

# What literature debate is not what professionals say about Measuring the ROI of UX Design

Gessé Evangelista<sup>1</sup>, Luciana Zaina<sup>1</sup>

<sup>1</sup> Federal University of São Carlos (UFSCar)  
Sorocaba – SP – Brazil

gesse.evangelista@estudante.ufscar.br, lzaina@ufscar.br

**Abstract.** *Measuring the business impact of UX design remains a persistent challenge in both academia and industry, particularly due to the difficulty of linking qualitative user experience evidence to measurable organizational outcomes. Although prior research proposes metrics and frameworks for demonstrating UX value, limited evidence exists on how these approaches align with industry practice. This study investigates the practices, motivations, and challenges associated with measuring the Return on Investment (ROI) of UX design. To address this objective, we conducted a rapid literature review and an online questionnaire with UX professionals. The findings from both sources were analyzed using thematic analysis, enabling a comparative examination of academic perspectives and practitioner experiences. The results reveal differences between conceptual measurement models proposed in the literature and the operational metrics used in practice. While research often emphasizes structured analytical frameworks linking UX improvements to business performance, practitioners rely mainly on pragmatic indicators derived from product analytics systems. The findings also highlight challenges related to causal attribution and organizational data integration, as well as motivations associated with legitimizing UX within business decision-making processes. By triangulating evidence from research and practice, this study contributes to a better understanding of how UX ROI measurement operates in real-world contexts and highlights opportunities for developing measurement approaches that better reflect organizational realities.*

**Keywords:** UX ROI, UX Measurement, Business Impact, Research–Practice Gap.

## 1. Introduction

User eXperience (UX) Design is a process that focuses on developing user-centered digital solutions that meet users' needs and expectations [Borriraklert and Kiattisin 2021]. Beyond usability, it aims to enhance the overall journey through more efficient and enjoyable experiences [Horvath 2020]. Studies show that UX Design contributes to better financial outcomes, customer retention, and reduced support costs [Trendowicz et al. 2023][Adebesin and Chawana 2021][Aleryani 2020].

However, the difficulty in demonstrating direct business impact often leads to resistance within organizations [Miller 2020][White 2020]. Measuring the Return on Investment (ROI), that is, the financial value generated relative to the investment made, in UX Design, has become essential to justify initiatives and align them with strategic goals

[Karat and Karat 2020]. Nevertheless, this process remains complex due to the intangible and indirect nature of many UX outcomes (e.g., user satisfaction, product engagement, and other experiential factors) [Karat and Karat 2020]. Although some frameworks have been proposed [Berni et al. 2023][Stige et al. 2023], empirical evidence on how UX professionals measure ROI in practice is still limited.

Considering the discussion above, this paper answers the research question (RQ): **What are the practices, motivations, and challenges involved in measuring the ROI of UX design?** To address this RQ, we conducted a rapid literature review to explore the academic perspective and a questionnaire to explore the professional perspective. The findings from both sources were analyzed using thematic analysis, enabling a comparative examination of academic perspectives and practitioner experiences.

The results indicate alignment across the analytical dimensions of practices, challenges, and motivations, especially regarding the shared recognition of the need to connect UX initiatives to business outcomes and the persistent difficulty of establishing attribution; however, they also expose differences in how this is implemented in practice, since the literature emphasizes structured, model-oriented approaches, whereas practitioners tend to depend on proxy metrics and analytics tools adapted to the constraints of their organizational contexts.

The remainder of this paper is structured as follows. Section 2 presents the related work on UX ROI measurement and existing approaches discussed in the literature. Section 3 describes the research design, including the literature review procedure and the questionnaire methodology. Section 4 reports the findings from both sources and their comparison. Section 5 discusses the implications of the results for research and practice. Finally, Section 6 concludes the paper and outlines directions for future work.

## 2. Related Work

The literature has increasingly examined how UX Design contributes to business performance, particularly as organizations seek to align design activities with strategic objectives and justify investments in digital products [Stige et al. 2023]. Researchers emphasize the importance of connecting user experience indicators, such as: task completion rate (the proportion of users who successfully accomplish intended goals), efficiency metrics like time on task, Net Promoter Score (NPS) and others [Tullis and Albert 2013, Reichheld 2003, Dixon et al. 2010, Adebessin and Chawana 2021].

Researchers also argue that organizations must explicitly relate experience metrics to business performance indicators, such as revenue growth and customer lifetime value, to strengthen the business case for UX initiatives [Berni et al. 2023]. However, organizations often avoid systematically measuring UX ROI due to methodological complexity and perceived costs [Adebessin and Chawana 2021]. This limitation reinforces the need for approaches that integrate qualitative insights with quantitative evidence to capture both the tangible and intangible effects of UX interventions [White 2020].

Scholars further highlight the difficulty of translating UX outcomes into measurable financial returns and propose top-down frameworks grounded in organizational strategy, as well as decision-support models to guide investment prioritization [Karat and Karat 2020]. For example, Miller [Miller 2020] developed a regression-

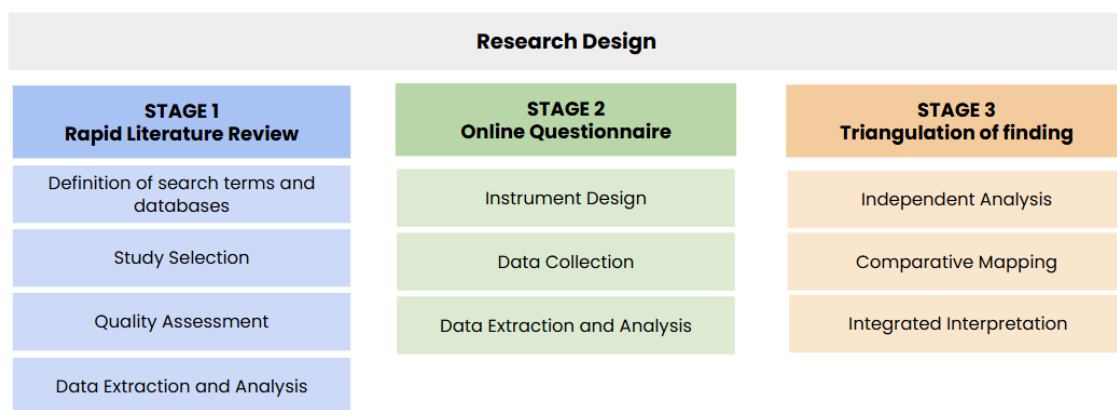
based decision tool combined with Pareto analysis<sup>1</sup> to help organizations optimize usability investments according to strategic priorities. Similarly, researchers have applied conjoint analysis to estimate the expected ROI of mobile interfaces before implementation, reducing business risks and supporting resource allocation decisions [Adebesin and Chawana 2021].

Empirical case studies also demonstrate that UX improvements can generate substantial economic benefits. For instance, redesign initiatives in large organizations have produced increases exceeding 200% in online sales, reinforcing the argument that strategically grounded UX interventions can generate significant financial returns and strengthen the organizational relevance of design activities [Trendowicz et al. 2023]. In this context, prior studies highlight three main dimensions related to the measurement of UX ROI: the metrics used to evaluate UX and business outcomes, the organizational motivations for linking UX activities to strategic value, and the methodological challenges involved in translating UX results into measurable financial impact.

### 3. Research Design

To answer the (RQ): **What are the practices, motivations, and challenges involved in measuring the ROI of UX design?** this study followed a three-stage research design: (Stage 1) a Rapid Literature Review, (Stage 2) an Online Questionnaire with UX professionals, and (Stage 3) Triangulation of findings. Figure 1 illustrates each phase of the methodology used.

All research protocols were conducted by the first author (R1), with the collaboration and supervision of the second author (R2). R1 is a researcher with eight years of experience in product and UX research, while R2 is a senior researcher with more than 15 years of professional experience in UX Design in the industry.



**Figure 1. Research Design**

Source: Produced by the authors (2026).

#### 3.1. Stage 1 — Rapid Literature Review

We conducted a Rapid Literature Review (RLR), an approach recommended for synthesizing available evidence in emerging domains or areas with fragmented knowledge

<sup>1</sup>Pareto analysis is a decision-making technique used to identify the most significant factors in a dataset, often referred to as the 80%/20% rule, where roughly 80% of the effects come from 20% of the causes [Juran and Godfrey 2016].

in a structured and time-efficient manner compared to traditional systematic reviews [Cartaxo et al. 2018]. The review process comprised five steps described as followed.

Search terms and databases definition: we defined the search string using the PICOC protocol (Population, Intervention, Comparison, Outcomes, Context), following recommendations from [Kitchenham and Charters 2007]. The search combined terms related to user experience, evaluation and measurement practices, ROI concepts, and organizational contexts (e.g., companies and startups), as summarized in Figure 2.

("User Experience" OR "UX Design" OR "UI Design" OR "Human-Computer Interaction" OR "Usability") AND ("UX measur\*" OR evaluat\* OR assessment\* OR measur\* OR analy\* OR "user test\*" OR "user evaluation\*") AND ("Return on Investment" OR ROI) AND ("UX practic\*" OR data OR insight\* OR "Outcome Measurement" OR "Investment Profitability" OR "Cost-Benefit Analysis") AND (startup\* OR start-up\* OR industr\* OR compan\* OR organization\* OR organisation\* OR enterprise\*)

**Figure 2. Final search string used in the rapid literature review.**

We conducted the search across four widely recognized scientific databases to ensure comprehensive coverage of research in software engineering, human-computer interaction, and interdisciplinary domains: *IEEE Xplore*<sup>2</sup>, *ACM Digital Library*<sup>3</sup>, *Scopus*<sup>4</sup>, and *Scientific Open Library (SOL)*<sup>5</sup>.

Study selection: the initial search retrieved 1,305 studies. We applied temporal filtering (last ten years) and screened titles and abstracts to identify studies aligned with the research objectives. After screening, 45 articles were selected for full-text reading. From these, 22 studies met the inclusion criteria, which required addressing business outcomes measurement within UX Design and demonstrating thematic relevance to the research question. We excluded duplicate studies and those without direct relevance to the topic.

Quality assessment: we evaluated the methodological quality of the 22 selected studies using criteria adapted from [Dybå and Dingsøy 2008], covering four dimensions: quality, rigor, credibility, and relevance. Each criterion received a score of 1 (Yes), 0.5 (Partially), or 0 (No).

We included only studies with acceptable methodological quality, defined as a total quality score greater than or equal to 5 points (i.e., at least 50% of the maximum possible score). Detailed scores assigned to each study are available online<sup>6</sup>. After the first author (R1) completed the quality assessment, the final selection resulted in 17 articles considered relevant for data extraction and analysis, as summarized in Table 1.

Data extraction and analysis: we conducted data extraction and analysis using thematic analysis following the approach proposed by [Braun and Clarke 2006]. During this process, codes were generated inductively, allowing them to emerge directly from the analyzed texts. Extracted data included article metadata and relevant textual excerpts. In total, 369 excerpts were generated, averaging approximately 22 excerpts per article.

<sup>2</sup><https://ieeexplore.ieee.org/>

<sup>3</sup><https://dl.acm.org/>

<sup>4</sup><https://www.scopus.com/>

<sup>5</sup><https://www.scientificopenlibrary.com/>

<sup>6</sup><https://bit.ly/quality-assessment>

**Table 1. Final selection of articles included in the Rapid Literature Review.**

<b>ID</b>	<b>Article Title</b>	<b>Authors and Year</b>
ID01	Improving the Quality of Web Applications Through Targeted Usability Enhancements	[Axinte and Bacivarov 2018]
ID02	Will the design of the human–product relationship follow user experience?	[Winter 2024]
ID03	The Challenges and Opportunities of Measuring the User Experience	[Karat and Karat 2020]
ID04	A Structural Model for Unity of Experience: Connecting User Experience, Customer Experience, and Brand Experience	[Lee et al. 2018]
ID05	Can User Experience Affect Buying Intention? A Case Study on the Evaluation of Exercise Equipment	[Fedele et al. 2017]
ID06	The Impact of User Experience Design on Business Performance: A Case Study Approach	[Kolbeinsson et al. 2020]
ID07	The Business Impact of Investing in Experience: A Spotlight on Financial Services	[Forrester Research 2015]
ID08	The Business Value of UX: Taking ROI to an Institutional Level	[Horvath 2020]
ID09	Hacks for Cost-Justifying Usability: “Fear-Setting” vs. “Goal-Setting”	[Aly and Sturm 2019]
ID10	The ROI of HCI	[Churchill 2017]
ID11	Do Users Care About Ad’s Performance Costs? Exploring the Effects of the Performance Costs of In-App Ads on User Experience	[Gao et al. 2021]
ID12	Promoting Brand Engagement Behaviors and Loyalty through Perceived Service Value and Innovativeness	[Leckie et al. 2017]
ID13	Development of a Decision Tool for Cost Justification of Usability	[Aydin 2014]
ID14	Experiences that Matter? The Motivational Experiences and Business Outcomes of Gamified Services	[Wolf et al. 2020]
ID15	Measuring the Value of User Experience Design in Retail: An ROI Case Study	[Kalinina and Ward 2019]
ID16	A Usability Evaluation of Academic Virtual Reference Services	[Chow and Croxton 2014]
ID17	The Current State of Measuring Return on Investment in User Experience Design	[Adebesin and Chawana 2021]

The analysis followed an iterative process. First, we familiarized ourselves with the data and generated initial codes from the extracted excerpts. Next, related codes were organized into higher-level themes representing patterns across the dataset. R1 and R2 iteratively reviewed and refined the codes and themes to ensure consistency and fidelity to the original data. To illustrate the analytical procedure, Figure 3 presents two examples of the coding and thematic grouping process applied during the thematic analysis.

These examples illustrate the inductive process through which textual data were interpreted, coded, and aggregated into thematic categories, following established qualitative analysis procedures [Corbin and Strauss 2015, Braun and Clarke 2006]. The full dataset of coded excerpts is available online<sup>7</sup> to support transparency and replicability.

### 3.2. Stage 2 — Online Questionnaire

The second stage involved an online questionnaire with UX professionals to capture industry perspectives. The questionnaire design followed methodological recommendations

<sup>7</sup><https://bit.ly/extractions-rapid-review>

<p><b>Example 1</b>  <b>Extracted Excerpt:</b> “Organizations struggle to demonstrate the financial impact of UX activities, which makes it difficult to justify investments.”  <b>Code:</b> Difficulty linking UX activities to financial outcomes.  <b>Theme:</b> Challenges in Measuring UX ROI.</p> <p><b>Example 2</b>  <b>Extracted Excerpt:</b> “UX metrics are often disconnected from business indicators, preventing strategic decision-making.”  <b>Code:</b> Lack of integration between UX metrics and business KPIs.  <b>Theme:</b> Challenges in Measuring UX ROI.</p>
---

**Figure 3. Examples of the coding and thematic grouping process used in the thematic analysis.**

for survey-based research [Gil 2019] and consisted of three steps described as followed.

Data collection instrument design: we developed an online questionnaire containing twelve questions (see Table 2), including demographic items (Q1–Q4) and questions related to how business outcomes in UX are measured (Q5–Q7), challenges in measuring UX business outcomes (Q8), and motivations for measuring UX ROI (Q9–Q12).

The instrument began with an informed consent section explaining the research objectives, confidentiality procedures, and anonymity requirements. The questionnaire was iteratively refined through R1 and R2 discussions to improve terminology clarity, structure, and question wording. A pilot test was conducted with two UX professionals to assess the comprehension and usability of the instrument. No modifications were required after the pilot phase, and pilot responses were not included in the final dataset.

**Table 2. Online questionnaire and its questions.**

#	Question	Type
Q1	What is your current role?	MC
Q2	What seniority level do you identify with?	MC
Q3	What type of company do you currently work for?	MC
Q4	How long have you been working in this professional field?	MC
Q5	Do you monitor the Return on Investment (ROI) of the User Experience activities you perform?	MC
Q6	Do you measure the Return on Investment (ROI) of the User Experience activities you perform?	MC
Q7	How do you measure the Return on Investment (ROI) of the User Experience activities you perform?	FT
Q8	What are the challenges in measuring the Return on Investment (ROI) of the User Experience activities you perform?	FT
Q9	Is measuring the Return on Investment (ROI) of User Experience activities very relevant?	MC
Q10	Why do you consider measuring the Return on Investment (ROI) of the User Experience activities you perform to be relevant?	FT
Q11	Why do you not measure the Return on Investment (ROI) of the User Experience activities you perform?	FT
Q12	Why do you not consider measuring the Return on Investment (ROI) of the User Experience activities you perform to be relevant?	FT

*Legend: MC = Multiple Choice; FT = Free Text.*

We distributed the questionnaire using Google Forms between February and

March 2024. We applied convenience sampling, recruiting participants through professional networks, social media (LinkedIn and Facebook), email, and messaging platforms such as WhatsApp [Gil 2019]. We obtained 34 valid responses. No incomplete or duplicate responses were identified during data cleaning.

Most participants were between 26 and 35 years old (64%), followed by professionals aged 36–50 (24%). The majority of respondents were located in the Southeast region (64%), with additional representation from the Center-West (21%), South (9%), and Northeast (6%) of Brazil. In terms of professional roles, most participants worked as Product Designers or UX/UI Designers (55%), while other roles included Product Managers, UX Researchers, UX Writers, UX Managers, and related positions. Regarding seniority, respondents ranged from junior to specialist levels, with a concentration in mid-to senior-level positions (Mid 27%, Senior 24%, Specialist 15%). Participants reported working across different organizational contexts, including startups (33%), large companies (30%), consultancies (12%), and other organizational types. In terms of experience, most respondents reported between two and five years of professional experience in the field (58%).

Data Extraction and analysis: we analyzed the questionnaire responses from all Free Text questions (Q7-Q12) using thematic analysis, following the approach proposed by [Braun and Clarke 2006]. Codes were generated inductively from participants' responses, allowing patterns and concepts to emerge directly from the data. All excerpts and their corresponding codes were documented in a shared spreadsheet, including code names and descriptions that clarify the meaning of each code. The full dataset of coded excerpts is available online<sup>8</sup> to support transparency and replicability.

Responses were first examined and segmented into meaningful excerpts, which were then coded and documented in spreadsheets containing the code labels and their definitions. After the initial coding phase, the researchers iteratively reviewed the codes to identify overlaps, merge similar concepts, and refine their definitions until broader themes representing patterns in the data were established. To illustrate how the coding procedure was applied to the questionnaire responses, Figure 4 presents an example showing the progression from an extracted excerpt to its corresponding code, description, and theme.

**Example of Coding from Online Questionnaire**

**Extracted Excerpt:** "It is difficult to demonstrate the financial return of UX activities because the impact is often indirect."

**Code:** Difficulty demonstrating financial impact of UX.

**Description:** Participants report challenges in linking UX activities to measurable financial outcomes.

**Theme:** Challenges in Measuring UX ROI.

**Figure 4. Example of excerpt extraction and coding from the online questionnaire responses.**

Following the initial coding round, both researchers independently reviewed the generated codes to identify redundancies and overlaps. When similar codes were identified, they were merged and their definitions refined. This iterative process of reading, comparison, and refinement continued until a stable set of codes and themes was achieved. In total, 84 extractions were generated. R1 and R2 conducted consensus meetings to validate the themes and ensure analytical consistency.

<sup>8</sup><https://bit.ly/extractions-online-questionnaire>

### 3.3. Stage 3 — Triangulation of Findings

The triangulation process followed three steps. First, we analyzed findings from the RLR and the questionnaire independently. Second, we conducted a comparative mapping to identify convergences, divergences, and gaps between themes emerging from both sources. Third, we integrated the results to produce an interpretative synthesis of UX ROI measurement across research and practice contexts, following the methodological triangulation principles described in the literature [Flick 2018, Creswell and Plano Clark 2018].

The triangulation was conducted across three analytical dimensions: **Practices**, **Challenges**, and **Motivations**. Practices refer to the methods, metrics, and approaches used to measure UX ROI in organizational contexts [Tullis and Albert 2013]. Challenges capture the difficulties and barriers reported when attempting to measure the business impact of UX activities [Stige et al. 2023]. Motivations represent the reasons and perceived benefits that drive organizations and professionals to measure UX ROI, particularly to demonstrate strategic value and support decision-making [Reichheld 2003].

To illustrate how the triangulation was operationalized, Table 3 presents an example comparing results identified in the literature with those emerging from practitioner responses, along with the resulting integrated interpretation.

**Table 3. Example of triangulation between literature findings and questionnaire results.**

Literature Evidence	Practitioner Evidence	Triangulated Interpretation
Studies emphasize the importance of linking UX metrics to business indicators such as revenue, conversion, and cost reduction.	Practitioners report difficulty connecting UX activities to financial outcomes and organizational KPIs.	There is a recognized conceptual alignment between research and practice, but operational challenges limit the practical implementation of ROI measurement.
Frameworks propose quantitative evaluation models for UX ROI.	Practitioners rely mainly on qualitative indicators (e.g., user satisfaction, feedback) and indirect business metrics.	A gap exists between formal measurement models proposed in literature and the pragmatic approaches adopted in industry.
Research highlights organizational support as a key factor for UX value demonstration.	Respondents mention lack of stakeholder understanding and limited organizational maturity.	Organizational maturity emerges as a mediating factor influencing the adoption of UX ROI practices.

## 4. Results

This section addresses our RQ: *What are the practices, motivations, and challenges involved in measuring the ROI of UX design?* Findings are organized into three analytical dimensions: **Practices**, **Challenges**, and **Motivations**. For each dimension, we first present evidence from the rapid literature review, followed by evidence from the online questionnaire, and conclude with a cross-source comparison.

References such as A01, A02, and so forth correspond to the articles included in the rapid literature review (see Table 1). Codes identified as EX refer to the coded excerpts

extracted from the online questionnaire responses, whose full dataset is available online<sup>9</sup>.

#### 4.1. Practices for Measuring UX ROI

The comparison between literature and practitioner reports reveals a clear difference in how UX ROI measurement is operationalized. Academic studies typically conceptualize measurement through structured analytical approaches that connect UX improvements to organizational performance indicators. Empirical case studies demonstrate how usability improvements influence business metrics such as efficiency and service performance (ID01) and broader business outcomes (ID06).

Other works propose conceptual models linking user experience, customer experience, and brand value (ID04) or explaining engagement effects in experiential systems (ID14). Financial reasoning also appears prominently, framing UX initiatives through cost–benefit analysis and ROI justification (ID10, ID13, ID15).

In contrast, practitioners describe measurement practices grounded primarily in operational metrics derived from existing analytics infrastructures. Participants reported using indicators such as conversion rate and user engagement to estimate UX impact. For example: “*we analyze metrics such as conversion rate and engagement after design changes*” (EX14).

Other respondents highlighted operational indicators such as support demand, noting that “*reducing the number of support tickets is often a sign that the experience improved*” (EX21). Development efficiency also emerged as an evaluation indicator, as one practitioner explained that UX helps “*avoid building the wrong solution and reduces re-work in development*” (EX33).

Temporal comparisons were also reported, with participants describing the practice of measuring “*metrics at the beginning of the user journey and again after UX implementation*” (EX18). These findings suggest that while academic research proposes structured and theoretically grounded measurement models, practitioners prioritize feasible indicators embedded in product analytics systems and organizational monitoring tools. Table 4 summarizes the key comparison aspects identified across both sources.

#### 4.2. Challenges in Measuring UX ROI

Both literature and practitioner reports identify causal inference as the central challenge in measuring UX ROI, although they frame this issue differently. Academic studies primarily describe causal inference as a methodological problem related to causal inference. Karat and Karat emphasize the difficulty of isolating UX effects in complex digital environments (ID03), while Adebessin and Chawana highlight inconsistencies in how organizations operationalize ROI measurement (ID17). Other studies indicate that UX value often emerges indirectly through constructs such as customer experience, engagement, and brand perception (ID04, ID12), complicating direct financial attribution. Empirical studies also emphasize contextual limitations related to organizational data availability (ID06, ID01).

Practitioners describe these challenges in more operational terms. Respondents frequently reported difficulties translating qualitative UX improvements into measurable

---

<sup>9</sup><https://bit.ly/extractions-online-questionnaire>

**Table 4. Cross-source synthesis of UX ROI measurement practices.**

Aspect	Academic Literature	Professional Practice
Measurement logic	Analytical models linking UX improvements to business performance (ID01, ID06, ID04, ID14).	Operational indicators derived from product analytics (EX14, EX21).
Financial framing	ROI and cost–benefit justification models (ID10, ID13, ID15).	Financial direct metrics such as revenue impact or lifetime value.
Metrics used	Conceptual models integrating UX, CX, and brand outcomes (ID04, ID14).	Conversion, engagement, support demand, development efficiency (EX14, EX33).
Measurement infrastructure	Formal analytical evaluation frameworks.	Tool-supported analytics dashboards and operational monitoring.

indicators. One participant explained that “*UX improvements often happen qualitatively, such as brand reinforcement or improved experience, which makes numerical measurement difficult*” (EX41). Attribution problems were also mentioned, as respondents noted that “*it is hard to isolate the effect of UX from marketing campaigns and business goals*” (EX52). Other participants highlighted organizational barriers such as limited access to cross-team data, stating that “*it is difficult to obtain open data from other departments to correlate metrics*” (EX64).

These findings indicate that the challenge of UX ROI measurement operates simultaneously at two levels: a methodological level concerned with causal inference and a structural level related to organizational data integration. Table 5 summarizes the key comparison aspects identified across both sources.

**Table 5. Cross-source synthesis of challenges in UX ROI measurement.**

Aspect	Academic Literature	Professional Practice
Attribution difficulty	Causal inference and variable isolation challenges (ID03, ID17).	Difficulty isolating UX effects from marketing or business initiatives (EX52).
Nature of UX value	Indirect value pathways through CX and brand perception (ID04, ID12).	Difficulty translating qualitative UX outcomes into measurable indicators (EX41).
Contextual limitations	Dependence on organizational context and data availability (ID01, ID06).	Limited access to cross-team data and fragmented data infrastructures (EX64).
Measurement maturity	Lack of standardized ROI frameworks across organizations (ID17).	Uncertainty about which metrics should be used to evaluate UX impact.

### 4.3. Motivations for Measuring UX ROI

The comparison also reveals differences in how motivations for measuring UX ROI are framed. Academic research frequently positions measurement as a strategic mechanism for integrating UX into organizational governance and decision-making processes. Several studies emphasize the importance of demonstrating financial value to justify usability investments (ID10, ID13, ID15). Other works link UX measurement to broader strategic outcomes such as customer experience improvement, engagement, and brand equity (ID04, ID14, ID02). Institutional perspectives further argue that systematic UX measurement strengthens governance structures and organizational competitiveness (ID08, ID07).

Practitioners describe similar motivations but in more pragmatic terms. Measurement is frequently framed as a mechanism to legitimize UX within organizations. One participant explained that measurement helps “*recognize the impact of UX and the presence of this area within the company*” (EX71). Others emphasized the need to translate UX outcomes into financial language that resonates with leadership, stating that “*a good user experience translates into financial return, which is the language understood by executives*” (EX73). Measurement was also associated with evaluating whether design changes produced meaningful improvements in product performance, as described by a respondent who noted that measurement helps “*evaluate whether changes were beneficial or not*” (EX78).

These findings suggest that while academic research frames UX ROI measurement as part of strategic governance and organizational integration, practitioners often approach it as a mechanism for legitimizing UX and demonstrating its contribution to business outcomes. Table 6 summarizes the key comparison aspects identified across both sources.

**Table 6. Cross-source synthesis of motivations for UX ROI measurement.**

Aspect	Academic Literature	Professional Practice
Primary goal	Strategic integration of UX within governance structures (ID08, ID07).	Organizational legitimization of UX activities (EX71).
Economic rationale	Financial ROI and cost–benefit justification (ID10, ID13, ID15).	Communicating UX value in financial terms to leadership (EX73).
Strategic outcomes	UX linked to CX, engagement, and brand value (ID04, ID14, ID02).	Evaluating product improvements and behavioral outcomes (EX78).
Organizational role	Institutionalization of UX measurement in governance systems.	Demonstrating relevance of UX within organizations.

## 5. Discussion

Taking into account the RQ: *What are the practices, motivations, and challenges involved in measuring the ROI of UX design?*, the results revealed three main patterns across the analyzed evidence. First, UX ROI measurement practices differ substantially between

academic models and practitioner implementations. Second, measuring UX ROI is constrained by methodological challenges related to causal attribution and by organizational barriers related to data integration. Third, organizations are motivated to measure UX ROI primarily to legitimize UX activities and communicate their business value to decision-makers.

Regarding **practices**, the triangulation indicates a gap between conceptual measurement frameworks proposed in academic literature and the operational metrics used by practitioners. Academic studies tend to conceptualize UX ROI through structured analytical models linking UX improvements to organizational performance indicators, such as customer experience, engagement, and brand value. In contrast, practitioners rely primarily on operational indicators embedded in existing analytics infrastructures, such as conversion rate, engagement metrics, support demand, and development efficiency. This suggests that practitioners often estimate UX ROI using operational metrics from product analytics systems instead of formal ROI evaluation frameworks.

Concerning **challenges**, both sources converge in identifying causal attribution as the central difficulty in measuring UX ROI. Academic literature frames this problem as a methodological challenge associated with isolating UX effects within complex socio-technical systems. Practitioner reports, however, emphasize the operational implications of this issue, including difficulties translating qualitative UX improvements into measurable indicators and isolating UX effects from other organizational initiatives such as marketing or product strategy. In addition to causal inference challenges, both sources highlight structural limitations related to fragmented organizational data infrastructures and limited cross-team data access, indicating that UX ROI measurement depends not only on methodological approaches but also on organizational data integration capabilities.

With respect to **motivations**, the findings indicate that UX ROI measurement plays an important role in legitimizing UX within organizational decision-making processes. Academic studies typically frame measurement as part of broader governance and strategic management mechanisms, emphasizing its role in demonstrating financial value and supporting organizational competitiveness. Practitioners express similar motivations but in more pragmatic terms, highlighting the need to translate UX outcomes into financial language that is understandable to executives and to demonstrate the tangible contribution of UX activities to product performance. This suggests that UX ROI measurement functions as a boundary mechanism connecting design activities with managerial and financial decision-making processes.

Overall, the triangulation reveals that measuring UX ROI is not only a methodological challenge but also an organizational and communicative one. While academic literature proposes structured evaluation frameworks, practitioners adapt measurement practices to the constraints of existing analytics infrastructures and organizational data availability. At the same time, the motivation to demonstrate business value reinforces the role of UX measurement as a mechanism for integrating design practices into strategic and financial decision-making contexts.

## 6. Conclusion

This study investigated how academic approaches to measuring the ROI of UX Design align with the realities experienced by practitioners. Using a rapid literature review and an online questionnaire with UX professionals, the research examined the practices, motivations, and challenges associated with measuring UX ROI.

The findings reveal a gap between conceptual measurement models proposed in academic literature and the operational metrics used in practice. While research often emphasizes structured analytical frameworks linking UX improvements to business performance, practitioners tend to rely on pragmatic indicators derived from existing product analytics infrastructures, such as conversion rate, engagement, support demand, and development efficiency. Both sources also highlight causal attribution as a central challenge, together with organizational barriers related to fragmented data and limited cross-team data integration.

The study further shows that organizations are motivated to measure UX ROI primarily to legitimize UX activities and communicate their business value to decision-makers. These results suggest that measuring UX ROI is not only a methodological challenge but also a socio-technical one involving measurement practices, organizational data infrastructures, and strategic communication.

Future work could investigate organizations that have successfully implemented UX ROI measurement practices, as well as develop integrated frameworks that connect UX metrics with business performance indicators and organizational data systems. Additionally, given the rapid evolution of UX practices—particularly the increasing adoption of data-driven design and AI-supported analytics—future research should examine how these emerging approaches are reshaping ROI measurement practices and whether the challenges identified in this study persist in more recent contexts.

## Declaration of Generative AI Use

The author declares that Generative Artificial Intelligence tools were used in this study exclusively for text revision purposes. Specifically, ChatGPT (OpenAI) was employed to support grammatical revision and formatting adjustments during the manuscript editing stage. All AI-assisted outputs were critically reviewed, validated, and, when necessary, modified by the author, who assumes full responsibility for the integrity, originality, and accuracy of the final content, in accordance with the guidelines established by the CNPq (Portaria n° 2.664/2026).

## Acknowledgments

This study was financed in part by the Coordenação de Aperfeiçoamento de Pessoal de Nível Superior – Brazil (CAPES) — Finance Code 001 (Process No. 88881.126103/2025-01) and partially supported by the Conselho Nacional de Desenvolvimento Científico e Tecnológico (CNPq - Brazil) (grant 309497/2022-1).

## References

Adebesin, F. and Chawana, T. (2021). The current state of measuring return on investment in user experience design. *South African Computer Journal*, 33(1):22–36.

- Aleryani, A. Y. (2020). The impact of the user experience (ux) on the quality of the requirements elicitation. *International Journal of Digital Information and Wireless Communications*, 10(1):1–9.
- Aly, M. and Sturm, C. (2019). Hacks for cost-justifying usability: "fear-setting" vs. "goal-setting". In *Proceedings of the 21st International Conference on Human-Computer Interaction with Mobile Devices and Services (MobileHCI)*.
- Axinte, S.-D. and Bacivarov, I. C. (2018). Improving the quality of web applications through targeted usability enhancements. In *2018 10th International Conference on Electronics, Computers and Artificial Intelligence (ECAI)*, pages 1–4.
- Aydin, B. (2014). *Development of a Decision Tool for Cost Justification of Usability*. PhD thesis.
- Berni, A., Borgianni, Y., Basso, D., and Carbon, C. (2023). Fundamentals and issues of user experience in the process of designing consumer products. *Design Science*, 9.
- Borriraklert, A. and Kiattisin, S. (2021). User experience design (uxd) competency model: Identifying well-rounded proficiency for user experience designers in the digital age. *Archives of Design Research*, 34:61–79.
- Braun, V. and Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3(2):77–101.
- Cartaxo, B., Pinto, G., and Soares, S. (2018). The role of rapid reviews in supporting decision-making in software engineering practice. In *Proceedings of the 22nd International Conference on Evaluation and Assessment in Software Engineering (EASE '18)*, pages 121–130, Christchurch, New Zealand. Association for Computing Machinery.
- Chow, A. S. and Croxton, R. A. (2014). A usability evaluation of academic virtual reference services. *College & Research Libraries*, 75(3).
- Churchill, E. (2017). The roi of hci. *Interactions*, 24:22–23.
- Corbin, J. and Strauss, A. (2015). *Basics of Qualitative Research: Techniques and Procedures for Developing Grounded Theory*. SAGE Publications, Thousand Oaks, CA, 4 edition.
- Creswell, J. W. and Plano Clark, V. L. (2018). *Designing and Conducting Mixed Methods Research*. SAGE, Thousand Oaks, 3 edition.
- Dixon, M., Freeman, K., and Toman, N. (2010). Stop trying to delight your customers. *Harvard Business Review*, 88(7/8):116–122.
- Dybå, T. and Dingsøy, T. (2008). Empirical studies of agile software development: A systematic review. *Information and Software Technology*, 50:833–859.
- Fedele, G., Fedriga, M., Zanuso, S., Mastrangelo, S., and Di Nocera, F. (2017). Can user experience affect buying intention? a case study on the evaluation of exercise equipment. In *Human Factors and Ergonomics Society Europe*, pages 145–152.
- Flick, U. (2018). *An Introduction to Qualitative Research*. SAGE, London, 6 edition.
- Forrester Research (2015). The business impact of investing in experience: A spotlight on financial services.

- Gao, C., Zeng, J., Sarro, F., Lo, D., King, I., and Lyu, M. R. (2021). Do users care about ad's performance costs? exploring the effects of the performance costs of in-app ads on user experience. *Information and Software Technology*, 132:106471.
- Gil, A. C. (2019). *Métodos e técnicas de pesquisa social*. Atlas, São Paulo, 7 edition.
- Horvath, J. (2020). The business value of ux: Taking roi to an institutional level.
- Juran, J. M. and Godfrey, A. B. (2016). *Juran's Quality Handbook: The Complete Guide to Performance Excellence*. McGraw-Hill Education, New York, 7 edition.
- Kalinina, K. and Ward, K. (2019). Measuring the value of user experience design in retail: An roi case study.
- Karat, C. M. and Karat, J. (2020). The challenges and opportunities of measuring the user experience. *Journal of Usability Studies*, 15(3):123–135.
- Kitchenham, B. and Charters, S. (2007). Guidelines for performing systematic literature reviews in software engineering. Technical Report EBSE 2007-001, Evidence-Based Software Engineering. Accessed on: May 10, 2025.
- Kolbeinsson, A., Kujala, S., and Suomala, J. (2020). The impact of user experience design on business performance: A case study approach. *International Journal of Information Management*, 50:98–110.
- Leckie, C., Nyadzayo, M., and Johnson, L. (2017). Promoting brand engagement behaviors and loyalty through perceived service value and innovativeness. *Journal of Services Marketing*, 32.
- Lee, H.-j., Lee, K. K.-h., and Choi, J. (2018). A structural model for unity of experience: connecting user experience, customer experience, and brand experience. *Journal of Usability Studies*, 14(1):8–34.
- Miller, K. (2020). Development of a decision tool for usability cost justification. *Journal of Usability Studies*, 15(4):210–225.
- Reichheld, F. F. (2003). The one number you need to grow. *Harvard Business Review*, 81(12):46–54.
- Stige, Å., Zamani, E., Mikalef, P., and Zhu, Y. (2023). Artificial intelligence (ai) for user experience (ux) design: a systematic literature review and future research agenda. *Information Technology & People*, 37:2324–2352.
- Trendowicz, A. et al. (2023). User experience key performance indicators for industrial iot systems: A multivocal literature review. *Digital Business*, 3(1):100057.
- Tullis, T. and Albert, B. (2013). *Measuring the User Experience: Collecting, Analyzing, and Presenting Usability Metrics*. Morgan Kaufmann, 2 edition.
- White, R. (2020). The current state of measuring return on investment in user experience design. *Journal of Usability Studies*, 16(1):1–14.
- Winter, D. (2024). Will the design of the human–product relationship follow user experience? *i-com*, 0.
- Wolf, T., Weiger, W. H., and Hammerschmidt, M. (2020). Experiences that matter? the motivational experiences and business outcomes of gamified services. *Journal of Business Research*.