Increasing the User Experience Research Maturity of a Global Accommodation Comparison Platform

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Abstract: The COVID-19 pandemic drastically impacted the travel industry. Additionally, the recent combination of a sociopolitical crisis, natural disasters and an economic crisis resulted in increased price sensitivity and consciousness in consumer spending. However, the travel industry continues to recover as more countries ease travel restrictions. As travel volumes gradually increase in many parts of the world, product development teams focusing on the User Experience (UX) of travel websites are critical for user satisfaction and business success. User-centric design is the process of building a product or service based on the wants, needs and challenges of the users. However, being truly user-centric requires an active means of listening to users through UX research methods. When implementing such methods, organisations typically transition through different stages of UX research maturity; namely, from the beginning stages where there is a lack of resources and ad-hoc implementation, to a mature state where user research informs business strategy. This case study focuses on practice-based insights of methods used to increase the UX research maturity of an online accommodation comparison platform in the travel industry. The study covers a period of two years, analysing the outcome of the methods introduced to increase the UX research maturity. The case study aimed to achieve the following to increase the maturity: creating awareness of UX Research and the user; exposing UX Research to the wider team; and extending research ownership to product teams. The methods used included: diary study; jobs-to-be-done framework; organisational structural changes; involving product team members in research activities; increasing the frequency of interviews with users; and enabling the product team to conduct small research activities. The results included an increase in the UX Research maturity of the organisation. The product development approach increased its user-centric focus. Non-UX roles within the product team grew closer to the user by doing small research activities. User-centricity was introduced as a company value in the organisation. The results of this study are specifically of value for practitioners and academia in the travel industry and have implications for Product, UX and Research practitioners.

Keywords: UX research, UX research maturity, Travel, Accommodation comparison, User centricity

1. Introduction

Understanding the customer better is of strategic importance in the recovery of the COVID-19 impact on travel (Krishnan et al., 2021). Today's most innovative travel businesses have a renewed focus on understanding the needs of their customers (Skift, 2017). Travel businesses are realising that thoughtful customer-focused design plays a central role in this transformation process (Hawkins et al., 2018). Increasingly, organisations are including user experience research (UXR) in their software design and development process (Portigal, 2013). Institutionalising customer-focused design in an organisation demands the establishment of routine practice; the use of best practices, and the supply of tools, methods and resources to teams. Research with end-users is an essential part of customer-focused design. Effective UXR can save product teams time and money by reducing unknowns and creating a solid foundation to build the right thing, in the most effective way (Hall, 2019).

The primary research objective of the study was to understand what methods can increase the UXR maturity of a travel organisation. The need was based on the premise that UXR was not yet mature at an online accommodation comparison platform in the travel industry. Online accommodation comparison platforms provide customers with the ability to compare accommodation properties and prices, enabling travellers to minimise the cost of accommodation. The value-add of this study is practice-based insights on increasing the UXR maturity, focusing on the outcomes of the utilised methods.

A theoretical background on UXR maturity is provided in Section 2.1. The need for practice-based insights is covered in Section 2.2. Section 3 explains the research question and methodology of the study. The results and impact are illustrated in Section 4. Finally, Section 5 concludes with a summary of methods used to increase UXR maturity and lists limitations and suggestions for future research.

2.   Theoretical Background

2.1   User Experience Research Maturity

The goal of UXR is to learn *"as much as you can about who your users are and what motivates them so that you can design products that meet their needs"* (Buley, 2013, p. 26). A product is typically referred to as software that has been developed for the benefit of a user base to satisfy a market need. A variety of techniques, tools and methodologies are employed to reach conclusions, determine facts, and uncover problems, thereby revealing valuable information which can be fed into the product design process. Foster and Nerlikar (2020) list a lack of UXR as one of the top 10 dysfunctions of product management. Too often, research activities take place only on rare occasions. Product teams risk building products that no customer wants or needs (Foster and Nerlikar, 2020). Furthermore, a lack of customer-driven insights can lead to a spiral of mistrust between product management and other stakeholder groups in the organisation (Foster and Nerlikar, 2020).

To investigate the impact of UXR on corporate companies, Sheppard et al. (2018) conducted a study with 300 publicly listed companies. Focusing on UXR and user-centred design were identified as one of the themes that increased revenue and total returns most. This design approach requires customer insights gathered first-hand by observing and more importantly understanding the underlying needs of potential users. Design flourishes best in environments that encourage learning, testing and iterating with end-users (Sheppard et al., 2018). Over 40 percent of the 300 companies surveyed did not talk to their end users during development (Sheppard et al., 2018). Anderson (2019) describes the absence of processes and movement in UXR as Stage 1 of 6 in terms of UXR maturity (Table 1). The stages of a UXR maturity model, as summarised in Table 1, allow researchers to assess the degree of capability reached by an organisation and its ability to perform UXR activities (Anderson, 2019).

Table 1: UX Research Maturity Model (Anderson, 2019)

Stage 1: Absence/Unawareness of UXR	The organisation is basically unaware of UXR and the value of conducting research. There is an absence of processes.
Stage 2: UXR Awareness - Ad Hoc Research	There is an awareness of UXR, but it is commonly misunderstood as a tool to validate changes. Ad hoc research requests come very late in the pipeline.
Stage 3: Adoption of UXR into projects	UXR is a part of projects earlier than in stage two and starts to become part of the development cycle.
Stage 4: Maturing of UXR into an organisational focus	UXR becomes part of the organisational process and has its own place in the organisation. Teams and stakeholders are bought in and ensure research is done, when necessary.
Stage 5: Integrated UXR across strategy	UXR can inform product strategy.
Stage 6: Complete UXR culture	The entire company is research-centric and driven by a need to understand users. UX is an integral part of the organisation's thinking process at every level.

Various UXR maturity models exist (Avore, 2016; Spool, 2019). While different terminology is occasionally used, all models share categorisation similarities with stages ranging from *"unrecognised"* to *"fully implemented"* (Elaine et al., 2023. p. 9). An organisation with a low maturity rating is unlikely to implement the processes necessary to bring about the highest stages of maturity. However, a maturity model could help an organisation to understand the benefits of the different stages of maturity and will assist with how they can evaluate their current position and advance to higher stages.

2.2   Practice-Based Insights for UXR Maturity

Literature regarding the concrete methods to increase UXR maturity within an organisation is limited (Elaine et al., 2023). There is a need for more practice-based insights from UX practitioners on increasing UX maturity, as "t*here is little research on how practitioners manoeuvre around low UX maturity obstacles in practice*" (Elaine et al., 2023. p. 6). Existing literature on the application of UXR maturity models in a corporate environment consist of generalised guidelines (Chapman and Plewes, 2014; Hill, 2020) or abstract case studies (Molich, 2019; Rohles,

2021). Additionally, different sectors and company sizes are investigated in real case studies (Fraser and Plewes, 2015; MacDonald et al., 2022), such as adoption of UXR in libraries (Bergart and McLaughlin, 2020), governmental institutions (Pretorius, 2012), digital technology companies (Szabó and Hercegfi, 2022) and travel agencies (Pretorius, 2020). There is a need for studies with the necessary level of detail for replication in other industries and environments (Elaine et al., 2023).

Technology and travel industries encounter rapid changes in the working environment. COVID-19 led to hybrid remote working models (Shankar, 2020), which created new challenges for the increase of UXR maturity, such as conducting remote research instead of utilising an on-site usability laboratory. Therefore, replication and re-evaluation of pre-pandemic research is highly relevant for advancing UXR maturity in the travel research community.

3. Research Objectives and Methodology

3.1 Research Objectives

The main research objective was to increase the UXR maturity within the organisation focusing on Business-to-Consumer (B2C) products. This resulted in the main research question: **What methods can increase the UX research maturity of a travel organisation?**

The initial assessment of the UX maturity for the organisation was at Stage 2 of Anderson's (2019) UXR maturity model, as the full value of UXR was not yet realised. This was mainly due to the following problems:

- Most UXR methods used were evaluative in nature with limited foundational research conducted.
- Research was typically requested ad hoc or at the end of a project.
- A shared understanding between teams of the objectives of users were not in place.
- Research was done exclusively by researchers who worked in an agency service model.
- UX Researchers were not close enough to product teams.
- The product teams were not actively involved in UXR and had limited exposure to users.
- The product team members had limited research skills.

To address the problems, the authors formulated secondary research objectives expected to increase the UXR maturity.

- **Objective 1: Create awareness of UX research and the user.** The authors believed that there was a need to show the additional value that UXR can provide in the organisation. By creating awareness of UXR, the authors assumed to address problems 1, 2 and 3.
- **Objective 2: Expose UX research to the wider team.** To get UXR involved earlier in the process, the authors believed in the need to open up the UXR process and involve the product teams in the planning, implementation and analysis. By increasing the exposure of UXR, the authors aimed to address problems 2, 4, 5 and 6.
- **Objective 3: Extend research ownership to product teams.** Ideally everyone in the product team should participate in research (Hall, 2019). The authors believed that, with the right tools, methods and UXR in place, expanding the ownership of smaller UXR activities to the product team would help the organisation to mature. By extending UXR ownership, problems 6 and 7 were aimed to be addressed.

3.2 Research Methodology

A case study was selected as the research strategy for this study. The strength of a case study method is its ability to examine, in-depth, a case within its real-life context (Yin, 2006). The case study method helps to make direct observations and collect data in natural settings, compared to relying on derived data. The case study was applied in an online accommodation comparison platform organisation located in Germany. The product is available in over 50 languages serving tenths of millions of users monthly. The organisation has international employees from over 70 different countries.

Product teams in the company are composed of a product manager, UX designer and engineers. In leading product organisations that reach a certain scale of UX designers (often when they have five or more UX designers), it is common that dedicated UX Researchers are hired (Merholz and Skinner, 2016). Accordingly, the organisation had dedicated UX Researchers at the start of this study. The duration of this study was from September 2020 to December 2022. The working model was remote in September 2020 due to the COVID-19 pandemic and then shifted to a hybrid working model in April 2021.

The authors of the study reviewed the UXR maturity of the organisation in September 2020 as *"Stage 2: UXR Awareness – Ad hoc Research"*. The authors assessed the UXR maturity stages of the organisation in retrospective in December 2022 by identifying relevant factors and methods that influenced the UXR maturity, reviewing internal documentation and interviewing stakeholders. The research methods described were conducted by practitioners of the organisation.

This approach led the authors to analyse the utilised methods for each of the secondary research objectives as follow:

- **What was the status quo?** This describes the maturity of the organisation for the specific goal when the study started.
- **What methods were applied?** The method(s) used to achieve the goal is provided.
- **What was the outcome?** The impact of the method(s) and how it helped to achieve the goal and increasing UXR maturity are illustrated. The results of each specific study conducted are beyond the scope of this paper.

4. Results

The status quo, methods and outcome for each of the secondary research objectives, which moved the organisation from Stage 2 to Stage 4 in the UXR maturity model, are described in the following sub-sections.

4.1 Create Awareness of UX Research and the User

What was the status quo?

There was buy-in and awareness for UXR in the organisation, as a dedicated team with a UXR lead was in place. However, the full value of UXR was not capitalised on, as UXR did not contribute to the company or product strategy with limited foundational research conducted. Most methods focused on evaluative measures, such as usability testing. Research was requested on an ad-hoc basis and was done exclusively by researchers with limited interaction with other product members and executives. This resulted in studies being done by researchers, but lessons learnt not making it into the product roadmaps. A shared understanding between teams of the objectives of users were not in place.

What methods were applied?

Jobs-to-be-done (JTBD) is a framework to understand why people adopt products and services and creates a mindset for customer-driven innovation (Kalbach, 2020). The customer's objective is the JTBD. To systematically uncover the jobs travellers need to get done when planning and going on a trip, the research team conducted a diary study with 46 participants in the United States of America and Australia. A diary study is a research method used to understand long-term user behaviour and experiences (Salazar, 2015). Participants are asked to keep a diary and log specific information about activities being studied. Participants were recruited through a recruiting agency and the diary study was documented with Indeemo, a specialised diary study application. Based on the analysis, the research team was able to derive the JTBD of travellers. The jobs, micro jobs, pain points and desired outcomes resulted in a JTBD Map created and shared within the organisation through Mural, an online collaboration whiteboard.

What was the outcome?

The diary study was a large, new UXR method used in the organisation. The results helped to illustrate that UXR goes beyond usability testing. The diary study helped to identify where travellers encounter problems when planning or going on a trip. Additionally, the research was conducted with general travellers and not only current users of the platform, resulting in new product opportunities being identified. The resulting JTBD Map created a shared terminology, shared understanding and the ability for products team to exchange more efficiently on user's objectives. Additionally, all new staff joining the organisation received training on the JTBD framework to learn the terminology used to address users' needs.

The authors conclude that this common understanding laid the foundation to enable an increase of UXR maturity at the company. The maturity stage remained unchanged at Stage 2, as research was still mainly focused on evaluative research in current product projects.

4.2 Expose UX Research to the Wider Team

What was the status quo?

In the existing UXR Team, research was done on an ad hoc basis in an agency service model. The team received requests, which were prioritised and assigned to researchers. UXR was done in silos by the researchers and the results were handed over to the product team at the end.

What methods were applied?

Spool (2011) states that teams that have dedicated UXR professionals, who in isolation watch the users, then in turn, report the results through documents or videos, do not deliver the same benefits as teams working together. Members from across the team should have direct exposure to users, as no UX department can succeed as an isolated unit without company-wide commitment to user-centricity (Bergart and McLaughlin, 2020). To move away from a siloed approach, the UXR organisational structure was moved from a service to an embedded structure with product teams having dedicated UX Researchers.

Simultaneously, access to raw data from research was made available to anyone interested. Product teams were invited to join live streaming of interviews as observers or as notetakers. Interviews were conducted in English, to provide an inclusive experience for all employees to improve their understanding of the user. To further increase the exposure of UXR to teams in the wider organisation, the latest results were frequently presented. During these presentations, JTBD terminology was used and selected multimedia from research projects, such as video snippets from interviews, were included.

What was the outcome?

The change from service into embedded researchers led to cross-department collaboration improvements between researchers and product team members. From a product perspective, the product team was increasingly involved in research planning, execution and analysis. Product teams started to actively seek out research, incorporating it within their way of working. Non-researchers showed increased interest in participating in research activities.

From a UXR perspective, researchers were more involved in product teams, joining their weekly rituals, such as stand-ups, planning or design critique sessions. This led to a deeper understanding of the teams' research needs and increased their understanding of business needs. Finally, the structural change assisted in research and product being more aligned through shared goals.

The increased cross-department collaboration improved the research skills of non-researchers. A process of democratisation of research started as a result. The credibility of research results and the use of user-driven evidence and user insight for decision making among product teams increased. The authors argue that through these methods the company moved to "Stage 3: Adoption of UX research into projects".

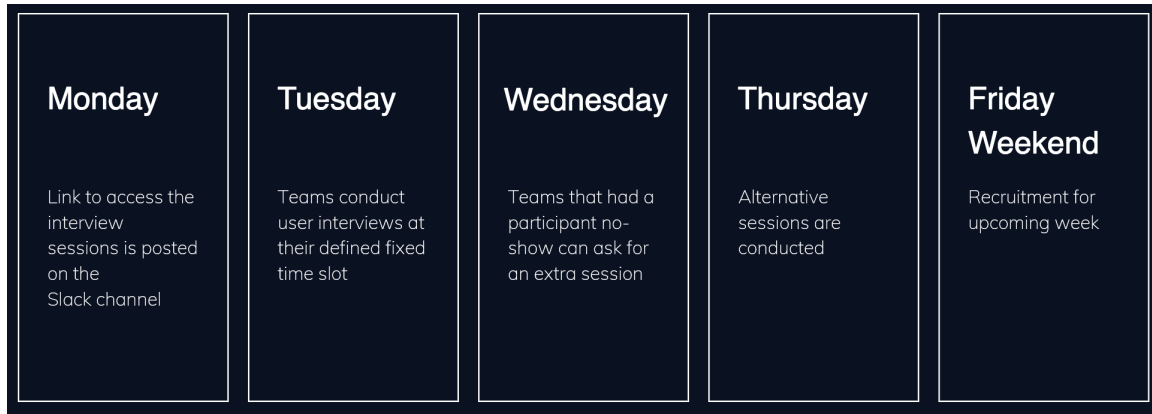### 4.3 Extend Research Ownership to Product Teams

What was the status quo?

The additional exposure of UXR to teams increased the demand for UXR. Meeting this demand was the responsibility of researchers. This soon led to an overload of research demand in relation to the availability of researchers.

What methods were applied?

To meet this demand, the UXR team needed to increase the ability of different team members in the product team to conduct and take ownership of smaller research activities. Torres (2021) defines continuous discovery as weekly touch points with customers by the team building the product, where they themselves conduct small research activities in pursuit of a desired outcome. Product teams were trained in 2-hour weekly workshops over six weeks with an external provider (Gurion, 2022) in the topic of continuous discovery. This training emphasised the relevance of weekly touchpoints with users to identify product opportunities.

The demand for weekly interviews increased. To further enable weekly interviews by the product team to scale, a research operations ability needed to be created. A dedicated Research Operations Expert from the UXR Team organised recruitment and scheduling of weekly interview sessions with users. Figure 1 illustrates the weekly interview operational process. Slack was used to create a dedicated communication channel for interviewing. Calendar invites were used to inform product teams about the time slot for their interviews. Userzoom, a participant recruitment tool, was used to recruit, screen and schedule participants. The participant recruitment tool is one of the key enablers for this step, as fast participant recruitment is a critical time-consuming step and a common problem when scaling research (Userinterviews.com, 2022).

Monday	Tuesday	Wednesday	Thursday	Friday Weekend
Link to access the interview sessions is posted on the Slack channel	Teams conduct user interviews at their defined fixed time slot	Teams that had a participant no-show can ask for an extra session	Alternative sessions are conducted	Recruitment for upcoming week

Figure 1: Weekly Interview Operational Process

Additionally, the researchers supporting the teams provided interview guidelines and coaching. This helped to generate reliable and quality insights during the interviews.

What was the outcome?

Weekly interviews increased the competency of designers, product managers and engineers to interview users. Teams started to conduct additional small research activities to inform their current opportunities, such as short surveys or usability tests with prototypes or competitor products. The insights from interviews increased exchange within and between product teams. Simultaneously, researchers regained capacity to focus on foundational research and larger discovery projects. Evaluative research was increasingly conducted by product teams, where the researcher takes a coaching role.

The authors argue that the organisation successfully moved to Stage 4, as UXR became part of the organisational process with high involvement and proactive research conducted from teams and stakeholders. The role of UXR increasingly shifted to more foundational research instead of only evaluative research.

5. Conclusions, Limitations and Future Research

This study provides practice-based insights on increasing the UXR maturity at an online accommodation comparison platform in the travel industry. The primary research objective of the study was to increase the UXR maturity of a travel organisation. The UXR maturity of the organisation at the start of this study was rated as *"Stage 2: UXR Awareness – Ad hoc Research"*. At the end of the time period (28 months) covered by this paper, the authors concluded an improvement to "Stage 4: Maturing of UXR into an organisational focus".

Three secondary research objectives were created to answer the research question: *What methods can increase the UX research maturity of a travel organisation?* The methods used to increase the UXR maturity, grouped by the research objectives, are depicted in Table 2.

Table 2: Summary of Methods Used to Increase UXR Maturity in a Travel Organisation

Research Objectives	Methods used
Objective 1: **Create awareness of UX research and the user.**	Diary study: to identify the user objectives and understand the context of travellers who use the product. Jobs-to-be-done: to share a common language of user objectives across the organisation and to shift to user-centric terminology.
Objective 2: **Expose UX research to the wider team.**	Moved from a service to an embedded way of working for researchers: to increase the sharing of goals and collaboration between teams. Access to raw research data to all members of the team: to increase the trust in research results and encourage proactive analysis and usage of previous research. Inviting product team members to help plan, participate and analyse research: to increase collaboration with product team and democratise research.

Research Objectives	Methods used
	UX Researchers involved in product rituals: to increase the understanding of researchers of product and business.
Objective 3: **Extend research ownership to product teams.**	Continuous Discovery Masterclass external training: One aspect of the training was to equip product teams in conducting weekly interviews with users. Provide a standardised understanding of the relevancy of UXR for successful products across the organisation.
	Weekly interviews with users (continuous interviewing): to get the team building the product as close as possible to the user and increase exposure to real users.
	Research Operations: to standardise and scale the recruitment, screening and scheduling of participants for interviews and other research activities.

In a fast-paced product environment, the organisation is already developing towards the next stage of UXR maturity: Stage 5, where research informs strategy. Research projects and presentations have gained interest from management level stakeholders and started generating an active demand for research based on the business strategy. Through personal exposure or constant engagement with researchers, executives can learn first-hand what most frustrates and excites customers (Sheppard et al., 2018). Due to the current UXR maturity stage in the company, executive management provided their buy-in for a dedicated central team, in addition to an embedded research team. Embedded researchers focus on current product objectives while the new central research team focuses on future strategic objectives. This organisational change increases visibility for central and holistic foundational research. As the demand for foundational research increases, research questions collected across teams are prioritised in close alignment with executive management.

The case study being conducted in a single travel organisation was a limitation of the study. Further research is needed to replicate results in different travel organisations to increase generalisability. Additionally, factors such as cultural differences in the country of a study might influence the success of the adoption of UXR practices. The implication of cultural differences was not a focus of this study due to the international nature of the organisation. In addition to the implemented methods, additional methods exist in the UXR industry, which could further help to improve the UXR maturity in organisations. From a methodological point of view, the assessment of the UXR maturity was done exclusively by the authors in retrospective. Alternative methodologies can be used to evaluate UXR maturity, such as assessment by stakeholders through standardised surveys at periodical intervals.

Future research includes the identification and implementation of methods to move to Stage 5 and 6 of the UXR maturity model. Additional future research areas may also include: the application of the methods in B2B areas and other industries as well as an updated maturity model based on industry insights. Overall, this study offers practice-based insights in the impact of the application of different methods to increase UXR in the travel industry. The implemented methods successfully increased the UXR maturity in the organisation and can be applied by practitioners and scholars in the field.

Acknowledgements

References

Anderson, N. (2019) *A follow-up: growing the maturity of UX Research at your company*, Available at: https://uxdesign.cc/a-follow-up-growing-the-maturity-of-ux-research-at-your-company-e2e9675455a4, [Accessed 3 Jan 2023].

Avore, C. (2016) *The organization's design research maturity model*, Available at: https://uxdesign.cc/the-organizations-design-research-maturity-model-b631471c007c, [Accessed 3 Jan 2023].

Bergart, R. and McLaughlin, J. (2020) *Can user experience research be trusted? A study of the UX practitioner experience in academic libraries,* Weave: Journal of Library User Experience, Vol 3, No. 2.

Buley, L. (2013) *The User Experience Team of One: A Research and Design Survival Guide*, Rosenfeld Media, p. 26.

Chapman, L. and Plewes, S. (2014) *A UX maturity model: Effective introduction of UX into organizations,* In International Conference of Design, User Experience, and Usability, pp. 12-22. Springer, Cham.

Elaine, E. G., Simone, S. R. and Kristel, K. P. A. (2023) *Increasing the UX maturity level of clients: A study of best practices in an agile environment,* Information and Software Technology, Vol *154*, 107086.

Foster, B. and Nerlikar, R. (2020) *Build what matters. Delivering key outcomes with vision-led product management,* Lioncrest Publishing, pp. 4-8.

Fraser, J. and Plewes, S. (2015) *Applications of a UX maturity model to influencing HF best practices in technology centric companies–Lessons from Edison,* Procedia Manufacturing, Vol *3*, pp. 626-631.

Gothelf, J. and Seiden, J. (2017) *Sense and Respond – How successful organizations listen to customers and create new products continuously,* Harvard Business Review Press, p. 10.

Gurion, H. (2022) *Continuous discovery habits masterclass,* Training, Available at: https://www.producttalk.org/workshops/, [Accessed 2 Jan 2023].

Hawkins, S., Owens, J. and Celis, R. (2018) *A Digital Airline Commercial Platform Reimagining Retailing,* Issue 2, 2018, Available at:
https://cdn.instantmagazine.com/upload/18928/a_digital_airline_commercial_platform.511e4111632a.pdf, [Accessed 3 Jan 2023].

Hall, E. (2019) *Just enough research,* A Book Apart.

Hill, H. (2020) *UX Maturity: The model, benefits and 8 ways to get started,* Available at: https://bootcamp.uxdesign.cc/ux-maturity-the-model-benefits-and-8-ways-to-get-started-8301d8b89b31 [Accessed 30 Dec 2022].

Kalbach, J. (2020) *The Jobs To Be Done Playbook: Align Your Markets, Organization, and Strategy Around Customer Needs,* Rosenfeld Media.

MacDonald, C. M., Sosebee, J., and Srp, A. (2022). A Framework for Assessing Organizational User Experience Capacity. International Journal of Human–Computer Interaction, Vol 38 No. 11, pp. 1064-1080.

Molich, R. (2019) *A UX Stratega–A Fictitious but Realistic Example of a UX Strategy,* Mensch und Computer 2019-Usability Professionals.

Merholz, P. and Skinner, K. (2016) *Org design for design orgs. Building and managing in-house design teams,* O'Reilly Media.

Portigal, S. (2013) *Interviewing Users: How to Uncover Compelling Insights*, Rosenfeld Media.

Pretorius, M.C. (2012) *A Methodology to Institutionalise User Experience in a South African Provincial Government*, Doctoral Thesis, Nelson Mandela Metropolitan University, Port Elizabeth, South Africa.

Pretorius, M.C. (2020) *Increasing the User Experience Research Maturity of a Middle East Online Travel Agency,* 3rd International Conference on Tourism Research ICTR 2020. Valencia, Spain.

Rohles, B. (2021) *UX Maturity: Humans in focus, success in sight,* Available at: https://rohles.net/en/articles/ux-maturity [Accessed 30 Dec 2022].

Salazar, K. (2015) *Diary Studies: Understanding Long-Term User Behavior and Experiences*, Available at: https://www.nngroup.com/articles/diary-studies/, [Accessed 4 Jan 2023].

Sheppard, B., Sarrazin, H., Kouyoumjian, G. and Dore, F. (2018) *The business value of design*, McKinsey Quarterly, October 2018, Available at: https://www.mckinsey.com/business-functions/mckinsey-design/our-insights/the-business-value-of-design, [Accessed 3 Jan 2023].

Skift (2017) *Using customer-centric product design to stand out in the travel industry*, Skift report 2017, Available at: https://kwaliteit.toerismevlaanderen.be/sites/default/files/atoms/files/UserTesting-Aug10.pdf, [Accessed 3 Jan 2023].

Shankar, K. (2020) *The impact of COVID-19 on IT services industry-expected transformations,* British Journal of Management, Vol 31, No 3, p. 450.

Spool, J. (2011) *Fast Path to a Great UX – Increased Exposure Hours*, Available at: https://articles.uie.com/user_exposure_hours/, [Accessed 3 Jan 2023].

Spool, J. (2019) *How a Team Matures Its User Research Integration*, Available at: https://articles.uie.com/how-a-team-matures-its-user-research-integration/, [Accessed 3 Jan 2023].

Szabó, B. and Hercegfi, K. (2022) *User-centered approaches in software development processes: Qualitative research into the practice of Hungarian companies, Journal of Software: Evolution and Process*, e2501.

Torres, T. (2021) *Continuous discovery habits: Discover products that create customer value and business value,* Product Talk LLC.

Userinterviews.com (2022) *The UX Research Field Guide,* Available at: https://www.userinterviews.com/ux-research-field-guide-module/recruiting, [Accessed 3 Jan 2023].

Yin, R.K. (2006) *Case Study Methods.* In: J.L. Green, G. Camilli and P.B. Elmore (Eds.), Handbook of complementary methods in education research. Mahwah, NJ: Lawrence Erlbaum Associates.