to involve more employees in user interactions, and the benefits of diverse team composition.

4. DISCUSSION

This section discusses how professionals in the Icelandic software industry take users into consideration in their works and the improvements that could be made to better involve users.

4.1 Current Approaches for User Involvement

Over the years, user-centred design in Iceland has commonly employed approaches such as sprints, user testing, and interviews. In this study, four participants reported having experience with user testing and interviews, while only one participant stated no prior experience with design sprints. Notably, four respondents mentioned having made

adaptations to the traditional sprint methodology to suit their needs.

These approaches, particularly the concept of design sprints, have gained widespread adoption in various countries including Sweden, France, and the US [3] [4]. This trend may be attributed to the inclination of Icelandic companies to embrace popular methodologies from other countries, as emphasized by participant 5.

Additionally, some participants employed innovative approaches, such as creating highlight reels of the design sprints, which proved valuable for retrospective analysis, as reported by participant 4.

4.2 Challenges in Including Users

During the interviews, participants expressed that scarcity of time has been a significant obstacle, preventing development teams from acquiring essential background information before initiating development, and hindering the ability to involve users in the development process. This aligns with the findings of Bach’s study, which emphasized that rapid development cycles often leave little room for upfront user-centred design practices [8].

Furthermore, participants highlighted the importance of diverse participation in sprints and the development process. Participants 4 and 5 mentioned the challenges they face in assembling diverse groups of collaborators for sprints, attributing this difficulty to the time limitations. This underscores a common predicament faced by UX designers, who often encounter obstacles when collaborating with developers due to the heavy workload they have across multiple concurrent projects [2].

Participant 5 emphasized that flexible scheduling facilitated by supportive managers, plays a crucial role in resolving this issue. This corresponds with the findings of Vredenburg’s study, which revealed a lack of senior management support in the software industry [2], and Gulliksen’s research on the need to increase management awareness of usability activities [4].

When asked about potential improvements to enhance user involvement in the development process, participant 1 stressed the importance of obtaining input from experts and users prior to commencing sprints, as early input can significantly influence the outcome of the prototype. As participant 3 explained, this approach can allow for more open-minded input.

Participant 3 also proposed the exploration of different sprint methods to identify the most effective approach, highlighting the need for ongoing experimentation and adaptation in optimizing the sprint process.

These recommendations suggest that obtaining early user input, promoting diverse participation with managerial support, and exploring different sprint approaches are key strategies for integrating users effectively into the development process.

5. CONCLUSION

This study examined how UX professionals in the Icelandic software industry involve users in their work. Interviews with five professionals revealed challenges like time constraints, limited user involvement, participant homogeneity, and inadequate UX knowledge. To address these issues, early user involvement, diverse approaches, and increased managerial support were suggested. These insights are invaluable for practitioners and decision-makers, promoting more user-centered software development practices. This study contributes to a more inclusive and successful industry, benefiting users and the field of human-computer interaction.

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