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# UX MATURITY IN SOUTHEAST BRAZILIAN COMPANIES: MANAGERS' PERSPECTIVES ON THE EVOLUTION OF USER-CENTERED PRACTICES

## *MATURIDADE EM UX EM EMPRESAS DO SUDESTE BRASILEIRO: PERSPECTIVAS DOS GESTORES SOBRE A EVOLUÇÃO DAS PRÁTICAS CENTRADAS NO USUÁRIO*

Ana Caroline Comuniam Kalle [1*], Rodrigo Franklin Frogeri[2]

[1] *Graduanda em Sistemas de Informação. Bolsista de Iniciação científica, Centro Universitário do Sul de Minas-UNISMG.*
anacomuniam@hotmail.com
[2] *Doutor em Sistemas de Informação e Gestão do Conhecimento. Centro Universitário do sul de Minas – UNISMG.*
rodrigo.frogeri@professor.unis.edu.br

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***Corresponding author:**
Ana Caroline Comuniam Kalle
anacomuniam@hotmail.com

## Abstract

User Experience (UX) refers to all interactions users have with a product or service, from the initial impression to its actual use. UX maturity assesses an organization's ability to effectively deliver user-centered design. Organizations with a higher level of UX maturity are better able to provide products that align with their customers' needs. However, reaching UX maturity is challenging, requiring strategic, cultural, and procedural changes. This study aimed to assess the UX maturity of companies in the Southeast region of Brazil from the perspective of their managers. The study follows a qualitative approach, with interviews conducted with 10 UX managers. The analysis and classification of the organizations' UX maturity were based on the Nielsen Norman Group model. Results showed that the "Structured" and "User-Driven" maturity levels are the most common in these organizations. This indicates that while UX practices are generally well-organized, there are still challenges in reaching a level of maturity where users are central to all decision-making.

**Keywords:** User-centered experience, Maturity level, Organizational maturity, UX maturity, Nielsen Norman Group.

## Resumo

A Experiência do Usuário ou *User eXperience* (UX) abrange todas as interações do usuário com um produto ou serviço, desde a sua primeira impressão ao ver o produto até o momento de sua utilização. A maturidade da UX mede a capacidade de uma empresa em entregar, com sucesso, um design centrado no usuário. Organizações maduras em UX podem oferecer produtos mais alinhados com as necessidades dos seus clientes. Contudo, alcançar a maturidade em UX é um desafio que envolve mudanças estratégicas, culturais e processuais. Assim, o objetivo deste estudo foi analisar o nível de maturidade em UX em empresas da região Sudeste do Brasil na ótica dos seus gestores. Metodologicamente, o estudo se caracteriza como de abordagem qualitativa. Um total de 10 gestores em UX foram entrevistados. A análise e classificação do grau de maturidade em UX das organizações foi baseada no modelo da Nielsen Norman Group. O estudo revelou que os níveis de maturidade "Estruturado" e "Orientado para o Usuário" são os mais recorrentes nas organizações. Isso sugere que as práticas de UX são bem-organizadas, embora ainda exista desafios para alcançar um nível de maturidade em que o usuário esteja no centro de todas as decisões.

***Keywords**: Experiência centrada no usuário, Grau de maturidade, Maturidade organizacional. Maturidade em UX, Nielsen Norman Group.*

## *1 INTRODUCTION*

User Experience (UX) encompasses all interactions a user has with a product or service, from the first impression to the moment of use (NORMAN, 2013). The term was popularized in the 1990s by Donald Norman to refer to all aspects of a user's relationship with a product or service, including physical and emotional reactions (KNEMEYER & SVOBODA, 2016; LOWDERMILK, 2013). Thus, in addition to solving the user's problem, the product or service must necessarily provide a memorable experience for the customer.

UX, therefore, serves as a crucial tool to optimize the relationship between consumers and companies. Today, UX holds significant relevance in creating and strengthening the bonds built by brands with their potential customers at every touchpoint, whether online or in person (SEBRAE, 2023). UX is omnipresent—it can be a key factor in the success or failure of any product or service. Its implementation by a company can yield various benefits, such as delivering solutions that meet users' needs, increasing customer satisfaction, and making a product or service more competitive (SEBRAE, 2023).

According to Sousa and Bertomeu (2016), the UX Design professional plays a fundamental role in the development of various types of digital systems (for example, web information systems, mobile applications, or systems for controlling smart devices). UX Design is responsible for ensuring that the user experience is satisfactory in all aspects, from product usability to its visual aesthetics, while also covering information architecture, accessibility, and the entire production pipeline (for example, requirements gathering, development, programming, and the quality of a digital product) (SOUSA & BERTOMEU, 2016).

Companies that have effectively embraced design within their culture generated 32% more revenue and 56% higher returns for shareholders—almost twice as much—over a five-year period compared to competitors that placed little or no value on design (SHEPPARD et al., 2018). High-performing companies are those that consider design valuable in every aspect of their operation, from employee selection to business strategies (SHEPPARD et al., 2018).

One of the primary benefits of investing in User Experience is the reduction of rework and costs (Y. ALERYANI, 2020). The 2019 study "The New Design Frontier" by InVision, which surveyed more than 2,200 designers globally, identified areas where a company's design team has the greatest positive impact: product quality, operational efficiency, finance and marketing. According to the same study, a company’s UX maturity level can be correlated with its progress in these areas (GUIMARÃES, 2019). By understanding users' needs from the start of the development process, future problems can be avoided, ensuring the product is well-received by the market (TRENDOWICZ et al., 2023). Consequently, UX professionals can become integral to an organization's workforce, often requiring higher education in technology-related fields (for example, Information Systems or Computer Science).

UX maturity measures a company’s ability to successfully deliver user-centered design and encompasses the quality and consistency of processes, as well as the organization's willingness to support and enhance User Experience (PERNICE, 2021). The UX maturity model proposed by the Nielsen Norman Group, a U.S.-based research and consulting firm specializing in user interface and experience, consists of six levels based on four key factors that must be present in all designs. However, these levels may vary in importance depending on the specific needs of each organization (PAIXÃO, 2022). Moreover, even companies at the same UX maturity level may exhibit different processes and capacities, as organizations often operate in distinct contexts. Improving UX maturity

requires growth and evolution in strategy, culture, processes, and outcomes, and depends on the correct application of existing methodologies and the prioritization of UX by organizational leadership (PERNICE, 2021).

A study conducted by Google for Startups surveyed 253 Brazilian companies through qualitative and quantitative research. The results suggest that 92% of startups agree there is a shortage of technology professionals in Brazil. The study also indicates that opportunities for technology professionals are concentrated in the Southeast region: 62% of the job openings are in this area, with 43% located in the state of São Paulo alone (PANORAMA, 2023). Part of the explanation for the high demand for technology professionals in the southeastern states lies in the region's economy, which is driven by industry, commerce, and services. The Southeast is the wealthiest region in the country, accounting for 55.4% of the national GDP (Gross Domestic Product), according to data from the IBGE (Brazilian Institute of Geography and Statistics) (BEZERRA, [n.d.]).

Therefore, the present study aims to analyze the level of UX maturity in companies in the Southeast region of Brazil from the perspective of their managers.

## *2 THEORETICAL BACKGROUND*

### *2.1 User Experience (UX)*

UX has become a central concept in human-computer interaction, recognized as essential for the success of technological products and services (PERNICE, 2021). Hassenzahl and Tractinsky (2006) argue that UX goes beyond usability, considering subjective and situational factors, such as the user's state and the context of interaction. This multidimensional perspective addresses both pragmatic and hedonic needs, creating enriching experiences (HASSENZAHL, 2008). This approach can ensure customer satisfaction and retention, particularly in digital environments (GUERINO et al., 2023). Companies that understand user needs and apply feedback gain a competitive advantage, which is especially vital for startups with limited resources (HASSENZAHL, 2008).

However, Torres-Dávila, Porles-Arévalo, and Maurício (2019) demonstrate that a lack of focus on UX in e-commerce can harm engagement and financial performance. Measuring emotions throughout the shopping journey highlights the importance of a holistic UX approach.

Nevertheless, organizations face challenges in implementing effective UX practices. Meerendré, Rukomic, and Kieffer (2019) identify barriers such as resource constraints and confusion between UX and User Interface (UI), complicating its adoption. Clemmensen et al. (2022) emphasize the need for UX maturity, suggesting that sound management practices and innovative tools are essential for integrating UX at all organizational levels.

Molich, Woletz, and Winter (2020) state that companies progress through different levels of maturity when incorporating UX. For UX to succeed within an organization, it must become part of the organizational culture (KIEFFER et al., 2019). Thus, companies that strategically integrate UX stand out in the market and maintain a stronger connection with customer demands (GUERINO et

al., 2023). Consequently, continuous UX maturity is essential for creating high-quality experiences that meet customers' pragmatic and emotional needs (HASSENZAHL, 2008).

## *2.2 UX Maturity*

Improving User-Centered Design (UCD) in software and product development remains a significant challenge for many companies (JOKELA et al., 2006). Assessing UX maturity within organizations is an important step toward overcoming these challenges, as it helps identify the level of user-centered practice implementation (CLEMMENSEN et al., 2022). Using maturity assessment models is an effective way to measure this progress, provided that the appropriate model is chosen for each organization (JOKELA et al., 2006). Usability, being a key component for product longevity, is fundamental for software-based systems (GUERINO et al., 2023).

Chapman and Plewes (2014) emphasize that effective UX design is an organizational responsibility, not just a task for designers. Assessing UX maturity is the first step toward improving design delivery and meeting both business needs and user expectations (HASSENZAHL and TRACTINSKY, 2006). However, companies vary in their levels of maturity and need careful evaluations to identify opportunities for improvement (CHAPMAN and PLEWES, 2014).

Frases and Plewes (2015) suggest that many companies still underestimate the importance of UX and the human factor in product development. This lack of maturity hinders the adoption of user-centered practices, limiting the potential of UX techniques (OVAD and LARSEN, 2015). Using assessment models can add value and promote organizational change, which is essential for success (FRASES and PLEWES, 2015). Caravajal and Moreno (2017) state that although UX practices can bring significant improvements, many companies still struggle to incorporate them effectively.

Anchahua, Garnique, and Tarazona (2018) show that UX maturity models should not only improve user satisfaction but also boost company revenues. A checklist-based model applied to web applications demonstrated an increase in UX maturity and financial results (ANCHAHUA; GARNIQUE; TARAZONA, 2018). These findings suggest that strong UX is directly associated with business success (MOLICH, WOLETZ, and WINTER, 2020).

Small and medium-sized enterprises (SMEs) face specific challenges related to UX maturity. Many still do not recognize its importance, limiting the involvement of UX professionals in key projects (GUERINO et al., 2023). Additionally, limited resources and small teams make it difficult to fully implement UX practices (PERES and GOMES, 2018).

Kieffer et al. (2019) highlight the importance of User Requirements Specification (URS) for the success of interactive systems. The User Experience Capability Maturity Model (UXCMM) aligns UX methods with organizational capabilities, facilitating the assessment and development of user-centered activities. However, accurately measuring UX maturity is challenging due to the lack of simple and effective methods (CHAPMAN and PLEWES, 2014).

Pernice et al. (2021) present a six-level UX maturity model developed by the Nielsen Norman Group, designed to support the implementation and evolution of UX practices and methods within organizations. The maturity model provides a framework for evaluating the strengths and weaknesses related to UX in each organization and can be used to determine which of the six stages a company currently occupies. The six stages are as follows: (i) absent: UX is ignored or nonexistent; (ii) limited: UX work is rare, done sporadically, and without significance; (iii) emerging: UX work is functional and promising but performed inconsistently and inefficiently; (iv) structured: the organization has a semi-systematic UX methodology that is widely applied, though with varying

degrees of effectiveness and efficiency; (v) integrated: UX work is comprehensive, effective, and widespread; (vi) user-driven: dedication to UX at all levels leads to deep insights and exceptional user-centered design outcomes (PERNICE et al., 2021).

In addition to the maturity stages, the model provided by the Nielsen Norman Group offers insights into how to increase UX maturity within a team and promote its importance (PERNICE et al., 2021). It is one of the most widely accepted models in both the literature and the market.

## *3 METHODOLOGY*

Methodologically, the study follows a qualitative approach, with data collected through semi-structured interviews and secondary sources. Data analysis was conducted using Content Analysis techniques (BARDIN, 2011) and Lexical Analysis. Furthermore, the research is exploratory in nature, where, according to Gil (2008, p.27), "the main purpose of exploratory research is to develop, clarify, and modify concepts and ideas, with a view to formulating more precise problems or researchable hypotheses for subsequent studies."

The data collected enabled the analysis and classification of the UX maturity level of organizations in the Southeast region of Brazil, based on the Nielsen Norman Group model (PERNICE et al., 2021).

### *3.1 Data Collection*

Representatives of companies in the Southeast region of Brazil were approached using tools such as LinkedIn, email, or professional contact. The inclusion criterion was the presence of the term "User Experience" or "UX" in the job title or in the description of their activities on LinkedIn. Additionally, participants were required to hold a management or leadership position within the organization. Each selected individual was presented with the study and invited to participate in the interview (see Appendix 2).

Before each interview, participants were required to sign the Informed Consent Form (ICF). The number of participants was determined by data saturation (FONTANELLA et al., 2012).

Using the maturity model proposed by the Nielsen Norman Group, which defines six levels of UX maturity an organization may possess, it is possible, through a qualitative approach, to assess the stage or maturity level in which an organization is situated.

The use of semi-structured interviews can be considered a suitable methodological decision for addressing a variety of problems and questions in science (MCGRATH; PALMGREN; LILJEDAHL, 2019). Interviews can thus be used both as a standalone methodological strategy and as a supporting strategy to obtain the desired knowledge (MANZINI, 2012). According to McGrath, Palmgren, and Liljedahl (2019), interviews can be employed to identify the interviewee's feelings, thoughts, opinions, beliefs, values, perceptions, and attitudes toward one or more phenomena.

Dejonckheere and Vaughn (2019) emphasize that in semi-structured interviews, follow-up questions are as important as the predefined questions. When conducting interviews, it is crucial to present the Informed Consent Form (ICF) or, when applicable, the Assent Form (AF) to ensure the safety of both the participant's and the interviewer's data, as well as for any future scientific publications that may arise from the data collected. Moreover, "with a recording, the interviewer

can focus on listening and responding to the participant without being distracted by the need to take extensive notes" (STUCKEY, 2014, p. 7).

To guide the researchers during data collection, an interview script was developed (see Appendix 3). The research has been approved by an Ethics Committee (CEP) under the CAAE number 81965124.9.0000.5111.

## *3.2 Data Analysis*

After the interviews, the data analysis process was conducted using Content Analysis (BARDIN, 2011). Content Analysis involves the stages of pre-analysis, material exploration, result processing, and interpretation (CAPELLE; MELO; GONÇALVES, 2011). The first stage, pre-analysis, consists of organizing the ideas. In this phase, the interviews to be analyzed were selected, and indicators for the final interpretation were developed, taking into account the need for both qualitative and quantitative analysis. During the material exploration phase, excerpts from the interviews were analyzed to address each question and systematically meet the research objectives. In the final stage, result processing and interpretation, the data were categorized and interpreted qualitatively, aiming to better understand the leadership's perspective on UX and to categorize the organizations into their respective maturity levels (BARDIN, 2011).

Finally, all the data collected through the interviews were systematically organized into a spreadsheet, which was structured with specific columns for each analyzed aspect. These columns included information about the interviewees to whom the transcription referred, the interviewee's city, age group, length of tenure, and the transcription of the responses to each question asked.

Subsequently, the data from the spreadsheet were imported into the Generative Artificial Intelligence platform ChatGPT version 4 (FONSECA; CHIMENTI; SUAREZ, 2023). Two command prompts were used to apply the Content Analysis technique (BARDIN, 2011): Prompt 1: "Write an academic text describing the sociodemographic data of the following interviewees," and Prompt 2: "Apply the Content Analysis technique according to Lawrence Bardin to the interview data. Write the results in an academic style without breakpoints. Cite excerpts from the interviewees' statements according to the identified categories. Finally, create a table organizing the identified categories and the frequency with which each category was mentioned by the interviewees." The outputs from Generative Artificial Intelligence ChatGPT were then analyzed by the researchers and adjusted to fit the research context (FONSECA; CHIMENTI; SUAREZ, 2023).

## *4 RESULTS AND DISCUSSIONS*

The research subjects consisted of ten professionals from different cities and occupations, whose characteristics were analyzed based on gender, age group, job tenure, and location. Of the interviewees, seven were male (70%), and three were female (30%). Regarding age, half of the interviewees were between 30 and 40 years old. Four professionals were between 20 and 30 years old, and only one was between 40 and 50 years old.

The participants' job tenure varied. Three interviewees had been in their positions for three years, two had been working for five years, two for four years, and three had been in their roles for one or two years. In terms of job roles, six professionals worked as UX Design Leads, two as managers (product or quality), one as Chief Technology Officer (CTO), and one as a data analyst.

Geographically, the interviewees were distributed across various cities in Brazil, all located in the Southeast region, with São Paulo being the most represented, with four professionals. Lavras

had two representatives, and Juiz de Fora, Belo Horizonte, Alfenas, and Mathias Barbosa each had one representative.

In analyzing question 1, which discusses the importance of UX for the organization, it was found that one of the most recurring themes among the interviewees was the integration of UX into organizational culture and business strategy. E1 emphasized that UX is "embedded in the company's strategic roots," being a fundamental part of the discovery, prototyping, and usability testing processes. This integration was seen as essential for delivering customer value and driving innovation within the company. E8 added that in their company, UX is aligned "with the company's strategic objectives," ensuring that products meet both user needs and business success. The importance of a strategic and cultural vision of UX was also mentioned by E9, who noted that the company was "built on this," with a significant emphasis on UX within the organization.

Another central theme was the influence of UX on customer satisfaction and product usability. E6 stated that "after UX was introduced to the company, many things changed," pointing to improvements in product visibility and usability, resulting in a more intuitive and user-friendly system. E10 reinforced this idea by stating that UX "improves service usability, reduces the need for support, and strengthens brand perception." This focus on satisfaction and ease of use was seen as crucial for maintaining competitiveness and ensuring success for both the company and its clients.

The relationship between UX and company growth was another important topic. E3 noted that without proper UX implementation, the scalability of the startup where they work "might not have achieved the scalability it has today." The need for UX redesign, mentioned by E3, was seen as crucial for the company to continue growing and reaching its goals. E7, on the other hand, highlighted the challenges faced by older companies, where entrenched cultures may hinder UX implementation, although they recognized the importance of these practices for technological development.

Market differentiation through superior UX was another key point. E8 pointed out that "products with superior UX tend to stand out and attract more users," emphasizing the importance of a well-designed user experience as a competitive advantage. This point was supported by E2, who mentioned that a positive and intuitive experience "increases affiliate engagement, improves conversion rates, and consequently maximizes returns for partner companies."

Some interviewees also addressed the challenges and resistance to UX implementation, especially in companies with older cultures or in sectors less familiar with the concept. E7 explained that in their company, "some things are more rigid" and that UX culture is not the main focus in decision-making. This resistance is seen as a barrier to the broader adoption of UX practices, which are considered essential for technological development and adaptation to the modern market. The frequencies for question 1 can be analyzed in Table 1.

Table 1: Categories and frequencies for the unit of analysis on the importance of UX for the organization

| Category | Frequency |
|---|---|
| Organizational Culture and UX Strategy | 6 |
| Impact on Customer Satisfaction and Usability | 5 |
| Company Growth and Scalability | 3 |
| Market Differentiation and Competitiveness | 3 |
| Challenges and Resistance to UX Implementation | 2 |

Source: Developed by the authors

For question 2, regarding the organization of the UX team in the company, the emerging theme was the decentralized and collaborative structure of UX teams. E1 described an organization where the team is "decentralized," with a coordinator who leads but works cross-functionally across all projects. Collaboration is a key aspect, where even teams divided by functions, such as pre-sales prototype development, end up joining together when these projects evolve into larger initiatives. This continuous collaboration is also highlighted by E2, who mentions a "multifunctional team that works in integration with development, marketing, and data analysis," promoting a culture of constant dialogue between designers and developers.

The difficulty in properly structuring UX teams was another category identified. E3 reported that, initially, they were the only UX professional in the company, facing challenges in getting UX culture understood and valued. The company, which lacked a formal UX structure, is currently undergoing restructuring to form a more cohesive team. E6 also mentioned that UX visibility is recent and that the team is small, with only two people who "do a little bit of everything" due to a lack of resources. These challenges were also echoed by E7, who had to build UX practices almost from scratch within the company, resulting in a structure that heavily relies on a multitasking professional performing multiple roles, including UX and UI.

The organization into multidisciplinary squads was another highly discussed topic. E9 described the company's structure as divided into "business units" (BUs) and squads, where UX is integrated but with separate design leadership. This model allows the UX team to work directly with technology and product while maintaining a certain level of autonomy. E10 also highlighted the use of squads, where designers, researchers, and data analysts collaborate directly with product and technology teams, working in "agile cycles" to ensure UX integration at all stages of product development. A unique aspect was identified by E8, who mentioned that the company adopts a hiring approach for "specialist professionals" in very specific niches, such as 3D modeling, which allows for a "comprehensive and integrated vision" across all projects. Although the only UX professional in the company, E8 collaborates extensively with UX professionals from partner companies, creating an external collaboration environment that is key to the success of projects.

Finally, the issue of investment in the growth of UX teams was mentioned by E5, who stated that the team is "well organized" but acknowledged that the lack of investment hinders further growth. The company allocates resources so that the UX team operates "within budget," but it is recognized that there could be expansion if more investment were available. The frequency results can be analyzed in Table 2.

Table 2: Categories and Frequencies for the Unit of Analysis "UX Team Organization in the Company

| Category | Frequency |
|---|---|
| Decentralized and Collaborative Team Structure | 3 |
| Challenges in Team Formation and Structuring | 4 |
| Integration in Multidisciplinary Squads | 3 |
| Specialization and External Collaboration | 1 |
| Investment and Team Growth | 1 |

Source: Developed by the authors.

The analysis of the interviewees' statements regarding UX culture within organizations (question 3) reveals different stages of maturity and challenges in integrating user experience into business processes. These findings are summarized in Table 3. It is evident that some companies exhibit a well-established and deeply ingrained UX culture. E1 mentioned that the UX culture is "so ingrained" that it is difficult for the team to operate otherwise, with a focus on demonstrating real value to clients through success stories. E2 emphasized that the UX culture permeates "all levels of the company," with a strong emphasis on empathy and continuous innovation. E8 also highlighted that the organization maintains a strong user-centered focus, with design decisions driven by user needs and desires, supported by leadership that encourages UX practices.

Conversely, several interviewees pointed out difficulties in consolidating a UX culture. E3 described a UX culture that is "beginning" to take shape, facing significant barriers due to the transition from a startup to an established company. E5 and E6 also mentioned that their UX culture is still in development, with E6 noting that concern for usability is still limited and needs improvement. E10 reinforced that despite existing initiatives, the integration of UX into strategic decision-making still faces resistance, often hindered by the pressure for quick results.

Organizations that have successfully structured their UX processes tend to integrate user experience more effectively into their projects. E9 praised the "better-established" structure in their current company, which allows for greater integration between design, business, and technology, facilitating the involvement of designers from the outset of projects. This enables designers to act more strategically, earning the respect and trust of other departments.

Table 3: Categories and Frequencies for the Unit of Analysis "UX Culture in Organizations

| Category | Frequency |
|---|---|
| Embedded and User-Centered UX Culture | 3 |
| Challenges in Implementation and Internal Resistance | 5 |
| Structured Processes and Interdisciplinary Involvement | 5 |

Source: Developed by the authors

The definition or explanation of UX knowledge within the team (question 4) analyzed the statements regarding UX knowledge in teams and revealed a diverse landscape, reflecting different

levels of understanding and integration of user experience within organizations. In several companies, UX knowledge is fragmented or heavily reliant on the specialized team. E1 mentioned that although other professionals do not have a deep understanding of UX, they recognize the importance of the UX team in “materializing” and improving their requests. E3 and E7 reported similar situations where UX knowledge is present but limited, and often not properly applied due to deadlines or a lack of integration between departments. Thus, it becomes clear that some organizations actively invest in the development of UX competencies among all employees. E2 highlighted that the company promotes training sessions, workshops, and participation in conferences, which facilitates communication and collaboration across departments. E9 also emphasized the importance of involving technical teams in UX processes, which has led to greater engagement and understanding of user experience concepts.

Companies with a well-established design culture demonstrate a higher level of UX knowledge. E8 explained that everyone in the company has a good understanding of UX principles since the organization was built on a strong design culture from the outset. E9 corroborated this view, mentioning that in some companies, UX knowledge is a basic requirement, with professionals from various areas actively contributing to the quality of the user experience. On the other hand, there are significant challenges in the practical application of UX knowledge. E6 mentioned that although processes are well-structured, in practice, usability decisions are not always prioritized, leading to rework and a loss of efficiency. E10 pointed out that UX knowledge varies, with non-design departments showing only a superficial understanding, which limits the full application of UX in projects and strategic decisions. The data, categorized and quantified by the number of mentions, can be observed in Table 4.

Table 4: Categories and Frequencies for the Unit of Analysis "Definition or Explanation of UX Knowledge within the Team

| Category | Frequency |
|---|---|
| Fragmented Knowledge and Reliance on the UX Team | 3 |
| Efforts to Disseminate Knowledge and Continuous Training | 2 |
| Broad Knowledge and Established Design Culture | 2 |
| Specialization and External Collaboration | 3 |

Source: Developed by the authors

The analysis of UX practices carried out in the daily operations of organizations revealed a variety of approaches and levels of integration of UX practices into everyday processes. Table 5 shows the number of mentions for each of the themes presented below. A widely valued practice is communication and collaboration between different departments within the company. E1 emphasized the importance of "transparency" and continuous communication with developers, project managers, and other sectors, which helps identify difficulties and opportunities for improvement during product development. This practice is seen as essential to ensuring that ideas are feasible and well-executed. Additionally, conducting research and usability testing emerged as a central practice in several organizations. E2 mentioned that UX is "at the core of daily operations," with usability tests being conducted at every stage of development, from prototypes to the final product. E9 also highlighted the importance of research and testing, including quick methods like guerrilla testing to ensure solutions are validated before launch.

On the other hand, some organizations face challenges in the continuous implementation of UX practices. E3 reported that many UX practices are carried out "under the radar," meaning without full company support, which hinders a more systematic approach. E10 mentioned that UX practices in their organization are "sporadic and reactive," often used only to fix problems after launch rather than being incorporated from the beginning of the process.

Several companies use specific tools and methods to guide their UX practices. E5 highlighted the use of methodologies like the "research funnel" and "Lean UX" to guide UX demands. E6 mentioned using tools like HeatMap and Google Analytics to track and analyze user behavior, adjusting functionalities as needed. E8 and E4 presented case studies where the application of UX practices, such as user research and feedback, resulted in a significant increase in customer satisfaction, demonstrating the positive impact of these practices when well-executed.

Table 5: Categories and Frequencies for the Unit of Analysis on UX Practices in the Daily Operations of Organizations

| Category | Frequency |
|---|---|
| Interdisciplinary Communication and Collaboration | 2 |
| Usability Research and Testing | 6 |
| Limited and Reactive Practices | 2 |
| Specific Tools and Methods | 2 |
| Impact of UX Practices | 2 |

Source: Developed by the authors

The analysis of the challenges in implementing and maintaining UX practices in companies reveals a series of common obstacles that teams face. One of the most frequently mentioned challenges is resistance from other departments, particularly developers, to adopt UX practices that might complicate or prolong the development process. E1 noted that developers tend to prefer simpler and less costly solutions, which often conflict with UX needs, requiring negotiations and “standing firm” to maintain the quality of the user experience. E8 also highlighted the difficulty in aligning all teams with UX practices, especially in complex technical contexts, such as augmented reality projects. Another significant challenge is the pressure for quick results, which often hinders the full execution of UX practices. E2 emphasized the necessary balance between rapid innovation and the careful optimization of the user experience in a highly competitive environment. E9 and E10 also mentioned that this pressure results in tight deadlines, often leading to compromises in UX quality in favor of faster releases.

The lack of understanding and appreciation for UX in other departments, and even within development teams, is a recurring challenge. E6 observed that the company culture is not yet fully user-centered and that the importance of UX is not always recognized, which affects the final product's quality. E9 pointed out that it is difficult to make people understand the importance of involving designers in strategic discussions and business decision-making.

Additionally, resource limitations, both in terms of personnel and time, were identified as another challenge. E3 highlighted that despite the company’s rapid growth, the UX team is still very small for the demand, making it difficult to conduct research and implement quality processes. E5

also mentioned that although methodologies work well, there is constant negotiation for time and resources to carry out all the critical steps, such as usability testing.

Keeping UX practices updated and aligned with continuous technological advancements is another challenge. E4 noted that the training of UX professionals often follows a rigid and limited pattern, which does not adequately prepare designers to creatively and effectively solve real-world problems. E8 mentioned the need to stay constantly updated with changes in tools and user expectations, which requires continuous adaptation of UX practices to maintain relevance and effectiveness. Table 6 provides a summary of the number of times the aforementioned categories were addressed during the interviews.

Table 6: Categories and Frequencies for the Unit of Analysis on Challenges in the Implementation and Maintenance of UX Practices in Companies

| Category | Frequency |
|---|---|
| Resistance from Other Departments and Difficult Communication | 3 |
| Pressure for Quick Results | 3 |
| Lack of Understanding and Appreciation of UX | 4 |
| Limited Resources and Team Capacity | 3 |
| Maintenance of UX Practices and Technological Evolution | 2 |

Source: Developed by the authors

The responses from interviewees on how companies measure the success of UX initiatives reveal a diversity of metrics and methods used to evaluate the impact of these practices. Companies use a wide range of both quantitative and qualitative metrics to assess the success of UX initiatives. E1 highlighted the use of customer and stakeholder surveys, reporting extremely high success and satisfaction rates, to the point where some clients demanded the continuation of the UX team as a condition for contract renewal. Additionally, the company continuously monitors prototypes and launched products, measuring the scalability and quality of the developed components. On the other hand, E2 mentioned a variety of metrics, such as adoption rate, conversion rate, time spent on the platform, and Net Promoter Score (NPS). A success story involved redesigning the onboarding process, which resulted in a 30% increase in new affiliate retention. However, the company also learned from failures, such as the need to quickly revise a payment feature that caused confusion among users.

Several interviewees reported specific success cases, demonstrating how UX initiatives directly impacted the business. E4 emphasized the importance of aligning UX metrics with business metrics, citing a project in which a design intervention significantly increased the submission of materials by users, which was crucial for platform growth. E7 reported the implementation of a new customer service channel via WhatsApp, which eased the workload of customer support and led to a 10% migration of the user base to digital self-service. This success was achieved through a coordinated effort in communication and navigation, adapting workflows to maximize the adoption of the new channel.

The integration of UX metrics with business indicators is a common practice to ensure that improvements in user experience also lead to commercial benefits. E9 explained how the company tracks conversion metrics and product usage, integrating perspectives from technology, business,

and design. One example was the improvement in the registration completion rate, which increased by 89% after a data-driven conversion intervention. Customer satisfaction and the evolution of the product's visual identity were also mentioned as success indicators. E5 reported that improvements in usability and visual identity completely transformed the system's perception by users, resulting in greater adoption and use of previously overlooked features. Some companies also shared examples of failures and the lessons learned from them. E10 mentioned a case where the rushed launch of a feature without adequate testing led to complaints and an increase in support calls, underscoring the importance of adhering to UX processes to avoid future problems. Table 7 provides a summary of the results obtained from the answers to question 7.

Table 7: Categories and frequencies for the unit of analysis on how the success of UX initiatives is measured by companies

| Category | Frequency |
|---|---|
| Use of Quantitative and Qualitative Metrics | 6 |
| Success Cases and Direct Business Impact | 6 |
| Integration with Business and Conversion Indicators | 3 |
| Customer Satisfaction and Visual Identity | 2 |
| Learnings from Failures | 2 |

Source: Developed by the authors

The interview data allowed for the identification of categories related to the level of UX maturity in the represented companies. Table 8 shows the frequency of each analyzed category. The “user-oriented” category represents the most advanced stage of UX maturity, where there is dedication at all levels of the organization, and UX is a central factor in strategic decisions. E1 stated: “I think this is user-oriented. Almost all the projects we do are truly user-focused.” E8 shares a similar view, emphasizing that their company is “user-oriented” with a strong commitment to UX at every level. E9 also acknowledged that their organization has reached the most advanced stage, noting that UX is the main driving force behind their projects.

The “integrated” category is characterized by a comprehensive focus on UX, with effective and widespread practices throughout the organization, though there is still room for improvement. E2 described their company as “structured, moving toward integrated,” highlighting that there is a well-established methodology and effective practices, but they have not yet reached the level of consistency necessary to be fully user-oriented. On the other hand, most interviewees classified their organizations as “structured.” This means that UX is widely practiced, and there are defined processes and methodologies in place, though efficiency still varies. E3, E4, E5, and E6 described their organizations as having structured processes but facing challenges in achieving full efficiency. E3 indicated that, despite efforts to follow a UX culture, some initiatives work while others do not. E4 stated that while processes are in place, they are not yet fully effective.

Finally, the “emerging” category indicates that the company is developing functional and promising UX practices but still faces challenges in integration and effectiveness. E7 explained that their company was at a structured stage but regressed to the emerging stage, noting that UX is still not widely understood by everyone. E10 also classified their company as “emerging,” observing that

although there are dedicated teams and practices in place, UX is not yet fully prioritized, which limits its impact.

Table 8: Categories and Frequencies for the Unit of Analysis on UX Maturity Level in the Represented Companies

| Category | Frequency |
|---|---|
| User-Oriented | 3 |
| Holistic | 1 |
| Structured | 5 |
| Emerging | 2 |

Source: Developed by the authors

The analysis of UX initiatives within companies reveals significant variation in the maturity of these practices. While some organizations demonstrate an advanced level, with well-integrated approaches and processes, others remain in more basic stages, where UX is either emerging or simply structured. The continuous integration of UX practices from the outset of projects, along with the use of appropriate tools, are critical factors for success. Additionally, common challenges include internal resistance, resource limitations, tight deadlines, and a lack of understanding or appreciation for UX in certain areas. Overcoming these obstacles requires coordinated efforts in communication, education, and the structuring of practices, alongside ongoing investment in team development. Finally, the organizational structure of UX teams also directly impacts the success of these practices. Organizations that adopt a collaborative and multidisciplinary structure, such as squads, exhibit greater responsiveness to market demands. However, a lack of investment and challenges in forming robust teams remain significant obstacles for many companies.

## *4.1 DISCUSSION OF RESULTS*

The results of the content analysis were compiled and are available in Appendix 1. Below, we discuss these results and their implications in the context of UX.

Regarding the category "**importance of UX for the organization**," the data show that **Organizational Culture and UX Strategy** (frequency 6) hold a central position, highlighting the importance of aligning UX principles with business strategy (GUERINO et al., 2023). This reinforces that the adoption of UX transcends the mere implementation of techniques and becomes embedded in the organizational culture, being viewed as a strategic component (GUERINO et al., 2023). The frequency of the variable "**Customer Satisfaction and Usability**" (frequency 5) suggests that UX is a crucial element for enhancing the user experience, potentially resulting in a better perception of the product or service (MOLICH, WOLETZ, and WINTER, 2020). However, aspects such as "**Company Evolution and Scalability**" and "**Differentiation and Market Competitiveness**" show lower relevance (both with a frequency of 3), suggesting that, although UX contributes to competitiveness, its direct influence in these areas is still perceived as limited. **Challenges and Resistance in the Implementation of UX** (2) indicate obstacles, albeit less frequent, that may hinder the full integration of UX into organizations.

In the category "**UX team organization**," the variable "**Challenges in Team Formation and Structuring**" (4) suggests the difficulty companies face in building robust and well-structured UX teams. The variables "**Decentralized and Collaborative Team Structure**" (3) and "**Integration in**

**Multidisciplinary Squads**" (3) reflect the need for adopting flexible, collaborative, and multidisciplinary structures. However, the variables "**Specialization and External Collaboration**" (1) and "**Investment and Team Growth**" (1) showed low frequency, suggesting that organizations may still face difficulties in allocating resources or externalizing expertise to improve their UX practices (KERVYN DE MEERENDRÉ, RUKOMIC, and KIEFFER, 2019).

In the category "**UX culture within organizations**," the data suggest that "**Challenges in Implementation and Internal Resistance**" (5) can be a significant barrier to UX adoption. This may reflect resistance within organizations to cultural change or to accepting UX as a fundamental part of business strategy (BUIS; ASHBY and KOUWENBERG, 2023). The variable "**Structured Processes and Interdisciplinary Involvement**" (5) appears prominently, indicating that in organizations where UX is well implemented, there is strong integration with various areas and structured processes (MOLICH, WOLETZ, and WINTER, 2020). The variable "**Embedded User-Centric UX Culture**" (3) shows that although there is an effort to place the user at the center of decisions, challenges remain in deeply embedding this culture (RAJA and RANA, 2022).

The analysis of the category "**team knowledge in UX**" highlighted variables such as "**Fragmented Knowledge and Dependence on the UX Team**" (3) and "**Specialization and External Collaboration**" (3), suggesting that despite efforts to integrate UX, there is still a significant dependence on the specialized team, with limited knowledge disseminated across professionals in the organization (LUTHER; TIBERIUS, and BREM, 2020). On the other hand, **Efforts to Disseminate Knowledge and Continuous Training** (2) point to initiatives aimed at improving this situation, albeit limited. The variable "**Broad Knowledge and Established Design Culture**" (2) suggests that few companies have a well-established and widespread design culture (CORAZZO et al., 2020).

The category "**UX practices in everyday operations**" reveals a predominance of "**User Research and Usability Testing**" (6), a fundamental practice for validating interfaces and products, indicating that this is one of the main activities performed. However, "Limited and Reactive" practices (2), along with the low frequency of variables such as **"Specific Tools and Methods**" and "**Impact of UX Practices**" (both with a frequency of 2), suggest that in many cases, UX activities may be implemented in a non-systematic or strategic manner, being reactive to emerging problems (INAL, 2020).

The analysis **of challenges in implementing and maintaining UX practices** reveals a strong presence of internal obstacles, with an emphasis on "**Lack of Understanding and Valuation of UX**" (4), followed by "Resistance from Other Areas and Difficult Communication" (3) and "Pressure for Quick Results" (3). These findings may suggest that, despite efforts to deepen UX practices, UX teams still need to deal with resistance from other areas and pressure to deliver short-term results (PERES and GOMES, 2018). The **"Maintenance of UX Practices and Technological Evolution**" (2) receives less emphasis but still highlights the need for continuous adaptation of teams to technological innovations (OVAD and LARSEN, 2015).

Finally, regarding the category "**success of UX initiatives**," both the "**Use of Quantitative and Qualitative Metrics"** and "**Success Stories and Direct Business Impact**" (both with a frequency of 6) are key indicators of success (MOLICH, WOLETZ, and WINTER, 2020). The "**Integration with Business Indicators and Conversion**" (3) suggests that there is an effort to link UX with business performance, but this is still not widely adopted (FENG and WEI, 2019). The low frequency of the variables "**Customer Satisfaction and Visual Identity**" and "**Lessons from Failures**" (both with a frequency of 2) shows that there is still room to better articulate these elements in the context of practices aiming for success through UX (TORRES-DÁVILA, PORLES-ARÉVALO, and MAURÍCIO, 2019).

As for the category of **UX maturity level in companies**, the most frequent variable was "**Structured**" (5), followed by "**User-Centric**" (3), indicating that in many organizations, UX practices are clearly organized, but challenges remain in reaching a maturity level where the user is the central focus of all decisions (PERNICE et al., 2021). The low frequency of "Integrated" (1) and "Emerging" (2) points to the existence of companies in both initial and intermediate stages of maturity, with few achieving full integration of UX into their business strategy (BUIS; ASHBY and KOUWENBERG, 2023).

In conclusion, the data show that, while UX practices are growing within organizations, there is considerable variation in the maturity and impact of these practices, with challenges related to team formation, knowledge dissemination, overcoming internal resistance, and the direct relationship between UX and business success.

## *5 CONCLUSION*

At this point, it is appropriate to revisit the objective that guided this study: to analyze the level of UX maturity in companies in the Southeastern region of Brazil from the perspective of their managers. The analysis revealed a diverse understanding of what UX professionals do and the value they bring to companies. Regarding the level of UX maturity in these organizations, the most recurring variable was "Structured," followed by "User-Centric." This suggests that, in many organizations, UX practices are well-organized, though challenges remain in reaching a level of maturity where the user is at the center of all decision-making. The low occurrence of the categories "Integrated" and "Emerging" suggests that there are companies in both early and intermediate stages of maturity, with few achieving full integration of UX into their business strategy.

Our research also indicates that the UX maturity in companies directly reflects their ability to integrate UX practices into internal processes and organizational culture. Companies classified as "User-Centric" demonstrate a high degree of maturity, with UX being a central element in strategic decision-making and product development. In these organizations, UX is deeply embedded in the culture, facilitating the adoption of user-centered practices from the initial conception of products through to final delivery.

On the other hand, "Structured" organizations, while having well-defined UX processes, still face challenges in fully incorporating UX into their overall strategy. In such cases, UX implementation is solid but may not be consistently applied across all projects.

Companies with "Emerging" levels of maturity present the greatest difficulties. Challenges range from a lack of understanding of what UX truly entails to internal resistance to adopting these practices. UX professionals in these companies also report a lack of resources and support from senior management, which hinders the progression of UX maturity.

Thus, it is clear that UX maturity varies significantly across organizations. The higher the maturity classification, the more effectively companies can develop products and services aligned with user needs, resulting in greater satisfaction and market competitiveness. Conversely, organizations in emerging stages of maturity face considerable challenges, such as a lack of understanding about UX and resistance from other departments, which hampers the effective and comprehensive implementation of these practices.

Regarding UX practices, the research highlights the predominance of methodologies such as user research and usability testing, which are essential for developing effective interfaces, particularly in

companies classified as "User-Centric" and "Structured." This behavior reflects the maturity of some companies, where UX is valued as a central strategy.

Finally, the data indicate that, despite the growing adoption of UX practices in organizations, there remains significant disparity in the level of maturity and the impact of these initiatives. Many companies face obstacles in forming UX teams and securing adequate resources. Furthermore, the dissemination of UX knowledge remains limited in some areas. Internal resistance, particularly in companies with more traditional cultures, also emerges as a frequent challenge, hindering the implementation of a user-centered mindset.

Although the study followed the methodological procedures required for scientific research, certain limitations must be considered. The study does not allow for correlation between the UX maturity of companies and their financial success. Therefore, a proposal for future research would be to explore the relationship between the UX maturity of companies in the Southeastern region of Brazil and their financial success.

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## *APPENDICES*

**Appendix 1** Compiled Data from the Content Analysis Results

| Unit of Analysis | Categories | Frequencies |
|---|---|---|
| Importance of UX to the Organization | Organizational Culture and UX Strategy | 6 |
| | Impact on Customer Satisfaction and Usability | 5 |
| | Company Growth and Scalability | 3 |
| | Differentiation and Market Competitiveness | 3 |
| | Challenges and Resistance to UX Implementation | 2 |
| Organization of the UX Team within the Company | Decentralized and Collaborative Team Structure | 3 |
| | Challenges in Team Formation and Structuring | 4 |
| | Integration in Multidisciplinary Squads | 3 |
| | Specialization and External Collaboration | 1 |
| | Investment and Team Growth | 1 |
| UX Culture in Organizations | Rooted and User-Centered UX Culture | 3 |
| | Challenges in Implementation and Internal Resistance | 5 |
| | Structured Processes and Interdisciplinary Involvement | 5 |
| UX Knowledge within the Team | Fragmented Knowledge and Dependence on the UX Team | 3 |
| | Efforts to Disseminate Knowledge and Continuous Training | 2 |
| | Broad Knowledge and Established Design Culture | 2 |
| | Specialization and External Collaboration | 3 |
| UX Practices in Daily Operations | Interdisciplinary Communication and Collaboration | 2 |
| | User Research and Usability Testing | 6 |
| | Limited and Reactive Practices | 2 |
| | Specific Tools and Methods | 2 |
| | Impact of UX Practices | 2 |
| Challenges in the Implementation and Maintenance of UX Practices | Resistance from Other Areas and Difficult Communication | 3 |
| | Pressure for Quick Results | 3 |
| | Lack of Understanding and Appreciation of UX | 4 |
| | Limited Resources and Team Capacity | 3 |
| | Maintenance of UX Practices and Technological Evolution | 2 |

| | | |
|---|---|---|
| Success of UX Initiatives by Companies | Use of Quantitative and Qualitative Metrics | 6 |
| | Success Stories and Direct Business Impact | 6 |
| | Integration with Business Indicators and Conversion | 3 |
| | Customer Satisfaction and Visual Identity | 2 |
| | Lessons from Failures | 2 |
| Level of UX Maturity in Companies | User-Centric | 3 |
| | Integrated | 1 |
| | Structured | 5 |
| | Emerging | 2 |

Source: Developed by the authors.

## Appendix 2 – Invitation Email

Dear [Name],
This research is being conducted by Ana Caroline Vilela Comuniam, under the supervision of Prof. Dr. Rodrigo Franklin Frogeri. The study is part of a Scientific Initiation project at the University Center of Southern Minas - UNISMG. This project represents a crucial step in evaluating the importance and maturity of User Experience (UX) within companies located in the Southeast region of Brazil.
All information provided will be treated confidentially and used solely for this study. No sensitive information will be disclosed for purposes unrelated to the project. I would like to invite you to participate in an interview with me, which will be conducted via Google Meet and consist of 8 questions. The interview is expected to last approximately 30 minutes. I appreciate your time and cooperation in advance.
Sincerely,
Ana Caroline Vilela Comuniam
Thank you again for your attention and assistance in the development of this scientific research.

**Appendix 3 –** Interview Guide

| **Unit of Analysis** | **Question** | **Reference** |
|---|---|---|
| Importance of UX for the organization | How would you define the importance of User Experience (UX) in the context of your company? | (LUTHER; TIBERIUS; BREM, 2020; FENG; WEI, 2019; NUGRAHA; FATWANTO, 2021) |
| Existence of UX professionals in the organization | How is the team of professionals dedicated to UX organized? | (INAL; YAVUZ et al.,2020) (BANG et al., 2017) |
| Existence of a UX culture and knowledge throughout the team | How would you define or explain the UX culture of the organization? | (INAL; YAVUZ et al.,2020) (HELLWEGER; WANG; ABRAHAMSSON,2015) (AMANT; RUKONIĆ; KIEFFER, 2024) (SILVEIRA et al., 2021) |
| UX culture and practices | How would you define or explain the team's knowledge in UX? | (HELLWEGER; WANG; ABRAHAMSSON,2015) (AMANT; RUKONIĆ; KIEFFER, 2024) (BANG et al., 2017) |
| Existence of a UX culture and knowledge throughout the team | How do you perceive the UX practices that are carried out in the organization's daily routine? Can you point them out? | (INAL; YAVUZ et al.,2020) (HELLWEGER; WANG; ABRAHAMSSON,2015) (AMANT; RUKONIĆ; KIEFFER, 2024) (SILVEIRA et al., 2021) |
| Management's view on UX practices | What challenges do you perceive in implementing and maintaining UX practices in your company? | (BAKIOGLU-CLIFT; BASILAN, 2018) (AMANT; RUKONIĆ; KIEFFER, 2024) |
| Metrics of improvement/deterioration since the implementation of UX practices in processes | How do you measure the success of UX initiatives in your company? Do you have any numbers or success/failure cases? Could you comment, please? | (LUTHER; TIBERIUS; BREM, 2020) (BAKIOGLU-CLIFT; BASILAN, 2018) (FENG; WEI, 2019) |
| Management's view on the level of UX maturity in the organization | In your opinion, what is the level of UX maturity in your company compared to other organizations in the same sector? (Absent: UX is | (RUKONIĆ; KERVYN DE MEERENDRÉ; KIEFFER, 2019) (CHAPMAN; PLEWES, 2014) (FRASER; PLEWES, 2015) |

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| | ignored or nonexistent; Limited: UX work is rare and insignificant; Emerging: UX work is functional and promising, but inefficient; Structured: There is a UX methodology, but with varying degrees of efficiency and effectiveness; Integrated: UX is comprehensive, effective, and widespread; User-Oriented: Commitment to UX at all levels, leading to exceptional results.) Can you classify it using this scale? | |

Source: Developed by the authors (2024).