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**Customer Centricity Assessment tool for Digital  
Business processes**

**Master's Thesis (30 ECTS)**

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I have written this Master's thesis independently. Any ideas or data from other authors or sources have been fully referenced.

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# Customer Centricity Assessment tool for Digital Business processes

## Abstract:

The digital-first economy has positioned user experience (UX) and customer expectations as critical product design and service delivery determinants. While digital products have evolved rapidly to meet these demands, the underlying business processes that enable them often remain internally focused, optimised primarily for efficiency rather than user satisfaction. Business Process Management (BPM) as a discipline has traditionally prioritised cost reduction, standardisation, and automation, offering limited support for evaluating customer-centricity within digital workflows.

This thesis addresses the emerging need to evaluate the customer-centricity of digital processes. It develops a structured assessment framework to support product owners and managers in identifying to what extent their digital product's underlying processes empower users, provide real-time feedback, and adapt to individual needs. The framework is grounded in a systematic literature review on customer-centric BPM and UX-related process features, emphasising the proposed design heuristics. From academic and industry sources, the study translates theoretical principles into practical evaluation criteria organised across dimensions such as process flexibility, transparency, and execution efficiency.

The resulting assessment tool was validated through expert feedback and applied to a real-world digital business process to examine its usability and relevance. The Technology Acceptance Model (TAM) was also used to evaluate how practitioners perceive the framework regarding usefulness, ease of use, and applicability in practice. This research contributes to the field of BPM by bridging the gap between process efficiency and customer engagement. The proposed framework provides a practical resource for organisations that align their internal workflows with customer expectations, helping them deliver more adaptive, transparent, and customer-friendly digital services.

**Keywords:** customer-centric business processes, customer-centricity, business process management, user experience, digital process evaluation, design heuristics, process assessment framework, digital transformation

## **Digitaalsete äriprotsesside kliendikesksuse hindamise tööriist**

### **Lühikokkuvõte:**

Tänapäeva digitaalses majanduses mängivad kasutajakogemus ja kliendiootused kesksel rollil toodete ja teenuste kujundamisel. Kuigi digitaalsed lahendused arenevad kiiresti, jäävad neid toetavad äriprotsessid sageli sisekeskseks ja keskenduvad pigem efektiivsusele kui kasutajamugavusele. Ärianalüüsi ja protsessijuhtimise valdkonnas on kliendikesksuse hindamine seni olnud piiratud.

Käesolev magistritöö käsitleb vajadust hinnata digitaalsete protsesside kliendikesksust. Töös on välja töötatud hindamisraamistik, mis aitab tootjajuhte ja tooteomanikke mõista, mil määral protsessid toetavad kasutajaid, pakuvad tagasisidet ning kohanduvad individuaalsetele vajadustele. Raamistik tugineb süstemaatilisele kirjanduse ülevaatele ning Frank jt al. (2020) esitatud disainiheuristikatele, tõlkides teoreetilised põhimõtted praktilisteks kriteeriumideks nagu protsessi paindlikkus, läbipaistvus ja tõhusus. Loodud hindamisvahend valideeriti ekspertarvamuste abil ja rakendati reaalses äriprotsessis. Samuti kasutati tehnoloogia vastuvõtmise mudelit (TAM), et hinnata raamistiku kasutatavust praktikute vaates.

Töö aitab ühendada protsesside tõhususe ja kliendikogemuse vahelist lõhet, pakkudes organisatsioonidele praktilist tööriista sisemiste töövoogude joondamiseks kliendiootustega.

**Võtmesõnad:** kliendikesksed äriprotsessid, äriprotsesside juhtimine, kasutajakogemus, digitaalsete protsesside hindamine, disainiheuristikad, protsessianalüüs, digitaalne transformatsioon

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# 1. Introduction

Digital products have become deeply embedded in how individuals interact, consume services, and perform everyday tasks in recent years. From mobile banking applications to e-commerce platforms and streaming services, digital products constitute a significant part of personal and professional life. Their widespread adoption is fueled by advances in digital technologies, the ubiquity of smart devices, and increasing user expectations for seamless, efficient, and personalised experiences. These digital solutions offer users convenient access to services anytime and from any location, reshaping the service delivery landscape and customer interaction.

At the core of every digital product lies a set of underlying digital processes that govern how the product functions and delivers value. While the surface-level user interface (UI) and user experience (UX) are often the most visible elements to customers, they merely act as access points to the operational backbone. UX focuses on how users perceive and interact with the product interface, its ease of use, aesthetics, and intuitiveness (Vermeeren et al., 2010). However, these aspects are only part of the overall customer experience. The actual execution of tasks, response times, error handling, and adaptability are all dictated by the design and efficiency of the underlying digital processes. For example, a visually appealing banking app may frustrate users if the backend loan approval process is manual and slow. This distinction between UX and process design is critical when evaluating whether a digital product truly supports a customer-centric experience.

Business Process Management (BPM) is a discipline that addresses the discovery, analysis, redesign, implementation, and continuous improvement of organisational processes (Dumas et al., 2018). BPM provides methodologies and tools to map out workflows, identify inefficiencies, and optimise operations for better performance. The discipline encompasses a broad range of techniques, from process modelling and mining to automation and monitoring, all aimed at improving how work gets done within organisations. BPM has been instrumental in enabling organisations to achieve greater consistency, scalability, and accountability in their operations.

Historically, the primary goal of BPM has been internal efficiency. The roots of BPM can be traced back to the industrial era, where efforts were focused on standardising production and

minimising waste. This mindset continued through the era of business process reengineering, where processes were redesigned for maximum productivity (Hammer & Champy, 1993; Reijers & Liman Mansar, 2005). Traditional process improvement initiatives, such as Lean and Six Sigma, have emphasised reducing cycle times, minimising errors, and improving throughput (Antony, 2011; Womack & Jones, 1997). While these approaches have delivered measurable gains in operational performance, they have viewed processes mainly from an internal perspective, which is how well the organisation performs its tasks, rather than from the viewpoint of the end user or customer.

However, this internal focus is increasingly insufficient in the current digital landscape. With heightened competition and rising customer expectations, organisations can no longer rely solely on efficiency as a differentiator. Today, customer experience has emerged as a critical driver of business success, making customer-centricity not just a strategic choice but a necessity (*IT Strategy Toolkit*, n.d.; Lemon & Verhoef, 2016). This shift demands that organisations optimise their processes for speed and cost and ensure those processes are designed with the customer's perspective. However, many BPM initiatives and tools still lack mechanisms to systematically evaluate how well digital processes align with customer expectations and experiences (Moormann & Palvölgyi, 2013; Trkman et al., 2015).

To design truly customer-centric digital services, it is necessary to understand which parts of the underlying processes support customer engagement and which do not. This requires a structured way to analyse and assess digital processes from a customer perspective. However, existing literature and practice provide limited guidance on how to conduct such assessments. There is a noticeable gap in the availability of actionable tools or templates that enable product managers and service designers to evaluate the customer-centricity of the processes behind their digital products. Most tools focus on either UX evaluation or process efficiency, with little integration of both perspectives.

This thesis addresses that gap by proposing a structured, criteria-based assessment framework designed to evaluate digital business processes through the lens of customer-centricity. Unlike typical UX testing tools aimed at end-users, this framework is intended for product managers, product owners, or domain experts familiar with the digital process's internal architecture and logic. The tool evaluates digital processes beyond surface-level usability considerations and helps teams diagnose specific strengths and limitations in user control,

real-time feedback, integration, and adaptability. Therefore, the central research question guiding this study is: *How can product owners and managers systematically assess the extent to which the underlying digital processes of their products support customer-centricity?*

The study follows a structured methodology grounded in design science to address this research question. A systematic literature review was conducted to identify relevant process features across domains such as BPM, UX, and customer experience research. These findings were synthesised into a multi-dimensional evaluation template, which was subsequently validated through expert application and feedback from real-world contexts. The framework combines academic knowledge with practical applicability, serving as a diagnostic instrument and a reflection guide for digital service design teams.

The practical applicability of the framework is further evaluated using the Technology Acceptance Model (TAM) (Marangunić & Granić, 2015), which guides structured interviews to capture expert feedback on perceived usefulness, ease of use, and intention to adopt the tool. This methodological approach ensures the tool is grounded in theory and tested for real-world relevance and usability. This research contributes to a practically oriented assessment framework that integrates findings from the BPM and UX domains. It offers product teams a structured way to identify areas for improvement in their processes from the customer's point of view. The framework does not aim to redesign processes directly but is a diagnostic tool to inform process improvement decisions. Specifically, this thesis focuses on **digital products and their underlying digital processes**, excluding physical products or purely manual service processes.

The remainder of this thesis builds upon the problem outlined above and presents the research in a structured and logical manner. The next chapter provides the theoretical foundation for the study by reviewing relevant literature on digital products, process design, business process management, and the emergence of customer-centric thinking. It also discusses related frameworks and heuristics that inform the development of the assessment tool. Following this, the methodology chapter outlines the research design, explaining how the literature was systematically reviewed, how the tool was constructed, and how it was evaluated. The fourth chapter introduces the final version of the assessment tool, detailing the customer-centric process characteristics it incorporates and how these were defined and categorised. Chapter five presents the results of the validation study, including expert

feedback on the tool's usability, clarity, and practical value. Finally, the concluding chapter reflects on the contributions of the thesis, summarises the key insights gained, and outlines limitations and opportunities for future work.

Having established the research problem and objectives, examining the theoretical foundations that inform this work is essential. The following section explores the nature of digital products and their underlying processes, analyses the evolution of customer-centricity in business process management, and critically reviews existing approaches to process assessment. This contextual foundation will demonstrate the gap this research aims to address and position the current study within the broader scholarly discourse.

## **2. Background and Related Work**

### **2.1 Digital Products: Nature and Significance**

The rise of digital products has profoundly reshaped how individuals and organisations interact, transact, and access services. Digital products, such as mobile applications, online platforms, and self-service portals, are software-driven artefacts designed to deliver value via digital channels. They are distinct from physical products in their form, lifecycle, and usage dynamics. Digital products are inherently adaptable, data-driven, and accessible across multiple devices and platforms, enabling organisations to scale services, iterate designs, and personalise experiences in near real time (Gimpel et al., 2018; Tiitto, 2021).

The growing significance of digital products is tied to shifts in consumer behaviour and expectations. As digital natives increasingly dominate the customer base, seamless and efficient experiences have become the norm rather than the exception. Users expect digital products to be constantly available, easy to use, and responsive to their individual needs. These expectations have led companies to invest heavily in interface design, performance optimisation, and multichannel delivery (Lemon & Verhoef, 2016).

However, digital products are more than just front-end interfaces. Their value is delivered through a combination of user interaction and system-level execution. A mobile banking app, for example, provides an interface for checking balances, transferring funds, or applying for loans. Still, the functionality relies on underlying business logic, approval workflows, data integration, and security protocols. This means that the true quality of a digital product is determined not only by how it looks or feels, but by how its internal processes perform (Kujala et al., 2011; van der Aalst, 2016). As a result, assessing digital product quality requires looking beyond usability to examine the structure, logic, and responsiveness of the processes it executes.

### **2.2 Business Processes Underpinning Digital Products**

Beneath the interface of every digital product lie one or more business processes, structured sequences of activities designed to achieve a specific goal. These processes are often automated, data-rich, and embedded within application logic in digital environments. They include customer-visible actions, such as form submissions or real-time updates, and backend operations such as data validation, workflow routing, decision automation, and service

integration (Dumas et al., 2018; van der Aalst, 2016). These processes form the operational backbone of digital products, shaping the speed, consistency, and reliability with which users can accomplish their goals. A product's ability to support 24/7 access, respond instantly to user inputs, or allow flexible interaction across channels depends on how well its processes are structured. For example, features like “save and resume,” multichannel progress continuity, or real-time notifications require backend logic that supports state persistence, inter-system communication, and event-based execution (Frank et al., 2020; Lashkevich et al., 2024).

Despite their critical role, these processes are often treated as technical or operational details, separate from the user experience. However, customer satisfaction frequently hinges on process performance. Delays, redundant inputs, opaque status updates, and rigid workflows can all lead to frustration, even when the interface appears modern and well-designed. As such, a complete evaluation of digital products must involve examining the quality and structure of the processes that support them (Reijers & Liman Mansar, 2005). A foundational framework for understanding process structure is the Six Core Elements of BPM, which are widely accepted in BPM literature (Rosemann & vom Brocke, 2015). These elements, summarised in Table 1, reflect a traditional view of process management, focusing more on internal alignment than external experience.

Table 1. Summary of Rosemann’s Six Core BPM Elements

<b>Element</b>	<b>Description</b>	<b>Relevance to BPM</b>
Strategic Alignment	Align process goals with business strategy	Ensures organisational coherence
Governance	Define roles, ownership, and accountability	Clarifies responsibilities for process performance
Methods	Provide standardised approaches and techniques	Supports process improvement consistency

Information Technology	Use systems to automate and monitor processes	Enables scalability and efficiency
People	Involve skilled individuals in process execution	Supports operational excellence
Culture	Embed process-oriented values and norms	Encourages sustainable process improvement

### 2.3 Customer Centricity in Digital Products and Business Processes

Organisations increasingly embrace **customer centricity** as a strategic imperative to meet rising user expectations. This concept emphasises designing services and experiences around customer needs, rather than organisational convenience or legacy structures. In digital product development, customer centricity is reflected in features that offer personalisation, transparency, and control, making services feel intuitive, respectful, and empowering (Galbraith, 2011; Lemon & Verhoef, 2016). However, customer centricity extends beyond visible design elements. A truly customer-centric digital product ensures that users can accomplish tasks efficiently, receive proactive communication, and experience minimal cognitive load, all of which depend on the behaviour of underlying processes. For example, enabling customers to complete a complex application independently at their convenience requires well-integrated systems, logical task flows, and real-time status updates (Rosenbaum et al., 2017).

Historically, however, Business Process Management (BPM) has prioritised internal goals such as efficiency, standardisation, and cost reduction (Hammer & Champy, 1993; Womack & Jones, 1997). While methodologies like Lean and Six Sigma have delivered productivity gains, they often treat processes as internal machines rather than user-facing journeys. This internally oriented view can neglect the customer experience, primarily when processes are evaluated only through KPIS such as cycle time or error rates (Antony, 2011; Rosemann,

2014). Recent work has challenged this paradigm by promoting a more customer-facing approach to process design. Trkman et al. (2015) propose the concept of Customer Process Management, urging a shift from “inside-out” to “outside-in” thinking. Frank et al. (2020) introduced a set of Customer-Centric Process Design (CCPD) heuristics that highlight process attributes such as flexibility, transparency, and user empowerment. Lashkevich et al. (2024) further emphasise the value-in-use perspective in designing digital self-service processes, reinforcing that process performance must be evaluated in customer terms, not only operational terms.

Table 2. Summary of CCPD Heuristics (Frank et al., 2020)

Heuristic	Description	Relevance to Customer-Centricity
Channel Flexibility	Seamless channel switching during the process	Supports accessibility across devices and contexts
Save and Resume	Process can be paused and resumed without loss	Increases usability and reduces abandonment
Transparent Process Flow	Steps and status are visible to the user	Enhances trust and reduces anxiety
Self-Service Enablement	The user can complete the process without human assistance	Encourages independence and task ownership
Emotionally Intelligent UX	Process language and tone adapt to user context	Supports empathy and emotional well-being

These heuristics highlight the **shift from process control to user empowerment**, offering practical design principles for service improvement.

Nonetheless, these ideas have yet to be fully operationalised in practical tools. Product managers and internal stakeholders often lack frameworks to assess how well a process serves customer needs beyond UX heuristics. This highlights a crucial gap: the absence of

structured, accessible instruments for evaluating the customer-centricity of digital processes, not just products. While BPM and CCPD frameworks offer foundational design logic, the UX domain provides valuable heuristics for assessing the quality of user interactions with processes. Hedegaard & Simonsen (2013) and Kujala et al. (2011), for instance, argue that users' experience of a process is shaped not only by interface design but also by the behaviour of the system, including how errors are handled, how progress is communicated, and how much control users retain during the process. To that end, Table 3 summarises key UX heuristics that are particularly relevant for evaluating process experience in digital environments. These principles align closely with customer-centricity, highlighting experiential elements that can either support or hinder a user's journey through a digital process.

Table 3. Summary of UX Heuristics Relevant to Process Experience

<b>Heuristic</b>	<b>Description</b>	<b>Relevance to Digital Processes</b>
Process Transparency	Display of steps, progress, and what comes next	Reduces confusion and builds user confidence
Error Prevention	Early validation, clear constraints	Prevents frustration and increases the success rate
User Control	Ability to navigate, go back, or cancel actions	Provides autonomy and prevents user lock-in
Feedback Mechanisms	Real-time confirmations, success/failure indicators	Improves clarity and task closure
Trust & Assurance	Indicators of privacy, safety, and professionalism	Builds user trust in sensitive or high-stakes processes

These heuristics further support the argument that process logic and UX should not be treated as distinct concerns, but as interdependent elements of a holistic customer experience.

## 2.4 Related Work

Several streams of prior work inform this thesis, yet none directly address the need for an integrated tool that evaluates customer-centricity at the process level within digital products. Existing approaches fall into three categories: (1) business process improvement frameworks, (2) UX and usability heuristics, and (3) customer journey and experience models.

The business process improvement literature offers mature methodologies for analysing and optimising workflows. Foundational approaches like Business Process Reengineering (Hammer & Champy, 1993), Lean Thinking (Womack & Jones, 1997), and Six Sigma (Antony, 2011) focus on reducing inefficiencies, cycle times, and operational waste. These approaches offer high internal value but typically lack a customer-centric perspective, treating the user as a passive endpoint rather than an active participant. Later developments in BPM research provide best practices for process redesign, yet remain primarily focused on performance outcomes rather than user empowerment or emotional engagement (Reijers & Liman Mansar, 2005; Rosemann, 2014).

From the UX perspective, scholars have developed various models and heuristics for evaluating usability and user experience quality (Hedegaard & Simonsen, 2013; Kujala et al., 2011). These tools are invaluable for analysing interface-level design but generally lack insight into the backend process flows that determine actual task completion or process transparency. Research on UX maturity and capability models (Vermeeren et al., 2010) shows how organisational practices influence user-centeredness but do not offer templates for evaluating individual processes. Meanwhile, customer journey mapping provides a narrative view of customer interactions across channels and touchpoints (Lemon & Verhoef, 2016; Rosenbaum et al., 2017). These tools help visualise pain points and emotional states, but are often too high-level to guide specific process redesign decisions. Moreover, they rarely include backend logic or execution constraints, making them insufficient for evaluating digital processes with technical complexity.

More recently, design science contributions have begun bridging these gaps. Frank et al. (2020) developed the CCPD heuristics, structured process-level design principles to improve customer orientation. Kubrak et al. (2023) introduced prescriptive process interfaces, which

guide user behaviour based on embedded process intelligence. Lashkevich et al. (2024) explore value-in-use by analysing digital self-service mechanisms. However, these approaches remain conceptual or case-specific; they do not provide a reusable, practitioner-friendly evaluation framework. No comprehensive, validated, and structured tool exists that enables practitioners, such as product managers or process owners, to assess the customer-centricity of digital processes using a diagnostic, criteria-based format. This thesis addresses this gap by integrating insights from BPM, UX, and customer-centric design to develop an actionable assessment tool. It draws on the CCPD heuristics by Frank et al. (2020), UX usability criteria, and process maturity models to create a scoring-based framework that supports reflection, diagnosis, and prioritisation of improvement areas within digital process design.

This literature review has examined the intersection of customer-centricity, business process management (BPM), and user experience (UX), emphasising the growing need for process flexibility, transparency, and adaptability in digital business environments. While traditional BPM has been efficiency-driven, research highlights the importance of integrating customer experience principles into process design to improve engagement and satisfaction. The review has also explored customer-centric heuristics to assess how well business processes align with user expectations (Frank et al., 2020). Additionally, the distinction between digital products and digital processes was clarified to highlight how UX improvements alone do not necessarily create customer-centric workflows.

This review establishes a foundation for systematically assessing and improving customer-centric digital business processes by synthesising findings from BPM, UX research, and industry best practices. Future research should focus on empirical validation of these heuristics in real-world applications and explore methodologies for measuring customer-centricity beyond UX metrics.

The literature review has highlighted a significant gap in current practice. While theoretical frameworks like Frank et al. (2020) CCPD heuristics offer conceptual guidance for customer-centric process design, organisations lack practical tools to assess their existing digital processes from a customer perspective systematically. This gap provides the foundation for the present research. The following methodology section outlines the design science approach employed to develop and validate an assessment framework that

operationalises these theoretical concepts into measurable criteria that practitioners can apply in real-world settings.

### 3. Methodology

This study employs a design science research methodology to develop and validate a structured assessment framework for evaluating the customer-centricity of digital business processes. Design science is particularly well suited to this research as it focuses on creating and evaluating artefacts intended to address real-world problems within organisational contexts (Hevner et al., 2004). In this study, the artefact is the Customer-Centric Process Assessment Tool, which was developed to address the lack of practical instruments for assessing how well digital business processes serve customer needs and expectations. The research follows the canonical design science process, encompassing the phases of problem identification, artefact design, development, and evaluation (Peppers et al., 2007). Unlike explanatory research that seeks to analyse existing phenomena, design science emphasises iterative construction and testing of new solutions. This makes it particularly suitable for bridging theoretical insights with applied practice in fast-evolving domains like digital product management.

The methodological workflow includes four sequential phases: (1) a literature review to identify the characteristics that define customer-centric digital processes; (2) the translation of these characteristics into an assessment framework with structured evaluation criteria; (3) validation through expert evaluations using real-world processes, supported by observed assessment sessions and post-assessment interviews based on the Technology Acceptance Model (TAM); and (4) refinement of the framework based on qualitative feedback from these expert evaluations. This process ensures that the final tool is both theoretically grounded and practically usable. The qualitative emphasis in both development and validation phases reflects the study's goal of creating a diagnostically rich framework that captures nuances in user interaction, process transparency, and service experience. These dimensions are often complex to reduce to quantitative metrics alone. The methodology prioritises context sensitivity and expert insight, essential in evaluating complex, multi-layered processes that underlie digital services.

Figure 1 illustrates the four-phase methodology employed in this study. Beginning with a literature review identifying key customer-centricity characteristics, the research progressed through framework development (organising dimensions and creating a scoring system), validation with six expert practitioners using TAM-based assessments, and refinement based

on participant feedback. This systematic approach ensured that the resulting assessment tool was theoretically grounded and practically applicable.

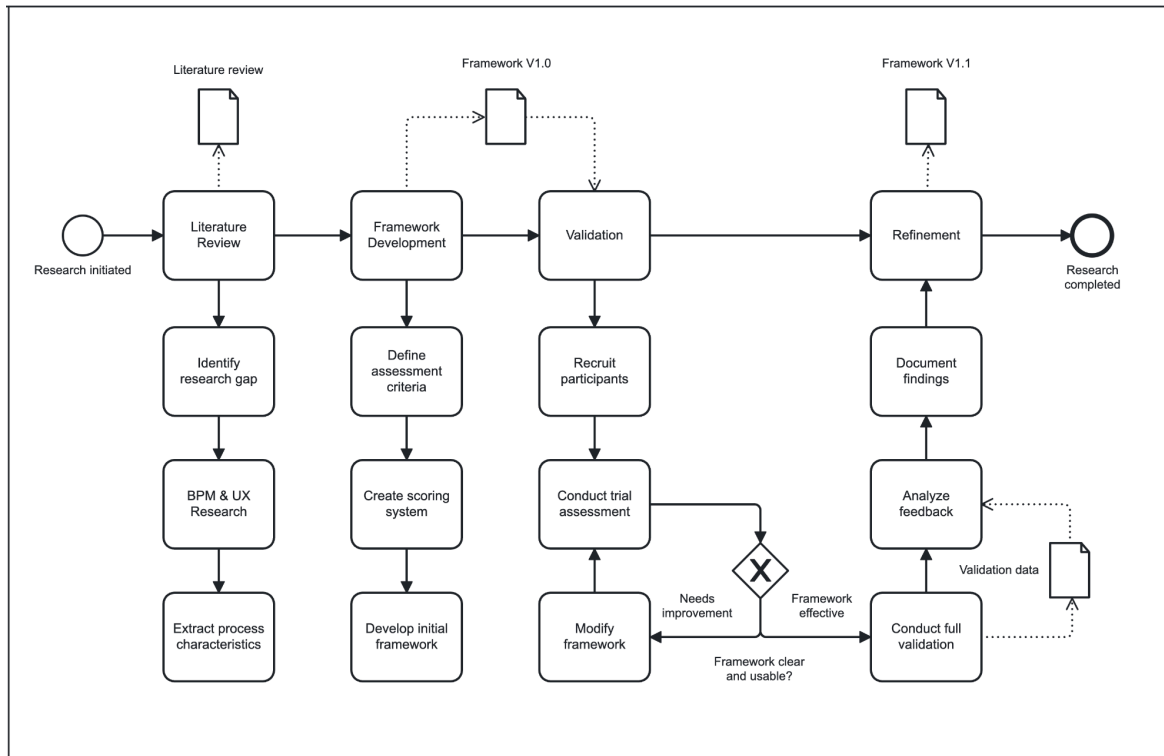


Figure 1. Study Process Diagram

This diagram, Figure 1, illustrates the structured research process followed in this thesis. The study began with a literature review to identify research gaps and extract process characteristics from the BPM and UX domains. This informed the development of an initial framework, including assessment criteria and a scoring system. The framework underwent trial assessment and iterative modifications to improve clarity and usability. A complete validation phase followed, involving participant feedback collection and analysis. The final refinement stage incorporated over 20 improvements based on validation results, leading to the finalised version (v1.1) of the Customer-Centric Process Assessment Tool.

The following sections detail each methodological phase in depth, providing sufficient transparency and specificity to enable replication by other researchers or practitioners aiming to assess customer-centricity in similar digital process contexts.

### 3.1 Literature Analysis

The starting point for developing the assessment framework was a systematic literature review to identify key characteristics of customer-centric digital business processes. A structured literature review methodology was chosen because it enables researchers to methodically collect, evaluate, and synthesise prior research to ensure completeness, transparency, and reproducibility. In this research, the structured review played a critical role in defining the initial customer-centric process characteristics that served as the basis for further framework construction.

The review covered four prominent academic and practitioner databases to achieve a broad and representative selection of literature. Google Scholar was used for its extensive cross-disciplinary coverage and high recall rate for relevant works. ACM Digital Library was included to capture information systems and computer science research related to digital processes and user experience. Business Source Complete (EBSCO) provided access to management, business process, and customer service literature, while ScienceDirect contributed further insights from process management and organisational studies. This selection of sources ensured that both theoretical models and applied studies were considered.

The search strategy was carefully designed to balance precision and breadth. A series of Boolean search strings was created, focusing on key research domains of customer-centricity, digital processes, and business process management. Example search terms included: "customer-centric process" OR "customer-oriented process", "business process management" AND ("customer experience" OR "user experience"), "digital process" AND ("assessment" OR "evaluation") AND "customer", "process design heuristics" AND "customer", and "user experience" AND "process" AND ("evaluation" OR "measurement"). These expressions were selected because they directly reflected the focus of this research on evaluating customer-centric processes rather than just interface design or customer feedback metrics. Using AND/OR operators ensured that relevant studies combining process design and customer experience elements were prioritised.

Inclusion and exclusion criteria were strictly applied to focus the review. Only peer-reviewed journal articles, academic conference papers, and credible industry reports written in English were included. The time frame was restricted to publications from 2010 to 2025, with priority

given to sources published after 2015 to ensure contemporary relevance. Papers focusing exclusively on visual interface design, studies addressing physical (non-digital) services, opinion papers without empirical support, and technical implementation papers lacking customer experience considerations were excluded. The search process initially retrieved 143 candidate articles. Titles and abstracts were screened to eliminate papers not meeting the inclusion criteria. After this filtering step, 78 articles remained for full-text review. Ultimately, 42 high-quality publications were retained to inform the framework development. These included 27 peer-reviewed journal articles, 8 books or book chapters, and 7 practitioner research reports.

We conducted the thematic analysis of this literature corpus to identify customer-centric characteristics. Thematic analysis is a method for systematically identifying, organising, and interpreting patterns of meaning across a dataset. It was chosen because of its flexibility and ability to provide detailed insights into recurring concepts. The process began with initial coding, where each document was read line by line, and statements mentioning process characteristics, customer experience factors, or process evaluation methods were marked. This open coding phase allowed categories to emerge organically without forcing predefined labels. Coding was conducted manually using Microsoft Excel, with fields created for source details, extracted text segments, definitions, context information, and proposed process features.

Once the raw codes were collected, I proceeded with characteristic extraction. Each coded statement was reviewed to extract candidate process characteristics. For each characteristic, I documented the feature name, a working definition, example applications in practice, any suggested assessment approaches, and quotations from the sources to support its inclusion. The extraction template also included metadata on source type (academic vs. industry), publication year, and domain (e.g., retail, healthcare, banking). This ensured that the characteristics were grounded in scholarly theory and real-world practice.

Following the extraction, I applied thematic synthesis to organise the characteristics into overarching groups. Thematic synthesis involves grouping similar codes to form higher-level categories that reflect shared meaning. Using an affinity mapping technique, characteristics with similar intent or purpose were clustered into provisional themes. For example, process adaptability and personalisation features were grouped under a broader "Process Flexibility

and Control" theme. Initially, seven categories were proposed. These were subsequently refined and consolidated into four final dimensions that were conceptually distinct and comprehensive: Process Flexibility and Control, Transparency and Communication, Efficiency and Execution, and Emotional and Social Engagement.

To ensure robustness, I applied a cross-validation step. Each candidate characteristic was checked for recurrence across the dataset. A characteristic was classified as core if it appeared in at least three publications. Characteristics mentioned only once were scrutinised for conceptual novelty and practical relevance. This step helped reduce the risk of including isolated or idiosyncratic findings and improved the overall reliability of the framework. Finally, the entire analysis process was rigorously documented in Microsoft Excel spreadsheets. All source references were managed using Zotero to maintain traceability between findings and their sources. This structured and traceable workflow guaranteed the literature review followed high academic standards for reproducibility and transparency.

### **3.2 Framework Construction Process**

The framework construction phase translated the findings of the literature analysis into a structured and practical assessment tool. This step was necessary to convert abstract theoretical insights into specific, actionable criteria that practitioners could apply in real-world digital process evaluations. The process was iterative, involving the systematic selection, formulation, and structuring of criteria to ensure both academic grounding and usability for business practitioners.

The first step in constructing the framework was criteria selection and development. Candidate characteristics identified during the literature analysis were prioritised based on four main factors. First, characteristics mentioned in at least five different literature sources were given higher priority, reflecting their recurrence and wide acceptance within the academic and practitioner communities. Second, characteristics shown to have a demonstrable impact on customer experience, either empirically or through case studies, were favoured. Third, I ensured that only characteristics applicable across multiple industries and types of digital processes were included to increase the generalizability of the framework. Finally, a practical lens was applied: only those characteristics that product owners or process managers could realistically assess in day-to-day evaluation settings were retained. This step

ensured the framework would be usable without requiring specialised technical knowledge or access to proprietary data.

From this selection process, I finalised 16 distinct assessment criteria. A structured description was developed for each of these criteria to ensure clarity and practical guidance. Each criterion included: (1) a clear and concise definition (1-2 sentences), (2) an explanation of its importance for customer experience (3-5 sentences), (3) observable indicators that evaluators could use to make a judgment, and (4) supporting guiding questions to facilitate consistent evaluation. This structured approach enabled consistency and reduced ambiguity when the framework would later be applied in interviews and evaluations.

Particular attention was paid to balancing theoretical rigour with practical applicability to further ensure the framework's usefulness. The research team carefully examined each proposed criterion to assess its feasibility for practitioners. Some criteria that appeared theoretically important were excluded if they could not be evaluated without complex tools or if they required internal company data not accessible to product owners. This decision was guided by our focus on creating a self-assessment tool for product owners and managers, not a technical audit tool. The finalised 16 criteria were then organised into a clear and logical four-dimensional structure. These dimensions were based on theoretical insights from the literature and practical insights from affinity clustering conducted during the analysis phase. The four dimensions that emerged were:

- **Process Flexibility and Control:** Capturing how well the process adapts to customer needs and allows them to influence their journey.
- **Transparency and Communication:** Measuring how well the process keeps customers informed and engaged with status updates and expectations.
- **Efficiency and Execution:** Assessing the smoothness, accuracy, and responsiveness of the process execution.
- **Emotional and Social Engagement:** Evaluating how well the process creates a sense of trust, empathy, and emotional connection with the customer.

This four-dimensional structure was intentionally designed to reflect the different phases of customer interaction with a digital process, from initial engagement through to the completion of the customer journey. It also balanced operational (e.g., efficiency, responsiveness) and experiential (e.g., control, emotional trust) aspects of

customer-centricity. Compared to the heuristics proposed by Frank et al. (2020), our framework extends and complements their work by incorporating deeper elements of customer journey mapping and user experience research, as emphasised in prior works by Kujala et al. (2011) and Hedegaard & Simonsen (2013).

The next critical design step was the **development of the scoring scale**. A 5-point Likert scale was chosen for its balance between granularity and simplicity. The decision was based on prior usability and maturity models, which indicate that a 5-point scale provides sufficient differentiation without overwhelming the evaluator (Jakob, 1994; Thomander & Krosnick, 2009). For each criterion, clear behavioural anchors were developed for each scale point:

- **Score 1:** Feature is absent or severely lacking
- **Score 2:** Feature exists but with significant limitations
- **Score 3:** Feature is partially implemented but with apparent gaps
- **Score 4:** Feature is implemented chiefly with minor issues
- **Score 5:** Feature is fully implemented and represents best practice

We also included a "Not Applicable" (N/A) option for cases where specific criteria were irrelevant to a particular process type. This prevented the unintended penalisation of processes that do not require specific capabilities by design. I developed behavioural anchors and examples for each score level and criterion to further reduce ambiguity. These examples were carefully chosen to reflect real-world implementations from multiple industries such as banking, e-commerce, healthcare, and government services. Examples were kept concise and provided only the key indicators needed to help participants calibrate their judgments. Where possible, they were designed to illustrate best-practice ("5") cases to serve as reference benchmarks for evaluators.

The framework was then subject to internal pilot testing. First, two academic experts in BPM and UX reviewed the draft for theoretical completeness and internal consistency. They provided feedback on redundant items, unclear terminology, and missing customer journey stages. These suggestions were incorporated into an updated draft. Secondly, a pilot test was conducted with an experienced product manager from a financial services company. This test focused on assessing a real-world customer onboarding process using the draft framework. The pilot session lasted approximately 90 minutes and included direct observation by the

researcher. The product manager was asked to think aloud while completing the assessment, allowing me to identify unclear terminology, scoring scales that were difficult to apply, or redundant criteria.

The feedback from this pilot study directly led to three main refinements: (1) more explicit scoring instructions for criteria 1.3, 2.2, and 3.4; (2) more explicit explanation on when and how to use the N/A scoring option; and (3) improvements to example phrasing to better accommodate B2B processes. The final result of this process was version 1.0 of the Customer-Centric Process Assessment Tool, which was used as the artefact for the formal validation study presented in the next phase.

### **3.3 Validation Methodology**

The purpose of the validation phase was to evaluate the usability, clarity, and perceived value of the Customer-Centric Process Assessment Tool through real-world application and structured participant feedback. This phase followed a qualitative research design grounded in the Technology Acceptance Model (TAM) (Davis, 1989; Marangunić & Granić, 2015), and aimed to assess how potential users, specifically product owners, experienced the framework in terms of usefulness, ease of use, trustworthiness, and intention to adopt. Participants were first asked to apply the framework to a digital process from their own work context. Following the assessment, semi-structured interviews were conducted to explore their perceptions of the tool, guided by the TAM dimensions. All sessions were documented and analysed using thematic analysis. The process was designed to provide rich insights for iterative improvement of the framework. The following diagram, Figure 2, illustrates the systematic process employed for participant validation sessions, from initial invitation through the experimental procedure to completion.

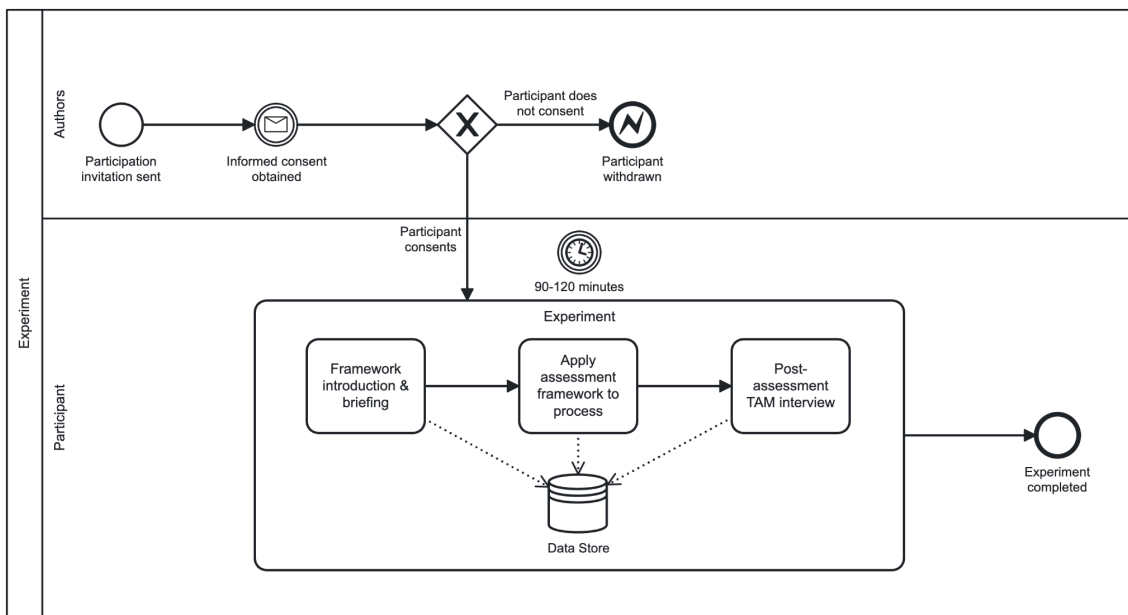


Figure 2. Participation Process Diagram

Participants were selected using purposive sampling, ensuring that individuals had the relevant expertise to meaningfully engage with the framework and evaluate its applicability. The following criteria were applied:

- Current role: Active product owners, product managers, or equivalent professionals responsible for digital product development and process oversight.
- Professional experience: Minimum of three years in product or process management roles.
- Process familiarity: Direct involvement in the design, execution, or continuous improvement of digital business processes.
- Decision-making influence: The ability to contribute to or shape process-related decisions in their organisation.
- Industry diversity: Participants were selected from various industries (e.g., manufacturing, IT services, gaming, finance) to test the framework across varied process environments and use cases.

Recruitment was conducted through three channels: personal professional networks (three participants), targeted LinkedIn outreach to product professionals (two participants), and referrals from academic and industry contacts (one participant). Each candidate was approached via email or LinkedIn with a study description, including its aims, time

commitment, and expectations. Of the eleven individuals contacted, seven expressed interest, and six completed the full assessment and interview, resulting in a 55% participation rate.

Table 6 presents the demographic and professional details of the participants. Participants are identified using ID codes (P1–P6) to maintain anonymity.

Table 6. Participant Overview

<b>ID</b>	<b>Role</b>	<b>Industry</b>	<b>Experience (years)</b>	<b>Process Evaluated</b>	<b>Company Size</b>
P1	Product Owner	Manufacturing	7	ERP ordering system	Large (>1000)
P2	Product Owner	Human Resources	5	HR application flow	Medium (100–999)
P3	Product Owner	IT Services	8	Helpdesk ticketing system	Large (>1000)
P4	Product Owner	Online Gaming	4	Casino platform registration	Medium (100–999)
P5	Product Owner	Financial Services	6	B2B invoicing workflow	Small (10–99)
P6	Product Owner	Online Gaming	5	Geo-location user journey	Large (>1000)

This range of participants ensured that the tool was tested across various business contexts, product complexities, and user types, including B2B and B2C processes. This variation was instrumental in assessing the framework's generalizability and surfacing edge cases for refinement. Each session followed a consistent protocol and lasted approximately 90–120 minutes. Sessions were conducted remotely between April 21 and April 28, 2025, using Microsoft Teams, which allowed for screen sharing, audio and video capture, and direct observation.

Each session was structured into four phases:

1. Briefing and Consent (10–15 min)  
Participants were welcomed, provided an overview of the study's purpose, and guided through the consent process. Any clarifying questions were addressed.
2. Framework Orientation (15–20 min)  
The structure and purpose of the assessment framework were introduced, including an explanation of the scoring scale, N/A usage, and category logic. Participants could ask questions before starting.
3. Observed Assessment (40–60 min)  
Participants shared their screens while completing the assessment for a real process from their workplace. They were encouraged to use a think-aloud protocol, and the researcher took observation notes, intervening only when clarification was requested.
4. Post-Assessment Interview (25–30 min)  
A semi-structured interview based on the Technology Acceptance Model (TAM) explored four dimensions: perceived usefulness, ease of use, clarity, trust, and intention to use. Additional open-ended feedback was collected.

To ensure the richness and integrity of the data:

- Audio and screen recordings were captured using Microsoft Teams' built-in functionality (with participant consent).
- Observation notes documented real-time reactions, hesitations, and clarifications requested.
- Completed assessment forms were collected from each participant, including scores and written comments.
- All interviews were transcribed manually to ensure the correction for accuracy within 48 hours of each session.
- Screen recordings were reviewed post-session to complement interview insights and verify participant scoring behaviour and interaction patterns.

The interviews were guided by the Technology Acceptance Model (TAM) (Davis, 1989), with additional support from TAM-extended studies (Marangunić & Granić, 2015). The interview protocol consisted of 15 structured questions across four categories:

- Perceived Usefulness (e.g., “Did the tool reveal any areas you had not considered before?”)

- Ease of Use (e.g., “How easy was it to interpret each criterion?”)
- Clarity & Trustworthiness (e.g., “Did the scores match your understanding of your process?”)
- Intention to Use (e.g., “Would you use this tool in your team going forward?”)

The semi-structured format allowed for consistent coverage of core topics while enabling flexibility to explore unique insights specific to each participant’s process and context. A complete copy of the interview guide is provided in Appendix 4.

Given the dataset's focused scope and manageable sample size (six interviews), a manual qualitative analysis approach was employed rather than using specialised coding software. This hands-on method allowed for deeper engagement with the content and was aligned with the project’s exploratory and evaluative nature. To ensure methodological rigour, the analysis followed a structured, TAM-informed approach.

The thematic analysis process consisted of the following steps:

- Transcript review and annotation: Each interview transcript was read multiple times to ensure familiarity with the data. Initial annotations were made in the margins, highlighting key points, emerging themes, and illustrative quotations.
- TAM-based organisation: The analysis structure was guided by the four dimensions of the Technology Acceptance Model, *Perceived Usefulness*, *Ease of Use*, *Clarity & Trustworthiness*, and *Intention to Use*. Data excerpts relevant to each category were extracted and grouped accordingly.
- Theme identification: Within each TAM dimension, participant comments were clustered to identify sub-themes and recurring issues. These themes emerged inductively from the data and were not pre-defined beyond the high-level TAM categories.
- Quote selection: Representative quotations were selected to illustrate each theme. Preference was given to concise, clear comments that reflected shared participant sentiment or divergent viewpoints.
- Theme consolidation: Overlapping or redundant themes were merged where appropriate to create a coherent and concise thematic structure. The final themes ensured that clearly defined participant-informed insights represented each dimension.

The manual analysis approach was appropriate and effective given:

- The limited but targeted sample (n=6) of experienced product owners;
- The bounded research questions aligned with the TAM framework.
- The consistent semi-structured interview protocol allowed systematic comparison across participants.
- The need is to derive practical and actionable insights, rather than develop complex theory.

This methodology ensured that all participant voices were adequately represented and the results were grounded in authentic user experiences with the framework.

In addition to the qualitative interview data, the completed assessment forms provided a supplementary layer of quantitative insight. Although the sample size was not large enough for statistical testing, descriptive score analysis was used to identify patterns, support thematic findings, and triangulate participant perceptions.

The analysis was structured as follows:

- Assessment documentation review: Each participant's form was examined in detail, including their numerical ratings and accompanying written comments for each of the 16 assessment criteria.
- Score calculations: Section scores were calculated as the average of the criteria within each of the framework's four dimensions. Overall scores were computed as the average of all section scores for each participant.
- Cross-case comparison: Results were compared across participants to highlight:
  - Criteria that consistently scored high (4–5) or low (1–2);
  - Items where scores showed high variability, indicating possible differences in interpretation;
- Score-comment integration: Participant comments were cross-referenced with their scores to identify explanations behind low or inconsistent ratings. This comparison helped surface cases where wording or examples may have been confused.

This systematic but straightforward scoring analysis added empirical depth to the qualitative findings. The goal was not to generalise across a broader population but to contextualise the

interviews and flag aspects of the tool needing clarification or refinement. The final stage of the validation phase translated participant feedback into actionable revisions of the assessment framework. This process followed a methodical and traceable path to ensure that improvements were user-informed and theoretically sound.

Feedback was documented immediately following each session, incorporating:

- Verbal feedback from interviews;
- Notes and comments were recorded during the observed assessments.
- Participants on the assessment form note post-assessment reflections.

Each issue was grouped based on the type of challenge it addressed:

- Definition clarity issues: Instances where a criterion's description was vague or too broad;
- Scoring ambiguities: Confusion about how to apply the Likert scale, particularly between adjacent levels (e.g., 3 vs. 4);
- Example relevance: Requests for clearer or more context-specific examples, particularly for B2B processes.
- Structural or instructional concerns: Suggestions related to the tool's navigation, flow, or general usability.

To determine which changes to implement, issues were prioritised based on:

- Frequency of occurrence across participants;
- Impact on assessment accuracy and user confidence;
- Feasibility within the scope of the current project.

Items raised by multiple participants, such as the ambiguity between scoring levels or the lack of a B2B example, were flagged as high priority.

Revisions were drafted to resolve the identified issues through:

- Clarified definitions and updated phrasing to enhance interpretability;
- Adjusted scoring descriptions to provide more precise distinctions between levels.
- Additional and more tailored examples, including ones relevant to B2B workflows;

- Improved instructions, such as more explicit guidance on when to use the “N/A” option.

These refinements resulted in version 1.1 of the Customer-Centric Process Assessment Framework. In total, more than 20 distinct updates were made, with changes applied across:

- 8 criteria scoring descriptions;
- 6 example revisions;
- 3 structural or instructional improvements;
- Clarifications of terminology across multiple sections.

The revised version reflects participant-driven improvements to increase clarity, usability, and cross-context relevance. The iterative refinement process ensured that the framework remained grounded in the real-world experiences and expectations of its intended users.

## 4. Results

The Results chapter presents the key outcomes of the research process. It is structured in two main sections. First, it summarises the structured literature review and heuristic extraction phase findings, where relevant customer-centric process characteristics were identified and consolidated. Second, it describes the development of the Customer-Centric Process Assessment Tool, providing a detailed explanation of its components and the rationale behind the design decisions. This chapter closely follows the methodology outlined in Chapter 3 and provides a transparent account of the final framework.

### 4.1 Literature & Heuristics

The structured literature review and heuristic extraction formed the core foundation of the Customer-Centric Process Assessment Tool. The review, as outlined in Chapter 3, followed a structured and rigorous process across 42 high-quality academic and industry publications (Dumas et al., 2018; Frank et al., 2020; Lemon & Verhoef, 2016). The purpose was to consolidate previously scattered insights from Business Process Management (BPM), user experience (UX), and customer journey design into a unified, structured set of measurable criteria.

The analysis revealed that customer-centricity in digital service processes cannot be evaluated based on interface design alone. Multiple researchers emphasised that customer satisfaction depends on the underlying process logic, how the process communicates, and how well it allows for individual control (Hedegaard & Simonsen, 2013; Kujala et al., 2011; Trkman et al., 2015). From this synthesis, 16 core criteria were defined and grouped into four main dimensions: Process Flexibility and Customer Control, Transparency and Communication, Efficiency and Execution, and Emotional and Social Engagement.

The Process Flexibility and Customer Control dimension addresses how a digital process allows users to adapt the interaction to their personal needs. As Gimpel et al. (2018) explain, the ability to accommodate different devices, schedules, and interaction styles enhances satisfaction and reduces dropout rates. Modern digital services must accommodate a variety of lifestyles, working hours, and user contexts. Customers may abandon processes that do not fit their specific use cases without flexibility.

- **Channel Flexibility:** Channel flexibility refers to whether a customer can begin a process on one device or platform and seamlessly continue it on another without losing data or needing to start over. This is particularly important in an era where users switch frequently between smartphones, tablets, and desktop devices (Gimpel et al., 2018). For example, a student who starts a loan application on a mobile device but prefers to finish it later on a laptop should experience no loss of information or additional burden. Lack of channel flexibility is a significant source of customer frustration and abandonment.
- **Temporal Flexibility:** Temporal flexibility allows customers to perform process steps at any time, rather than being constrained to business hours (Tiitto, 2021). Digital processes should enable tasks like booking appointments, submitting forms, or completing payments at the customer's convenience. This reduces waiting time and empowers users globally, especially across time zones. When absent, users face unnecessary delays that negatively affect satisfaction and trust.
- **Self-Service Capability:** Self-service capability evaluates whether a process enables users to complete core tasks without the intervention of human agents (Kujala et al., 2011). Enabling customers to resolve issues independently empowers them and lowers organisational support costs. A typical example is an airline website that allows a traveller to change their seat or request a refund online without contacting customer support. When poorly implemented, customers are forced to wait for staff responses, which diminishes process efficiency and increases frustration.
- **Save and Resume:** Many complex or multi-step processes require time and input from users. Save and resume functionality allows users to pause at any step and return later to continue from when they stopped (Hedegaard & Simonsen, 2013). This is especially critical for application forms, claims submissions, or tax filings, where gathering documentation may take several days. Absence of this feature forces users to restart from the beginning, leading to significant dissatisfaction and often abandonment.

The second dimension, Transparency and Communication, addresses how a digital process communicates its status, requirements, and next steps to the user. Prior research emphasises that a lack of transparency leads to uncertainty and abandonment (Dumas et al., 2018; Kujala et al., 2011). Clear, consistent communication reassures users and builds trust.

- **Real-Time Status Visibility:** This criterion measures whether users can view the current progress of their transaction or request, along with next steps and estimated completion time (Moormann & Palvölgyi, 2013). For example, package tracking applications and service ticket dashboards give customers confidence by showing the current processing stage. When missing, customers often call support for updates, adding operational overhead.
- **Error Prevention and Recovery:** Errors commonly cause abandonment in online forms and transactions. This criterion evaluates whether the process proactively prevents user errors and offers helpful guidance when issues occur (Hedegaard & Simonsen, 2013). For example, real-time validation highlighting incomplete fields, incorrect formats, or missing documents allows users to fix errors without restarting the entire process. Lack of recovery options leads to frustration and dropout.
- **Clear Escalation Pathways:** Even the most well-designed processes will sometimes fail. This criterion checks whether the user has immediate access to contextual support when needed (Dumas et al., 2018). For example, live chat or help buttons embedded directly into problematic steps (e.g., identity verification failure) prevent the user from exiting the system and abandoning the process. Without clear escalation options, customers feel trapped and are more likely to disengage.
- **Process History Access:** This criterion refers to whether users can view previous submissions, requests, transactions, and communications related to their case (Kujala et al., 2011). For example, health portals that show test results, previous diagnoses, and treatment plans give customers control and confidence. Customers must repeatedly request updates without history access, leading to duplicated work and increased support inquiries.

Efficiency and Execution relate to minimising time, effort, and frustration required to complete a task (Womack & Jones, 1997). Lemon and Verhoef (2016) noted that customers expect seamless transactions with minimal friction.

- **Minimal Required Steps:** The fewer steps and redundant tasks users must complete, the better the experience. Processes should dynamically hide unnecessary fields based on previous inputs (Frank et al., 2020). For example, the dependent spouse fields should automatically disappear if an applicant selects “single” as marital status.

Processes with too many mandatory fields or unclear conditions often lead to customer dropout.

- **Backend Integration:** Many organisations operate fragmented systems. Backend integration refers to the extent to which user data is shared automatically across internal departments to prevent redundant entry (Frank et al., 2020). For example, after verifying a user's identity once in a digital government portal, all subsequent services should reuse the same data. Without integration, customers must re-enter information, which is repetitive and error-prone.
- **First-Contact Resolution:** This criterion evaluates whether a customer can fully complete their task or resolve their request without needing to return or escalate to a second interaction (Reijers & Liman Mansar, 2005). For example, reporting a lost credit card should allow the user to cancel the old card and order a replacement in a single session. Multi-step handovers increase resolution time and diminish satisfaction.
- **Response Time Performance:** Systems must provide feedback within reasonable timeframes and avoid unexplained delays. This criterion evaluates whether a process provides immediate confirmations and informs users of delays (Lemon & Verhoef, 2016). Even complex workflows should show progress bars or timelines. Slow or unpredictable response times erode customer trust and cause users to abandon tasks midway.

The final dimension, Emotional and Social Engagement, acknowledges the human side of process design. Processes that demonstrate empathy and respect foster long-term loyalty (Gimpel et al., 2018; Lemon & Verhoef, 2016).

- **Personalised Experience:** Customers expect personalisation based on previous behaviours and preferences. For example, an e-commerce site pre-filling shipping information from past orders saves time and shows attentiveness (Frank et al., 2020). Non-personalised processes create an impersonal, transactional feeling that weakens engagement.
- **Proactive Communication:** The best digital processes anticipate potential user frustrations or issues and act before problems arise (Frank et al., 2020). For example, sending reminders of upcoming deadlines or warning about incomplete applications

prevents users from failing to complete key steps. Without proactive notifications, users may miss deadlines or feel ignored.

- **Feedback Collection Opportunities:** A key customer-centric behaviour is systematically asking customers to share opinions about the process they just completed (Kujala et al., 2011). For example, at the end of a claim submission process, a prompt like “Was this experience easy?” allows organisations to gather insights for improvement. The absence of feedback channels signals disinterest in customer views.
- **Trust and Security Transparency:** Customers want to know exactly how their data will be used, stored, and protected (Lemon & Verhoef, 2016). For example, informing users that “Your uploaded documents will be deleted after 48 hours” reassures customers and encourages participation. Lack of transparency leads to hesitation or refusal to engage in data-sharing processes.

A summary of the characteristics is presented in Table 4, structured by dimension, characteristic, definition, and importance.

Table 4. Summary of Customer-Centric Process Characteristics

<b>Category</b>	<b>Aspect</b>	<b>Definition</b>	<b>Why It Matters</b>
Flexibility & Control	Channel Flexibility	Continue across devices and platforms without data loss	Matches customer mobility and multitasking patterns
	Temporal Flexibility	Use the process at any time of day	Supports modern schedules and reduces dependency on working hours
	Self-Service	Complete all key tasks without external help	Empowers customers and reduces friction
	Save and Resume	Pause and continue the process later without restarting	Supports interruption tolerance and long processes

Transparency & Communication	Real-Time Status Visibility	Track process progress and next steps clearly	Builds trust and reduces uncertainty
	Error Prevention & Recovery	Avoid mistakes and recover easily without loss	Prevents frustration and form abandonment
	Clear Escalation Pathways	Embedded help options are available when needed	Ensures support without exiting the flow
	Process History Access	View past actions, results, and messages	Increases transparency and accountability
Efficiency & Execution	Minimal Steps	Remove redundant tasks or information requests	Reduces effort and speeds completion
	Backend Integration	Avoid duplication by integrating systems	Delivers a smoother cross-service experience
	First-Contact Resolution	Enable successful completion in one interaction	Increases satisfaction and avoids rework
	Response Time Performance	The system reacts quickly and communicates delays appropriately	Boosts reliability and professionalism
Emotional & Social Engagement	Personalised Experience	Adapts to user data, context, or history	Increases relevance and usability
	Proactive Communication	Sends helpful alerts or anticipates needs	Prevents failure, increases confidence
	Feedback Collection	Collect input during and after the process use	Signals respect and invite improvement

	Trust & Security Transparency	Explain how user data is handled	Reinforces ethical design and user trust
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## 4.2 Assessment Tool / Template

The ultimate goal of this research was not only to define customer-centric process characteristics but to operationalise them into a usable assessment tool that could support practitioners in evaluating real-world processes. In line with design science principles (Hevner et al., 2004; Peffers et al., 2007), the development of the Customer-Centric Process Assessment Tool followed an iterative and user-informed design process. The objective was to translate abstract principles from the literature into structured, actionable evaluation criteria suitable for practical application in diverse organisational settings.

The assessment tool was conceptualised as a diagnostic instrument designed for internal stakeholders, such as product managers, UX specialists, service designers, and business analysts, responsible for designing and optimising digital business processes. The tool's primary purpose is to enable these practitioners to systematically identify gaps, validate design assumptions, and prioritise areas for process improvement based on concrete customer-centricity indicators.

The tool's design closely followed the customer-centricity framework introduced in section 4.1. Specifically, the tool is structured around the exact four dimensions: Process Flexibility and Customer Control, Transparency and Communication, Efficiency and Execution, and Emotional and Social Engagement. These categories were deliberately chosen to reflect both the functional (BPM-based) and emotional (UX-based) components of customer experience, bridging the research gap identified by Trkman et al. (2015) and Lemon and Verhoef (2016). The tool comprises 16 distinct criteria, each directly corresponding to a characteristic identified from the structured literature review. As shown in Figure 3, for each criterion, the assessment sheet includes:

- A title and concise definition are needed to ensure clarity and consistent interpretation.

- A detailed explanation expands on the definition to provide a deeper understanding of the importance and real-world application of the criterion. This step addressed feedback from early pilot testers who felt some initial criteria were too abstract.
- A real-world example, to ground the criterion in practical usage and minimise subjective interpretation. This reflects best practices from usability testing literature (Jakob, 1994), which emphasises the role of contextual examples in supporting accurate evaluations.
- A scoring field, using a 5-point Likert scale (or “N/A” where a criterion is not relevant). The rationale for using a 5-point scale was based on its proven balance between cognitive load and assessment precision (Krosnick et al., n.d.). More granular scales (7- or 10-point) were considered but ultimately rejected based on participant feedback, which showed a strong preference for the simplicity and familiarity of a 5-point model.
- A comments section, allowing assessors to justify scores, provide contextual explanations, and document specific observations or exceptions. This was added based on feedback from both the pilot testing and validation participants, who stressed the importance of recording qualitative observations alongside numerical ratings to support reflective team discussions.

The choice to integrate these specific components was heavily influenced by early expert feedback, as well as by the need to balance theoretical rigour with practical usability. Including examples and the open comment field were significant recommendations from the six product owners who participated in the validation study. They indicated that this combination of structured scoring plus free-form reflection encouraged deeper thinking and team alignment.

The final version of the tool (v1.1) incorporated over 20 detailed refinements, including more precise wording of definitions, expansion of examples to cover multi-user and B2B scenarios, and better guidance for applying the “N/A” option. These revisions were made based on specific feedback collected during the observed assessment sessions (see Chapter 5), ensuring the tool remains adaptable yet standardised. A systematic scoring logic was developed to provide not just diagnostics but also benchmarking capability. The assessor rates each criterion from 1 (very poor) to 5 (excellent). Where a criterion is not applicable by design,

such as “Save and Resume” for a single-click process, the user can mark it as “N/A”, which excludes it from the final average to prevent distortion of results.

The scoring system follows this process:

1. Average the numeric ratings of all completed criteria within each dimension to generate four section scores.
2. Convert the raw scores to a percentage scale (0–100) for consistency and easier comparison across processes and teams.
3. Calculate the overall process score by taking the average of the four section scores.

The resulting overall score provides an at-a-glance indicator of customer-centricity maturity. The interpretation thresholds were established as follows, based on early piloting and subsequent validation feedback:

- 90–100: Exceptional → Best-in-class process; highly customer-centric and mature.
- 75–89: Strong → High-performing process with minor areas for improvement.
- 60–74: Moderate → Functionally adequate but with significant potential for optimisation.
- 40–59: Weak → Process design problems severely affecting customer experience.
- <40: Poor → Critical breakdowns; urgent action required.

This scoring approach, while simple, was consistently regarded by participants as valuable for fostering team discussion and highlighting areas of divergence. As several validation participants noted, rating itself often surfaced process issues that had previously gone unnoticed. For example, one participant (P6) stated, “I hadn’t thought about proactive communication at all before this,” while another (P4) commented, “This really pinpointed gaps that are invisible in the interface.”

Although the numerical score provides a convenient summary, the study revealed that the true power of the tool lies in its ability to encourage structured reflection and team dialogue. This observation closely aligns with the goals of design-oriented frameworks in service design and BPM research (Dumas et al., 2018; Hevner et al., 2004). Throughout the validation study, participants repeatedly stressed that filling out the tool together, rather than focusing only on the final score, prompted critical thinking, joint understanding, and immediate ideation on

possible improvements. The inclusion of the comment field was cited as particularly useful for contextualising scores. As P5 explained, “It helped us pinpoint areas where we needed to improve and provided an internal record of why we scored something low or high.” In several cases, the tool even triggered suggestions for immediate action during the interview.

Following testing with six expert participants from industries as varied as ERP software, human resources, financial services, entertainment, and government services, a series of common improvement themes emerged. These included:

- There is a need for more precise distinctions between score levels (participants often requested mid-point examples between a 3 and a 4, for instance).
- More tailored examples to address contexts where processes involve multiple roles or complex dependencies (particularly relevant for B2B processes, as mentioned by P5).
- Improved explanation of when and how to apply the “N/A” option to avoid ambiguity.

All of these refinements were systematically incorporated into the final version (v1.1) of the framework. As a result, the tool became both more precise and more flexible for use across different industries and service types. The successful development and refinement of the Customer-Centric Process Assessment Tool represents the primary applied outcome of this research. It bridges the gap identified in the academic literature by providing a validated, practitioner-friendly framework that makes process customer-centricity assessable in a structured, repeatable way. The next chapter details how the framework performed when expert practitioners evaluated it in real-world settings.

## Section 2: Process Transparency and Communication

### Criterion 2.1: Real-Time Status Visibility

**Definition:**

Real-time status visibility means the process provides customers with current and understandable information about their progress, the stage of the process, and what will happen next.

**Description:**

A transparent process communicates clearly where the customer stands — whether it is under review, completed, delayed, or awaiting input. Visibility can be visual (e.g., progress bars or checklists), textual (e.g., “We are reviewing your request”), or via notifications. However, if the process is **instantaneous** or consists of a single action (e.g., receiving a one-time login link), then status tracking may not be meaningful and should be marked as *Not Applicable (N/A)*.

To assess this, consider:

- Are there **status indicators** for ongoing or multi-step processes?
- Can the customer tell whether their input has been **received, reviewed, or approved**?
- Is there a clear indication of **next steps**, estimated waiting time, or completion?

You may assess this by:

- Observing the interface for live feedback or tracking elements.
- Testing the process to see if status updates are sent or shown.

**Example:**

In an e-residency application system, after submission, the customer sees: “Application received – under initial review. Expected processing time: 5–7 business days.” A status tracker updates when the application is sent to the background check and later when approval is granted.

**Scoring (choose one):**

- 1 = No visibility; customer submits but receives no status update or feedback
- 2 = Basic confirmation only (e.g., “Submitted successfully”), with no further tracking
- 3 = Some updates provided, but they are **manual**, delayed, or unclear
- 4 = Good visibility; clear status updates for most steps, but lacks real-time sync
- 5 = Full real-time visibility; updates shown for all key stages, with clear next steps and timeframes
- *N/A = Use only when the process is a **single-step action** that is completed instantly with no waiting or tracking required (e.g., signing up for a newsletter or downloading a file).*

**Reminder:**

Do not mark N/A just because tracking is absent. It should only be used when **status visibility would not make sense** due to the nature of the process.

Score (1–5): \_\_\_\_\_

Comments:

### Criterion 2.2: Error Prevention and Recovery

**Definition:**

This criterion refers to how well the process helps customers avoid mistakes and how easily they can fix them without losing progress or restarting the process.

**Description:**

A customer-centric process should guide users toward correct input by providing real-time validations, helpful tooltips, and immediate error feedback. When errors occur, the system should allow users to fix them directly, without losing previously entered information or restarting the process.

**How to test this:**

- Try entering **incomplete, incorrect, or wrongly formatted** data (e.g., missing required fields, wrong email format).
- Observe whether the system **detects the error** and shows a **clear explanation**.
- Then, try to **correct the mistake** and check whether your previous inputs are preserved.
- Check if the form **resets unexpectedly** or forces you to repeat previous steps.

Figure 3: Sample criterion from the Customer-Centric Process Assessment Tool

## 5. Validation Results

The validation phase of this research aimed to evaluate the practical utility and acceptance of the Customer-Centric Process Assessment Tool by applying it to real-world digital business processes. Six product owners from industries including manufacturing, human resources, IT services, gaming, finance, and online entertainment participated. They applied the tool to assess a process they were responsible for and provided feedback through semi-structured interviews. The validation followed the Technology Acceptance Model (TAM) structure, examining perceived usefulness, ease of use, clarity, trustworthiness, and intention to use (Davis, 1989; Marangunić & Granić, 2015). This section presents the findings organised by TAM dimensions and draws exclusively on the factual statements and observations collected during the interviews.

The participants generally agreed that the assessment tool provided meaningful value and created new awareness about customer experience weaknesses in their processes. They highlighted how the structured approach prompted deeper reflection and systematic thinking. P1, who assessed an ERP ordering process, remarked: *“I remembered a lot of work-related issues while using the tool. It made me reflect on many details I normally overlook.”* Similarly, P4, working in an online casino environment, noted that the tool revealed gaps in personalisation and process simplification: *“I could see that we had clear gaps in personalisation and minimal required steps, which I had not considered before.”*

Other participants shared similar experiences. P6 explained that applying the tool to a betting verification flow led them to consider previously ignored elements: *“I liked that there were questions I hadn’t thought about for a while. It pushed me to reflect on areas where we could focus more, like proactive communication.”* P2 described how the structured checklist enabled them to think systematically about their HR process: *“I thought about how we actually perform the process step by step, and it reflected the real situation.”* P5, who worked with a B2B invoicing system, appreciated the structured and repeatable nature of the tool, stating: *“Checkpoints are really nice. It would be a good list to go through systematically to evaluate every stage.”* Overall, participants confirmed that the assessment outcomes largely matched their expectations of process maturity. P3 noted: *“The results were correct and matched my expectations.”* This consistently positive feedback confirmed that the framework

effectively supported participants in uncovering strengths and improvement areas that would otherwise remain unexamined.

In terms of usability, feedback was more mixed but constructive. Four participants described the tool as intuitive and straightforward once they became familiar with the structure. P1 expressed satisfaction with the tool's flow and design, commenting: *"It was logically structured. The categories and flow made sense, and I didn't get lost while completing it."* P5 similarly found the experience smooth: *"It was easy to understand and apply. I had no big problems."* However, P2 offered a contrasting view, rating ease of use as low and mentioning that some scoring descriptions were difficult to interpret: *"I would give it a 2 out of 5. I read some of the criteria twice, and some scoring examples were unclear, especially for complex B2B use cases."* P6 also noted that the introduction could be simplified to improve first-time user experience: *"At first, I struggled with some of the introductory explanations, but once I started, it was very clear what I needed to do."*

Several participants pointed out specific concerns about the scoring scale. P4 explained: *"There was sometimes a gap between score 3 and score 4. Our case did not fully fit either option."* P1 suggested improvements to scoring terminology: *"The differences between scores need to be more structured. Words like 'some' or a few' don't help me decide. It would be better with more concrete examples."* A consistent positive finding was that participants felt confident using the N/A option when the criteria did not apply to their process. P3 stated: *"I felt confident when deciding to mark something as not applicable."* As a result of this feedback, the revised version 1.1 of the framework incorporated expanded examples, especially for complex use cases, improved wording in score definitions, and more straightforward guidelines for using the N/A option.

The overall confidence in the trustworthiness of assessment results was high. Participants reported that they felt comfortable with the conclusions produced by the tool. P5 stated: *"I'm very confident in the scores. The questions were clear, and the results felt correct."* Similarly, P3 observed that the framework gave an accurate picture of their internal process status: *"The assessment outcome fully aligned with my expectations and our internal view of the process maturity."* The participants particularly valued the multi-dimensional nature of the evaluation, which covered both technical quality and customer-facing experience. As P6 summarised: *"There's both a technical and emotional angle, which makes it more holistic."*

However, two participants (P2 and P5) suggested that specific examples were too generic and did not fully account for specific B2B scenarios. P5 explained: *“Some examples were a bit too general and I had to mentally adapt them to fit our specific process.”* No participant found any of the criteria misleading or irrelevant, but several expressed a desire for greater differentiation between adjacent scoring levels. P1, P2, and P4 all suggested that scoring anchors should be further clarified to eliminate subjective interpretation between scores of 3 and 4. These comments resulted in additional revisions to version 1.1, including refining the example descriptions and further explaining borderline scoring cases.

All six participants agreed that they would consider using the framework again in future process evaluations. P1 was enthusiastic: *“Yes, I would definitely use it again. It’s useful for both building something new and reviewing existing systems.”* P3 described it as a valuable conversation starter for teams: *“If an organisation is serious about improving their customer processes, this is an excellent structured guideline to use.”* P4 emphasised that the framework could also help convince stakeholders: *“We can use this to justify proposals to our management. Having a structured evaluation makes our case stronger.”*

At the same time, participants highlighted opportunities to improve long-term usability. P6 suggested that while the complete framework worked well as a deep-dive evaluation, a simplified version would be more practical for repeated assessments: *“For the first-time evaluation, the tool works perfectly. But for regular follow-up reviews, a shorter version would be better.”* P2 similarly pointed out that the time investment required may limit regular use unless a faster version is available. Although this research project did not include the development of a condensed tool, these recommendations were documented for future improvement efforts as a logical next phase of the research.

## 6. Discussion

This chapter discusses the key findings of the study, addresses the research question, evaluates the theoretical and practical contributions of the work, and reflects on the broader implications and limitations of the research. It aims to place the results in the context of prior work and to highlight areas for future investigation. The central research question of this thesis was:

“How can product owners and managers assess the extent to which the underlying digital processes of their products support customer-centricity?”

The results of this study have demonstrated that customer-centricity in digital business processes can indeed be systematically assessed through a structured, criteria-based evaluation tool. The findings show that a product’s customer-centricity is not solely determined by interface design or feature richness, but by the underlying process structure, flexibility, responsiveness, and emotional engagement dimensions that shape customer experience across multiple touchpoints.

The developed framework, which consists of sixteen assessable characteristics organised into four thematic dimensions, Process Flexibility and Control, Transparency and Communication, Efficiency and Execution, and Emotional and Social Engagement, provides a straightforward methodology to evaluate and reflect upon these attributes. The validation study confirmed that the tool was usable, relevant, and provided valuable insights for practitioners. Participants were able to apply the framework effectively, often noting how it surfaced overlooked areas of improvement. As P4 expressed, “We can use this to justify our wishes... it helps us support our decisions to higher management” (P4).

The structured evaluation method allowed participants to move beyond intuitive judgments or fragmented customer feedback. As such, this research provides empirical evidence that assessing customer-centricity from a business process view is feasible and actionable. The use of the Technology Acceptance Model (TAM) to guide the validation interviews showed that perceived usefulness was a primary driver of acceptance, with many participants emphasising how the assessment revealed improvement opportunities that had previously gone unnoticed.

At the same time, the study revealed important considerations regarding the ease of assessing customer-centricity from a business process perspective of a digital product. The findings demonstrate that while the template offers a structured and effective way to diagnose customer-centric strengths and weaknesses, it requires the evaluator to understand the internal process architecture and flow. Several participants highlighted that a product owner or process manager unfamiliar with the detailed operation of the process may struggle to apply some of the criteria accurately. As P6 remarked, “The introductory part could be a bit easier to read, maybe more descriptive” (P6), underlining the need for more precise guidance for first-time users. This observation suggests that although the framework is broadly accessible, it assumes a basic level of domain expertise and process familiarity to unlock its full potential.

Additionally, the assessment was perceived as cognitively demanding when applied to complex processes with many touchpoints, leading to suggestions for a simplified version of the tool. Such a lighter format could be particularly valuable for recurring internal evaluations or smaller projects where a complete assessment may not be necessary. These findings point to an opportunity for future work to refine and adapt the template for varying levels of evaluator experience and organisational contexts.

## **6.1 Implications for Research and Industry**

This thesis contributes to the academic literature and practice by offering a structured, theory-based, and practically applicable framework for evaluating customer-centricity at the process level of digital products. It addresses a known gap in Business Process Management (BPM) literature where customer experience has been recognised as necessary, yet few tools have existed to operationalise this concept (Frank et al., 2020; Trkman et al., 2015). The study also responds to calls for better integrating BPM and UX disciplines (Hedegaard & Simonsen, 2013), providing a concrete methodology combining theoretical rigour with practitioner usability.

The findings support the argument that customer-centricity must be understood as a multi-dimensional construct that includes both functional and emotional factors. The validation study demonstrated that this holistic view is essential for practitioners when evaluating process performance. As participants noted, dimensions such as emotional and

social engagement, often neglected in traditional BPM, were seen as critical differentiators in creating lasting customer relationships.

The tool offers a practical guide for industry product managers, service designers, and process owners. It enables organisations to conduct structured diagnostics of their internal processes, prioritise improvement efforts, and foster cross-functional conversations grounded in a shared understanding of what customer-centricity looks like in actionable terms. Several participants remarked that they could use the tool for initial product development assessments or during continuous improvement efforts. The framework also encourages team reflection, fostering organisational learning and awareness of customer pain points that may remain invisible under traditional process improvement approaches.

## **6.2 Limitations**

As with any research, this study presents limitations when interpreting the results. First, the validation was conducted with a relatively small sample of six participants, all of whom held product owner roles. While they represented different industries and process types, the limited number and role homogeneity restrict generalizability to broader populations or other organisational roles, such as designers or operations specialists. Second, the study relied on self-assessment, which introduces potential bias as participants may overestimate or underestimate process maturity due to personal familiarity. Additionally, the framework was applied only once per participant in a single-point assessment, limiting understanding of its performance over time or in iterative contexts.

Third, the tool validation focused on perceived usefulness and usability rather than objectively measuring improvements to customer satisfaction or business outcomes. Future research could aim to empirically connect assessment results with actual customer satisfaction or service performance data. Lastly, as noted by participants, the framework requires a certain level of familiarity with the evaluated process. If applied by individuals without in-depth knowledge, the consistency and reliability of scoring may vary. This reliance on expert knowledge could limit applicability in specific environments.

### **6.3 Future Research Directions**

The limitations of this study offer helpful directions for future research. First, broader validation with larger and more diverse samples, including different organisational roles and global regions, would strengthen the generalizability of findings. Further work could also explore the development of an introductory guide or training materials to support less experienced users in applying the framework accurately. Second, future studies could compare the outcomes of this framework with traditional BPM improvement methods or customer satisfaction measures to explore predictive validity. Longitudinal studies that track how organisations use the tool over time would also provide valuable insight into its long-term utility.

Third, as participants suggested, a simplified checklist version of the framework could be designed and tested for routine use in smaller projects or recurring internal assessments. Further refinements might explore customised versions for specific healthcare, finance, or public services industries. Finally, future research could expand the framework to cover emerging technologies and process contexts such as AI-driven service flows, automated chatbots, or virtual and augmented reality services, where customer-centricity may involve new dimensions not yet fully captured by the current criteria.

## 7. Conclusion

This thesis addresses a key gap in the intersection of Business Process Management and User Experience disciplines: the absence of structured, actionable methods to evaluate customer-centricity in digital product processes. The research aimed to answer the central question: **How can product owners and managers assess the extent to which the underlying digital processes of their products support customer-centricity?**

To address this challenge, the study followed a structured design science methodology. It began with a systematic literature review, drawing from fields including BPM, service design, customer experience management, and UX research. This process identified sixteen distinct customer-centric process characteristics. It consolidated them into four thematic categories: **Process Flexibility and Control, Transparency and Communication, Efficiency and Execution, and Emotional and Social Engagement**. These categories reflect operational performance and the emotional and relational factors shaping customer experience in digital environments.

The following research phase focused on constructing a practical evaluation framework: the **Customer-Centric Process Assessment Tool**. This tool was designed to guide product teams and process owners in systematically diagnosing the strengths and weaknesses of their digital processes from the perspective of customer-centricity. Its design incorporated detailed definitions, real-world examples, clear evaluation criteria, and a structured scoring system to support reflective assessments.

Six experienced product owners from diverse industries participated in a validation study to test the framework's relevance, clarity, and usability. Participants applied the assessment tool to their digital processes and provided feedback via structured interviews using the Technology Acceptance Model (TAM). The validation confirmed that the framework was valuable for reflecting on process maturity and identifying areas for improvement. Participants particularly appreciated the tool's structured approach and ability to surface hidden gaps in customer experience. As P1 remarked, "I remembered a lot of necessary work-related matters" (P1), while others emphasised the balance between technical and emotional criteria in shaping a more holistic view of process quality.

The validation also led to several concrete improvements to the framework. These included more straightforward scoring guidelines, additional examples to reduce ambiguity, and enhanced instructions to support first-time users and B2B contexts. The resulting version (v1.1) represents a field-tested and more robust iteration of the original tool, capable of helping organisations diagnose and improve their internal digital service processes.

While the research has achieved its intended goals, several avenues for future work remain. Further validation with larger and more diverse participant groups would strengthen the generalizability of the findings. Longitudinal studies could explore how organisations use the tool over time and whether it leads to measurable improvements in customer satisfaction or business outcomes. Developing a simplified checklist could also address suggestions from participants who envisioned lighter-weight assessments for ongoing use. Finally, as new technologies such as AI-driven workflows and conversational interfaces become more common, future research could explore whether additional criteria or adjustments to the framework are needed to address these evolving process types.

In summary, this thesis makes a novel contribution by offering theoretical clarity and a practical instrument to assess and improve the customer-centricity of digital business processes. It provides an essential step towards integrating BPM and UX considerations into a cohesive evaluation methodology, empowering organisations to approach process design with customer experience as a central priority.

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## Appendices

### Appendix 1. Full Data Tables

This appendix provides the full versions of Tables 1–3, which were presented in abridged form in Chapter 2.

<b>Heuristic</b>	<b>Description</b>	<b>Real-World Application</b>	<b>Application in Research</b>	<b>Process-Related Justification</b>	<b>Reference</b>
<b>Channel Flexibility</b>	Customers can interact via their preferred channels.	TBC Bank allows customers to begin opening an account online and complete it in a branch.	Assess how many channels are available to the user at each step and whether switching between them is seamless.	This requires process integration across channels, ensuring seamless transitions in backend workflows.	Frank et al. (2020)
<b>Locational Flexibility</b>	Customers can interact with the company from any location.	Nextbike allows bicycle returns anywhere, not just at stations.	Evaluate whether customers are restricted to specific locations during the process.	Business process rules must allow for flexible fulfilment and decentralised interaction handling.	Frank et al. (2020)
<b>Temporal Flexibility</b>	Customers can interact at any time they prefer.	REWE extends opening hours; National Bank	Analyse whether the process allows for 24/7 interaction or if	Process automation ensures continuous service	Frank et al. (2020)

<b>Heuristic</b>	<b>Description</b>	<b>Real-World Application</b>	<b>Application in Research</b>	<b>Process-Related Justification</b>	<b>Reference</b>
		call center operates 24/7.	certain actions are time-restricted.	availability without human intervention.	
<b>Customer Self-Service</b>	Customers can perform process steps independently.	IKEA self-checkouts, Allianz online portals for data updates.	Examine whether customers can complete tasks on their own and how effective self-service options are.	Self-service must be supported by backend workflows to ensure transactions are recorded and validated automatically.	Frank et al. (2020)
<b>Privacy Presence</b>	Customers can control their privacy settings.	Allianz allows users to choose how much medical data is shared.	Determine if customers can adjust privacy settings at different steps and how this impacts their experience.	Privacy settings must be linked to backend data security policies and regulatory compliance processes.	Frank et al. (2020)

Table 1. Customer-Centric Process Design (CCPD) Heuristics

Business processes should be seamless and efficient, ensuring that customers do not experience friction or unnecessary steps when interacting with a company.

Table 2. Facilitating Coordinated and Integrated Processes

<b>Heuristic</b>	<b>Description</b>	<b>Real-World Application</b>	<b>Application in Research</b>	<b>Process-Related Justification</b>	<b>Reference</b>
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<b>First-Contact Problem Resolution</b>	Customers should only have to contact the company once to resolve an issue.	Allianz limits call transfers in customer service.	Assess whether customer inquiries require multiple interactions for resolution.	Requires process automation and rule-based transaction validation to reduce manual effort.	Frank et al. (2020)
<b>Informed Point of Contact</b>	Employees should have access to relevant customer data at the point of interaction.	Vodafone's call center displays customer data when calls are received.	Check whether employees or digital assistants have all the necessary customer information.	Backend data retrieval and workflow optimization impact process execution speed.	Frank et al. (2020)
<b>Consistent Brand Experience</b>	All interactions should have a uniform look and feel.	Apple maintains a uniform experience across its stores and digital platforms.	Measure the consistency of branding, tone, and UX across different channels.	Requires business rules and validation mechanisms to prevent errors in transaction processing.	Frank et al. (2020)
<b>Customer Process Integration</b>	Processes should be connected to the customer's journey before and after interaction.	Uber links rides to restaurant bookings; TripIt auto-updates pickup services.	Investigate if the process integrates with previous and future customer actions.	Backend workflows must include status tracking and event logging for real-time updates.	Frank et al. (2020)

<b>Customer-Friendly Control Flow</b>	The process should minimize customer effort.	Allianz sequences insurance applications to avoid unnecessary questions upfront.	Identify unnecessary steps or inefficiencies from the user's perspective.	Process synchronization across CRM, ERP, and digital workflows is required.	Frank et al. (2020)
<b>Customer Support</b>	Assistance should be provided throughout the process.	Horizon Solar Power provides detailed consultations.	Assess the availability and quality of support during key steps.	Support workflows must be embedded within the process to ensure help at key steps.	Frank et al. (2020)

Beyond efficiency, customer-centricity also involves fostering emotional connections and customer loyalty.

Table 3. Enhancing Social and Emotional Links with Customers

<b>Heuristic</b>	<b>Description</b>	<b>Real-World Application</b>	<b>Application in Research</b>	<b>Reference</b>
<b>Customer Excitement</b>	Exceed customer expectations through add-ons.	Check24 sends free beach towels after bookings.	Check for any unexpected value additions in the process.	Frank et al. (2020)
<b>Personalized Interaction</b>	Tailor interactions to individual preferences.	Netflix recommends content based on viewing habits.	Examine whether the process adapts to customer preferences.	Frank et al. (2020)

<b>Customer Feedback</b>	Customers should be able to provide feedback easily.	REWE collects feedback at checkouts, and Munich Airport provides instant feedback options.	Measure how often and how easily customers can submit feedback at each step.	Frank et al. (2020)
<b>Customer Community</b>	Enable customers to interact with each other.	Amazon customer reviews, Arduino user forums.	Assess whether there are peer-support mechanisms in place.	Frank et al. (2020)

These heuristics were used to analyze whether the process being studied engages customers

Table 4. The Role of User Experience (UX) in Customer-Centric Digital Business Processes

<b>Feature</b>	<b>Definition</b>	<b>Real-World Application</b>	<b>Process-Related Justification</b>	<b>Included in Assessment?</b>	<b>Reference</b>
<b>Effectiveness &amp; Task Completion</b>	Users should complete tasks successfully without disruptions.	Amazon's one-click checkout minimizes the number of steps needed for a transaction.	Requires backend workflow automation and error prevention mechanisms to ensure smooth task completion.	Yes	Hedegaard & Simonsen (2013), Ghani et al. (2020)
<b>Process Efficiency &amp; Speed</b>	Customers expect fast and responsive digital interactions.	Online banking systems pre-fill user data to improve transaction speed.	Backend automation and data retrieval impact process speed, making this a	Yes	Kujala et al. (2011)

			process-related feature.		
<b>Error Prevention &amp; Recovery</b>	Digital processes should prevent errors and allow easy corrections.	Gmail's "Undo Send" feature allows users to retract emails.	Requires business rules and validation mechanisms to prevent transaction errors.	Yes	Hedegaard & Simonsen (2013)
<b>Transparency &amp; Process Visibility</b>	Users should be able to track the progress of their request in real-time.	Online loan applications provide real-time status updates to applicants.	Requires event-driven process tracking and automated notifications.	Yes	Tiitto (2021)
<b>Omnichannel Integration</b>	Customers should be able to switch seamlessly between platforms.	IKEA enables customers to start shopping online and complete the purchase in-store.	Requires backend integration across multiple customer touchpoints (CRM, ERP, digital platforms).	Yes	Ghani et al. (2020)
<b>Personalization &amp; Adaptive UX</b>	The system should tailor interactions to individual users.	Netflix suggests content based on user viewing history.	Primarily a UI-based feature, it does not modify the core business process.	No (Excluded: UX Only)	Kujala et al. (2011)

<b>Trust, Security &amp; Data Privacy</b>	Users must feel safe when interacting with digital processes.	PayPal's fraud protection policies ensure secure transactions.	Requires backend security protocols, encryption, and fraud detection mechanisms.	Yes	Ghani et al. (2020), Tiitto (2021)
<b>Proactive Communication &amp; Feedback Loops</b>	Businesses should notify customers about changes and allow feedback.	Banking apps send alerts about suspicious transactions.	Requires event-driven triggers and feedback integration into the workflow.	Yes	Tiitto (2021)
<b>Aesthetic &amp; Visual Appeal</b>	The interface should be visually appealing and easy to navigate.	Apple's minimalist UI improves readability and user engagement.	Purely a front-end/UI concern; does not affect business process execution.	No (Excluded: UX Only)	Ghani et al. (2020)
<b>Gamification &amp; Motivation Features</b>	Encourages user engagement through game-like elements.	Duolingo rewards users with badges and streaks.	Primarily a UI feature; it does not impact process execution.	No (Excluded: UX Only)	Kujala et al. (2011)
<b>Employee Experience &amp; Impact on Customer Satisfaction</b>	Employees' ease of use of a system affects how well they serve customers.	Amazon's customer support agents can issue refunds instantly without delay in approval.	Tied to backend process efficiency, automation, and access to real-time data.	Yes	Tiitto (2021)

<b>Accessibility &amp; Inclusivity</b>	The system should be usable by people with disabilities.	Microsoft's screen readers help visually impaired users navigate.	UI-related, but can require backend compatibility adjustments for accessibility features.	No (Excluded: UX Only)	Ghani et al. (2020)
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### Additional Features That Enhance Customer-Centric Digital Business Processes

Table 5. Key customer-centric process features, along with definitions, real-world examples, and academic references

<b>Feature</b>	<b>Definition</b>	<b>Real-World Example</b>	<b>Process-Related Justification</b>	<b>Reference</b>
<b>Fast Processing &amp; Decision-Making</b>	Processes should execute quickly to reduce customer waiting times.	Instant credit card approval improves the experience.	Requires backend optimisation and automation.	Zendesk (2024)
<b>Real-Time Status Updates &amp; Transparency</b>	Customers should have visibility into process stages.	DHL package tracking keeps customers informed.	Requires event-driven tracking and notifications.	SuperOffice (2024)
<b>Omnichannel Integration</b>	Customers should interact seamlessly across multiple platforms.	Sephora's online-to-store shopping model.	Requires CRM, ERP, and workflow integration.	Alida (2024)

<b>Flexible Data Input &amp; Submission</b>	Customers should have multiple ways to provide information.	Insurance apps allow claims via text, images, or voice.	Requires backend compatibility for different formats.	Zendesk (2024)
<b>Save &amp; Continue Later</b>	Users should be able to pause and resume their actions.	University applications allow for saving progress.	Requires session tracking and checkpoint restoration.	SuperOffice (2024)
<b>Integration with Third-Party Services</b>	Customers should link external services for seamless interactions.	PayPal one-click payments.	Requires API-based integration.	Alida (2024)

## Appendix 2. Customer-Centric Process Assessment Tool

**Version:** 1.1

**Author:** Gular Samadova

**Date:** 30.04.2025

### Introduction

This tool has been developed as part of a master's thesis on customer-centric process assessment. It is designed to evaluate how well a digital business process supports customer needs, expectations, and control across four key areas: flexibility, transparency, efficiency, and emotional engagement.

This tool was developed to address a common gap in process management: the lack of structured methods for evaluating how well a digital business process supports customer needs. While many processes are technically functional, they overlook customer control, transparency, or emotional engagement. The tool provides a practical, criteria-based way to identify strengths and weaknesses from a customer-centric perspective, helping teams improve not just what a process does, but how it is experienced by the people using it.

The assessment should be used by product managers, product owners, or domain experts familiar with the evaluated process's internal structure and customer-facing behaviour. The tool supports reflection and diagnosis of current process design, highlighting areas of strength and opportunities for improvement.

The framework draws on concepts from business process management (BPM), user-centred design, and recent academic work on customer-centricity in digital services. It is particularly suited for evaluating **multi-step digital processes** that involve forms, submissions, tracking, or customer input.

### Consent & Confidentiality

This assessment is part of a research study aiming to evaluate and refine the assessment tool itself. You are invited to participate as an expert evaluator of a process you are responsible for or deeply familiar with.

- **Voluntary Participation:** Participation is entirely voluntary. You may withdraw at any time without providing a reason.
- **No Personal Risk:** There are no known risks associated with participation.
- **Confidentiality:** Any data you provide will be anonymised and used solely for academic research. Individual responses will not be linked to your name or organisation in any publication or report.
- **Data Handling:** Collected results will be stored securely and deleted after the conclusion of the thesis project.
- **Questions:** If you have any questions about this study, please contact the researcher at [gular.samadova@ut.ee](mailto:gular.samadova@ut.ee).

By proceeding, you confirm that you understand the purpose of the study and consent to participate.

## Welcome to the Customer-Centric Process Assessment!

### Instructions for Use

Please follow these steps to complete the assessment.

#### 1. Choose a digital process you know well.

##### **Remember one process you worked with, you'll be assessing.**

This tool is designed for evaluators with deep, inside knowledge of the process, typically product managers, owners, or internal stakeholders. Do not attempt to assess a process you are unfamiliar with, or one you have only used as a customer.

#### 2. Understand: You assess the process, not the surface-level user interface.

This tool focuses on the **structure, flow, and logic of the process**, not the colours, layout, or button design of the user interface. For example, when asked about "Save and Resume," you should consider **whether the process supports saving progress across sessions**, not just whether the "Save" button looks intuitive. Similarly, when asked about "First-Contact Resolution," focus on whether the customer can achieve their goal in one touchpoint, not whether the support chatbot is friendly.

#### Concrete examples:

- A well-integrated process lets customers submit a form, pay, and track status without switching systems or repeating steps, even if the visual design is basic.
- A beautiful app that looks modern but forces customers to re-enter the same data three times is not process-centric, even if the UX is strong.
- A process that automatically flags missing information before submission shows process intelligence.
- A process that looks simple but hides delays and requires back-and-forth via email is not efficient, even if it's easy to click through.

### **3. Read the criteria carefully.**

Each item includes a precise definition, an explanation, and an example. Read these before scoring.

### **4. Use your expertise and documentation.**

Where direct testing is not feasible, rely on your knowledge of how the process works, including backend behaviour, technical logic, and design decisions.

### **5. Score each item from 1–5. Use “N/A” when a criterion truly doesn’t apply.**

Choose “N/A” only if the feature is irrelevant by design (e.g., save/resume for a one-step form).

### **6. Add comments where needed.**

You may explain your score, describe exceptions, or note limitations.

### **7. After finishing all sections, calculate your scores.**

Instructions for scoring and interpretation appear at the end of this document.

# Assessment Form

**Process Information:** [To be filled]

## Section 1: Process Flexibility and Customer Control

This section evaluates how much control and flexibility the customer has while using the process. Each criterion focuses on a specific aspect of process flexibility that supports customer convenience, autonomy, and adaptability.

### Criterion 1.1: Channel Flexibility

**Definition:**

Channel flexibility is the ability of a service or system to let customers interact across multiple channels, such as mobile apps, websites, in-person, or phone, and switch between them at any time without obstacles or repeating steps.

**Description:**

This concept means more than just offering different ways to connect; it ensures these channels are integrated so that customer information and progress are preserved as they move between them. Channel flexibility creates a smooth, unified experience, allowing customers to choose the most convenient channel at any moment and continue their journey without interruption or frustration.

To assess this, consider:

- Are **multiple interaction channels** available (e.g., app, website, phone)?
- Can a customer **switch between them** without losing progress?

- Do support agents or systems have access to **unified information**, regardless of channel?

**Example:**

A customer starts a loan application on a bank's mobile app, then later logs into the website to finish it, finding all their information already saved. If they call customer support, the representative can see their application status and help immediately, without the customer needing to repeat any details. This seamless experience across channels demonstrates channel flexibility.

**Scoring (choose one):**

- 1 = Very limited: Only one channel available; no transfer of information.
- 2 = Limited: Multiple channels exist, but the customer must restart or re-enter information when switching between them.
- 3 = Partial: Customers can use more than one channel (e.g., web and mobile), but switching requires re-entry, login repetition, or context loss. Integration is incomplete and causes minor friction.
- 4 = Functional: Channels are integrated to a degree where customers can switch with minimal disruption, though some steps (e.g., confirmation or verification) may need to be repeated.
- 5 = Seamless: Full channel continuity. Customers can begin in one channel and continue in another without repeating actions or providing duplicate information. Support staff also have access to the same cross-channel data.
- N/A = *This process takes place through a single, fixed channel by design (e.g., an internal staff-only system with no external interaction).*

**Reminder:**

Only use N/A if the **nature of the process** makes channel flexibility irrelevant, not simply because it is missing.

**Score (1–5):** \_\_\_\_\_

**Comments:**

## Criterion 1.2: Temporal Flexibility

### Definition:

Temporal flexibility refers to the process's ability to be accessed and completed by the customer at a time that suits them, without being constrained by business hours or manual intervention.

### Description:

A customer-centric process allows customers to complete tasks at any time, regardless of staff availability. This is typically achieved through digital self-service, automation, or asynchronous features. When evaluating this criterion, focus specifically on the automated parts of the process. If certain parts require human involvement and are only available during office hours, those should not be included in the scoring.

To assess this criterion, consider:

- Can key steps (e.g., submit, save, pay) be completed at any time?
- Is the process **partially or fully available** during off-hours?
- Are any important actions **blocked** when support staff are unavailable?

### Example:

A city's online parking permit application can be submitted 24/7. On a Sunday evening, a customer is able to complete the form, upload required documents, pay the fee, and receive a confirmation email instantly. While final approval is handled by staff during weekdays, no key step is blocked at the time of submission.

### Scoring (choose one):

- 1 = Very limited: Only accessible during working hours, no automation.
- 2 = Limited access: Few steps are available, and major parts are blocked outside work hours.
- 3 = Partially flexible: Key steps available, but with some limitations or delays.
- 4 = Mostly flexible: The majority of the process is accessible 24/7, with only a few minor exceptions (e.g., final approval delayed).
- 5 = Fully flexible: The process can be fully accessed and completed anytime without needing support or waiting for staff input.

- **N/A** = *This process does not require time-based interaction from the customer (e.g., background system operation).*

**Reminder:**

Only choose **N/A** if this flexibility is truly not relevant to the process. If it's missing or unavailable, that should be reflected in a low score instead.

**Score (1–5):** \_\_\_\_\_

**Comments:**

### Criterion 1.3: Self-Service Capabilities

**Definition:**

Self-service capability refers to the extent to which customers can complete all key steps in the process independently, without needing to contact staff, support agents, or external help.

**Description:**

This criterion focuses on whether the customer can perform core tasks independently, including completing, submitting, and tracking their process. It does not refer to passive resources like FAQs or general documentation, but to active, functional steps necessary to complete the process. A high score means the customer can reach their goal without relying on human support. Occasional support may be acceptable in rare or security-sensitive cases (e.g., identity verification).

To assess this, consider:

- Can the customer **initiate, complete, and track** the process without external help?
- Are **essential actions** (e.g., data entry, uploading documents, receiving updates) supported entirely through the interface?
- Would a first-time user be able to complete the process without contacting support?

You may evaluate this by:

- Reviewing the interface for completeness of functionality.
- Observing real or test users navigating the process.

- Considering how frequently support is needed for process completion.

**Example:**

In an insurance claims process, the customer logs in, selects their claim type, fills out the form, uploads all required documents, and submits the claim through the online portal. They later check the status and download confirmation documents, all without contacting support or needing guidance.

**Scoring (choose one):**

- 1 = Not implemented: The process requires staff support or mediation at every step. No digital self-service exists.
- 2 = Limited: Customers can perform only basic actions without support (e.g., view information), but must contact staff for anything beyond that.
- 3 = Partial: Half of the key steps can be completed independently; others need assistance.
- 4 = Functional: Most core tasks can be completed independently. Support is only needed for uncommon scenarios (e.g., legal exceptions, security-sensitive steps like ID verification).
- 5 = Full self-service: The entire process, including complex or critical actions, can be completed without assistance.
- N/A = *This process is intentionally designed for assisted service (e.g., legal onboarding with required human verification).*

**Reminder:**

Do not select N/A simply because self-service is absent. Only use it if the **design purposefully excludes self-service** for legal, ethical, or safety reasons.

Score (1–5): \_\_\_\_\_

Comments:

**Criterion 1.4: Save and Resume Functionality**

**Definition:**

Save and resume functionality means the process allows customers to pause at any point and continue later without losing progress or re-entering information.

**Description:**

This capability is critical in processes that involve multiple steps, lengthy forms, or document uploads. An exemplary implementation automatically saves progress or allows customers to explicitly save their place and return without losing input. In scoring, it's important to distinguish between manual save (which depends on user action) and automatic save (which prevents progress loss). Also, consider whether all inputs are stored; some systems may only partially save data.

To assess this, consider:

- Is the process **longer than 1–2 steps**, or does it require **external documents or decisions**?
- Can the customer **safely pause** and return without losing input?
- Is there an **automatic draft saving feature** or a visible “Save” button?
- Does the process **restore progress** if the session is interrupted or closed?

You may assess this by:

- Testing the process: fill out part of the form, log out, and return it later.
- Reviewing process documentation or user interface elements related to progress saving.

**Example:**

A university admission portal allows applicants to complete their form in multiple sessions. After filling in personal details and uploading transcripts, the student logs out. Days later, they log in again and find their previous data saved exactly as entered, ready to continue from where they left off.

**Scoring (choose one):**

- 1 = Not Implemented: Exiting or leaving the session results in total data loss. Customers must start from the beginning.

- 2 = Limited: Customers are warned about session timeouts or progress loss, but no save feature is available.
- 3 = Partial: A manual save option is available, but not all data is stored unless the user saves explicitly. If they forget, progress is lost or incomplete.
- 4 = Functional: The system supports saving, and most data is preserved automatically or reliably when exiting, with minor gaps.
- 5 = Fully functional: All data is automatically saved in real-time. Customers can resume at any step without needing to repeat anything.
- N/A = *This process is extremely short (1–2 steps) and does not reasonably require a pause/resume feature.*

**Reminder:**

Use N/A only if the process is so short or simple that a save function is unnecessary (e.g., login verification or password reset).

Score (1–5): \_\_\_\_\_

Comments:

## Section 2: Process Transparency and Communication

### Criterion 2.1: Real-Time Status Visibility

**Definition:**

Real-time status visibility means the process provides customers with current and understandable information about their progress, the stage of the process, and what will happen next.

**Description:**

A transparent process communicates clearly where the customer stands, whether it is under review, completed, delayed, or awaiting input. Visibility can be visual (e.g., progress bars or checklists), textual (e.g., “We are reviewing your request”), or via notifications. However, if the process is **instantaneous** or consists of a single action (e.g., receiving a one-time login link), then status tracking may not be meaningful and should be marked as *Not Applicable (N/A)*.

To assess this, consider:

- Are there **status indicators** for ongoing or multi-step processes?
- Can the customer tell whether their input has been **received, reviewed, or approved**?
- Is there a clear indication of **next steps**, estimated waiting time, or completion?

You may assess this by:

- Observing the interface for live feedback or tracking elements.
- Testing the process to see if status updates are sent or shown.

**Example:**

In an e-residency application system, after submission, the customer sees: “Application received – under initial review. Expected processing time: 5–7 business days.” A status tracker updates when the application is sent to the background check and later when approval is granted.

**Scoring (choose one):**

- 1 = Not Implemented: No status updates are available to the customer after submission.
- 2 = Limited: Status is only confirmed via email or generic messages. No live tracking or portal is available.
- 3 = Partial: Current status is visible, such as “submitted” or “in review,” but next steps or expected timeframes are not shown. The user has little context on what to expect or when.
- 4 = Functional: Status is presented in a step-based format with partial timing visibility (e.g., “Step 3 of 5” with general durations).
- 5 = Real-Time: The customer sees dynamic status with clear next steps and time estimates, updated automatically.
- N/A = *Use only when the process is a **single-step action** completed instantly with no waiting or tracking required (e.g., signing up for a newsletter or downloading a file).*

**Reminder:**

Do not mark **N/A** just because tracking is absent. It should only be used when **status visibility would not make sense** due to the nature of the process.

**Score (1–5):** \_\_\_\_\_

**Comments:**

## Criterion 2.2: Error Prevention and Recovery

**Definition:**

This criterion refers to how well the process helps customers avoid mistakes and how easily they can fix them without losing progress or restarting the process.

**Description:**

A customer-centric process should guide users toward correct input by providing real-time validations, helpful tooltips, and immediate error feedback. When errors occur, the system should allow users to fix them directly, without losing previously entered information or restarting the process.

**How to test this:**

- Try entering **incomplete, incorrect, or wrongly formatted** data (e.g., missing required fields, wrong email format).
- Observe whether the system **detects the error** and shows a **clear explanation**.
- Then, try to **correct the mistake** and check whether your previous inputs are preserved.
- Check if the form **resets unexpectedly** or forces you to repeat previous steps.

**Example:**

A customer leaves out the postal code while filling in an address on an e-commerce checkout form. The form highlights the missing field in red and says, “Please enter your postal code.” After correcting the error, the customer can proceed without losing other entered information.

**Scoring (choose one):**

- 1 = No validation; system accepts incorrect data or fails without explanation.

- 2 = Basic error messages exist, but are vague or shown only after submission.
- 3 = Some real-time feedback; the customer can fix errors, but may lose part of their progress.
- 4 = Errors are prevented with clear validations and fixes that preserve entered data.
- 5 = Strong, user-friendly validation with innovative suggestions and full data retention.
- *N/A = Only use if the process includes no user input or forms (e.g., fully automated notification triggers).*

**Reminder:**

This test should be based on **real or test access** to the system. If the system is unavailable for interaction, base your judgment on **documentation, process walkthroughs**, or product demos.

**Score (1–5):** \_\_\_\_\_

**Comments:**

## **Criterion 2.3: Clear Escalation Pathways**

**Definition:**

Clear escalation pathways refer to the visibility and accessibility of support options when a customer encounters a problem and cannot proceed independently.

**Description:**

A well-designed process includes visible and immediate options for help, such as live chat, support email, call center, or a help request form. These options should be presented **during the process** when the customer needs help. In addition, clear information about expected **response times or availability** makes it easier for users to choose the best option.

**How to test this:**

- Review the process and check if **help or contact options are visible** at each relevant step.
- Look for support buttons, links, or contact forms **where the customer might be confused**.

- Click or follow those options to check if they lead to **functioning, specific channels** (not just a generic homepage).
- Look for **response time indicators** or hours of availability.

**Example:**

While booking a government appointment online, a user faces a problem uploading a file. On the same screen, a button labeled “Need Help?” opens a side panel with live chat (with current wait time), a call center number, and a link to FAQs. The live chat is available until 8 PM, clearly indicated next to it.

**Scoring (choose one):**

- 1 = Not Implemented: No clear way to get help or escalate. The user is left to figure it out independently.
- 2 = Limited: A help option is buried or generic (e.g., a “Contact us” footer link).
- 3 = Basic Support: Only one support option is available (e.g., email), which is not visible or contextual. The user may have to search for it.
- 4 = Functional Escalation: One visible support option is available with stated expectations (e.g., reply within 24 hours). It may not be proactive, but it is reasonably accessible.
- 5 = Clear and Multichannel: Multiple support options are provided (chat, phone, email), well-integrated into the process, with clear guidance on when and how to use each.
- N/A = *Use only when the process is purely internal or technical (e.g., machine-to-machine process with no human-facing interface).*

**Reminder:**

Do not mark N/A just because help is not offered. This should only be used when **no customer or user interface is involved**.

**Score (1–5):** \_\_\_\_\_

**Comments:**

## Criterion 2.4: Process History Access

### Definition:

Process history access refers to whether customers can view past actions, submissions, and decisions related to the process, presented in a clear, structured, and accessible format.

### Description:

This criterion focuses on transparency *after* the action has occurred. It differs from real-time status visibility (Criterion 2.1), which informs the customer about the *current step* and what happens next. Instead, process history access ensures that users can return later to view what they submitted, when it happened, and what outcomes or decisions followed.

The goal is to give customers a reliable reference of their process involvement, such as application records, submission dates, decisions, and related documents or messages.

### How to test this:

- Check whether the system offers a **“My Applications,” “My Requests,” “Previous Activity,” or similar section.**
- Confirm whether users can view:
  - **What they submitted** (e.g., forms, uploads, messages)
  - **System outcomes or decisions** (e.g., approved, rejected, returned)
  - **Associated documents or timestamps**
- Try opening an entry to confirm that it is clearly presented and understandable to the user.

### Example:

An e-government portal allows users to log in and view a list of their permit applications, showing submission date, decision status (“Approved – 22 March”), and links to the submitted form and official response letter. The record remains accessible for 12 months.

### Scoring (choose one):

- 1 = Not Implemented: The customer has no access to any history or confirmation of past actions.

- 2 = Limited: Customers can request their records, but there is no user interface to access them directly.
- 3 = Partial: Some history is visible (e.g., most recent submission), but only limited detail or partial data is shown.
- 4 = Functional: Customers can access a clear history of past process steps, though it may not include all prior communications or updates.
- 5 = Full Access: Customers can review the complete process log, including status changes, communication history, and previous documents or actions.
- N/A = *Only use if the process is anonymous, does not use an account, and involves no retrievable record (e.g., instant access or download without login).*

**Reminder:**

“Process history” refers to **past** customer-facing records, not internal system logs or administrator-only tools.

If historical records exist but require **staff intervention, emailing, or form-based requests**, consider scoring a **2 or 3** depending on the effort required and the completeness of the returned data.

**Score (1–5):** \_\_\_\_\_

**Comments:**

## **Section 3: Process Efficiency and Execution**

### **Criterion 3.1: Minimal Required Steps**

**Definition:**

This criterion assesses whether the process is designed to help the customer reach their

intended outcome with only the **necessary** steps, avoiding redundancy, unnecessary complexity, or repeated requests for information.

**Description:**

A customer-centric process avoids wasting the user's time. It collects only the data needed to complete the process, in a logical sequence, and uses existing information when possible. "Fewest" here does not mean the *absolute minimum*, but rather the *minimum that ensures completeness, accuracy, and compliance*.

**How to assess this:**

- Clearly define the **goal** of the process (e.g., submit an application, complete a purchase).
- Go through the process yourself or review screenshots/video walkthroughs.
- Count the number of **distinct actions** the user must take, form pages, confirmations, and uploads.
- Look for:
  - **Repetitive input** (e.g., same information in multiple fields)
  - **Unnecessary steps** (e.g., long optional surveys before submission)
  - Lack of **conditional logic** (e.g., asking questions that don't apply to the user)
  - Opportunities to **reuse known data** (e.g., if the system knows the user's name but asks for it again)

To judge whether the step count is reasonable, compare it to:

- Similar processes in other systems (e.g., standard job applications, payment flows)
- The expected **complexity** of the transaction (a 3-minute checkout vs. a 30-minute visa application)

**Example:**

In a loan application process, the user enters identification info, uploads documents, selects a loan type, reviews a summary, and submits, all in a continuous form. Unnecessary screens (such as marketing surveys or repeated confirmations) are avoided.

**Scoring (choose one):**

- 1 = Process includes redundant or excessive steps.
- 2 = More steps than needed; repetitive or inefficient structure.
- 3 = Generally reasonable, but has some non-essential actions or unclear flow.
- 4 = Mostly optimised; steps are necessary and structured.
- 5 = Efficient design with only the required actions, streamlined and user-focused.
- N/A = *Only use if the process consists of a single step by design (e.g., one-button actions or simple confirmations).*

**Score (1–5):** \_\_\_\_\_

**Comments:**

## **Criterion 3.2: Backend Integration**

### **Definition:**

Backend integration refers to how well different internal or external systems are connected so that the customer can complete the process **without transferring information between disconnected platforms**.

### **Description:**

A well-integrated backend ensures that customer data flows seamlessly between systems, allowing consistent service without asking users to re-enter information or wait unnecessarily. This includes both **internal handovers** (e.g., between HR and finance) and **external systems** (e.g., logistics or payment providers). If the customer experiences delays, repeated inputs, or inconsistent information, it typically reflects poor integration.

This differs from **channel integration** (1.1), which uses different interfaces. Backend integration is about how well the **internal logic and systems** (which may not be visible) talk to each other to support a smooth customer experience.

### **How to assess this:**

- Identify the **components** of the process: does it span multiple services, portals, or departments?
- Go through the process (or documentation/screenshots) and look for:
  - Requests for the **same data multiple times**
  - Situations where the customer has to **download a file from one system and upload it to another**
  - Unexplained delays caused by internal system handovers
- Check whether services (e.g., payments, status checks, user identity) are **automated and shared** across systems.

**Example:**

A user applies for a business license. Once approved, the license data is automatically sent to the tax system and health department. The user does not need to re-enter business details in each place; they just receive a confirmation that their registration is complete across departments.

**Scoring (choose one):**

- 1 = Not Integrated: Each system or provider requires customers to re-enter the same data. No data sharing occurs.
- 2 = Basic: Data flows partially between systems, but customers often experience mismatches or duplicate steps.
- 3 = Partial Integration: Some integration is in place, but the customer still experiences delays, repeated entry, or context loss, especially during internal handovers or interactions with third-party systems.
- 4 = Functional Integration: Data transfers reliably between systems with minimal delay or repetition, though some boundaries may be noticeable.
- 5 = Seamless Integration: Customers experience a unified, uninterrupted process where data is transferred automatically across all systems (internal and external) without friction.
- *N/A = Only use if the process is fully contained within a **single-purpose system** (e.g., local tool with no dependencies).*

Score (1–5): \_\_\_\_\_

Comments:

### Criterion 3.3: First-Contact Resolution

#### Definition:

First-contact resolution refers to the process's ability to fully resolve the customer's task or issue in a **single attempt or interaction**, without requiring repeated effort, resubmissions, or escalation to other departments.

#### Description:

Customer-centric processes aim to fully resolve user problems, questions, or requests in one go. This reduces frustration, increases trust, and improves efficiency. However, some cases may require additional information or action from the user after the first contact, which should be considered when scoring. This criterion emphasises resolution **without handover**, even if the user must take a follow-up action.

#### How to assess this:

- Go through the process yourself or review user journeys. Ask:
  - Can a typical user complete their goal **on the first try** without extra help?
  - If the user gets stuck and uses support (e.g., chat or phone), is the issue **resolved then and there**, or are they referred elsewhere?
  - Are there **known friction points** or errors that cause repeat attempts?
- Look for:
  - Whether automated flows work **end-to-end** without human fixes
  - Whether customer support is **empowered** to resolve most cases immediately

#### Example:

A customer uses an online bank portal to report a lost card. The system guides them through a

short form, confirms cancellation, and offers a replacement card option. The process is complete in one visit without needing to call support or send follow-up emails.

**Scoring (choose one):**

- 1 = No Resolution: The customer is frequently transferred or redirected, and issues are rarely resolved on the first attempt.
- 2 = Rarely Resolved: Some issues are solved quickly, but most require follow-up, escalation, or multiple contacts.
- 3 = Issue Identified: The issue is clearly diagnosed in the first contact, but the customer may need to complete a follow-up step (e.g., upload a document, provide missing information). No escalation or transfer is required.
- 4 = Mostly Resolved: Most issues are handled fully in one contact. A few exceptions exist (e.g., technical delays).
- 5 = Consistently Resolved: Nearly all issues are fully resolved in the first contact with no follow-up required from the customer.
- N/A = *Only use if the process involves **no user interaction** (e.g., silent background sync or purely automated notification).*

**Reminder:**

You are evaluating **how often** resolution happens on the first attempt, not whether resolution is *possible* eventually.

**Score (1–5):** \_\_\_\_\_

**Comments:**

### **Criterion 3.4: Response Time Performance**

**Definition:**

This criterion evaluates how quickly the process responds to customer actions, including form submissions, navigation, requests, or any system-triggered steps, and whether those responses are timely, predictable, and appropriate for the process type.

**Description:**

A responsive process creates a smooth and satisfying experience. Customers expect **immediate or near-immediate feedback** after submitting data, selecting, or initiating steps.

In slower processes (e.g., applications or approvals), the system should **clearly communicate how long it will take** and ideally meet that expectation. Long delays, unclear timelines, or inconsistent speed reduce trust and increase dropout.

**How to assess this:**

- Go through the process yourself, or observe test runs:
  - How fast does the system react to each action (e.g., button click, form submission)?
  - How quickly is confirmation shown or sent after submitting the process (e.g., application, request)?
  - Does the process give **clear and realistic time estimates** (e.g., “within 48 hours”)?
  - Are these promises generally **fulfilled**?
- You may also use analytics (if available) or known SLAS (service-level agreements) to support the judgment.

**Example:**

A digital ID application confirms submission instantly, then sends an email within 5 minutes. The approval result is promised within 3 days and usually arrives in 1–2 days. All steps are transparent and reasonably fast for the task type.

**Scoring (choose one):**

- 1 = Responses are slow, unclear, or delayed without warning.
- 2 = Some steps are responsive, but key actions have long, unexplained delays.
- 3 = Acceptable speed overall, but some inconsistency or slowness exists.
- 4 = Process reacts quickly and reliably to most actions, with few delays.
- 5 = Highly responsive at all steps; real-time or clearly predictable feedback.
- *N/A = Only use if the process is fully passive or non-interactive (e.g., one-time scheduled data sync).*

**Reminder:**

This criterion is not about speed alone, but **clarity** and **meeting expectations** for the task type.

**Score (1–5):** \_\_\_\_\_

**Comments:**

## Section 4: Emotional and Social Engagement

### Criterion 4.1: Personalised Experience

**Definition:**

This criterion assesses whether the process adapts to the customer's profile, history, or preferences to create a more relevant and efficient experience.

**Description:**

A customer-centric process should tailor content, suggestions, and features to the specific user. This can include personalised greetings, dynamic recommendations, pre-filled fields, or prioritising preferred options based on past behaviour. The more personalised and meaningful the experience, the higher the score. It's important to evaluate whether personalisation adds **value** rather than just appearing cosmetic.

**How to assess this:**

- Log in (or simulate access) as a returning or known user.
- Check whether any fields are **pre-filled** based on account data.
- Look for **behaviour-based recommendations** (e.g., suggested options, reminders).
- Assess whether the **previous activity** is used to adapt the process.

**Example:**

An online tax system recognizes the user's previous employment type and pre-selects the income declaration form they used last year. Optional sections not relevant to the user's profile are automatically hidden.

**Scoring (choose one):**

- 1 = Not Personalized: All users receive the same experience with no adaptation to individual context.
- 2 = Minimal: The system stores basic user data (e.g., name), but personalization is mostly superficial.
- 3 = Moderate: Some sections adjust based on user profile, but personalization does not impact the process meaningfully.
- 4 = Functional: Key process steps adapt based on the user's history or behavior, improving speed or clarity.
- 5 = Deeply Personalized: The experience is significantly tailored to the user, including dynamic pathways, predictive actions, or contextual assistance.
- N/A = *Only use if the process is anonymous or one-time (e.g., public information lookup).*

Score (1–5): \_\_\_\_\_

Comments:

## Criterion 4.2: Proactive Communication

### Definition:

Proactive communication refers to whether the process provides **timely notifications, reminders, or guidance before the customer needs to ask**, anticipating possible problems, deadlines, or actions required.

### Description:

A customer-centric process is not passive. It communicates early, for example, by sending reminders, warning about missing information, or offering tips at the right time. This includes **system-triggered notifications** (email, SMS, in-app) or on-screen messages that appear **before** the user encounters issues or takes a wrong step.

Importantly, proactive communication requires **not just the existence of messages**, but that they are:

- **Automated**

- **Anticipatory**
- **Relevant to specific points in the process**

**How to assess this:**

- Does the process include **notifications, pop-ups, alerts, or reminders** that happen automatically and early?
- Are there **visible signs** that the system knows what the user needs next (e.g., pre-submit warnings, deadline alerts)?
- Check for messaging that **prevents mistakes** or helps the customer stay on track.

**Example:**

A university application system sends an automated email 5 days before the deadline if the required documents are missing. If a user tries to submit an unsupported file format on the upload screen, a real-time warning appears with instructions.

**Scoring (choose one):**

- 1 = None: The customer must manually request updates or check status. No proactive messages are sent.
- 2 = Basic Reminders: Occasional messages are sent, but only after a trigger (e.g., late submission reminders).
- 3 = Reactive Updates: Status updates are sent after an event occurs, but the system does not anticipate or prevent issues.
- 4 = Context-Aware Notifications: Notifications are sent automatically at key process points (e.g., confirmation, pending action), helping users stay on track.
- 5 = Anticipatory Communication: The system foresees user needs or issues and sends tailored, preemptive guidance (e.g., warning about missing documents, suggesting next steps based on progress).
- N/A = *Only if the process is fully static and does not involve steps, timeframes, or inputs (e.g., instant public data query).*

**Score (1–5):** \_\_\_\_\_

**Comments:**

## Criterion 4.3: Feedback Collection Opportunities

### Definition:

This criterion assesses whether the process provides customers with **clear, relevant, and convenient opportunities to give feedback**, not only at the end, but at meaningful points during their journey.

### Description:

Customer-centric processes invite users to share feedback in ways that are timely and actionable. This includes **active prompts** (e.g., “How was this step?”), optional **feedback fields** during key interactions, or follow-up **surveys** that are tied to specific actions (not generic end-of-process forms).

Simply offering a contact form or email address is not sufficient. The goal is to make it easy and expected for customers to express concerns, suggestions, or satisfaction, ideally with clear indications that their input is valued and will be used to improve the process.

### How to assess this:

- Does the process **prompt users to leave feedback** during or after key actions (e.g., after uploading, submitting, or finishing)?
- Are there **short, targeted feedback options**, such as “Was this helpful?” or “Rate this step”?
- Are feedback mechanisms **easy to find and quick to use** (not long surveys only at the end)?
- Can the user share **contextual feedback** on specific features (e.g., commenting on upload difficulty or unclear instructions)?

### Example:

In an online government application portal, users are asked after submitting their form: “Was this process clear and easy to complete?” with a 1–5 scale and a short comment box. On the help section, each article ends with: “Was this answer helpful?” Yes/No + optional feedback. Feedback links are present but never disruptive.

### Scoring (choose one):

- 1 = No feedback is collected at any point in the process.

- 2 = Feedback is possible but not prompted (e.g., generic “Contact us” or buried forms).
- 3 = Feedback is possible and reasonably placed, but it is limited to one point, often at the end of the process. It lacks structure or relevance to specific steps.
- 4 = Feedback opportunities are presented during key moments in the process (e.g., after form submission, after waiting), and are designed to reflect that specific interaction.
- 5 = Feedback is seamlessly integrated, personalized, and analyzed in real time. The system actively uses input to adapt or respond.
- N/A = *Only use if the process is internal, offline-only, or does not involve a user interface.*

**Reminder:**

Assess whether the **user is invited to give feedback meaningfully**, not just whether a feedback channel technically exists.

Score (1–5): \_\_\_\_\_

Comments:

## Criterion 4.4: Trust and Security Transparency

**Definition:**

This criterion evaluates whether the process **clearly communicates how customer data is collected, used, protected, and stored**, and whether it builds user trust through transparency and control during key process steps.

**Description:**

Customers are more willing to engage with digital processes when they feel safe and informed. Trust and security transparency mean that the process is **not only secure**, but that the **security measures and data handling practices are visible and understandable** to the user. This includes explaining:

- Why is certain personal data needed
- How will it be used

- Who can access it
- How can the user control or delete it

Good implementations do **not hide this information in legal terms** deep in a privacy policy. Instead, they present it contextually, including **when and where the user needs it** (e.g., right before uploading ID or when granting access to location).

**How to assess this:**

- During data entry steps, are users told **why each item is collected** (e.g., “Your phone number is used to send verification codes only”)?
- Is there clear **control or consent** (e.g., opt-in checkboxes, access permissions)?
- Are security-related features (e.g., encrypted document upload, session timeout) **explained** rather than just silently enforced?
- Does the process provide **reassurance** through language, structure, and visibility of protection practices?

**Example:**

In an identity verification process, the user is asked to upload their passport. Before uploading, a clear message explains: “This document is used only for identity verification. It will be encrypted and deleted from our system within 48 hours. Only authorized reviewers will have access.” A checkbox for user consent is required before proceeding.

**Scoring (choose one):**

- 1 = No explanation or control over data usage; security is invisible and unexplained
- 2 = Legal or generic notices exist, but are not accessible at relevant moments
- 3 = Some security communication exists, but it is not consistent or detailed
- 4 = Most sensitive steps include clear, contextual explanations and user controls
- 5 = Strong and visible security transparency across the entire process, with clear language, reassurances, and user options

- **N/A** = *Only if the process collects no personal data and does not involve any sensitive action (e.g., viewing public, static content).*

**Reminder:**

You are evaluating **how transparently** the process handles trust and security, not whether the system is secure on a technical level.

**Score (1–5):** \_\_\_\_\_

**Comments:**

## Scoring Guide

This tool uses a criterion-based scoring method to allow quantitative interpretation of customer-centricity dimensions. Each of the 16 items is rated on a **1 to 5 scale**, where 1 represents poor implementation and 5 means excellent implementation. Items that do not apply to the process by design can be marked as **N/A**.

### How to Calculate Section Scores

1. Add the scores of all rated items in a section.
2. Count how many items were rated (not marked N/A).
3. Calculate the average score.
4. Multiply the average by 20 to convert it into a 0–100 scale.

$$\text{Section Score (0–100)} = \left( \frac{\text{Sum of ratings}}{\text{Number of rated items}} \right) \times 20$$

**Example:**

If 4 items are rated: 4, 3, 4, and 5 → Average = 4.0 → Section Score = 80

### Overall Score

If all four sections are completed, compute the average of the four section scores.  
If one section is marked entirely N/A, average the remaining three.

## Interpretation Table

This table guides how to interpret numeric scores. It reflects process-level characteristics, not individual performance. These interpretations draw on evaluation rubrics used in process mining and prescriptive process interfaces.

<b>Score</b>	<b>Interpretation</b>
90–100	Exceptional customer support and engagement; likely a benchmark process
75–89	Well-designed and generally customer-friendly; minor refinements needed
60–74	Moderate performance; gaps exist in key areas of transparency or flexibility
40–59	Process needs improvement; several barriers for customers
Below 40	Serious issues with accessibility or customer empowerment
N/A	Criterion not applicable due to process design (e.g., one-step, anonymous use)

## **Appendix 3. Post-Assessment Interview Guide (TAM-Based)**

Script for facilitator:

“Before I begin the post-assessment questions, I’d like to explain this interview's purpose briefly. Now that you’ve completed the process assessment using the tool, I would like to understand how you experienced using it, how clear and useful you found the criteria, whether the tool was easy to apply, and whether you would consider using it in your work. These questions are part of a research method based on the Technology Acceptance Model (TAM), which is often used to evaluate the usability and acceptance of new tools. Your responses will help improve the tool and ensure that it is practical and relevant for real-world process evaluation. There are no right or wrong answers; I am simply interested in your honest reflections and suggestions. The interview will take about 15 to 20 minutes.”

### **Post-Assessment Interview Guide (TAM-Based)**

#### **1. Perceived Usefulness**

- Did the tool help you reflect on the customer-centricity of your process?
- Were any insights or improvement areas revealed that you hadn’t thought of before?
- Could this tool support your team's decision-making?

#### **2. Perceived Ease of Use**

- How easy or difficult was it to understand what each item was asking?
- Were there any scoring instructions or examples that were unclear?
- Did you feel confident about how to use the N/A option?

#### **3. Perceived Clarity & Trustworthiness**

- How confident are you in the assessment results?
- Do the final scores align with your personal understanding of the process?

- Were any criteria misleading, oversimplified, or missing something important?

#### **4. Intention to Use**

- Could you see yourself using this tool in future evaluations or discussions?
- Would you recommend this to others in your organization?
- What would need to change for you to use this tool regularly?

#### **5. Open Feedback and Improvements**

- What part of the tool worked best for you?
- Were there any criteria or sections that didn't feel relevant or needed more explanation?
- What would you change if you were to redesign or simplify the tool?

## Appendix 4. Interview Results

This appendix presents the detailed results from the semi-structured interviews conducted with six product owners who evaluated their digital processes using the Customer-Centric Process Assessment Framework. Interviews were conducted between April 21-28, 2025, following the Technology Acceptance Model (TAM) framework to assess perceived usefulness, ease of use, clarity, and intention to use.

### Summary of Participants

ID	Role	Industry	Process Evaluated	Experience (years)	Score
P1	Product Owner	Manufacturing	ERP ordering system	7	62.5
P2	Product Owner	Human Resources	HR application	5	64.5
P3	Product Owner	IT Services	Helpdesk ticketing	8	64.5
P4	Product Owner	Gaming	Online casino	4	73.75
P5	Product Owner	Financial Services	B2B invoicing	6	81.0
P6	Product Owner	Gaming	Location verification	5	65.0

### Individual Interview Results

#### PARTICIPANT PROFILE: P1

**Date of Interview:** April 21, 2025

**Role:** Product Owner

**Industry:** Manufacturing

**Process Evaluated:** ERP ordering system for factory tools

**Interview Type:** Observed + Post-assessment

**Assessment Score:** 62.5/100

#### ASSESSMENT OBSERVATIONS

During the assessment, P1 expressed uncertainty about several scoring criteria:

- Criterion 1.1: Noted that *"Score 3 is too generic"* and questioned what was expected; found it difficult to distinguish between Scores 3 and 4
- Criterion 1.2: Requested distinction between system automation and human actions
- Criterion 2.1: Suggested adding more layers for decision making in status updates
- Criterion 2.4: Questioned how to score when information is available but outside the system

### PERCEIVED USEFULNESS

**Q: Did the tool help you reflect on the customer-centricity of your process?**

*"Yes, I remembered a lot of necessary work-related matters"*

**Q: Were any insights or improvement areas revealed that you hadn't thought of before?**

*"Yes, visibility of next steps, data collection consent"*

**Q: Do you think this tool could support decision-making in your team?**

*"Yes. It depends on the priority. Ideally, it can be used, but depending on the workload, there should be extra time to use the tool"*

### PERCEIVED EASE OF USE

**Q: How easy or difficult was it to understand what each item was asking?**

*"Mostly easy, Criterion 2.4: Process History Access was a bit confusing as I didn't initially think about how impactful it could be for the customer centricity. After understanding the criteria, I was confident to evaluate."*

**Q: Were there any scoring instructions or examples that were unclear?**

*"Just a few suggestions about clarifying scoring guides in criteria 1.1 and 1.2"*

**Q: Did you feel confident using the N/A option?**

*"Yes"*

### PERCEIVED CLARITY & TRUSTWORTHINESS

**Q: How confident are you in the assessment results?**

*"I'm very confident, the questions were clear"*

**Q: Do the final scores align with your understanding of the process?**

*"Yes, it aligns"*

**Q: Were any criteria misleading, oversimplified, or missing something important?**

*"The difference between scores should be more structured. Some of them were general. When I think about the system, saying 'some' or 'a few' is not helpful. More concrete examples or parts of the criteria [would help]"*

## **INTENTION TO USE**

**Q: Could you see yourself using this tool in future evaluations or discussions?**

*"Yes, when building a system from scratch or improving an existing one. It's applicable for any stage of the product. We can have direction for the future through this"*

**Q: Would you recommend this to others in your organisation?**

*"Yes, definitely"*

**Q: What would need to change for you to use this tool regularly?**

*"If it's automated. Suppose it can scan the system, without needing me to read it through. For example, analysing the user journey could give me feedback on those criteria."*

## **OPEN FEEDBACK AND IMPROVEMENTS**

**Q: What part of the tool worked best for you?**

*"It was logically structured based on the categories. The structure is very intuitive. Each section has a nice rhythm, so I didn't feel lost."*

**Q: Were there any criteria or sections that didn't feel relevant or needed more explanation?**

*"Everything was relevant. Maybe some more questions about the security of the user profile, it's essential to provide protection."*

**Q: If you were to redesign or simplify the tool, what would you change?**

*"Maybe we can have different levels of detail. The tool will probably be expanded; then it will need levels. For example, Decision tree - if I don't have 1 criterion from the section, I shouldn't go through the others. If you add it in the future, it could be added. But right now, it doesn't need it."*

## **PARTICIPANT PROFILE: P2**

**Date of Interview:** April 22, 2025

**Role:** Product Owner

**Industry:** Human Resources

**Process Evaluated:** HR application process

**Interview Type:** Observed + Post-assessment

**Assessment Score:** 64.5/100

## **ASSESSMENT OBSERVATIONS**

During the assessment, P2 provided feedback on several criteria:

- Criterion 2.1: Noted this was *"very nice to have criteria. Useful for the product owners to consider."*
- Criterion 2.3: Found Score 3 confusing, specifically *"but not clearly visible or contextual"* was unclear
- Criterion 2.4: Suggested that the description text could be improved
- Criterion 3.3: Suggested including waiting time as a factor and distinguishing between urgent requests and non-urgent ones
- Criterion 4.1: Requested clarification about which type of users were meant, as they had multiple user types

P2 also suggested clarifying that evaluators should choose a specific user story, as it changes the use case.

## **PERCEIVED USEFULNESS**

**Q: Did the tool help you reflect on the customer-centricity of your process?**

*"Yes, when I read the questions, I thought about how we do it. In the end, I thought the same result, so it reflects reality."*

**Q: Were any insights or improvement areas revealed that you hadn't thought of before?**

*"Yes, I didn't think about proactive communication and customisation before. Generally, the test itself made me think about the product."*

**Q: Do you think this tool could support decision-making in your team?**

*"Not really, because it's more about assessment, not decision making."*

#### **PERCEIVED EASE OF USE**

**Q: How easy or difficult was it to understand what each item was asking?**

*"It wasn't very easy. I commented on some of the criteria. It was 2 out of 5 easy."*

**Q: Were there any scoring instructions or examples that were unclear?**

*"Yes, I made a couple of scoring notes earlier."*

**Q: Did you feel confident about how to use the N/A option?**

*"Yes"*

#### **PERCEIVED CLARITY & TRUSTWORTHINESS**

**Q: How confident are you in the assessment results?**

*"Very confident. It was easy to use and understand, and clear to decide."*

**Q: Do the final scores align with your personal understanding of the process?**

*"Yes, the results were the same as I thought they would be."*

**Q: Were any criteria misleading, oversimplified, or missing something important?**

*"There were some complicated criteria to decide from a B2B perspective. I had to read some of the questions twice."*

#### **INTENTION TO USE**

**Q: Could you see yourself using this tool in future evaluations or discussions?**

*"It is not in this format, but if it were in an automated format [I would]"*

**Q: Would you recommend this to others in your organisation?**

*"Yes, it would be a nice tool for the discussion for the team"*

**Q: What would need to change for you to use this tool regularly?**

*"I wouldn't change it. But the automated version would be good to use regularly."*

#### **OPEN FEEDBACK AND IMPROVEMENTS**

**Q: What part of the tool worked best for you?**

*"The assessment part was very informative. Definitions under each question helped me move forward quickly."*

**Q: Were there any criteria or sections that didn't feel relevant or needed more explanation?**

*"Maybe one needed a bit more explanation, as I mentioned. But it can be my perception, too."*

**Q: If you were to redesign or simplify the tool, what would you change?**

*"Less text, more specifications. Drive the evaluator to the goal, with some small driving changes."*

**PARTICIPANT PROFILE: P3**

**Date of Interview:** April 23, 2025

**Role:** Product Owner

**Industry:** IT Services

**Process Evaluated:** Ticketing system for customer help desk

**Interview Type:** Observed + Post-assessment

**Assessment Score:** 64.5/100

**ASSESSMENT OBSERVATIONS**

During the assessment, P3 provided feedback on several criteria:

- Criterion 1.2: Suggested clarifying where the process ends, e.g., whether resolution is included
- Criterion 1.4: Asked whether the save feature referred to automatic saving or a manual button
- Criterion 3.3: Questioned if a process requiring extra clarity from the user could still be considered first contact resolution

**PERCEIVED USEFULNESS**

**Q: Did the tool help you reflect on the customer-centricity of your process?**

*"Yes, because overall, when you think about the process, you don't think about the criteria. So some important things can be missed."*

**Q: Were any insights or improvement areas revealed that you hadn't thought of before?**

*"Mostly, the last section is emotional and social engagement. Our process needs to be better"*

**Q: Do you think this tool could support decision-making in your team?**

*"Yes, because it has clear guidelines and references. Any process could use it."*

### **PERCEIVED EASE OF USE**

**Q: How easy or difficult was it to understand what each item was asking?**

*"Most of them were clear. Just minor details created questions."*

**Q: Were there any scoring instructions or examples that were unclear?**

*"Just one time, I couldn't decide easily, and mentioned it in the evaluation process."*

**Q: Did you feel confident using the N/A option?**

*"Yes"*

### **PERCEIVED CLARITY & TRUSTWORTHINESS**

**Q: How confident are you in the assessment results?**

*"I think it's correct."*

**Q: Do the final scores align with your personal understanding of the process?**

*"Yes"*

**Q: Were any criteria misleading, oversimplified, or missing something important?**

*"Mostly no, just one thing, in the notes"*

### **INTENTION TO USE**

**Q: Could you see yourself using this tool in future evaluations or discussions?**

*"Yeah, I was actually thinking about it, depending on the company that is open for the discussion."*

**Q: Would you recommend this to others in your organisation?**

*"If they want to improve the process, it has key lines that would be a good guideline."*

**Q: What would need to change for you to use this tool regularly?**

*"Maybe the representation of the tool could be changed. Could there be a table to automate the scoring?"*

## **OPEN FEEDBACK AND IMPROVEMENTS**

**Q: What part of the tool worked best for you?**

*"Scoring was the most helpful part of deciding. The explanation next to each item is helpful. I didn't need to stop and ask what something meant."*

**Q: Were there any criteria or sections that didn't feel relevant or needed more explanation?**

*"Overall, no. Explanations were reasonably sufficient."*

**Q: If you were to redesign or simplify the tool, what would you change?**

*"I don't have any immediate ideas, but I feel like it covered the main points. For daily use, it could be better structured so that while going through the tool, it wouldn't take much time."*

## **PARTICIPANT PROFILE: P4**

**Date of Interview:** April 24, 2025

**Role:** Product Owner

**Industry:** Gaming

**Process Evaluated:** Online casino platform

**Interview Type:** Observed + Post-assessment

**Assessment Score:** 73.75/100

## **ASSESSMENT OBSERVATIONS**

During the assessment, P4 provided feedback on several criteria:

- Criterion 1.4: Questioned if Score 3 was appropriate when *"button click is needed and saves everything"*
- Criterion 2.3: Noted a gap between scores 3 and 4: *"we've one channel, but it's always visible and working for the user. But the 4 is already a multiple-channel option"*
- Criterion 4.3: Identified a gap between scores 3 and 4: *"What about if I have one [feedback opportunity], but it's nicely placed?"*

## **PERCEIVED USEFULNESS**

**Q: Did the tool help you reflect on the customer-centricity of your process?**

*"Yes, of course. It made me evaluate our processes from multiple angles and consider functionality in places. Shows we actually have some gaps in our processes."*

**Q: Were any insights or improvement areas revealed that you hadn't thought of before?**

*"For example, personalisation and minimal steps are required. Now, I think there are some confusing parts in our forms."*

**Q: Do you think this tool could support decision-making in your team?**

*"We can use this tool to justify our wishes, then we have the evaluation with the tool to support our decisions to higher management."*

## **PERCEIVED EASE OF USE**

**Q: How easy or difficult was it to understand what each item was asking?**

*"It was very easy."*

**Q: Were there any scoring instructions or examples that were unclear?**

*"They were clear."*

**Q: Did you feel confident using the N/A option?**

*"Yes."*

## **PERCEIVED CLARITY & TRUSTWORTHINESS**

**Q: How confident are you in the assessment results?**

*"Yes. This tool enables us to pinpoint the weakest part of our system from a customer-centric point of view."*

**Q: Do the final scores align with your understanding of the process?**

*"Yes"*

**Q: Were any criteria misleading, oversimplified, or missing something important?**

*"There were 2 criteria I pointed out, which had a gap between the 2 scores. My answer fell between the 2 options. It would be nice to include that gap."*

## **INTENTION TO USE**

**Q: Could you use this tool in future evaluations or discussions?**

*"Yes, it would help me to have a better system."*

**Q: Would you recommend this to others in your organisation?**

*"Yes."*

**Q: What would need to change for you to use this tool regularly?**

*"A web app, which is maybe more customer-centric. It is not very convenient to use it at the moment."*

## **OPEN FEEDBACK AND IMPROVEMENTS**

**Q: What part of the tool worked best for you?**

*"I really liked the examples; they clarified what we are looking for and simplified the approaches. At first, I was unsure if I should rate from the customer's perspective or my internal knowledge. Then, the example helped me rate my score."*

**Q: Were there any criteria or sections that didn't feel relevant or needed more explanation?**

*"No, everything was very relevant."*

**Q: If you were to redesign or simplify the tool, what would you change?**

*"Nothing in the tool, but the format, as I mentioned before."*

## **PARTICIPANT PROFILE: P5**

**Date of Interview:** April 25, 2025

**Role:** Product Owner

**Industry:** Financial Services

**Process Evaluated:** B2B invoicing system

**Interview Type:** Observed + Post-assessment

**Assessment Score:** 81.0/100

## **ASSESSMENT OBSERVATIONS**

During the assessment, P5 provided feedback on several criteria:

- Criterion 1.3: Found Score 4 difficult to understand if related to the main workflow vs. security issues
- Criterion 2.1: Suggested considering third-party delays
- Criterion 2.2: Noted lack of clarity in how to consider third-party interactions
- Criterion 2.4: Suggested more generic criteria for different types of information tracking in invoicing systems
- Criterion 3.2: Noted that internal system handovers causing delays weren't covered in the scoring
- Criterion 4.2: Found the difference between scores 4 and 5 unclear

## **PERCEIVED USEFULNESS**

**Q: Did the tool help you reflect on the customer-centricity of your process?**

*"Yes"*

**Q: Were any insights or improvement areas revealed that you hadn't thought of before?**

*"Yes, I didn't think of the feedback criteria before."*

**Q: Do you think this tool could support decision-making in your team?**

*"Yes, checkpoints are really nice, it would be a good list to go through and analyse the process"*

## **PERCEIVED EASE OF USE**

**Q: How easy or difficult was it to understand what each item was asking?**

*"It was easy"*

**Q: Were there any scoring instructions or examples that were unclear?**

*"Some examples were too general. I had to guess how they apply in B2B."*

**Q: Did you feel confident about how to use the N/A option?**

*"Yes"*

## **PERCEIVED CLARITY & TRUSTWORTHINESS**

**Q: How confident are you in the assessment results?**

*"Yes, absolutely. I think this tool enables us to pinpoint the weakest part of our system from a customer-centric point of view."*

**Q: Do the final scores align with your personal understanding of the process?**

*"Yes"*

**Q: Were any criteria misleading, oversimplified, or missing something important?**

*"There were 2 criteria I pointed out, which had a gap between the 2 scores. I felt my answer fell between the 2 options. It would be nice to include that gap somehow."*

## **INTENTION TO USE**

**Q: Could you see yourself using this tool in future evaluations or discussions?**

*"If it is updated to be more B2B friendly"*

**Q: Would you recommend this to others in your organisation?**

*"Yeah, it would be useful to identify the weak parts of the flow, from the user's perspective"*

**Q: What would need to change for you to use this tool regularly?**

*"Other than some adjustments, nothing"*

## **OPEN FEEDBACK AND IMPROVEMENTS**

**Q: What part of the tool worked best for you?**

*"I liked how every criterion was explained with examples, which were very useful"*

**Q: Were there any criteria or sections that didn't feel relevant or needed more explanation?**

*"They were all relevant"*

**Q: If you were to redesign or simplify the tool, what would you change?**

*"Other than the comments I made about scores, nothing else comes to my mind."*

## **PARTICIPANT PROFILE: P6**

**Date of Interview:** April 28, 2025

**Role:** Product Owner

**Industry:** Gaming

**Process Evaluated:** User journey for bets - G-Location process

**Interview Type:** Observed + Post-assessment

**Assessment Score:** 65.0/100

## **ASSESSMENT OBSERVATIONS**

During the assessment, P6 provided feedback on several criteria:

- Criterion 1.3: Noted that while the "happy flow" doesn't need context from the user, some users encounter errors
- Criterion 2.1: Found this challenging to rate due to multiple cases: *"Our checks are regulatory checks going on in the background, so mostly users don't see them"*
- Criterion 2.3: Found Scores 4 and 5 very similar, questioning if timing was the main difference
- Criterion 3.3: Explained that in their case, 2% of users have issues, of which 20% cannot be helped due to external factors like router problems

## **PERCEIVED USEFULNESS**

**Q: Did the tool help you reflect on the customer-centricity of your process?**

*"Yes, I liked that there were questions I didn't think about for a while."*

**Q: Were any insights or improvement areas revealed that you hadn't thought of before?**

*"Proactive part, we could focus on it"*

**Q: Do you think this tool could support decision-making in your team?**

*"Yes, basically by asking those questions, we could use it. The checklist would be a good start while designing the flow."*

**PERCEIVED EASE OF USE****Q: How easy or difficult was it to understand what each item was asking?**

*"I think maybe just getting to the first part was a bit difficult, then it got easy."*

**Q: Were there any scoring instructions or examples that were unclear?**

*"Mostly, they were very clear."*

**Q: Did you feel confident about how to use the N/A option?**

*"Yes"*

**PERCEIVED CLARITY & TRUSTWORTHINESS****Q: How confident are you in the assessment results?**

*"They are fair."*

**Q: Do the final scores align with your personal understanding of the process?**

*"I thought it would be a bit higher, but I'm not surprised by the result."*

**Q: Were any criteria misleading, oversimplified, or missing something important?**

*"No"*

**INTENTION TO USE****Q: Could you use this tool in future evaluations or discussions?**

*"It would be more useful if the product were more complex."*

**Q: Would you recommend this to others in your organisation?**

*"Yeah, maybe the intro part needs to be a bit easier to read, maybe more descriptive."*

**Q: What would need to change for you to use this tool regularly?**

*"A short checklist would be better for regular use. If I'm already familiar with it, a short checklist would be enough and handy."*

**OPEN FEEDBACK AND IMPROVEMENTS**

**Q: What part of the tool worked best for you?**

*"The rating explanations made it easy to decide where the product is for the specific category. Also, I like that there's both a technical and emotional angle, which makes it more holistic."*

**Q: Were there any criteria or sections that didn't feel relevant or needed more explanation?**

*"Everything was relevant"*

**Q: If you were to redesign or simplify the tool, what would you change?**

*"This format makes sense for using this tool for the first time, but then a shorter version would be better."*

**Summary of Key Themes**

The following table summarises the most frequently mentioned themes across participant interviews:

<b>Theme</b>	<b>Description</b>	<b>Mentioned By</b>	<b>Representative Quote</b>
Framework Structure	Appreciation for the logical organisation and flow	P1, P3, P6	<i>"It was logically structured based on the categories. The structure is very intuitive." (P1)</i>
Scoring Gaps	Need for intermediate rating options between existing scores	P2, P4, P5	<i>"My answer fell between the 2 options. It would be nice to include that gap." (P4)</i>
Example Clarity	Value of concrete examples in understanding criteria	P4, P5	<i>"I liked how every criterion was explained with examples, which were very useful" (P5)</i>
B2B Adaptability	Need for better tailoring to B2B contexts	P2, P5	<i>"Some examples were too general. I had to guess how they apply in B2B." (P5)</i>

Format Preferences	Desire for digital/automated versions	P1, P3, P4	<i>"A web app, which is maybe more customer-centric. It is not very convenient to use it at the moment." (P4)</i>
Streamlined Version	Interest in shorter version for regular use	P3, P6	<i>"A short checklist would be better for regular use." (P6)</i>
Holistic Perspective	Appreciation for both technical and emotional aspects	P4, P6	<i>"I like that there's both a technical and emotional angle, which makes it more holistic." (P6)</i>
Decision Support	Value for justifying improvements to management	P1, P4	<i>"We can use this tool to justify our wishes... to higher management." (P4)</i>

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Gular Samadova

**05/05/2025**