# Enhancing Digital Transformation Project Success through Design Thinking-Driven Agile Project management

Disha Munshi

Haaga-Helia University of Applied Sciences

Master of Business Administration

Leading Business Transformation in Digital Opportunities

Thesis

2024

## Abstract

**Author(s)**
Disha Munshi

**Degree**
Master of Business Administration

**Report/thesis title**
Enhancing Digital Transformation Project Success through Design Thinking-Driven Agile Project Management

**Number of pages and appendix pages**
43 + 5

In today's fast changing digital world, businesses are constantly challenged to adapt quickly to stay competitive. Digital transformation has become a critical priority, requiring organizations to rethink their processes, products and customer experiences. However, many companies struggle to achieve successful digital transformation due to the limitations of traditional project management approaches. To address this issue, this thesis explores the integration of design thinking principles within agile project management to enhance the success of digital transformation projects. Design thinking, known for its focus on empathy, user-centered design, and creative problem-solving, is combined with agile methodologies, which emphasize flexibility, iteration, and rapid delivery. Together, these approaches can offer a structured yet adaptable framework for tackling the complex demands of digital transformation. The purpose of this study is to investigate how design thinking-driven agile project management can help organizations meet the unique challenges of digital transformation. This research aims to answer several key questions (Appendix 1): How can design thinking be integrated effectively into agile processes? What challenges do organizations face in combining these methodologies? And what practical strategies can be used to maximize the benefits of this integration? Through a mixed-methods approach, including case studies, interviews, and field observations, the thesis identifies recurring barriers, such as difficulties in aligning design and development cycles, balancing user feedback with fast-paced sprints, and achieving cross-functional team collaboration. A major outcome of this thesis is the development of a structured framework that guides organizations in integrating design thinking into agile project management. This framework offers practical steps and tools, such as empathy mapping and iterative prototyping, to help project teams better understand user needs and respond to change more effectively. The research demonstrates that the combined approach of design thinking and agile can improve adaptability, foster innovation, and enhance user experience in digital transformation projects. It also highlights critical success factors, including continuous stakeholder alignment, effective communication, and adaptability, which are essential for achieving positive results. This thesis contributes to the field by providing a comprehensive analysis of the synergy between design thinking and agile methodologies, along with a practical framework that organizations can apply in real-world projects. While the proposed framework is designed to be flexible and applicable across different industries, the study acknowledges that organizations may need to adjust it based on their specific needs and project goals. In conclusion, this research provides valuable insights and tools for organizations aiming to achieve successful digital transformation, emphasizing the importance of a user-centered, adaptable approach in today's complex digital landscape. Future research can build upon these findings to explore further advancements in the integration of design thinking and agile methodologies, broadening their scope and impact.

**Keywords**
Digital Transformation; Design Thinking; Agile Project Management; User-Centric Design; Innovation; Framework Development

## Table of contents

# 1 Introduction

With the rapid evolution of technology and the increasing demand for digital transformation, Organizations are often confronted with complex projects that require seamless integration of innovative solutions, user-centric approaches, and efficient project management methodologies. Digital transformation as a strategic imperative is significant for businesses to remain competitive and relevant. It is disrupting businesses in every industry by breaking down barriers between people, businesses, and things and by doing so organizations/businesses can create new products, services, and robust ways of doing business. By harnessing the power of digital technologies like cloud computing, artificial intelligence, and big data analytics, businesses can streamline processes, boost productivity, and deliver better experiences for their customers. Whether it's automating routine tasks, personalizing marketing messages, or predicting future trends, digital transformation opens a world of possibilities for businesses of all shapes and sizes as organizations embark on digital transformation initiatives, the need to ensure project success and optimize user experiences becomes paramount.

Within the context of contemporary enterprises, digital transformation presents several intricate issues. The most significant of them is the existence of antiquated legacy systems that impede advancement and oppose change. Furthermore, there may be opposition to persuading stakeholders to embrace new digital tools, necessitating cautious change management techniques. Concerns over cybersecurity risks are compounded by the continual disruption brought about by the quick speed of technological innovation.

Moreover, organizational silos obstruct collaboration and impede the implementation of cohesive digital strategies. Despite these hurdles, overcoming challenges in digital transformation presents opportunities for organizational growth and innovation. Organizational, technical, and strategic planning, as well as a skilled, competent, and committed team, are critical to the success of a digital transformation project. When corporate IT, product development, operations, technical and strategic planning co-mix, it poses significant blocker to the success of digital transformation. Traditional project management approaches may fall short in accommodating the dynamic nature of digital transformation, where rapid changes, evolving user requirements, and innovation are constant factors.

This thesis delves into the integration of design thinking principles into agile project management methodologies as a solution to this challenge. Design thinking, renowned for its emphasis on user empathy, iterative problem-solving, and innovative ideation, holds the potential to enrich the project management process. By incorporating design thinking principles into agile methodologies, organizations can foster a culture of innovation, adaptability, and user-centricity, thereby enhancing the likelihood of successful digital transformation projects. The thesis aims to provide in-

depth insights into the principles and practices of design thinking and agile project management, their synergies, and their collective impact on digital transformation projects. It seeks to offer a deep understanding of how these methodologies can be effectively combined to create tangible and sustainable benefits. The thesis is not just an academic endeavor; it serves as a practical guide for organizations seeking to harness the synergies of design thinking-driven agile project management to propel their digital transformation initiatives forward, thereby addressing a critical need in the contemporary business landscape. This research is situated within the broader context of digital transformation, which encompasses the profound reimagining of business processes, models, and customer interactions through the application of digital technologies. The thesis seeks to contribute to this overarching transformation by providing a comprehensive framework that bridges the gap between design thinking and agile project management. The primary benefit of the thesis is to provide organizations undertaking digital transformation initiatives with a comprehensive framework that integrates design thinking principles into agile project management methodologies. This framework aims to enhance project success rates, optimize user experiences, and foster a culture of innovation and adaptability.

The thesis aims to produce the following concrete outputs:
Challenges and Analysis: This thesis provides a detailed study of the main challenges organizations face when trying to combine design thinking with agile practices in digital transformation projects. Using data from case studies, interviews, and field observations, this research identifies common issues, such as the difficulty of aligning the iterative design cycles with agile sprints, the challenge of gathering and using user feedback quickly, and the complexity of coordinating efforts across different teams. By exploring these challenges, the thesis helps organizations and project managers understand the possible obstacles in this integration. Each challenge is carefully examined to uncover the underlying factors that cause these issues, offering insights into the organizational, cultural, and procedural elements that can either support or prevent successful integration. This analysis is a key part of building solutions that improve the way design thinking and agile methods work together.
Framework Development: Based on the challenges and insights found in the analysis, this thesis presents a clear, step-by-step framework to help integrate design thinking principles into agile project management. This framework is tailored for digital transformation projects and focuses on improving user-centeredness, flexibility, and collaboration across different teams. It includes practical strategies for applying design thinking activities, such as empathy mapping, prototyping, and iterative testing, within agile sprints. Additionally, it provides guidelines to ensure alignment among stakeholders and handle the changing aspects of digital transformation projects. By using this structured approach, organizations can take advantage of the strengths of both

methodologies,
leading to better project results and greater overall efficiency and innovation. The framework is designed to be adaptable, allowing for changes to fit specific organizational needs and project goals.

### 1.1 Alignment of thesis objectives with key research questions

Some of the key questions(Appendix A) thesis effectively addresses, offering both theoretical and practical guidance that contribute to achieving the objectives of enhancing digital transformation project success
Question 1: How can design thinking principles, such as user-centricity, iterative problem-solving, and innovation, be effectively integrated into agile project management to support digital transformation?
The thesis provides a framework that integrates design thinking into agile project management, enhancing user-centered practices, iterative development, and innovation within agile sprints. This framework includes methods such as empathy mapping, prototyping, and continuous user feedback, which are embedded within agile processes to improve adaptability and responsiveness, thus supporting digital transformation projects.
Question 2: What challenges and barriers do organizations face when combining design thinking and agile methodologies for digital transformation, and what are the benefits of this integration?
Through empirical data from case studies, interviews, and observations, the thesis identifies common challenges, such as aligning design and development cycles, managing time constraints, and balancing user feedback within agile timelines. It also highlights organizational, cultural, and procedural barriers. The thesis shows that, despite these challenges, integrating design thinking with agile methods increases adaptability, improves user satisfaction, and enhances cross-functional collaboration. These benefits contribute to successful digital transformation projects by creating solutions that are both user-centered and agile.
Question 3: What practical strategies and metrics can be employed to implement and evaluate the design thinking-driven agile project management framework in digital transformation projects ?
The thesis provides actionable strategies for implementing the framework, such as structured feedback mechanisms, cross-functional teams, and aligning design and development timelines. For evaluation, the thesis suggests preliminary metrics like tracking user satisfaction, measuring project adaptability, and assessing stakeholder engagement. It acknowledges the need for future research to develop comprehensive metrics to measure the effectiveness of the combined design thinking-agile approach in real-world digital transformation projects.
While this thesis provides a robust and adaptable framework, it is not intended as an exhaustive solution for every possible project scenario or industry specific context. Digital transformation

projects vary widely across sectors, each with its own organizational structure, strategic goals, and unique challenges. Therefore, while the framework and insights presented in this thesis are broadly
applicable across multiple domains, the thesis acknowledges that individual organizations may need to tailor the framework to meet their specific needs. This flexibility allows the framework to serve as a guiding foundation, with room for customization based on an organization's existing processes, resources, and objectives. By encouraging this adaptability, the thesis empowers organizations to implement design thinking and agile project management practices in a way that aligns with their unique operational context, ensuring that the framework remains relevant and effective in diverse settings.

Building upon the established framework, this thesis underscores the importance of cultivating a culture that supports iterative learning, collaboration, and innovation. Organizations embarking on digital transformation must recognize that integrating design thinking with agile methodologies is not merely a technical shift but a cultural evolution. The process requires breaking down silos, fostering open communication across teams, and creating an environment where experimentation and feedback are encouraged. This cultural alignment is crucial for ensuring the successful adoption and implementation of the proposed framework.

Furthermore, the thesis emphasizes the role of leadership in driving this transformation. Leaders must champion the integration of design thinking and agile methodologies by setting a clear vision, aligning teams toward shared goals, and supporting adaptive strategies. Empowering employees at all levels to contribute to the transformation journey creates a sense of ownership and drives sustained engagement. Additionally, consistent communication of the transformation's purpose and progress can help overcome resistance to change and ensure alignment among stakeholders.

By addressing these cultural and leadership dimensions, the framework extends beyond the technical aspects of digital transformation, providing organizations with a holistic approach. It equips them with the tools and mindset to navigate uncertainties, respond to evolving market dynamics, and create solutions that are not only innovative but also aligned with user needs and strategic priorities.

## 2 Literature Review

The introduction of Digital technologies has caused a significant paradigm to shift in the corporate world today, which is known as “Digital Transformation”. The goal of this analysis of the literature is to analyze the fundamentals of digital transformation and how it affects organizational strategy, operations and structures. Using knowledge from foundational publications such as Leading Digital: Turning technology into Business Transformation (Westermann, Bonnet, & McAfee, 2014) and The Digital Transformation Playbook: Rethink Your Business for the Digital Age (Rogers, 2016), this review seeks to clarify the complex nature of digital transformation and how it affects businesses in different sectors. Digital transformation transcends mere technological adoption; it embodies a holistic reimagining of business models, processes, and customer experiences considering digital capabilities. Westermann, Bonnet, and McAfee (2014,33-34) assert that digital transformation involves leveraging technology to drive fundamental changes in how businesses operate and deliver value. Rogers (2016,22) complements this perspective by emphasizing the imperative for organizations to embrace a strategic approach towards digital transformation, one centered on customer-centricity, agility, and innovation.

Digital Transformation as an Enabler of Operational Excellence

Beyond reshaping business models and customer experiences, digital transformation holds profound implications for enhancing operational efficiencies and streamlining organizational processes. The integration of cutting-edge technologies, such as cloud computing, big data analytics, and automation, had enabled organizations to optimize their operations, reduce costs, and enhance productivity (Hess, Matt, Benlian & Wiesböck 2016, 123–139). For instance, the adoption of cloud-based solutions has facilitated seamless collaboration, data accessibility, and scalability, fostering agility and responsiveness in dynamic market conditions. Moreover, the proliferation of data-driven decision-making has empowered organizations to leverage insights derived from big data analytics, enabling them to make informed decisions, identify growth opportunities, and mitigate risks more effectively (Günther, Mehrizi, Huysman & Feldberg 2017, 65–66). Automation technologies, such as robotic process automation (RPA) and artificial intelligence (AI), have revolutionized operational processes, reduced manual labor, and minimized human errors, thereby enhancing overall efficiency and quality (Lacity & Willcocks 2016, 59). These advancements have not only improved operational efficiency but also transformed the way businesses operate in today's fast-paced environment. By harnessing the power of data analytics and automation technologies, organizations can stay ahead of the competition, adapt quickly to changing market trends, and drive innovation within their industry. Overall, the integration of these technologies has paved the way for increased productivity, cost savings, and strategic decision-

making, ultimately leading to sustained growth and success in the ever-evolving business landscape.

### 2.1 Cultural and Organizational challenges in Digital Transformation

While digital transformation brings many benefits, organizations often face big cultural and organizational challenges along the way. According to Kane, Palmer, Phillips, Kiron, and Buckley (2015, 2) managing change and dealing with resistance inside the organization can be difficult. Digital transformation requires changes in people's mindsets, skills, and the way the organization is structured, which can be uncomfortable for many. To overcome these challenges, it is important to have strong leadership and clear communication. Leaders need to create a work culture that encourages learning, flexibility, and openness to change, helping employees feel supported as they adapt to new ways of working.

In today's digital world, it is necessary for organizations to go through digital transformation to stay competitive. But simply adopting new technology is not enough. A successful transformation requires a balanced approach that combines technology with improvements in operations and adaptation to cultural changes. Only by bringing these elements together - technology, processes, and culture - can organizations fully benefit from digital transformation. This approach not only helps the organization grow and innovate but also makes sure that employees are involved and aligned with the organization's goals, leading to a more successful transformation overall (Kane, Palmer, Phillips, Kiron & Buckley 2015, 3)

Traditional project management approaches, such as the Waterfall method, have been valuable for many years, especially for projects with clear goals and stable environments. These methods focus on planning, strict timelines, and following a set sequence of steps. However, in today's digital age, the business environment is no longer stable or predictable. Rapid advances in technology, constant changes in customer expectations, and competitive pressures require companies to be more flexible and responsive. Traditional methods struggle to meet these needs because they are often rigid, making it difficult for teams to adapt quickly to new information or changes.

In their book The Digital Transformation Playbook, David L. Rogers (2016, 10–12) emphasizes that digital transformation is not just about adopting new technologies; it also requires a change in how companies think and operate. Rogers points out that companies need to be agile and user-centered to keep up with the fast pace of digital innovation. Relying on traditional project management in this context is like using an old map to navigate a new city - it can lead to confusion, delays, and, ultimately, project failure. Similarly, Leading Digital: Turning Technology into Business Transformation, George Westermann, Didier Bonnet, and Andrew McAfee (2014,15-17) discusses the challenges organizations face when they try to apply old methods to modern

digital projects. These
authors argue that traditional approaches are often too slow and inflexible for the demands of digital transformation.

The core problem with traditional project management in a digital context is that it assumes stability. These methods are built on the idea that once a plan is made, it should be followed closely with minimal changes. However, digital transformation projects are dynamic. For example, in a project that involves developing a new digital product, customer needs might change, or new technology might emerge that shifts the project's direction. Agile project management, on the other hand, allows for quick adjustments and encourages teams to make improvements based on feedback. Agile methodologies, such as Scrum, break projects into smaller parts, allowing teams to review and adjust at each stage, which helps them respond to change more effectively.
Rogers (2016, 18–20) and Westermann, Bonnet, and McAfee (2014, 22–24) stress that a successful digital transformation requires more than just technology; it needs a shift in mindset. Companies must become adaptable, customer-focused, and ready to embrace new ways of working. This shift is essential for staying competitive. In the digital era, companies that stick to old methods may find themselves struggling to keep up. Agile methodologies help organizations to be more flexible by focusing on delivering small, incremental improvements. This approach allows teams to test their solutions, gather feedback, and make necessary changes before committing to a final product, reducing the risk of large-scale failure.
In an era where disruption is the norm, relying on rigid, inflexible methodologies can harm a business's success. It is time to rethink our approach is now, else we will find ourselves clinging to outdated practices. Embracing agile project management allows organizations to respond quickly to changing market conditions and customer needs, ensuring they stay relevant and competitive. By fostering a culture of innovation and adaptability, businesses can position themselves for long-term success in the digital age. It is imperative that leaders recognize the urgency of this shift and take proactive steps to modernize their project management practices before it's too late. The future belongs to those who are willing to evolve and embrace change, leaving behind the constraints of the past and paving the way for a more dynamic, resilient future.

### 2.2 Review of Traditional Project Management Approaches and their Limitations

Traditional project management methodologies have long held a main position in directing organizations through various initiatives and endeavors. However, with the advent of digital transformation, characterized by swift technological advancements and shifting market dynamics, the effectiveness of these conventional approaches has come under increased scrutiny. This review tries to critically assess traditional project management methodologies and detail out their

shortcomings in the context of digital transformation, drawing insights from insightful works such as Leading Digital: Turning Technology into Business Transformation (Westermann, Bonnet, &McAfee 2014,5-7) and Digital Transformation Playbook: Rethink Your Business for the Digital Age (Rogers 2016, 12-15)

### 2.2.1 Waterfall Methodology:

The Waterfall Methodology is one of the most well-known traditional project management approaches. It follows a linear and sequential process where each phase must be completed before the next one begins (Figure 1). This model is structured with clear stages - requirements gathering, design, implementation, testing, and maintenance - which makes it suitable for projects where goals and tasks are predictable. However, in the context of digital transformation, the Waterfall Methodology reveals significant weaknesses.

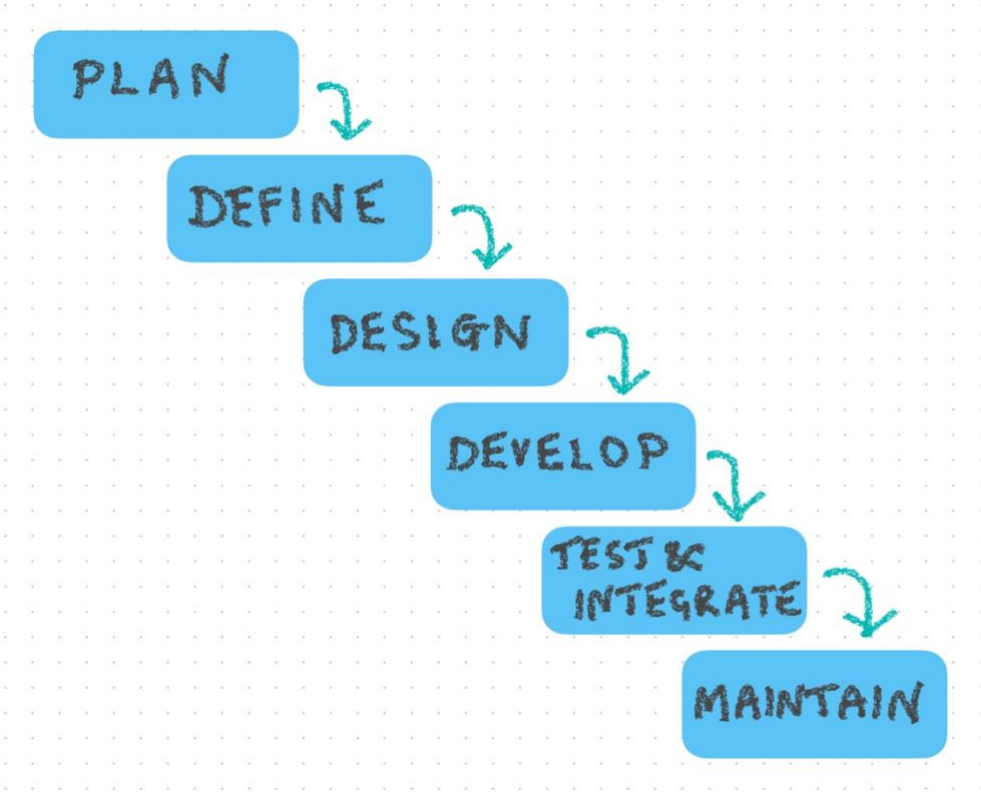


Figure 1 : Phases in Waterfall Methodology (Source: https://www.codecademy.com/)

Westermann, Bonnet, and McAfee (2014, 29–31) argue that Waterfall's rigid structure lacks the flexibility required in digital projects, where changes are frequent, and customer needs can evolve rapidly. Since Waterfall requires each phase to be finished before moving on, there is little room for adjustments based on new insights or technological advances that may arise mid-project. This lack of flexibility can lead to issues, especially in digital transformation, where iterative development and

the ability to quickly pivot are crucial.
For example, if a project team using Waterfall realizes halfway through a digital transformation initiative that customer needs have shifted, they would need to go back and redo earlier phases, which could delay the project significantly. This approach also does not support continuous customer feedback, which is essential in digital projects to ensure that the final product aligns with user expectations. Rogers (2016,34-36) highlights that in digital transformation, waiting until the end of a project to test and implement changes can lead to products that no longer meet market demands, making Waterfall less effective in such scenarios.

While the Waterfall Methodology provides a structured, step-by-step approach that can work well for stable projects, it struggles in the dynamic environment of digital transformation. Its sequential nature limits responsiveness and innovation, which are critical for adapting to ongoing digital changes.

### 2.2.2 Critical Path Method (CPM):

The Critical Path Method (CPM) is another traditional project management technique focused on optimizing schedules and resource allocation (Figure 2). CPM identifies the longest sequence of dependent tasks, or the "critical path," which determines the shortest possible project duration (Figure 2). By identifying this path, project managers can allocate resources efficiently and keep the project on track. However, CPM's focus on timing and resource optimization does not always align with the needs of digital transformation projects, which often require flexibility and adaptability

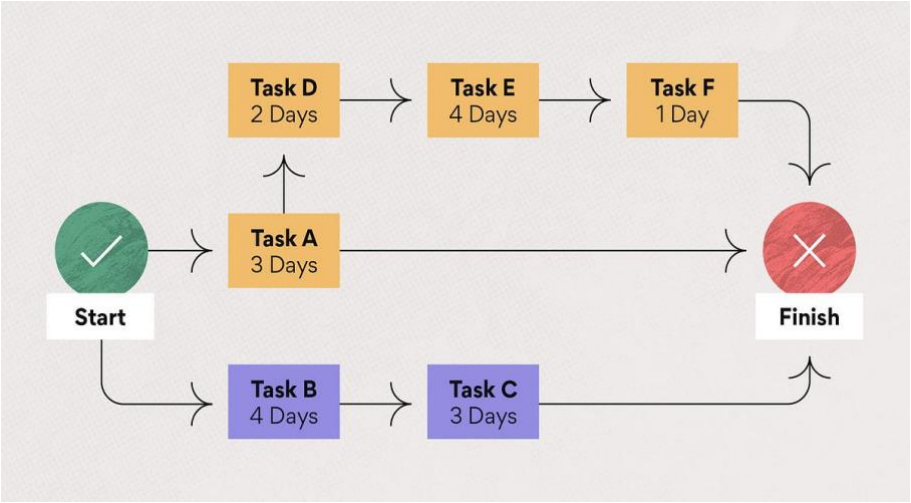


Figure 2 : Example of CPM (Source: medium.com)

Rogers (2016) argues that CPM's deterministic approach, which emphasizes strict adherence to schedules, can limit a project's ability to respond to unexpected changes. Digital transformation

projects, by nature, often face high levels of uncertainty and change due to rapidly evolving technologies and shifting market demands. CPM's strict focus on time and cost efficiency may discourage project teams from making necessary adjustments that could improve the final product but extend the timeline.

For instance, if a digital transformation project encounters new technology mid-way, adapting to include this innovation might require changes that alter the original critical path. However, CPM's rigid structure makes it difficult to accommodate such shifts without risking delays or resource imbalances. Westermann et al. (2014) emphasize that in digital transformation, the ability to adapt and experiment is as important as staying on schedule. Therefore, CPM's approach can be too limiting, as it does not prioritize the iterative learning and adaptation that are essential for successful digital projects.

Overall, while CPM is useful for managing resources and schedules, its lack of flexibility can hinder the innovation and responsiveness needed in digital transformation projects. In fast-changing digital environments, CPM's strict focus on timelines can prevent teams from exploring valuable alternatives and making improvements based on real-time feedback.

### 2.2.3 Limitations of Traditional Approaches in the Digital Era:

Traditional project management methods, including Waterfall and CPM, often fall short in the digital era due to their focus on structure, predictability, and adherence to initial plans. Westermann et al. (2014) point out that these methods assume that project goals and requirements remain stable throughout the project lifecycle. However, in the context of digital transformation, this is rarely the case. Digital transformation projects often require organizations to innovate and experiment, which is difficult to achieve within the constraints of rigid, plan-driven methodologies. Rogers (2016) argues that traditional approaches, with their emphasis on fixed plans, limit the organization's ability to capitalize on emerging opportunities and respond to unforeseen challenges. Digital projects often need continuous feedback from users and must adapt quickly to new market demands. Traditional methods, however, prioritize completing predefined tasks rather than experimenting and iterating based on feedback. This can result in a final product that does not fully meet current market needs or user expectations.

Moreover, traditional project management approaches often discourage the kind of cross-functional collaboration that is essential in digital transformation. Westermann et al. (2014) emphasize that digital transformation requires input from diverse areas of expertise—technology, design, customer insights, and business strategy. However, traditional methods often work in silos, with each team focusing only on their specific tasks without fully collaborating with others. This siloed approach can limit innovation and make it harder to create cohesive solutions that address the complexities of digital transformation.

## 2.3 Conceptual Framework of Design Thinking Principles

Design thinking has gained widespread recognition as a potent approach for promoting innovation and transformation across a diverse range of sectors, spanning product design and corporate strategy. This analysis aims to provide a comprehensive understanding of design thinking principles by drawing on the foundational works of Van Der Pijl, Lokitz, and Wijnen's (2016) in Design a Better Business: New Tools, Skills, and Mindset for Strategy and Innovation and Brown (2009) in Change by Design: How Design Thinking Transforms Organizations and Inspires Innovation.

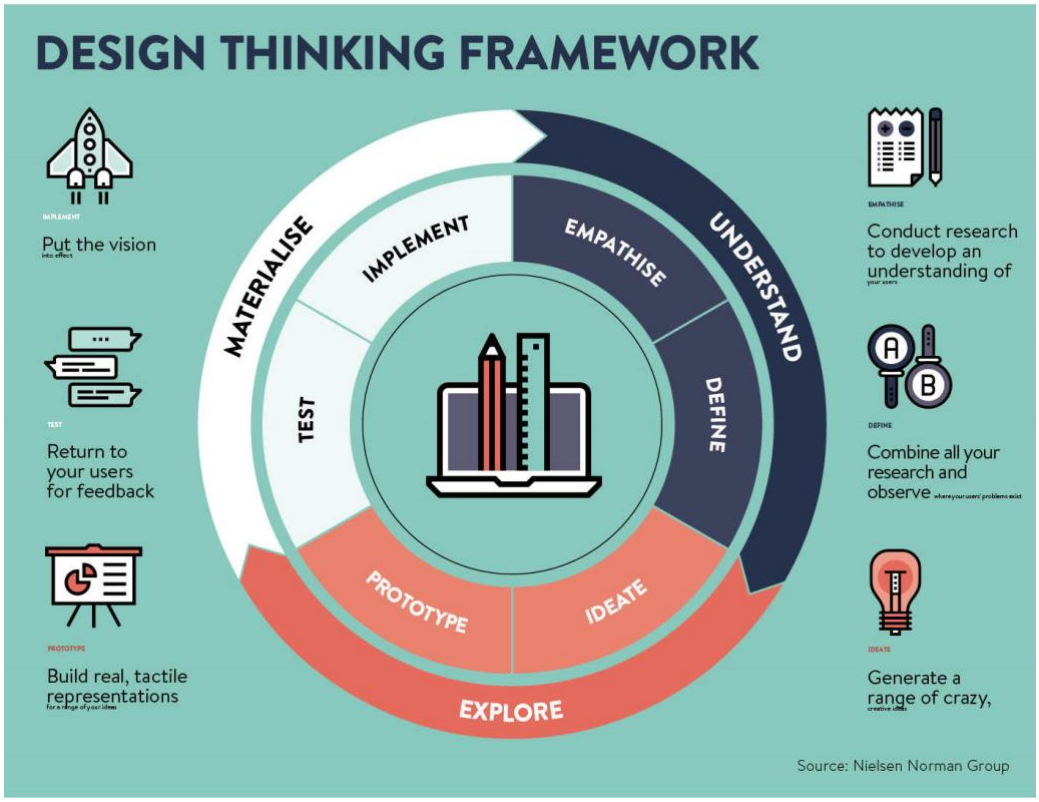


Figure 3 : Design thinking principles (Source: Nielsen Norman Group)

Key foundational principles of design thinking that serve as a cornerstone for understanding and addressing user needs effectively are:

**Empathy as the Foundation**

Empathy is the essence of design thinking, enabling one to profoundly comprehend and connect with the needs, desires, and obstacles encountered by end-users. Van Der Pijl, Lokitz, and Wijnen (2016) emphasize the importance of empathetic understanding in uncovering hidden user needs and insights that drive meaningful innovation. Similarly, Brown (2009) highlights empathy as the starting point for design thinking, advocating for immersive research techniques such as

ethnographic studies and user interviews to gain genuine insights into users' experiences and challenges.

**Iterative and Human-Centered Approach**

Design thinking promotes an iterative, human-centered approach that includes continuous prototyping, testing, and refinement. According to Van Der Pijl, Lokitz, and Wijnen (2016), rapid experimentation and iteration are essential for refining ideas and solutions based on real-world feedback. Brown (2009) agrees, highlighting that design thinking thrives in a culture of experimentation and learning from failure, where prototypes act as catalysts for generating insights and fostering creativity.

**Cross-Disciplinary Collaboration**

Design thinking seeks to break down traditional silos by promoting cross-disciplinary collaboration and co-creation. Van Der Pijl, Lokitz, and Wijnen (2016) recommend forming multidisciplinary teams with diverse backgrounds and skill sets, enhancing the ideation and innovation process through collective perspectives. Brown (2009) emphasizes the importance of a collaborative mindset that respects diverse viewpoints and encourages constructive dialogue, ultimately leading to innovative solutions for complex challenges.

**Bias Towards Action and Prototyping**:

A core principle of design thinking is its bias toward action, prioritizing hands-on experimentation and prototyping over extensive analysis. According to Van Der Pijl, Lokitz, and Wijnen (2016), prototypes function as learning tools, enabling rapid validation of assumptions and refinement of solutions. Brown (2009) further highlights the transformative potential of prototyping, bridging the gap between theoretical ideas and tangible outcomes, and fostering stakeholder engagement through concrete representations of innovation.

**Holistic Problem Framing and Solution Space Exploration**:

Design thinking encourages a comprehensive approach to framing problems, stressing the need to rephrase challenges in human-centered terms and explore diverse solution spaces. Van Der Pijl, Lokitz, and Wijnen (2016) suggest tools like journey mapping and value proposition design to clarify user needs and visualize innovative solutions. Brown (2009) adds that divergent thinking, which considers alternative viewpoints, is crucial for reframing problems and uncovering groundbreaking opportunities for innovation.

## 2.4 Assessment of Agile Project Management Techniques

Agile project management techniques have significantly transformed project execution, especially in fast-paced and dynamic environments. By examining the principles and practices of agile project

management—emphasizing its versatility, iterative approach, and responsiveness—organizations can harness its potential to efficiently manage complex projects. This analysis highlights the benefits of agile methodologies in project management, drawing insights from Agile Estimating and Planning (Cohn 2005) and Scrum: The Art of Doing Twice the Work in Half the Time (Sutherland 2014).

**Malleability and Adaptability**:
Agile project management is characterized by its inherent malleability and adaptability. Unlike traditional project management methodologies, which rely on rigid plans and extensive documentation, agile methodologies embrace change and uncertainty as natural parts of project development. Cohn (2005) emphasizes the importance of embracing change and adjusting plans as needed to meet evolving requirements and stakeholder feedback. Agile frameworks like Scrum, as discussed by Sutherland (2014), offer a flexible structure that allows teams to quickly respond to shifting priorities and market dynamics, ensuring that projects remain aligned with organizational goals and customer needs.

**Iterative Approach**:
The iterative methodology is a core principle of agile project management. Instead of attempting to define all project requirements at the start, this approach promotes incremental development and delivery cycles. It allows teams to deliver value to stakeholders frequently and early, while gathering feedback and validation at each stage. Cohn (2005) highlights the advantages of iterative planning and execution, enabling teams to adjust and reprioritize tasks based on real-world feedback. Additionally, Sutherland (2014) underscores the importance of time-boxed iterations, called sprints in Scrum, which foster a culture of continuous improvement and delivery.

**Responsiveness to Change**:
Agile project management methodologies prioritize responsiveness to change, understanding that project requirements and priorities may evolve. Instead of treating change as a disruption, agile teams view it as an opportunity for innovation. Cohn (2005) advocates for a collaborative approach to change management, involving stakeholders in decision-making and prioritization to ensure alignment with project objectives. Sutherland (2014) highlights the value of transparency and visibility, allowing teams to adapt swiftly and deliver incremental value.

Agile methodologies offer extensive benefits in the successful completion of complex projects. By promoting adaptability, repetition, and responsiveness, agile teams can accelerate project delivery, mitigate risks, and optimize stakeholder value. Cohn (2005) points out that agile planning and estimation techniques enhance predictability and adaptability, providing teams with insights to make informed decisions. Sutherland (2014) emphasizes the impact of agile methodologies on productivity and innovation, showing that cross-functional collaboration and empirical process

control enable teams to achieve greater efficiency.

In summary, agile project management methodologies provide significant advantages for complex projects. With their focus on adaptability, iteration, and responsiveness, organizations can leverage agile principles to navigate unpredictability and achieve optimized outcomes. This review, drawing on *Agile Estimating and Planning* by Cohn (2005) and *Scrum: The Art of Doing Twice the Work in Half the Time* by Sutherland (2014), highlights the foundational principles and benefits of agile project management in today's fast-changing environment.

The integration of design thinking with agile project management represents a balanced approach to innovation, blending the human-centered focus of design thinking with the iterative and adaptive nature of agile methods. Design thinking and agile project management are complementary frameworks that share key principles. Van Der Pijl, Lokitz, and Wijnen (2016) explain that design thinking emphasizes understanding user needs through iterative experimentation and prototyping. Similarly, Ratcliffe and McNeill (2016) highlight the iterative and collaborative nature of agile methodologies, which prioritize customer feedback and adaptability to changing requirements.

### 2.5 Challenges of Integration

Despite their synergies, integrating design thinking with agile project management presents certain challenges. One significant challenge is reconciling the differing mindsets and methodologies of design thinking and agile project management. Van Der Pijl, Lokitz, and Wijnen (2016) observe that design thinking emphasizes exploration and divergent thinking, while agile methodologies focus on execution and convergent thinking. This difference can create conflicts in project prioritization and decision-making. Additionally, Ratcliffe and McNeill (2016) point out the difficulty of aligning design activities with agile development cycles, as design iterations do not always align neatly with sprint cycles.

Benefits of Integration:

Despite the challenges, integrating design thinking with agile project management offers numerous benefits. Van Der Pijl, Lokitz, and Wijnen (2016) argue that combining the human-centered focus of design thinking with the iterative and adaptive nature of agile methodologies can enhance project outcomes by ensuring that solutions are not only technically feasible but also desirable and viable from a user perspective. Similarly, Ratcliffe and McNeill (2016) emphasize the advantages of increased collaboration and communication among multidisciplinary teams, which lead to more innovative and user-centric solutions.

Best Practices for Integration:

To successfully integrate design thinking with agile project management, organizations can adopt

certain best practices. Van Der Pijl, Lokitz, and Wijnen (2016) suggest establishing cross-functional teams that include individuals with diverse skills and perspectives, fostering a culture of collaboration and creativity. Similarly, Ratcliffe and McNeill (2016) recommend incorporating design activities—such as user research, prototyping, and usability testing—into agile development cycles to ensure that design insights inform product iterations and refinements.

The integration of design thinking with agile project management provides a powerful approach to innovation and project delivery by combining the user-centered focus of design thinking with the iterative and adaptive nature of agile methodologies. While there are challenges in reconciling different mindsets and methodologies, the advantages of increased collaboration, creativity, and user-centricity outweigh these difficulties. By implementing best practices, such as establishing cross-functional teams and incorporating design activities into agile development cycles, organizations can effectively merge design thinking with agile project management, fostering innovation and enhancing project success.

# 3 Research Method

In academic research, various research methods are typically available, including quantitative, qualitative, and mixed methods approaches. Quantitative research focuses on numerical data and statistical analysis to understand patterns and relationships, often used in studies requiring measurable outcomes and large sample sizes. In contrast, qualitative research explores in-depth insights, emphasizing understanding human experiences, motivations, and perceptions. This approach is valuable when the research aims to capture contextual, nuanced, and detailed information that numerical data alone cannot provide. Mixed-methods research combines both quantitative and qualitative approaches to leverage the strengths of each, allowing for a comprehensive analysis that addresses both measurable and interpretive aspects of the research question.For this thesis, a mixed-methods approach was chosen, predominantly qualitative but supplemented with iterative feedback to create a thorough understanding of how design thinking integrates with agile project management to enhance digital transformation success. This approach aligns with the thesis objectives by allowing an in-depth examination of experiences and perspectives through qualitative methods, while also utilizing iterative, practical feedback to refine the insights gained.

The methodology adopted for this thesis employs a mixed-methods approach, encompassing both qualitative data collection (Appendix 2) through interviews and collaborative workshops. This comprehensive approach has been selected to provide a thorough examination of the integration of design thinking principles into agile project management for the purpose of enhancing the success of digital transformation projects.

This study adopted an in-the-field approach to investigate the integration of design thinking-driven agile project management in digital transformation initiatives. Qualitative data collection methods (Appendix 2), including interviews and collaborative workshops, were utilized to gather insights from diverse stakeholders actively involved in digital transformation projects. These methods allowed for a deeper understanding of the perspectives and experiences of those involved in digital transformation projects, providing valuable insights for improving the success and impact of future projects. By incorporating these qualitative data collection methods, we were able to gain a comprehensive understanding of the unique challenges and successes encountered by stakeholders in digital transformation projects, which can be used to inform and improve future initiatives. Furthermore, our analysis of these qualitative data collection methods revealed several key insights into the factors that contribute to the success or failure of digital transformation projects.

## 3.1 Research Approach

This study employs a qualitative research approach, supplemented by a mixed-methods perspective to gather a comprehensive understanding of how design thinking integrates with agile project management to enhance digital transformation success. By focusing on in-depth qualitative insights, this research aims to capture the rich, contextual details of participant experiences, team dynamics, and organizational environments. The qualitative component involves interviews, field observations, and collaborative workshops, which allow for an exploratory approach to uncover the complexities and challenges associated with design thinking-driven agile methodologies in digital transformation projects.

While primarily qualitative, this research also draws on iterative feedback and participant reflections to ensure a robust and practical framework. By using an approach grounded in real-world applications and continual refinement, the study emphasizes the development of actionable insights that are directly relevant to organizational practices and project success.

### 3.1.1 Rationale for Selecting Design Thinking-Driven Agile Project Management

The choice of a design thinking-driven agile approach for this research is grounded in its unique ability to bridge the gap between user-centricity and rapid iteration, essential qualities for modern digital transformation projects. Design thinking, with its foundation in empathy, ideation, and prototyping, is particularly suited for creating solutions that meet evolving user needs and foster innovation. Agile project management, meanwhile, offers a flexible framework that supports iterative cycles, allowing teams to adapt continuously and respond to emergent insights or shifting requirements. By merging these methodologies, this approach not only enhances adaptability and responsiveness but also emphasizes stakeholder alignment and user engagement—key aspects often overlooked in traditional project management methodologies. Together, design thinking and agile principles provide a holistic framework that aligns with the fast-paced, user-centered nature of digital transformation initiatives, fostering both creativity and efficiency.

### 3.1.2 Data Collection Methods

This research draws on multiple data collection methods(Appendix 2), each strategically chosen to provide depth and breadth of understanding across different phases of the projects studied.

Semi-Structured Interviews:

To gain personal insights, semi-structured interviews were conducted with a range of participants, including agile team members (developers, UX designers, Scrum Masters, and product owners) and senior stakeholders (such as IT executives, project sponsors, and product strategists). These

interviews provided a platform for participants to share detailed accounts of their experiences, focusing on specific challenges, adaptation strategies, and the perceived value of integrating design thinking with agile practices. Questions explored areas like the integration of user feedback, conflict resolution between design and development needs, and the alignment of agile and design thinking practices with organizational transformation goals. Each interview was recorded, transcribed, and subjected to thematic analysis to identify recurring insights and patterns.

Field Observations:
To capture real-time interactions and decision-making processes, observations were conducted during agile ceremonies (e.g., daily stand-ups, sprint planning meetings, sprint reviews, and retrospectives) as well as during less structured team interactions. Observing these agile rituals allowed for a firsthand look at team dynamics, collaboration patterns, and how agile and design thinking principles were operationalized. Detailed notes and photographs documented the environment, providing valuable context on the team's workflow, the negotiation of project requirements, and the handling of challenges in real time.

Collaborative Workshops:
Collaborative workshops were held throughout the project timeline, engaging stakeholders from various functions—designers, developers, product owners, and strategic decision-makers—in immersive design thinking exercises. These workshops created a setting for co-creative ideation and problem-solving, allowing participants to collaborate on solutions for specific project challenges. Sessions included activities like brainstorming, journey mapping, and high-level UI design, with outputs used to further refine project direction and identify potential areas for framework enhancement. By involving a diverse group of stakeholders, these workshops not only generated innovative solutions but also helped align participants' perspectives on project goals and expectations, fostering greater teamwork and coherence.

### 3.2 Framework Development Process and Tools Used

The development of a structured framework to integrate design thinking within agile project management methodologies was a core outcome of this research. This process involved several iterative stages of analysis, visualization, and testing, supported by specialized tools and design methods.
Data Analysis and Thematic Synthesis:
Data collected from interviews (Appendix 2), observations, and workshop outputs was carefully analyzed through a thematic approach, which involved identifying recurring challenges, patterns, and insights across various data points. Key themes such as the importance of continuous feedback integration, synchronization between design and development, and stakeholder

alignment emerged through this analysis. These themes provided a foundation upon which the framework could be structured.

Lucid chart for Framework Visualization:
Once core themes and principles were identified, Lucid chart was employed to visualize and structure the framework. Lucid chart, a cloud-based diagramming tool, enabled the creation of conceptual diagram that represented the proposed framework visually.

Iterative Prototyping and Feedback Integration:
Throughout the framework development process, feedback was continuously solicited from key stakeholders, agile team members, and design thinking practitioners. Initial versions of the framework were tested in live project environments, allowing for adjustments based on real-world application and user feedback. By incorporating ongoing insights from these iterative tests, the framework was refined to address practical challenges more effectively and ensure a high degree of alignment with user needs.

Final Framework Composition:
The finalized framework integrates design thinking's human-centered focus with Agile's adaptability, structured into four essential steps: Agile-Design Synchronization, Continuous Feedback Integration, Adaptive Strategic Planning, and Collaborative Empowerment and Vision Alignment. Each step outlines specific actions, tools, and stakeholder roles, providing a structured yet flexible guide for organizations looking to enhance their digital transformation efforts through design thinking-driven agile project management. The resulting framework, visualized in Lucid chart and refined through real-world testing, provides a practical roadmap that organizations can follow to achieve improved project outcomes and foster a culture of innovation and adaptability.

### 3.3 Selection of Organizations and Teams

This study focused on two prominent organizations, McKesson Technologies and Wolters Kluwer, chosen for their active engagement in digital transformation initiatives and openness to research collaboration. Both organizations are leaders in their respective industries—McKesson Technologies specializes in healthcare technology, while Wolters Kluwer focuses on legal, tax, and regulatory information solutions. Their diverse industry contexts offered a valuable opportunity to study the integration of design thinking into agile project management across different sectors, providing insights into the unique challenges and practices of digital transformation within each domain.
As part of my professional role at a consultancy providing IT services to these organizations, I was involved on the vendor side, supporting their digital transformation efforts. This consultancy role

allowed me to collaborate closely with the project teams, giving me access to observe and actively contribute to the integration of design thinking principles within agile frameworks.

At McKesson Technologies, a six-month project focused on enhancing agile development practices with design thinking. I collaborated with two agile development teams, each consisting of five developers, a UX designer, a product owner, and a Scrum Master. Additionally, senior stakeholders, including product strategists, IT directors, and senior managers, were involved to provide insights into the strategic challenges they faced. Working on the vendor side, I gained a unique perspective on both the operational dynamics of the teams and the higher-level strategic considerations of the organization.

The second study took place over six months at Wolters Kluwer, focusing on the development of a legal research tool. I worked alongside a cross-functional agile team, comprising six developers, two UX designers, a product owner, and a Scrum Master, as well as senior stakeholders such as project sponsors, product managers, and IT executives. My role as part of the consultancy supporting Wolters Kluwer's digital initiatives allowed me to offer external insights while deeply engaging with the team's workflows and design thinking practices.

This vendor-side involvement with both McKesson Technologies and Wolters Kluwer enabled me to contribute to the projects while gaining a comprehensive understanding of design thinking integration within agile frameworks across different industry contexts. This arrangement provided a unique vantage point, allowing me to analyze the integration process across multiple levels—operational, strategic, and vendor-client dynamics—thereby enhancing the study's insights into the benefits and challenges of blending design thinking with agile methodologies in diverse digital transformation projects.

# 4 Results

This section presents the main findings from two case studies conducted at McKesson Technologies and Wolters Kluwer. These studies focused on how design thinking can be combined with agile project management to improve digital transformation projects. The findings are based on data collected through interviews, observations, and workshops.
The results highlight real-world examples of how design thinking was applied in diverse projects, revealing both its potential and the challenges encountered during integration. Teams faced issues such as synchronizing design and development cycles, managing stakeholder expectations, and addressing time constraints, but they also reported significant improvements in user-centered innovation, adaptability, and cross-functional collaboration. Additionally, the studies underscored the importance of iterative feedback loops, enabling teams to refine solutions continuously and align better with evolving project goals.

## 4.1 Study 1: Integrating Agile Development with Design Thinking at McKesson Technologies

**Context and Participants**:
The first study was conducted at McKesson Technologies over a six-month project timeline, focusing on how Agile development practices can be enhanced using design thinking principles. The project involved new and improved version of a legacy application with cutting edge technological foundation and revamped design. The participants included two Agile development teams, each with five developers, one UX designer, one product owner, and one Scrum Master. Additionally, stakeholders involved in planning digital transformation projects were included to understand their challenges. These stakeholders included senior managers, product strategists, and IT directors, release train engineer.
The team did a low fidelity version of UI design called high level designs based on business process workflows and requirements discussed in workshops held a month before iteration planning happens. These UI designs were reviewed and agreed upon with customers and other stakeholders before turning them into High fidelity during the development iterations (sprints). Design iteration was an iteration (sprint) ahead of the development and enhancements identified during business demos, customer reviews, team grooming were prioritized and planned by product team in consultation with other stakeholders like tech architects and UI developers.
UI issues were handled in the same way as other development issue: new stories created, estimated, and reprioritized for iterative implementation. Every iteration was demoed to the users to gather feedback and to check if overall implementation was in alignment with user needs.

### 4.1.1 Method and Implementation

Throughout the first three months, field observations were made throughout multiple full sprints. The researcher attended all Agile ceremonies, such as daily stand-ups, sprint planning meetings, sprint reviews, retrospectives, and backlog refinement sessions, to fully immerse oneself in the day-to-day operations of the Agile teams. The researcher was able to watch interactions in real time, decision-making procedures, and the application of Agile and design thinking techniques thanks to this method. To capture team relationships, work conditions, and noteworthy events, thorough field notes and images were gathered.

Field Observations:
Observations were conducted over the first three months, covering several complete sprints. The researcher attended daily stand-ups, sprint planning meetings, and sprint reviews to understand team interactions and workflows. To gain a comprehensive understanding of the team's dynamics, the researcher also participated in retrospectives and backlog refinement sessions.
Interviews:
Semi-structured interviews were conducted with all team members and stakeholders throughout the six months. The purpose of the interviews was to extract in-depth information about the participants' viewpoints and experiences with fusing Agile development and design thinking. Each interview was recorded, transcribed, and analyzed to identify recurring themes and insights.
Key questions included:

- How do you incorporate user feedback into your development process?
- Can you describe a recent challenge in integrating design with Agile development?
- How do design thinking principles influence your problem-solving approach?
- How do you measure the success of digital transformation projects?
- What challenges do you face in planning digital transformation projects?
- How do you align digital transformation goals with Agile and design thinking methodologies?

Collaborative Workshops:
Several workshops were conducted over the six months to facilitate collaborative problem-solving and design thinking exercises. These sessions focused on identifying issues in the current workflow, generating solutions using design thinking methods, designing future business workflows, and creating high-level UI designs. These sessions involved all stakeholders including product managers, designers, tech architects, and business analysts to ensure alignment and collaboration throughout the process. By involving a diverse group of stakeholders, the workshops were able to gather insights from various perspectives and expertise. This collaborative approach

helped in creating innovative solutions that addressed the identified issues and improved the overall workflow efficiency. The design thinking methods allowed for a deep dive into the problems at hand, while the high-level UI designs provided a visual representation of the proposed solutions. The involvement of product managers ensured that the solutions aligned with the company's overall goals and objectives, while the inclusion of tech architects and business analysts ensured that the solutions were technically feasible and financially viable. Overall, the collaborative approach not only improved workflow efficiency but also fostered a sense of teamwork and shared responsibility among the stakeholders.

Day-to-Day Activities:
Daily activities included participating in Agile ceremonies (stand-ups, sprint planning, and reviews), shadowing team members during their work, and facilitating impromptu discussions to clarify observations. The researcher took detailed field notes and photographs to document the work environment and interactions.

Analysis
After being transcribed, Thematic analysis was conducted on the data to identify patterns and themes related to combining Agile and design thinking. Several themes emerged, such as constant communication, progress negotiation, expectation alignment, and mutual awareness. The data revealed trends in how teams applied design thinking within Agile processes, highlighting both successful and challenging areas. To validate the accuracy of these findings, participant feedback sessions were conducted. The initial findings were presented to participants during feedback sessions to validate and ensure accurate interpretation. Participants were asked to provide insights on their experiences and perspectives, allowing for a comprehensive understanding of the implications of combining Agile and design thinking. This iterative process helped refine the identified patterns and themes, ultimately enhancing the credibility and reliability of the study results.

### 4.1.2 Findings

Key themes included the importance of mutual awareness, aligning expectations, negotiating progress, and continuous communication. Integrating design thinking fostered a more collaborative environment and creative problem-solving.
Collaborative workshops revealed that the outputs from the workshops, including notes, sketches, and prototypes, were analyzed to identify key insights and themes. The analysis focused on the effectiveness of collaborative problem-solving, the integration of design thinking methods, and the practical application of solutions. The findings were used to inform subsequent iterations and validate the overall approach.

The collaborative workshops generated several key insights:

Collaborative Problem-Solving: The workshops facilitated effective problem-solving by leveraging diverse perspectives and expertise. Design thinking methods, such as brainstorming and prototyping, were particularly valuable in generating a wide range of innovative solutions and rigorously testing them for feasibility and effectiveness.
The practical application of solutions identified in the workshops played a pivotal role in bridging the gap between theoretical concepts and real-world implementation, leading to tangible improvements in operational efficiency and effectiveness. Participants found this hands-on approach beneficial in addressing specific pain points and improving workflow integration. The use of design thinking techniques not only encouraged participants to think creatively and innovatively but also empowered them to challenge traditional problem-solving approaches and explore unconventional ideas. Participants noted that this approach helped them think beyond conventional solutions and explore new possibilities.
From interviews, Recurring themes such as the challenges of balancing UX design timelines with Agile sprints, the integration of user feedback, and the alignment of strategic goals with operational capabilities were identified. These themes were further explored in the context of individual and collective experiences, providing a nuanced understanding of the integration process. Below are the stakeholder responses and analysis.

The interviews revealed several recurring themes:
Integration Challenges: Participants frequently cited the challenge of balancing the rapid pace of Agile sprints with the more deliberate process of UX design. The need for improved synchronization strategies was evident.
User Feedback Integration: Integrating user feedback into Agile cycles was challenging due to tight deadlines. Participants highlighted the need for more efficient mechanisms to incorporate feedback without disrupting the workflow.
Strategic Alignment: Aligning digital transformation goals with Agile and design thinking methodologies required constant adjustment. Participants emphasized the importance of setting clear goals and maintaining flexibility to adapt to changing circumstances.

Stakeholder Q&A and Analysis

| Question | Respondent | Stakeholder Response | Analysis |
|---|---|---|---|
| How do you incorporate user feedback into your development process? | Team member | "We gather user feedback through surveys and usability testing sessions, but integrating this feedback into Agile sprints is challenging due to tight deadlines." | Indicates a need for better integration mechanisms for user feedback within Agile cycles. |
| Can you describe a recent challenge in integrating UX design with Agile development? | Team member | "Balancing the UX design timeline with the rapid pace of Agile sprints is tough. Often, designs are rushed, impacting quality." | Highlights the difficulty in synchronizing design timelines with Agile sprints, suggesting a need for improved synchronization strategies. |
| How do design thinking principles influence your problem-solving approach? | UX designer | "Design thinking helps us approach problems from a user-centric perspective, but it can be hard to fit this into the structured Agile process." | Points to the value of design thinking in fostering user-centric solutions, but also to the challenge of fitting it within Agile's structured processes. |
| What challenges do you face in planning digital transformation projects? | IT director | "Aligning strategic goals with operational capabilities and managing change resistance are major challenges." | Identifies strategic alignment and change management as key challenges in digital |

| Question | Respondent | Stakeholder Response | Analysis |
|---|---|---|---|
| | | | transformation planning. |
| How do you align digital transformation goals with Agile and design thinking methodologies? | IT director | "We try to set clear goals that align with our Agile practices and use design thinking to ensure these goals are user-focused, but it requires constant adjustment." | Suggests ongoing adjustments are necessary to align strategic goals with Agile and design thinking practices effectively. |

### 4.1.3 Summary

This study at McKesson Technologies explored the integration of Agile development with design thinking, uncovering several overarching patterns and insights.

Mutual Awareness and Continuous Communication: The success of integration relied heavily on team members' mutual awareness of each other's roles and continuous communication. Ensuring that all team members understood each other's roles and contributions facilitated smoother collaboration and alignment of efforts.

Balancing Timelines and Expectations: Balancing the timelines and expectations of UX design and Agile development posed a significant challenge due to the differing iterative and deliberate paces required. The iterative nature of Agile, which focuses on rapid iterations, clashed with the slower and more deliberate pace necessary for ensuring high-quality UX design outcomes. Implementing synchronization strategies, like staggering iterations between design and development phases, was crucial to resolving this challenge.

Incorporating User Feedback: Integrating user feedback into Agile cycles posed challenges due to the time constraints and fast-paced nature of sprint cycles. The need for more efficient mechanisms to gather, analyze, and implement user feedback within the Agile framework was evident.

Strategic Alignment and Flexibility: Aligning strategic goals with operational capabilities and managing change resistance were major challenges in digital transformation planning. Aligning strategic goals with Agile and design thinking methodologies effectively necessitated continuous adjustment and flexibility.

Collaborative Problem-Solving: Engaging in collaborative workshops and utilizing design thinking

techniques created a more collaborative environment, enabling creative problem-solving. Participants valued the opportunity to engage in hands-on exercises that helped bridge the gap between theoretical concepts and practical implementation.
Creative and Practical Solutions: The emphasis on creativity and innovation in design thinking resulted in the creation of practical solutions that effectively tackled specific workflow challenges. This approach helped participants think beyond conventional solutions and explore new possibilities.
In summary, the integration at McKesson Technologies emphasized mutual awareness, continuous communication, balanced timelines, user feedback integration, and strategic alignment. By addressing these challenges through improved synchronization strategies, efficient feedback mechanisms, and collaborative problem-solving, the success rates of digital transformation projects can be enhanced.

### 4.2 Study 2: Enhancing Agile Practices through Design Thinking at Wolters Kluwer

#### Context and Participants

The second study was conducted at Wolters Kluwer over a six-month project timeline. Design thinking ideas were incorporated into the second research project at Wolters Kluwer over a six-month period to enhance Agile development processes. The project aimed to create a new tool for legal research with a focus on user-centered design and modern technology. The project involved updating both the technology infrastructure and user interface of the outdated software.

The participants included multiple codependent Agile development teams, per team composed of six developers, 4 QAs, one UX designers, one product owner, and one Scrum Master. Additionally, key stakeholders involved in digital transformation initiatives were included to gain insights into their strategic challenges. These stakeholders consisted of senior product managers, project sponsors, IT executives, and other decision-makers critical to the project's success.

Designers created a high-level design already when product was made viable, and iteration planning would start once design was completed. However, overall design wasn’t created upfront, only for the next Project iteration. Before the next project iteration (sometimes during the previous release), the user stories and UI were fleshed out to obtain high-level estimates for that release, preventing these activities from slowing down the development process. Design could still change during development based on developer inputs. There were scenarios when, during grooming the UI stories, due to technical challenges, the entire design had to change and only could be considered in later sprints for development. This caused delays in the project timeline and required additional collaboration between the design and development teams to ensure a successful

implementation
UI-related issues were handled with the same rigor as other development challenges, with new stories being created for larger fixes and bugs for smaller fixes, estimated, and reprioritized for iterative implementation. Team was so focused on delivering a working software, that usability wasn't tested much before the release.
At the conclusion of each iteration, the work was demoed to users to gather feedback and to ensure that the overall implementation remained aligned with user needs and expectations where often team stakeholders like IT directors, managers would also be present and provided feedback. The most common concern was the quality of the UI. Team's focus during implementation phases was to produce a working software and that would often take all the bandwidth and wouldn't leave much bandwidth for usability tests or UI tests.

### 4.2.1 Method and Implementation

An ethnographically informed approach with field observations, semi-structured interviews, and collaborative workshops was used over the six-month period.

**Field Observations:**
The six-month study, which was guided by ethnography, included field observations as a crucial component. It was carried out at Wolters Kluwer. The goal was to comprehend the daily tasks, interactions, and difficulties encountered by several interdependent Agile development teams. Each team consisted of six developers, four QA engineers, a UX designer, a product owner, and a scrum master. These observations also included key individuals from digital transformation projects, such as senior product managers, project sponsors, IT executives, and other decision-makers. This was done to observe their interactions with the development teams and gain insights into strategic challenges.

The researcher observed Agile ceremonies and informal interactions throughout sprint cycles to understand the team's workflow, collaboration, and decision-making processes. They also observed impromptu discussions, problem-solving sessions, and informal feedback exchanges among team members. These observations were crucial for capturing implicit coordination, mutual awareness, and real-time problem resolution that occurred outside structured meetings, ensuring a comprehensive understanding of the team's workflow and decision-making processes.

**Focus areas:**

Agile Ceremonies:
The researcher closely monitored the teams' execution of these rituals, focusing on the way user stories, and UI designs were examined, debated, and improved upon in these sessions. A special

emphasis was on how design-related issues were resolved in sprint planning and backlog grooming meetings, especially when changes to the UI design were required due to technological limitations. The researcher also observed how these modifications affected the project schedule and necessitated more cooperation between the development and design teams.

Cooperation and Communication:
To better understand how cooperation and communication took place outside of official sessions, the team members' casual interactions were thoroughly observed. This involved watching how input was given, and decisions were made quickly during sprint cycles, as well as how developers and UX designers collaborated to fix UI problems.

Stakeholder Engagement:
Another important point of observation was the attendance of important stakeholders at sprint reviews and demos. The researcher took note of the input these stakeholders offered, especially regarding the general user experience and UI quality. Additionally, the researcher watched as the teams reacted to the comments and how it affected later rounds of the development process.

Bottlenecks and Recurring issues:
During the observation period, the researcher discovered bottlenecks and recurring issues that hindered the team's capacity to produce high-caliber, user-centered software. These included the impact of last-minute design changes brought on by technical limitations, the problems of synchronizing design and development deadlines, and the necessity of usability testing while maintaining a working software product.

**Interviews:**
The interview method was designed to gain deep insights into the experiences, challenges, and perspectives of team members and key stakeholders involved in the project. Over the course of six months, semi-structured interviews were conducted with various participants, including Agile team members (developers, UX designers, Scrum Masters, and product owners) as well as senior stakeholders involved in digital transformation initiatives (senior product managers, project sponsors, IT executives, and other decision-makers).

Interviews were conducted to understand and ascertain possible areas for improvement as well as how Agile methods and design thinking principles were utilized and incorporated throughout the development process. The interviews also sought to understand the approaches taken by the teams to satisfy user needs, settle disputes between development and design, and match Agile methodology with the objectives of digital transformation.

The semi-structured interviews allowed for flexibility in addressing issues that came up throughout the discussion while keeping the core research questions front and center. Using this method, the researcher was able to compile rich, qualitative data that gave a thorough grasp of the experiences and perceptions of the participants.

Key Topics and Questions:

- How do you ensure user needs are addressed in your development process?
- What role does the UX designer play in your Agile team?
- How do you resolve conflicts between design and development requirements?
- What challenges do you face in planning digital transformation projects?
- How do you align digital transformation goals with Agile and design thinking methodologies?

Data collection and Analysis:
Interviews were recorded with participants' consent and transcribed for analysis. The researcher used thematic analysis to identify recurring themes and patterns among the responses. Participants' challenges and strategies, as well as any differences in perspectives between team members and senior stakeholders, were all carefully considered. The interview findings were then synthesized to provide a thorough understanding of how Agile and design thinking practices were implemented and contributed to the success of Wolters Kluwer's digital transformation project.

### 4.2.2 Findings

Key themes included collaboration across Agile ceremonies, unstructured communication for problem-solving, continuous stakeholder engagement, and the identification of recurring challenges. This ethnographically informed approach revealed critical insights into the interplay of Agile processes and digital transformation efforts.

Field Observations:
Close observation of Agile rituals revealed how user stories and UI designs were discussed, updated, and improved in real time. The impact of UI changes brought on by technical limitations was demonstrated during sprint planning and backlog grooming meetings, highlighting the necessity of tight collaboration between the development and design teams to minimize schedule delays. Observing informal interactions outside formal meetings captured essential aspects of team cooperation. Quick decisions made during impromptu discussions and problem-solving sessions were essential for addressing UI issues, ensuring mutual awareness, and enabling efficient workflow.

Regular participation by stakeholders at sprint reviews and demos yielded insightful input, particularly regarding the quality of the user interface and user experience.

Interviews:

Issues with Design-Development Synchronization: Interviewees often highlighted the need for better synchronization techniques by pointing out how challenging it is to match Agile's quick sprints with the iterative requirements of UX design.

Designing with User-Centeredness under Agile Constraints: It became difficult to strike a balance between thorough usability testing and Agile's rapid iterations. More efficient ways to integrate user feedback without interfering with sprint flow were emphasized by the participants.

Stakeholders emphasized the significance of coordinating Agile practices and design thinking methodologies with more general goals for digital transformation. To adjust to changing project demands, it was crucial to have clear objectives and adaptable strategies.

Stakeholder Interview Responses and Analysis

| Question | Respondent | Stakeholder Response | Analysis |
|---|---|---|---|
| How do you ensure user needs are addressed in your development process? | Product Owner | "We conduct regular user testing sessions and gather feedback through surveys and interviews. However, integrating this feedback promptly can be challenging due to tight sprint schedules and competing priorities." | This highlights a systematic approach to collecting user feedback but also underscores difficulties in prioritizing and incorporating user insights within constrained timelines. It suggests a need for more flexible planning and improved mechanisms to integrate user needs effectively into the development process. |

| Question | Respondent | Stakeholder Response | Analysis |
|---|---|---|---|
| What role does the UX designer play in your Agile team? | UX Designer | "I collaborate closely with developers and product owners to translate user requirements into intuitive designs. Despite this, there are times when design inputs are introduced late, making it hard to align with the sprint cycles effectively." | Emphasizes the critical role of the UX designer in facilitating user-centered design but also points out synchronization issues with the development process. This indicates a need for better integration and early involvement of UX design in sprint planning to ensure seamless collaboration. |
| How do you resolve conflicts between design and development requirements? | Scrum Master | "We hold dedicated conflict resolution meetings where all parties can voice their concerns and collaboratively find compromises. Nonetheless, time constraints and differing priorities often make consensus challenging to achieve." | Illustrates a proactive approach to conflict resolution through open communication but acknowledges ongoing struggles in balancing diverse perspectives under pressure. This suggests enhancing facilitation skills and establishing clearer guidelines to streamline conflict |

| Question | Respondent | Stakeholder Response | Analysis |
|---|---|---|---|
| | | | resolution effectively. |
| What challenges do you face in planning digital transformation projects? | IT Executive | "Keeping up with rapidly evolving technologies and aligning diverse stakeholder expectations are major hurdles. Additionally, ensuring that our teams have the necessary skills and resources to adapt to these changes is an ongoing challenge." | Identifies the complexity of technological adaptation and stakeholder alignment as significant obstacles in digital transformation efforts. This indicates the need for continuous learning initiatives and robust change management strategies to navigate and coordinate transformative projects successfully. |
| How do you align digital transformation goals with Agile and design thinking methodologies? | Senior Product Manager | "We adopt an iterative approach, constantly refining our strategies based on feedback from Agile sprints and design thinking workshops. This continuous improvement cycle helps us stay aligned with our transformation | Demonstrates a commitment to iterative learning and flexibility in achieving alignment between methodologies and transformation goals. However, it also points to the |

| Question | Respondent | Stakeholder Response | Analysis |
|---|---|---|---|
| | | objectives, though it requires constant coordination and adaptability." | necessity for sustained effort in coordination and the ability to adapt swiftly to feedback and changing circumstances. |

The interviews conducted with various stakeholders at Wolters Kluwer reveal a concerted effort to integrate user-centered design within Agile frameworks, leveraging regular feedback and collaborative practices.

### 4.2.3 Summary

Wolters Kluwer's study looked at how Agile development and digital transformation intersected, yielding valuable insights into stakeholder engagement, communication, and teamwork

Collaboration Across Agile Ceremonies: A close look at Agile ceremonies like sprint planning and backlog grooming revealed how user stories and UI designs were revised in real time. Technical limits necessitated UI revisions on occasion, emphasizing the importance of close coordination between development and design teams to avoid schedule delays.

Continuous Communication and Unstructured Problem Solving: Informal conversations outside of regular sessions captured important components of team collaboration. Quick, unplanned discussions allowed for efficient problem solving, real-time decision-making, and mutual awareness, all of which are necessary for a seamless workflow.

Stakeholder Engagement and Feedback Integration: Stakeholders routinely participated in sprint reviews and demos, offering valuable feedback on user experience and UI quality. Their involvement helped to maintain alignment with strategic goals, yet sustained engagement proved difficult as projects developed.

Challenges with Synchronizing Design and Development: Interviews highlighted continued challenges in connecting Agile's quick sprints with the iterative nature of UX design. Participants stressed the need for improved synchronization techniques to avoid hasty designs and assure high-quality user experiences.

User-Centered Design with Agile Constraints: Balancing rigorous usability testing with Agile's tight deadlines was a key problem, as the rapid pace frequently restricted the complete integration of user feedback. Creating more effective ways to incorporate input without disrupting sprints was a crucial proposal.

Strategic flexibility and alignment: Stakeholders emphasized the need of integrating Agile principles and design thinking into digital transformation goals. This needs clear objectives, adaptable techniques, and the capacity to respond to changing project demands.

# 5 Discussion

The study identified fundamental obstacles in digital transformation projects in Agile-driven contexts, such as misalignment of vision and strategy, uneven stakeholder participation, and difficulty balancing Agile sprints with design requirements. A breakdown in conveying project goals resulted in uncertainty and fragmented efforts, emphasizing the importance of clear and constant strategic communication. Although stakeholder engagement was initially high, it frequently declined over time, threatening misalignment and impeding progress. Balancing the rapid speed of Agile sprints with the iterative nature of design thinking proved challenging, resulting in rushed designs and poor user experiences. Furthermore, tight deadlines hindered the proper inclusion of customer feedback, potentially misaligning the product with user needs. Ensuring ongoing feedback and collaborative problem-solving can help, as could implementing staggered sprints to provide design processes.

| Identified Issues | Details |
|---|---|
| Misalignment of Vision and Strategy | There seems to be a gap in how well the vision and detailed strategy of digital transformation projects are communicated across the organization. This misalignment can lead to confusion, inconsistent efforts, and a lack of coherent direction. |
| Inadequate Stakeholder Engagement | Initial stakeholder engagement is strong but tends to wane as projects progress. Continuous engagement is crucial for maintaining support, alignment, and momentum throughout the project lifecycle. |
| Balancing Agile Sprints and Design Iterations | The studies highlighted challenges in synchronizing the fast pace of Agile development with the deliberate, exploratory nature of design thinking. This misalignment often resulted in rushed design processes and suboptimal user experiences. |
| Incorporating User Feedback Effectively: | The tight timelines in Agile sprints made it difficult to fully integrate user feedback, leading to potential misalignment between the product and user needs. |

| Identified Issues | Details |
|---|---|
| Strategic Alignment and Flexibility: | The need for continuous alignment between strategic goals and operational capabilities was crucial, particularly in dynamic digital transformation projects that require ongoing adjustments. |
| Stakeholder Engagement and Collaborative Problem-Solving: | Effective communication and collaboration among all stakeholders were essential to ensure that strategic objectives were met without compromising design quality. However, engagement often waned as projects progressed, leading to potential misalignment and loss of momentum. |
| Misalignment of Vision and Strategy | There was often a gap in how well the vision and detailed strategy of digital transformation projects were communicated across the organization. This misalignment could result in confusion, inconsistent efforts, and a lack of coherent direction. |
| Inadequate Stakeholder Engagement: | While initial stakeholder engagement was strong, it tended to wane as projects progressed. Continuous engagement is essential to maintain support, alignment, and momentum throughout the project lifecycle. |
| Usability Testing and Quality Assurance | Usability testing was sometimes deprioritized due to the focus on delivering functional software within tight deadlines, leading to late-stage usability issues. |

### 5.1 Derived Insights

The following insights present useful strategies and best practices for combining design thinking with Agile methods in digital transformation projects. Based on thorough research, these insights

focus on solving common problems that organizations face during digital transformation. By applying these practices, organizations can improve coordination between design and development teams, stay flexible in a changing market, and boost teamwork with stakeholders. Each insight offers a practical way to increase project success, encourage innovation, and meet the needs of both users and the business in today's fast-moving digital world.

- **Enhanced Synchronization Mechanisms**

Design thinking and Agile development can be more closely aligned by implementing parallel or staggered iterations between design and development. This will ensure more refined design outputs that meet Agile timelines. For example, a software development team can conduct initial user research and create wireframes during one sprint, while the development team works on implementing basic functionality in parallel. This allows for continuous feedback and iteration throughout the process, leading to a more seamless integration of design and development.

- **Agile Design Thinking (ADT) Feedback Loop**

A refined feedback mechanism is necessary to integrate user insights more efficiently. This could involve real-time feedback tools, shorter feedback cycles, and continuous user testing throughout the development process. For example, a software development team practicing Agile Design Thinking may conduct user testing sessions every two weeks to gather feedback on design prototypes. This frequent feedback loop allows the team to quickly iterate on designs and make necessary adjustments to meet user needs within the Agile development timeline.

- **Adaptive Strategic Alignment**

Digital transformation initiatives require a flexible approach to align strategic goals with evolving operational realities, incorporating real-time feedback and regular reassessments of goals. For instance, a company implementing adaptive strategic alignment may regularly review key performance indicators to ensure that strategic goals are being met and adjust tactics accordingly. This iterative process allows the organization to adapt quickly to changing market conditions and stay ahead of competitors in the digital landscape.

- **Empowered Stakeholder Collaboration**

Continuous stakeholder engagement is critical to maintaining alignment and momentum throughout the project. Structured workshops, cross-functional teams, and clear communication channels can help sustain engagement and collaboration.

- **Continuous Usability and Quality Focus**

Usability testing and quality assurance should be continuous activities throughout the project

lifecycle, ensuring that the final product meets user expectations and business goals. For example, regularly conducting usability testing with target users to gather feedback and make necessary improvements to their product. By involving stakeholders in these testing sessions and keeping them informed of the progress, the company can ensure that the result meets both user needs and business objectives.

- **Vision and Strategy Communication Enhancement**

Clear and consistent communication of the vision and strategy across the organization is vital to ensure alignment and coherence in efforts, minimizing confusion and inconsistent execution. For example, in a software development project, the leadership should regularly communicate the overall vision and strategic goals to all team members, providing context for their work and fostering a sense of purpose. This helps ensure that everyone is working towards the same objectives and can make informed decisions that align with the project's overarching goals.

- **Sustained stakeholder engagement**

A strategy for ongoing stakeholder engagement, beyond the initial phases, should be established to maintain support and alignment. This includes regular updates, collaborative decision-making processes, and active involvement in key stages of the project. For example, in a software development project, clear communication of the product vision and strategy to all team members ensures that everyone is working towards the same goals. By consistently engaging stakeholders throughout the project, such as obtaining feedback on features and involving them in key decision-making processes, the final product is more likely to meet their needs and expectations.

## 5.2 4-Step Solution Framework to Enhance Digital Transformation Success

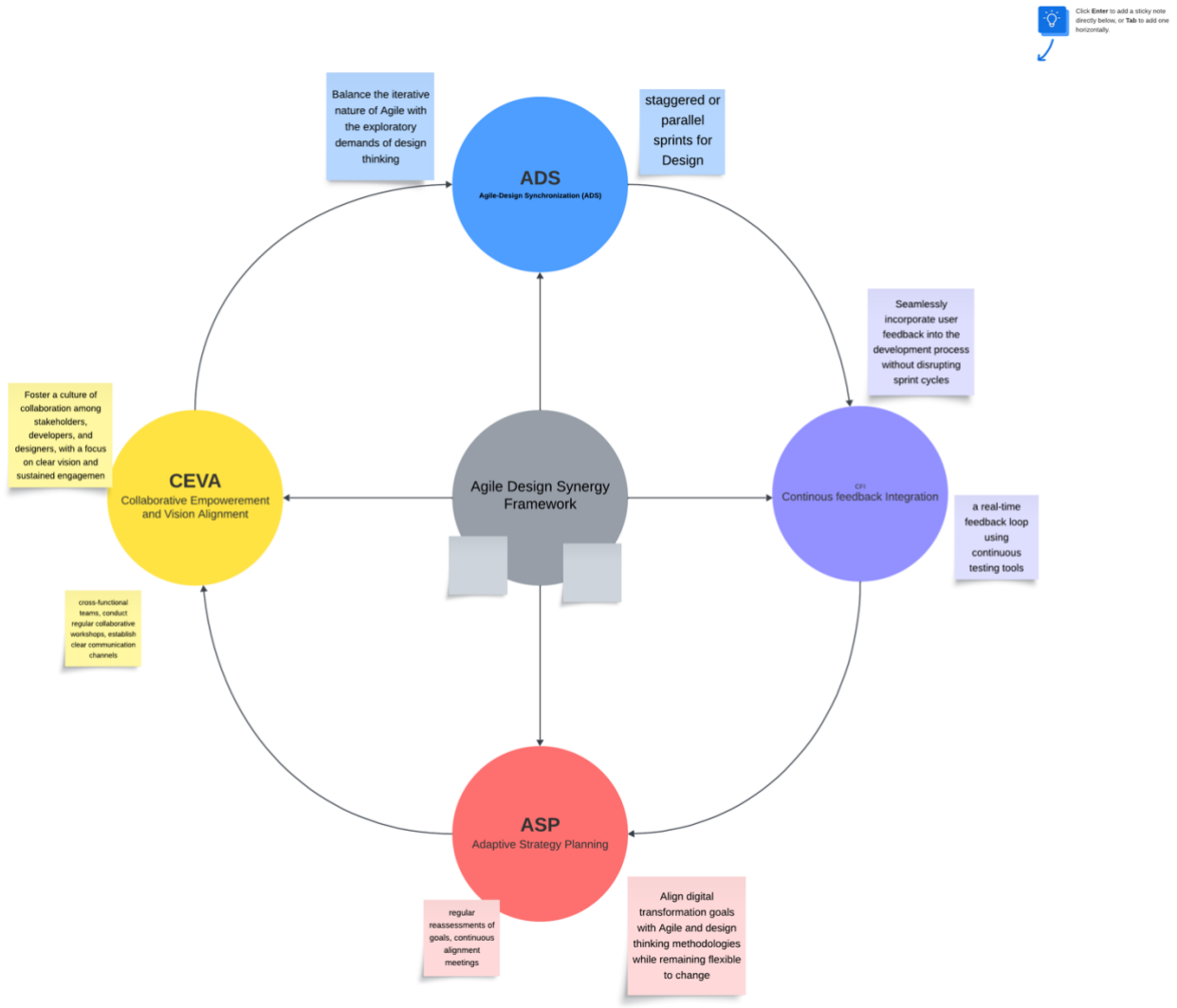


Figure 4 : 4-Step Solution Framework to Enhance Digital Transformation Success

**Step 1: Agile-Design Synchronization (ADS)**

Objective: Balance the iterative nature of Agile with the exploratory demands of design thinking.

Implementation: Introduce staggered or parallel sprints where design teams work one sprint ahead of development teams. This allows for more refined design outputs that are thoroughly tested before being implemented in the development cycle**.**

Outcome: Mitigates the risk of rushed designs, ensuring that the final product is both functionally robust and visually cohesive.

**Step 2: Continuous Feedback Integration (CFI)**

Objective: Seamlessly incorporate user feedback into the development process without disrupting sprint cycles.

Implementation: Establish a real-time feedback loop using continuous testing tools and frequent user engagement sessions. Feedback should be prioritized and integrated within the current or next sprint to maintain alignment with user needs.

Outcome: Ensures that user feedback actively shapes the product, leading to higher user satisfaction and product-market fit.

**Step 3: Adaptive Strategic Planning (ASP)**

Objective: Align digital transformation goals with Agile and design thinking methodologies while remaining flexible to change.

Implementation: Develop an adaptive strategic framework that includes regular reassessments of goals, continuous alignment meetings, and flexibility to pivot based on new insights or changing market conditions.

Outcome: Keeps the project aligned with broader business objectives while allowing necessary flexibility to adapt to unforeseen challenges.

**Step 4: Collaborative Empowerment and Vision Alignment (CEVA)**

Objective: Foster a culture of collaboration among stakeholders, developers, and designers, with a focus on clear vision and sustained engagement.

Implementation: Create cross-functional teams, conduct regular collaborative workshops, establish clear communication channels, and ensure that the vision and strategy are consistently communicated across the organization. Additionally, develop a strategy for continuous stakeholder engagement, ensuring their involvement throughout the project lifecycle.

Outcome: Empowers all stakeholders in the decision-making process, leading to innovative solutions, reduced friction between teams, and a coherent direction aligned with the organization's strategic vision.

# 6 Conclusion and Summary

This thesis explored how integrating design thinking principles into agile project management can enhance the success of digital transformation projects. By merging the adaptability and iterative nature of agile methodologies with the user-centered focus of design thinking, this study developed a more resilient framework to address the complexities of digital transformation. Key findings reveal that design thinking principles—such as empathy, rapid prototyping, and cross-disciplinary collaboration—can strengthen agile practices, enabling faster responses to user feedback and shifting project needs. These conclusions were drawn from qualitative insights gathered through interviews, observations, and workshops.

This study emphasizes the value of a flexible, user-centered approach for businesses undergoing digital transformation. Teams can more effectively adapt to changing stakeholder expectations and user needs by incorporating design thinking into agile approaches. Fostering ongoing user feedback loops, promoting cross-functional teamwork, and stressing iterative problem-solving to adjust to technological advancements are some examples of practical consequences. These tactics raise the likelihood of effective, user-centered transformation results while lowering project risks. Furthermore, incorporating design thinking can also lead to more innovative solutions and enhanced user experiences. By prioritizing flexibility and user-centricity, organizations can stay ahead of the curve in an ever-evolving digital landscape.

Project managers and stakeholders are encouraged to blend agile methodologies with a design thinking perspective, ensuring a balance between technical feasibility and user desirability. Some actionable recommendations include:

- **Prioritizing User Feedback:** Set up structured feedback loops at each sprint to align product development closely with user needs.
- **Fostering Cross-Functional Collaboration:** Form multidisciplinary teams that can respond more effectively to complex project demands, enhancing both innovation and adaptability.
- **Utilizing Iterative Prototyping:** Emphasize ongoing design and testing cycles, which allow continuous refinement of solutions and reduce the need for late-stage changes.
- **Strategic Alignment and Flexibility:** Establish clear yet adaptable project goals that align with both strategic priorities and evolving project insights.

## 6.1 Summary of Research Questions and Findings

| Research Questions | Answer | Key Findings and Contributions | Chapters and sections |
|---|---|---|---|
| 1. How can design thinking principles, such as user-centricity, iterative problem-solving, and innovation, be effectively integrated into agile project management to support digital transformation? | The thesis provides a framework integrating design thinking into agile methods, focusing on iterative feedback, user-centered practices, and adaptability. | - Empathy mapping for understanding user needs.<br>- Rapid prototyping aligned with Agile sprints.<br>- Staggered design-development cycles for improved collaboration. | - Chapter 4 (Sections 4.1, 4.2)<br>- Chapter 5 (Section 5.2) |
| 2. What challenges and barriers do organizations face when combining design thinking and agile methodologies, and what are the benefits of this integration? | The thesis identifies misalignment between design and development cycles, time constraints, and stakeholder collaboration as key challenges, but shows how integration improves adaptability, innovation, and user satisfaction. | **Challenges:**<br>- Misalignment between UX and sprints.<br>- Balancing user feedback with development speed.<br>- Stakeholder involvement.<br>**Benefits:**<br>- Enhanced cross-functional teamwork.<br>- Faster adaptability.<br>- User-centered solutions. | - Chapter 3 (Sections 3.2, 3.4)<br>- Chapter 5 (Section 5.1) |
| 3. What practical strategies can be employed to implement the design | The thesis outlines practical strategies such as fostering cross-functional | Emphasis on collaborative workshops for alignment. | - Chapter 4 (Section 4.2)<br>- Chapter 5 (Section 5.2) |

| Research Questions | Answer | Key Findings and Contributions | Chapters and sections |
|---|---|---|---|
| thinking-driven agile framework in digital transformation projects? | teams, creating structured feedback loops, and maintaining flexibility in aligning design and development timelines. | - Use of staggered iterations to synchronize design and development.<br>- Regular feedback integration to address evolving user needs. | |

### 6.2 Reflections on the Developed Framework and its Potential Impact

The framework developed in this study represents a structured yet adaptable approach to managing digital transformation projects, integrating agile methodologies with design thinking principles. This combination addresses one of the core challenges of digital transformation: balancing technical demands with a deep understanding of user needs and a commitment to innovation. By aligning these methodologies, the framework offers organizations a strategic roadmap to navigate the complexities and uncertainties inherent in digital transformation more effectively.

Reflecting on its potential impact, this framework encourages a shift away from traditional, rigid, plan-driven approaches toward a more flexible, user-focused model. In the fast-paced digital landscape, such flexibility is not just advantageous—it's essential. The framework's emphasis on continuous improvement, adaptability, and active stakeholder collaboration fosters a culture of innovation and responsiveness that can make a real difference in the success of digital initiatives. This mindset shifts towards adaptability, cultivated through iterative processes and regular feedback loops, equips organizations to respond proactively to changes in user expectations, market demands, and technological advancements.

As I reflect on the framework's strengths, I recognize that it does not simply provide a new project management method; it reshapes the way teams approach challenges and opportunities. By embedding design thinking principles—such as empathy and creativity—within agile cycles, this framework enables organizations to look beyond technical feasibility and focus on building solutions that truly resonate with users. This customer-centric approach could lead to the development of more innovative and user-friendly products, enhancing customer satisfaction and fostering loyalty in an ever-evolving digital market.

However, pondering further, I recognize that implementing this framework requires more than just procedural changes. It calls for a cultural shift within organizations, where collaboration, open-mindedness, and a willingness to experiment and iterate are valued at every level. Realizing the full potential of this framework involves a commitment to learning from both successes and setbacks, adjusting strategies as new insights emerge. This perspective not only allows organizations to refine their processes but also encourages them to view change as an opportunity rather than a disruption.

In conclusion, the framework offers a pathway to sustainable competitive advantage in the digital age. By fostering a culture of empathy, adaptability, and innovation, it allows organizations to stay ahead of market shifts and align more closely with customer needs. This reflection underscores the framework's potential to transform not just projects, but organizational mindsets, positioning them to thrive in a landscape where change is the only constant. As digital transformation continues to evolve, the insights from this thesis may serve as a foundational tool, helping organizations to navigate their journeys with agility, empathy, and a focus on lasting value.

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# Appendices

### Appendix 1: Interview Questions

This appendix provides the semi-structured interview questions designed to collect insights from agile team members, UX designers, product owners, and key stakeholders involved in digital transformation projects.

Key questions included:

- How do you ensure user needs are addressed in your development process?
- What role does the UX designer play in your Agile team?
- How do you resolve conflicts between design and development requirements?
- What challenges do you face in planning digital transformation projects?
- How do you align digital transformation goals with Agile and design thinking methodologies?
- How do you incorporate user feedback into your development process?
- Can you describe a recent challenge in integrating design with Agile development?
- How do design thinking principles influence your problem-solving approach?
- How do you measure the success of digital transformation projects?
- What challenges do you face in planning digital transformation projects?
- How do you align digital transformation goals with Agile and design thinking methodologies?

**Appendix 2: Table of data analysis**

| Question | Respondent | Stakeholder Response | Analysis |
|---|---|---|---|
| How do you incorporate user feedback into your development process? | Team member | "We gather user feedback through surveys and usability testing sessions, but integrating this feedback into Agile sprints is challenging due to tight deadlines." | Indicates a need for better integration mechanisms for user feedback within Agile cycles. |
| Can you describe a recent challenge in integrating UX design with Agile development? | Team member | "Balancing the UX design timeline with the rapid pace of Agile sprints is tough. Often, designs are rushed, impacting quality." | Highlights the difficulty in synchronizing design timelines with Agile sprints, suggesting a need for improved synchronization strategies. |
| How do design thinking principles influence your problem-solving approach? | UX designer | "Design thinking helps us approach problems from a user-centric perspective, but it can be hard to fit this into the structured Agile process." | Points to the value of design thinking in fostering user-centric solutions, but also to the challenge of fitting it within Agile's structured processes. |
| What challenges do you face in planning digital transformation projects? | IT director | "Aligning strategic goals with operational capabilities and managing change resistance are major challenges." | Identifies strategic alignment and change management as key challenges in digital transformation planning. |

| Question | Respondent | Stakeholder Response | Analysis |
|---|---|---|---|
| How do you align digital transformation goals with Agile and design thinking methodologies? | IT director | "We try to set clear goals that align with our Agile practices and use design thinking to ensure these goals are user-focused, but it requires constant adjustment." | Suggests ongoing adjustments are necessary to align strategic goals with Agile and design thinking practices effectively. |
| Question | Respondent | Stakeholder Response | Analysis |
| How do you ensure user needs are addressed in your development process? | Product Owner | "We conduct regular user testing sessions and gather feedback through surveys and interviews. However, integrating this feedback promptly can be challenging due to tight sprint schedules and competing priorities." | This highlights a systematic approach to collecting user feedback but also underscores difficulties in prioritizing and incorporating user insights within constrained timelines. It suggests a need for more flexible planning and improved mechanisms to integrate user needs effectively into the development process. |
| What role does the UX designer play in your Agile team? | UX Designer | "I collaborate closely with developers and product owners to translate user | Emphasizes the critical role of the UX designer in facilitating user-centered design |

| Question | Respondent | Stakeholder Response | Analysis |
|---|---|---|---|
| | | requirements into intuitive designs. Despite this, there are times when design inputs are introduced late, making it hard to align with the sprint cycles effectively." | but also points out synchronization issues with the development process. This indicates a need for better integration and early involvement of UX design in sprint planning to ensure seamless collaboration. |
| How do you resolve conflicts between design and development requirements? | Scrum Master | "We hold dedicated conflict resolution meetings where all parties can voice their concerns and collaboratively find compromises. Nonetheless, time constraints and differing priorities often make consensus challenging to achieve." | Illustrates a proactive approach to conflict resolution through open communication but acknowledges ongoing struggles in balancing diverse perspectives under pressure. This suggests enhancing facilitation skills and establishing clearer guidelines to streamline conflict resolution effectively. |
| What challenges do you face in planning digital transformation projects? | IT Executive | "Keeping up with rapidly evolving technologies and aligning diverse stakeholder expectations are major | Identifies the complexity of technological adaptation and stakeholder alignment as |

| Question | Respondent | Stakeholder Response | Analysis |
|---|---|---|---|
| | | hurdles. Additionally, ensuring that our teams have the necessary skills and resources to adapt to these changes is an ongoing challenge." | significant obstacles in digital transformation efforts. This indicates the need for continuous learning initiatives and robust change management strategies to navigate and coordinate transformative projects successfully. |
| How do you align digital transformation goals with Agile and design thinking methodologies? | Senior Product Manager | "We adopt an iterative approach, constantly refining our strategies based on feedback from Agile sprints and design thinking workshops. This continuous improvement cycle helps us stay aligned with our transformation objectives, though it requires constant coordination and adaptability." | Demonstrates a commitment to iterative learning and flexibility in achieving alignment between methodologies and transformation goals. However, it also points to the necessity for sustained effort in coordination and the ability to adapt swiftly to feedback and changing circumstances. |