Open University of Cyprus

FACULTY OF ECONOMIC SCIENCES AND MANAGEMENT

Master In Business Administration

Master's Dissertation

Organizational Change: A Strategy for Implementing the Agile Methodology In Information Technology Organizations

Christoforos Lambrou

Supervisor

Evangelia Baralou

June 2023

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Summary

This thesis aims to derive a blueprint strategy for organizations that want to transition to the Agile Project Management methodology. It examines and rates ways that management can bring about this organizational change in order to achieve optimum results.

It also examines the results of the change, in order to effectively evaluate and rate the Agile Methodology as opposed to the Waterfall methodology.

Data was gathered using (1) semi structured interviews of key people directly involved in the transition from Waterfall to Agile, and (2) online questionnaires of people involved in such a transition.

Acknowledgements

Chapter 1: Introduction

Starting back in 2001 with the Agile Manifesto (*Manifesto for Agile Software Development*, 2001), Agile methodologies have seen widespread adoption in software development project management over the past two decades. By the end of 2022, the adoption rate of Agile has reached 80%, as per last State Of Agile survey conducted by Digital.ai (State Of Agile, 2022, p. 6)

These days, the Agile way of doing business has spread to the whole Enterprise. According to Simons, 2018, Business Agility is defined as the company's ability to sense and respond to change proactively and with confidence to deliver business value—faster than the competition—and as a matter of everyday business. "If you want to avoid being disrupted, make sure you're the disruptor—and the way to become a disruptor is embracing new ways of defining business, enabled by technology (in that order)," advises independent analyst and commentator Joe McKendrick (McKendrick, 2018).

However, the successful adoption of Agile presents organizations with significant challenges. For example, organizations may struggle to fully complete the transformation, struggle to embrace Agile values and practices, with this leading to a "waterfall in disguise" approach that undermines the benefits of Agile. Additionally, 20% of organizations do not practice Agile at all,(Eggers et al., 2021) maybe due to resistance to change from individuals who are used to traditional project management approaches.

Thesis Subject Questions

This thesis seeks to provide insides and answers to the following questions:

1. Is there a clear, step by step guide for managers that want to take their organization towards Agile methodologies? What is the most effective strategy for implementing organizational change and transforming an organization from Waterfall to Agile?

2. What are the chances of success of such an endeavor? How can a manager maximize these chances? What are some pitfalls to avoid in order to successfully adopt Agile?

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3. And finally: once there, can Agile deliver its premise? Is it worth the effort? What positive results can a manager expect? And what, if any, are its shortcomings?

Study Aim

This study aims to research and answer the questions above, by identifying a clear roadmap for use by organizations and managers that wish to initiate and execute the organizational change from Waterfall to Agile. The research value lies in the points below:

1. It describes in detail the various Agile Frameworks, thereby aiding management in selecting the most suitable Agile Framework, given the nature of the projects undertaken, culture, values, goals, and processes of the organization. This in turn increases the chances of a smoother and more successful adoption, that is more likely to be embraced by their production teams.
2. It gives a clear Change Management blueprint that:
a. Articulates the change.
b. Is active and visible throughout the change process.
c. Provides frequent communication to the organization and clients about the change
d. Builds a coalition of sponsorship (managers, staff and clients) and manages resistance to the change.
e. Identifies and removes obstacles to change.

Outline

In this chapter, the motivation and subject matter of this study are presented. In Chapter 2 a thorough review of the literature available on the subject matter is attempted, describing an Initiation phase, a Selection phase and finally, the Transformation phase. In the subsequent chapters 3, the research methodology is presented, followed by the description and presentation of the results in chapter 4. Finally, the findings are discussed in chapter 5 and conclusions are presented in chapter 6.

Chapter 2: Literature review

The proposed transformation path to enterprise Agility is as follows:

1. Initiation phase: Agile Organizational Readiness Assessment (Sidky et al., 2007, p. 3). Managers should measure the agile readiness of the organization against the 12 principles of the agile manifesto. This will help the organization assess the extent to which it can achieve agility.
2. Preparation phase:
a. Identify and select the Agile Framework best suited for the organization.
b. Select the approach: All In, where all the organization embarks on the Agility journey, or Phase-In, pilot project method where a single department/team undergoes the transformation.
3. Transformation Phase: Execute the transformation, asses the results, polish and iterate.

This chapter outlines, discusses and critically evaluates the available literature on the topic.

The Initiation Phase: Organizational Readiness Assessment

The organization, or an external consultant, should rate and measure the key agility indicators listed below. These indicators aim to cover all 12 principles of the Agile manifesto

1. The Level of communication and collaboration within the organization and with external entities (clients, subcontractors, suppliers). Questions like "Does the organization have the right tools to facilitate effective collaboration" must be asked, researched and answered. Collaboration is among the key principles of the Agile Manifesto.

2. The Level of Continuity

As per Forbes and Evans, 2021, in the context of change management, continuity refers to the maintenance of consistent

operations and activities over time, even as the organization undergoes changes or transitions. It is the ability to sustain the business's core functions, operations, and values over an extended period.

Continuity management involves identifying potential risks and threats that could disrupt the organization's operations and developing strategies to mitigate those risks. The change to Agile methodologies represents such a risk for an organization.

Questions to answer:

   a. Have we identified all potential risks to business continuity that the transition will pose? Does the company have the necessary tools in place to monitor and is there a contingency plan in place?
   b. Are our teams stable enough to support continuity?
   c. Do we have trained, well stuffed teams with the appropriate experience levels to support continuity?

   3. Level of Adaptiveness. Ability to respond to change in the process.
   a. How experienced are our teams in change management? Are they used to change?
   b. How well do we handle change in the current Waterfall environment?
   c. Learning orientation level: do we have a culture of continuous learning and improvement, allowing our employees to adapt to new environments and incorporate new knowledge and skills?

   4. Level of technical excellence. After all, the aim is to build high value, high quality deliverables to our customers.
   a. What is the level of technical excellence in our organization?
   b. How do we support our engineers, when it comes to personal development? Are there well defined, planned, and frequent training sessions ?
   c. Do we have trained, well stuffed teams with the appropriate experience levels to support continuity?

The Selection Phase: The many frameworks of Agile.

There are many Agile frameworks. And each was created to address specific challenges faced by organizations during software development. XP was created to address the challenges faced by teams working on large software development projects, while Crystal was designed to be a lighter-weight alternative to traditional project management methods.

Additionally, as organizations have evolved and the software development industry has matured, new challenges have arisen that are addressed by more recent Agile frameworks like SAFe and LeSS. Having multiple frameworks gives organizations and teams the flexibility to choose the approach that best fits their needs, and the ability to adapt and evolve as their needs change over time.

Scrum and its derivatives

The most widely-used Agile framework (at almost 50% of our responders), is Scrum or one of its derivatives.

Scrum

Scrum is a lightweight framework that, according to the Scrum Guide, "helps people, teams and organizations generate value through adaptive solutions for complex problems".(*Scrum Guide*, n.d.)

Scrum was developed to help teams manage large scale, complex projects and is based on the principles of transparency, inspection, and adaptation and emphasizes collaboration and communication between cross-functional teams, including development teams, product owners, and stakeholders.

SCRUM FRAMEWORK
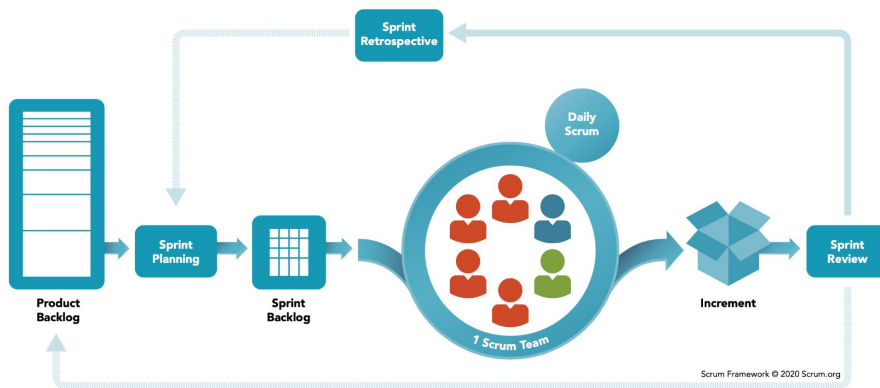
The main premise of Scrum is the break up of a project into smaller, manageable tasks. These are recorded in The Product Backlog, an emergent, ordered list of what is needed to complete and improve the product.

In the heart of Scrum there exist the so-called "Sprints", a short, time-boxed period of 2 weeks to a month, when a scrum development team works to complete a set amount of work items that delivers value to the customer, the Increment. The work items are planned and integrated into the Sprint from the Product and Sprint Backlogs. A new Sprint starts immediately after the conclusion of the previous Sprint.

Issues that arise from the Increment are entered into the Sprint Backlog and are scheduled into future sprints.

Scrum includes the following set of ceremonies:

   1. Daily Scrum: this is a short, daily stand up meeting where the Scrum members review their progress towards achieving the Sprint Goal. The main objective is to assess the Sprint Backlog and make any necessary adjustments, while also modifying the planned work for the upcoming period.

   2. Sprint Retrospective: The Sprint Retrospective is a Scrum event that takes place at the end of each Sprint, and is a time used

for open and honest communication within the Scrum Team. It is facilitated by the Scrum Master and has two main purposes:

    a. Allow the Scrum Team to reflect on the previous Sprint, identify what went well and what could be improved, and create a plan for implementing those improvements in the next Sprint.

    b. To examine their processes and practices, and identify any obstacles or challenges that they faced during the Sprint. They then collaborate to find ways to improve their work and remove any impediments that may be hindering their progress.

The Product Owner may also be invited to attend, but they do not participate in the retrospective itself.

The output of the Sprint Retrospective is a set of action items that the Scrum Team will implement in the next Sprint. These action items may include changes to the team's processes or practices, improvements to the product or its development, or any other actions that will help the team to be more effective and efficient in their work.

    3. Sprint Planning meetings: help to promote collaboration, ensure that everyone is on the same page, and allow the team to continually improve.

Scrum Roles:

    1. The Scrum Master: the main responsibility is to ensure the scrum framework is followed. He/she is committed to the scrum values and practices, but should also remain flexible and open to opportunities for the team to improve their workflow.

    2. Product Owner: responsible for maximizing the value of the product resulting from the Scrum Team, and making sure that Product and Sprint Backlogs are properly maintained by properly ordering work items in a transparent, visible and understood manner. The mentioned responsibilities can be delegated, but the Product Owner remains the sole accountable party, and is one single person, not a committee.

    3. The Development Team: In Scrum, the Development Team is a self-organizing and cross-functional group of individuals who are

responsible for determining how to turn the Product Backlog items into a working product increment during the Sprint. The Development Team is composed of professionals who possess all the skills necessary to create the product, such as design, coding, testing, and documentation. They collaborate closely with the Product Owner to understand the product vision, and they work together to refine the Product Backlog to ensure that it is clear, concise, and well-understood. The Development Team is accountable for the quality of the product increment, and they continuously strive to improve their processes and practices to ensure the delivery of a high-quality product.

Nexus

NEXUS is an Agile methodology that was developed as a response to the limitations of traditional Scrum, which is designed for co-located teams. NEXUS provides a framework for coordination and collaboration between multiple Scrum teams, and is designed to help organizations scale Agile practices to meet the demands of large, complex projects.(*Online Nexus Guide*, n.d.)
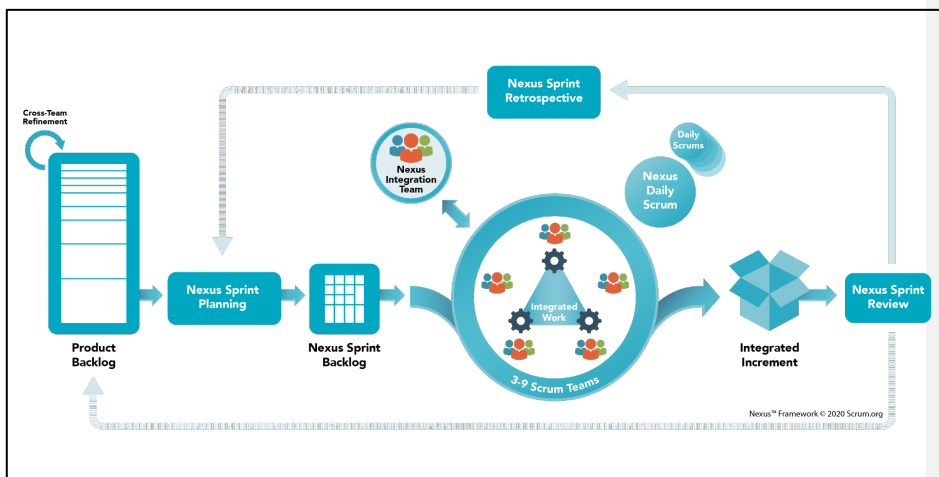
NEXUS defines a number of key roles and responsibilities, including product owners, Scrum masters, and team members, and provides a comprehensive set of practices and guidelines for planning, designing,

building, and testing software. NEXUS also defines a coordinating Scrum of Scrums (SoS) to manage inter-team dependencies, and provides mechanisms for resolving conflicts and managing risk.

At the core of NEXUS is the belief that multiple Scrum teams can work together more effectively if they are aligned and coordinated. NEXUS provides a flexible and scalable framework that is designed to help organizations apply the Agile principles and practices of Scrum to large, complex projects, while maintaining the core values and principles of Scrum.

LeSS (Large-Scale Scrum)

LeSS (Large-Scale Scrum), yet another agile framework born out of the need to scale and extend Scrum to accommodate the needs of large, complex projects.

LeSS consists of two variants: LeSS (Large-Scale Scrum) and LeSS Huge.

- LeSS (Large-Scale Scrum): This variant is designed for projects that involve 2 to 8 Scrum teams, with a total of up to 125 people. It defines a common Sprint rhythm and provides a coordinating Scrum of Scrums (SoS) to manage inter-team dependencies.

- LeSS Huge: This variant is designed for projects that involve more than 8 Scrum teams, with a total of up to 1,000 people. It defines a common Sprint rhythm, a coordinating Scrum of Scrums (SoS), and a Large-Scale Sprint (LeSS) retrospective to facilitate cross-team learning and improvement.

Both variants of LeSS maintain the core principles and practices of Scrum, such as Sprint planning, daily Scrum meetings, Sprint review, and Sprint retrospective. However, they also provide additional mechanisms for coordination and collaboration between teams, and for managing inter-team dependencies.

Overall, LeSS is designed to help organizations apply the Agile principles and practices of Scrum to large, complex projects, while maintaining the core values and principles of Scrum. By providing a flexible and scalable framework, LeSS helps organizations to deliver high-quality software that

meets the needs of the customer, while also ensuring alignment with the goals of the wider organization.

SAFe (Scaled Agile Framework)

With reported usage at 20%, the Scaled Agile Framework (SAFe), is the second most used Agile framework. It is a framework born out of the knowledge acquired by Scrum teams implementing Agile principles in large organizations. In other words, it adjusts the best practices of Agile project management to make the methodology work for bigger teams. SAFe was created by Lean-Agile experts Dean Leffingwell and Drew Jemilo, was released initially in 2011 and has grown in popularity since then.

SAFe defines four levels, Team and Program level, Portfolio level (with the focus on aligning the portfolio of projects with the strategic goals of the organization) and the Large solution level (to manage the development of large, complex solutions)

SAFe also defines a set of four core values:

1. Alignment - all teams within the organization work towards a common goal - especially important for geographically dispersed teams.
2. Built-in quality - ensures that quality is a priority, and divides it under five categories: flow, architecture and design quality, code quality, system quality, and release quality.
3. Transparency - crucial for building trust within teams.
4. Program Execution - to produce products of high value to the customer.

SAFe also introduces 10 principles for Agile Teams. (*A Guide to the Scaled Agile Framework (Safe)*, n.d.) These are:

1. Take an economic view - reduce unnecessary delays and overhead.
2. Apply systems Thinking - always look at the big picture.
3. Assume variability; preserve options - embrace change.
4. Build incrementally with fast, integrated learning cycles.
5. Base milestones on an objective evaluation of working systems.

6. Visualize and limit work in progress, reduce batch sizes, and manage work queue lengths.
7. Apply cadence, synchronize with cross-domain planning
8. Unlock the intrinsic motivation of knowledge workers
9. Decentralize decision-making
10. Organize around value

SAFe is most suitable for large scale teams, sometimes in different countries, developing large scale projects.

Kanban

Kanban, used by 9% of our responders, has its origins in manufacturing and was designed to help teams visualize and manage their workflow. It was originally developed by Toyota for managing manufacturing processes, but has since been adapted for use in software development and other industries. Kanban is implemented via two main concepts: The Kanban Board and WIP (Work in Progress) Limits:

1. Boards: In Kanban, work is represented by cards on a board, and the movement of these cards represents the progression of work through different stages of a process. The board serves as a visual representation of the workflow and provides a clear view of the status of each piece of work at any given time.
2. WIP Limits: Kanban employs work in progress (WIP) limits to establish a cap on the amount of work allowed in various stages of development, thus making it easier to pinpoint inefficiencies in a team's workflow. The WIP limits also help in identifying potential bottlenecks in the delivery pipeline, allowing the team to take corrective measures before the situation becomes critical.

Unlike other Agile frameworks, Kanban does not prescribe a specific process or set of practices but simply provides a set of principles and visual management tools that can be used to improve a process.

The key principles of Kanban include:

1. Visualizing work and flow
2. Managing flow
3. Making process policies explicit
4. Implementing feedback loops
5. Improving collaboratively and evolving experimentally

Example of a Kanban Board

Backlog	In Progress (3)	Peer Review (3)	In Test (1)	Done	Blocked
Fast Track/ Defect					
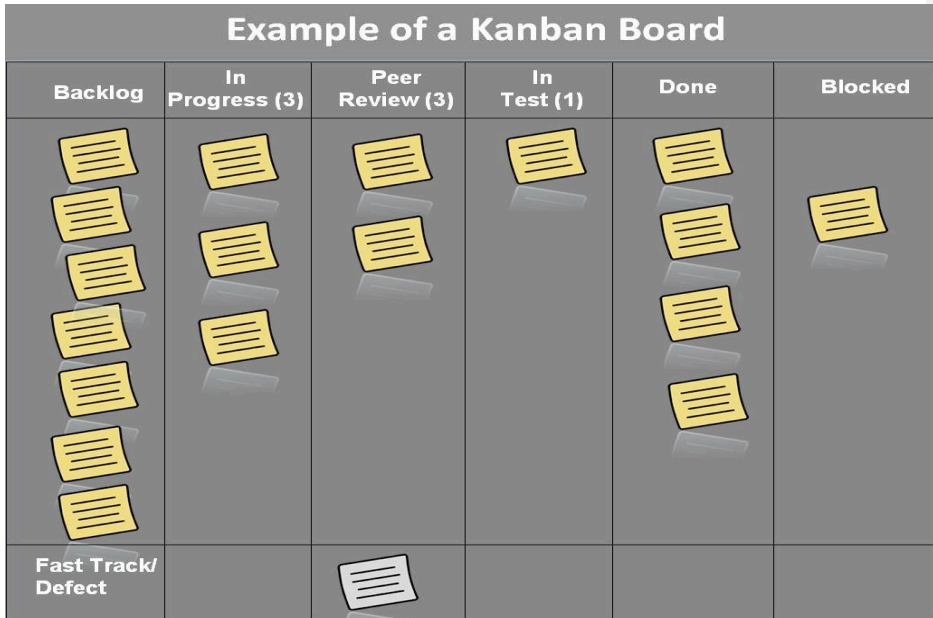
Kanban is often used in conjunction with other Agile frameworks, such as Scrum, to provide a flexible and adaptive approach to project development. It is well-suited for teams that need to manage a large number of tasks, handle unpredictable work, or prioritize work based on customer needs.

The defunct Agile Frameworks.

It is worth noting the defunct agile frameworks, for purposes of avoidance. These are:

1. Extreme Programming (XP) , an agile software development framework that was introduced in the late 1990s. It is characterized by its focus on delivering high-quality software through frequent releases, close collaboration between developers and customers, and a focus on continuous improvement. XP has declined in use as of late, with reported usage at just 1%. Moreover, the methodology website (www.extremeprogramming.org) was last updated in 2009.

Extreme Programming (XP) Methodology
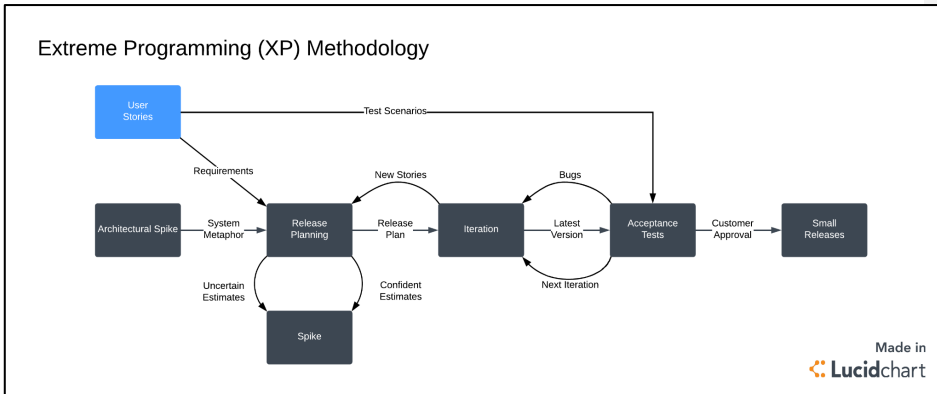
2. Crystal, a family of Agile methodologies that were designed to be lightweight and customizable. It was created by Alistair Cockburn, one of the signatories of the Agile Manifesto, and is based on the idea that different software development projects have different needs, and that there is no one-size-fits-all approach to software development.

3. Lean Agile, based on the principles of Lean manufacturing, is a philosophy that aims to eliminate waste and encourages teams to focus on creating a continuous flow of value. Lean also stresses the importance of collaboration, teamwork, and continuous learning.("Understanding Lean Agile and the 5 Lean Principles," 2021)

4. FDD (Feature Driven Development) is an Agile software development framework that is focused on delivering high-quality software through a process of iterative development and continuous improvement. FDD was developed in the late 1990s by Jeff De Luca, and is designed to be a lightweight and practical approach to software development.

5. DSDM (Dynamic Systems Development Method) A development framework that provides a structured approach to

delivering software projects in a timely and cost-effective manner. DSDM was developed in the 1990s, and is designed to be flexible and adaptable to the specific needs of each project.

The Waterfall methodology

The Waterfall Method

Requirements

Design

Implementation

Verification or Testing

Deployment & Maintenance
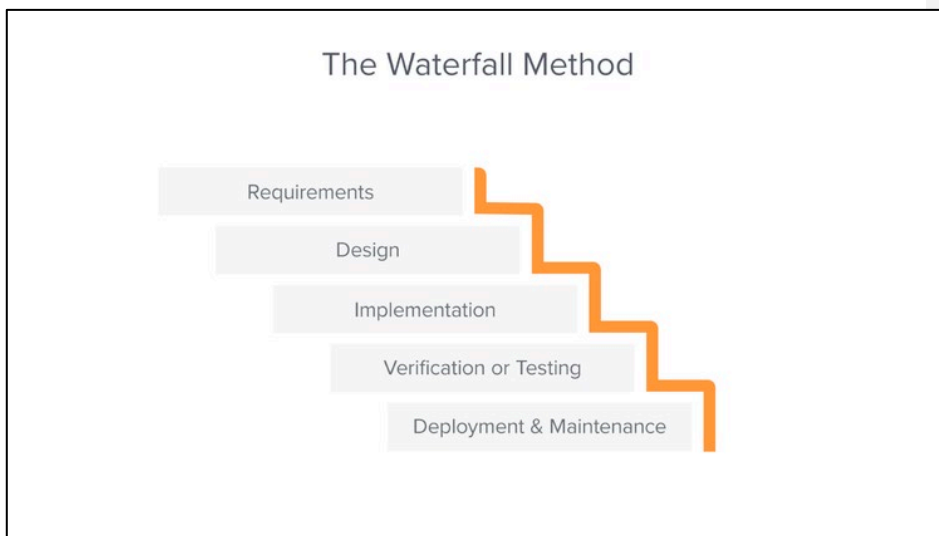
The Waterfall project management methodology is a traditional, sequential approach to software development and project management. It is called "Waterfall" because each phase of the process flows in a linear and sequential manner, much like a waterfall cascading down a cliff.

The phases of the Waterfall model are as follows:

1. Requirements Gathering and Analysis: In this phase, the project team works to understand the client's needs and requirements for the project.

2. Design: In this phase, the project team creates a detailed design of the software, including the architecture and user interface.

3. Implementation: In this phase, the project team develops the code for the software based on the design created in the previous

phase.

    4. Testing: In this phase, the software is thoroughly tested to ensure it meets the requirements and works as intended.

    5. Deployment: In this phase, the software is installed and deployed to the client's environment.

    6. Maintenance: In this phase, the project team provides ongoing support and maintenance for the software.

The key characteristic of the Waterfall model is that each phase must be completed in its entirety before moving on to the next phase. This means that changes to the requirements or design are difficult to make once a phase has been completed, which can lead to delays and additional costs if errors or omissions are discovered later in the process. However, the Waterfall model is a good fit for projects with well-defined and fixed requirements, and can provide clear progress milestones and deliverables.

The Waterfall project management methodology, like any other project management approach, has its own set of risks that need to be taken into account. Some of the key risks associated with the Waterfall model include:

    1. Inflexibility: Because the Waterfall model is linear and sequential, it can be difficult to make changes to the project once a phase has been completed. This inflexibility can lead to delays and additional costs if requirements change during the course of the project.

    2. Lack of customer involvement: In the Waterfall model, the customer is typically only involved in the early stages of the project, during the requirements gathering phase. This can result in a lack of customer engagement and satisfaction later in the project, as the customer may feel that their needs and requirements are not being considered.

    3. Incomplete testing: Because testing is done at the end of the project in the Waterfall model, it is possible that significant defects and errors may not be discovered until this phase, when they are

more difficult and expensive to fix.

4. Over Reliance on documentation: The Waterfall model relies heavily on documentation to ensure that requirements and design are clearly defined. However, if the documentation is not comprehensive or is not kept up-to-date, the project may be at risk of failure.

5. Missed deadlines and budgets: Because the Waterfall model is a sequential and time-bound approach, missed deadlines and budgets can have a significant impact on the success of the project. If a phase takes longer than expected, the entire project schedule may be impacted, leading to delays and increased costs.

Agile project management methodology was developed as an alternative to the Waterfall model and addresses many of the risks associated with the Waterfall approach. Here's how:

Flexibility: Agile approaches are designed to be flexible and responsive to change. They allow for changes to be made to the project at any time, based on feedback from the customer or team members. This helps to minimize delays and reduce the risk of missed deadlines and budgets.

Customer involvement: In Agile, the customer is considered a key member of the project team and is actively involved throughout the project. This helps to ensure that their needs and requirements are being considered and incorporated into the project.

Testing: Agile approaches emphasize the importance of continuous testing and integration, with the goal of catching and fixing defects early in the project. This helps to minimize the risk of defects going unnoticed until later in the project when they are more difficult and expensive to fix.

Documentation: Agile approaches emphasize the importance of working software over comprehensive documentation. While documentation is still important, it is viewed as a means to an end, rather than an end in itself.

Missed deadlines and budgets: Agile approaches use time-boxed iterations, known as sprints, to help keep the project on track and avoid missed deadlines and budgets. These sprints provide regular progress milestones and opportunities to reassess and adjust the project plan as needed.

By addressing these risks, Agile approaches have become a popular choice for software development and other types of projects where requirements are constantly changing and customer involvement is critical. However, it's important to note that Agile is not a one-size-fits-all solution and may not be the best fit for all projects.

The Transformation Phase

For a successful agile transformation throughout an organization, it is necessary to make it both comprehensive and iterative. Comprehensive in the sense that it should cover all relevant levels, departments and aspects of the organization, namely strategy, structure, people, processes, and technology. At the same time, it should also be flexible, allowing for adjustments as not everything can be predicted or planned in advance.

According to Brosseau et al., 2019, p. 3 there are three ways to launch the transformation:(1) All in, where the whole organization embarks on the journey to agility, (2) Stepwise approach, a more systematic and discrete approach and (3) The bottom-up approach where the journey starts with several small Agile teams and then continues upward to working with multiple Agile teams through the enterprise.

Implementing an organizational change can be a complex process that requires careful planning, clear communication, and effective leadership. Here are the steps to effectively implement the organizational transformation:

1. Identify the need for change: This may be due to external factors such as changes in the market or internal factors such as a need to improve efficiency or productivity.

Adopting an agile operating model can alleviate challenges in the current organization (such as unclear accountabilities, problematic interfaces, or slow decision making), however transformations emphasizing both strengths and challenges are three times more likely to succeed (*Unlocking Success in Digital Transformations*, 1 C.E., p. 3).

As one CEO observed, "I'd never have launched this agile transformation if I only wanted to remove pain points; we're doing this because we need to fundamentally transform the company to compete in the future."

2. Develop a clear vision and strategy.

As with any organizational change, successful agile transformation requires strong and aligned leadership at the top. A compelling, well understood and shared aspiration is critical for success. According

to Brosseau et al., 2019, p. 4, to build the top team's understanding and aspiration, nothing beats site visits to companies that have undergone an agile transformation.

Develop a clear vision for the change and a strategy for achieving it. This should involve identifying specific goals and objectives, as well as the resources and actions required to achieve them.

3. Communicate the change: Communicate the change clearly to all stakeholders, including employees, customers, and partners. This should involve explaining the reasons for the change, the expected outcomes, and how it will impact the organization.

4. Engage employees: Engage employees in the change process by involving them in the planning and implementation stages. This can help to build buy-in and commitment to the change, as well as identify potential challenges or obstacles.

5. Provide training and support: Provide training and support to employees to help them adapt to the change. This may include providing new skills or tools, as well as offering coaching or mentoring to help them navigate the transition.

6. Monitor and evaluate progress: Monitor and evaluate progress regularly to ensure that the change is on track and achieving the desired outcomes. This may involve collecting data, measuring performance, and making adjustments as necessary.

7. Reinforce the change: Reinforce the change by celebrating successes and recognizing achievements. This can help to build momentum and maintain motivation for the change.

8. Sustain the change: Sustain the change by embedding it into the organization's culture and processes. This may involve updating policies, procedures, and systems to reflect the new ways of working, as well as providing ongoing training and support.

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As we have seen above, the first and foremost step is to realize the need for the transformation to Agile. And this will come not from a need to correct the wrongs, but from a need to better compete in the future.

Once the need to change is realized and committed to, the subsequent steps of planning and execution of change to Agile will follow.

Chapter 3: Research Design and Methodology

The relevant research of this Thesis consisted of collecting data from both qualitative and quantitative types. In Chapter 4, we present an analysis of the responses to these questions, which offer deeper understanding of the impact of Agile methodologies on various aspects of the organization, and identify areas where further improvements may be needed.

Part 1: Quantitative Data

Part 1 involved gathering of quantitative data, using a Likert scale questionnaire, via the Google Forms platform. The questions were designed to measure the methods used to execute the transformation, and more importantly the after effects of Agile transformation.

The questionnaire link was posted on large management, software development, and Agile communities on the LinkedIn and Reddit platforms, inviting people to complete it. These groups are composed of the relevant population whose opinion is of importance to the subject of our research: managers and personnel of companies that have undergone a transformation to Agile.

Questionnaire: Transformation Experience and Results

Listed below are all questions in the above mentioned questionnaire, along the rationale of each question:

1. Your position in the organization that has undergone the transformation

Single Choice question with the following choices available: Top Management, Middle Manager, Senior Employee / Front Line Manager, Entry Level Employee, Independent Contractor

Purpose: To separate the sample population by level of profession

2. The transition to Agile was initiated by

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Single Choice question with the following choices available: Top Management, Middle Manager, Senior Employee / Front Line Manager, Entry Level, Independent Contractor, Client Demands

Purpose: To gain insights as to who is usually the initiator of the transformation to Agile

3. The transition was implemented by

Single Choice question with the following choices available:

(1) All in approach where the whole organization embarked on the journey to agility

(2) The bottom-up approach where the journey started one or more small pilot projects

(3) Other approach (Free Text)

Purpose: To Identify the most common approach to implement the transformation to Agile

4. An Agile Coach was hired to assist with the transition

A Yes/No question, the purpose of which is to measure the effectiveness of Agile Coaches, the hiring of which is a common practice among companies undergoing the transition to Agile.

5. Number of employees in the Organization/Department/Team that undergone the transition

Single Choice question with the following choices available:1-10, 10-100 and over 100.

Purpose: To gain insights in scaling agile in big organizations.

6. During the transition, Upper management was fully involved and supportive.

Likert scale, to measure the effect of top management sponsorship.

7. Adequate Agile Training was provided to personnel

Likert scale, to measure the effect of training in the success of the transition.

8. How long, in years, did it take for the transition, from start to end?

Single Choice question with the following choices available:1 year, 2 years, 3 years, 4 years, 5 years, and Still in progress.

Purpose: To identify the most common duration, given the size of the organization that is transforming.

9. The transition to Agile in our organization was successful.

Likert scale, to measure the overall success of the transition. The responders were clearly informed that the definition of successful transition to Agile was that (1) the company/organization had undergone a change in mindset and culture towards the 12 Agile principles and (2) that an Agile framework was selected and adopted company wide.

10. The adoption of Agile methodologies improved the productivity of our organization.

Likert scale, to measure the effect on productivity of the transition.

11. The adoption of Agile methodologies improved the quality of the products or services delivered by our organization.

Likert scale, to measure the effect on quality of the transition.

12. The adoption of Agile methodologies reduced the time-to-market for our organization's products or services.

Likert scale, to measure the effect on time-to-market of the transition.

13. The adoption of Agile methodologies improved the collaboration and communication between team members.

Likert scale, to measure the effect on collaboration and communication between team members of the transition.

14. The adoption of Agile methodologies improved the satisfaction and engagement of team members.

Likert scale, to measure the effect on satisfaction and engagement of team members.

15. The adoption of Agile methodologies improved the overall customer satisfaction of our organization's products or services.

Likert scale, to measure the effect on customer satisfaction.

16. The adoption of Agile methodologies resulted in cost savings for our organization.

Likert scale, to measure the effect on costs.

17. The adoption of Agile methodologies improved the ability of our organization to respond to changing customer needs.

Likert scale, to measure the effect on response to customer needs abilities of the organization.

18. The adoption of Agile methodologies resulted in a reduction in project failure rates for our organization.

Likert scale, to measure the effect on project success rates.

19. What would you do differently if you have to go through the transformation again?

Open ended question, designed to invite users to share their any negative experiences and ideas on how to avoid them.

Questionnaire: Which Agile Framework?

In order to aid organizations select a particular Agile Framework (Scrum, Kaban, etc) a separate questionnaire was posted on Google Forms, asking Agile company personnel which Agile framework they were using.

This was a fairly simple questionnaire, with just a single choice question, for responders to select the Agile Framework their organization is using:

1. Selection of one Agile framework, with the following options
   a. Scrum
   b. Kanban
   c. XP (Extreme Programming)
   d. Crystal
   e. Lean Agile

f. FDD - Feature Driven Development

   g. DSDM (Dynamic Systems Development Method)

   h. SAFe (Scaled Agile Framework)

   i. LeSS (Large-Scale Scrum)

   j. Nexus

   k. None: I am using Waterfall

Secondary Data

Due to the low response rate received from the primary data questionnaire, secondary data was also utilized from the following sources:

   1. "Agile Transformation Success Factors: A Practitioner's Survey", https://rdcu.be/c9qLq

   2. "300+ Agile and Scrum Statistics for 2023", https://www.parabol.co/resources/agile-statistics

   3. Digital.ai. (2022), "State of Agile Report, 2022", Digital.Ai, 6 December, available at: https://info.digital.ai/rs/981-LQX-968/images/AR-SA-2022-16th-Annual-State-Of-Agile-Report.pdf (accessed 31 January 2023).

Question (Open Ended) on Things to avoid

A simple, open-ended question was posted on Reddit technology groups with the title "What do you hate about Agile". The language and tone was deliberately selected to be simple and inviting, to incite users to express their negative experiences, in order to identify issues to avoid when transforming to Agile.

Part 2: Qualitative Data - Case Study

Part 2 of the research design was a case study that examined the transformation of an IT organization based in Nicosia, Cyprus to Agile methodologies. Qualitative data was collected through semi-structured interviews with key stakeholders involved in the transformation process, as well as document analysis of the organization's transformation plans,

> **Commented [9]:** same here, you need to explain why you need qualitative data as well
>
> **Commented [10]:** I felt that I needed the case study due to the low response rate of the survey on Google forms. Is this a sufficient enough reason?
>
> **Commented [11]:** no it is not, you need to justify the choice of a case study in a more profound way. A paragraph would do

training materials, and other relevant documents, as per recommendations by McCombes, 2019.

A case study was deemed necessary for this research for the following reasons:

(1) To gain insights into participants' perspectives: By using open-ended questions and allowing participants to express themselves freely, we seeked to gain a deep understanding of the meaning that participants attach to the experience of a transformation into Agile.

(2) To evaluate programs and interventions: as per Damschroder, L. J., Aron, D. C., Keith, R. E., Kirsh, S. R., Alexander, J. A., & Lowery, J. C. (2009), qualitative research can be used to evaluate programs and interventions by providing insights into the implementation process and the experiences of those involved.

(3) To help identify barriers and facilitators to transformation program implementation and provide recommendations for improvement.

The following key stakeholders, all involved in the transformation process were interviewed and the results are presented on Chapter 4

1. The Chief Executive Officer (CEO)
2. Project manager
3. Development Team members.

The interviews were conducted in person or via video conference, and were audio-recorded and transcribed for analysis. In addition, document analysis was conducted on the organization's transformation project plans, training materials, and other relevant documents.

Ethical Issues

The company that participated in the study agreed to do so under the conditions that (1) The company name was not published in the study and (2) the participant employee names were also not mentioned.

Informed consent

All participants gave their voluntary agreement to participate in the research study, after being fully informed about the study's purpose,

procedures, risks, and benefits. Informed consent is a crucial aspect of ethical research and is required by most research ethics committees and institutional review boards (Berg *et al.*, 2001).

Confidentiality and privacy

Participants have the right to privacy and confidentiality. To this end, no personal information was collected, neither in the qualitative nor the quantitative research. In addition, the appropriate measures were taken to protect the privacy and anonymity of the participants, by configuring the Google form survey not to request or collect any personal information.

Their contribution was also acknowledged, and in the case of the quantitative research, a copy of the study will be shared with the survey participants.

Validity and reliability

Researchers have an ethical obligation to ensure the validity and reliability of their data. This means using rigorous methods for collecting and analyzing data, and being transparent about any limitations or biases in the study. To ensure the trustworthiness of the study, the following strategies were employed:

(1) Triangulation of interviews and documents. Denzin, N.K., 1978 argues that triangulation is a valuable research method for enhancing the validity and reliability of research findings. He also mentions the importance of using multiple sources of data to develop a more nuanced understanding of research subjects.

(2) Member checking via review of transcripts and analysis by participants. Anfara, & Mertz, 2014, p. 152 mention member checking as a technique for enhancing the trustworthiness of qualitative research. Specifically, the authors state that member checking "involves reviewing research findings with participants to ensure that interpretations of data are accurate and that the research adequately captures the complexity of the participants' experiences."

The book notes that member checking can be done in a variety of ways, including providing participants with transcripts or summaries of interviews, inviting participants to attend research presentations or

meetings, or soliciting feedback from participants via email or other communication channels. The authors also note that member checking can be a useful way to build rapport and trust with research participants, as it demonstrates the researcher's commitment to accurately representing their experiences and perspectives.

(3) Researcher reflexivity, ie reflection on researcher biases and assumptions. Hancock, B., & Algozzine, B. (2016), 3rd edition provides an overview of the importance of reflexivity in qualitative research, and offers practical guidance on how to integrate reflexivity into the research process. It includes examples of how to use reflexivity to critically examine the researcher's own assumptions and biases, and to ensure that the research accurately represents the experiences and perspectives of participants

> **Commented [14]:** in this chapter you also need to explain how you are going to analyse your data and whether there are any ethical issues involved

Chapter 4: Presentation and Analysis of Research Data

Part 1: Quantitative Results

Answers to Transformation Experience and Results

Your position in the organization that has undergone the transformation:

60 responses

- Top Management
- Middle/Project Manager
- Senior Employee / Front Line Manager
- Entry Level
- Independent Contractor
- Agile Coach/Consultant that oversaw the transformation
- Intern

30% 21.7% 41.7%

The transformation to Agile was initiated by:

60 responses

- Top Management
- Middle/Project Manager
- Senior Employee / Front Line Manager
- Entry Level Employee
- Independent Contractor
- Client Demands
- Project driven
- Hard to say, there were 4 of us in a 1000+ person organization at several l…
- Parent Company

21.7% 10% 56.7%

The approach used to implement the change was
60 responses
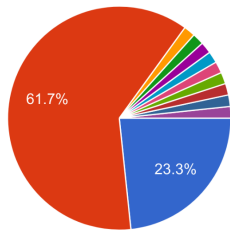
- ● All in approach: The whole organizatio…
- ● The bottom-up approach: The journey…
- ● project-by-project basis
- ● Only product teams
- ● Partially done
- ● start in the middle
- ● All-in for IT, create product org with 10…
- ● More than 10 transition teams started…

△ 1/2 ▼

61.7%

23.3%

Number of employees in the Organization/Department/Team that undergone the transition
60 responses
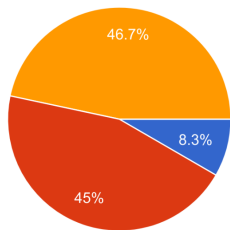
- ● 1-10
- ● 10-100
- ● More than 100

46.7%

8.3%

45%

During the transition, Top management was fully involved and supportive
60 responses
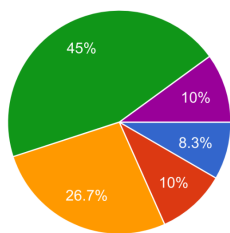
- ● Strongly disagree
- ● Disagree
- ● Neutral
- ● Agree
- ● Strongly agree

45%

10%

8.3%

10%

26.7%

How long, in years, did it take for the transition, from start to end?
60 responses

	● 1 Year
	● 2 Years
	● 3 Years
	● 4 Years
	● 5 years
	● Still in progress

48.3%
6.7%
11.7%
25%
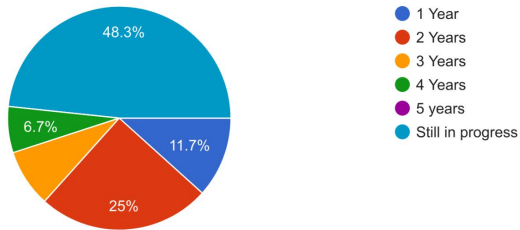
The transition to Agile in the organization was successful
60 responses
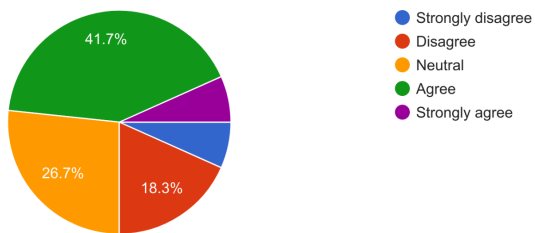
	● Strongly disagree
	● Disagree
	● Neutral
	● Agree
	● Strongly agree

41.7%
26.7%
18.3%

The adoption of Agile methodologies improved the productivity of our organization.
60 responses

	● Strongly disagree
	● Disagree
	● Neutral
	● Agree
	● Strongly Agree

50%
16.7%
11.7%
15%

The adoption of Agile methodologies improved the quality of the products or services delivered by our organization.

60 responses

- Strongly disagree
- Disagree
- Neutral
- Agree
- Strongly agree

41.7%
21.7%
8.3%
10%
18.3%
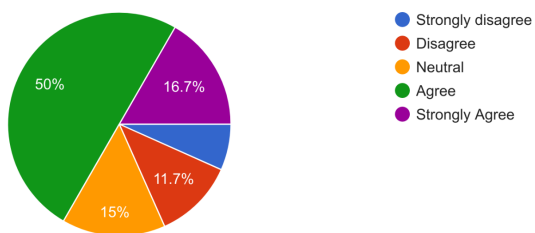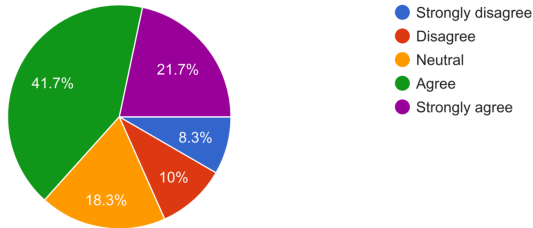
The adoption of Agile methodologies improved the time-to-market for our organization's products or services.
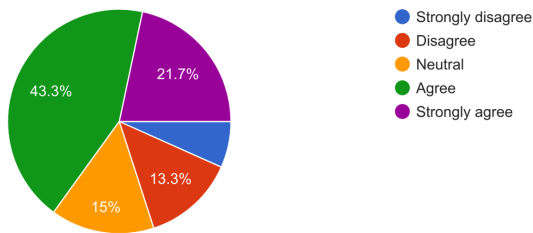
60 responses

- Strongly disagree
- Disagree
- Neutral
- Agree
- Strongly agree

43.3%
21.7%
13.3%
15%

The adoption of Agile methodologies improved the collaboration and communication between team members.

60 responses

- Strongly disagree
- Disagree
- Neutral
- Agree
- Strongly Agree

45%
31.7%
15%

The adoption of Agile methodologies improved the satisfaction and engagement of team members.
60 responses

- Strongly disagree
- Disagree
- Neutral
- Agree
- Strongly agree

25%
40%
13.3%
16.7%

The adoption of Agile methodologies improved the overall customer satisfaction of our organization's products or services.
60 responses

- Strongly disagree
- Disagree
- Neutral
- Agree
- Strongly agree

38.3%
10%
13.3%
33.3%
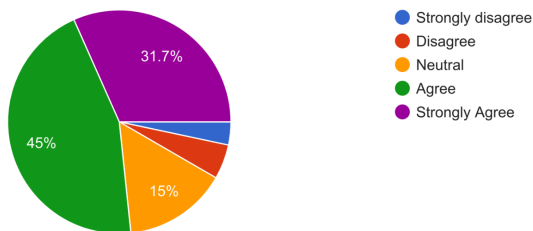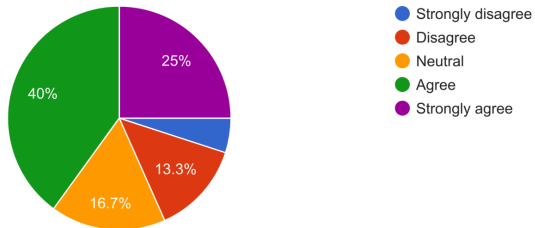
The adoption of Agile methodologies improved the ability of our organization to respond to changing customer needs.
60 responses

- Strongly disagree
- Disagree
- Neutral
- Agree
- Strongly agree

26.7%
46.7%
13.3%
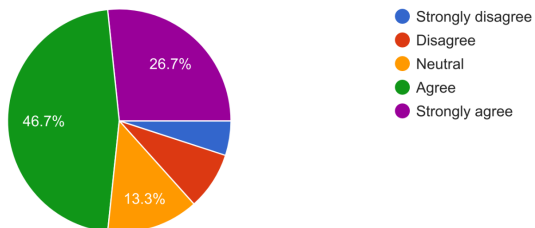
The adoption of Agile methodologies in increased project success rates for our organization.
60 responses

- ● Strongly disagree
- ● Disagree
- ● Neutral
- ● Agree
- ● Strongly Agree
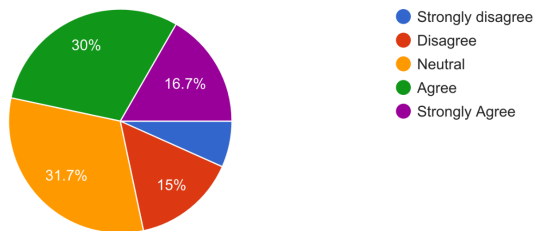
What would you do differently if you have to go through the transformation again?

5 responses

Transformation and improvement are ongoing processes. We experiment, study, apply, and repeat.

Bring in sufficient agile leaders to work with teams all at once rather than serially

Agile transformation started from a department and common projects within the teams. I would touch projects that expand beyond the departmental level. Start making external member more engaged from the beginning

Less constraints coming from management at the start, those company directives were relaxed later and more freedom given to Teams (for example sprint duration was imposed at the beginning)

More stakeholder engagement across wider government and more positive communication about the transformation.

Answers to Which Agile Framework?

This questionnaire received 61 answers with the following results:
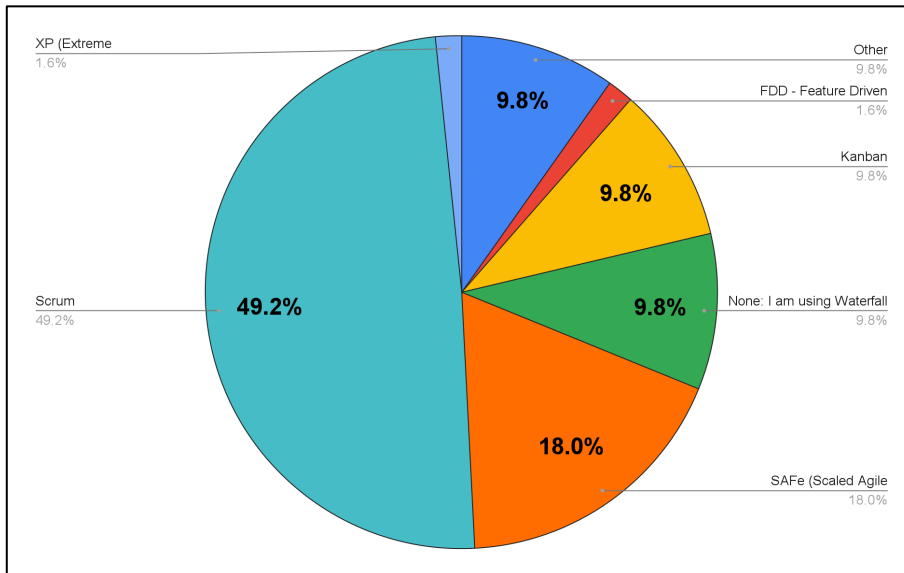
It is evident from these results that Scrum is used by approximately 50% of the responders. And given that SAFe is a scaled approach to Scrum (see Chapter 2), this percentage is close to 70%. The popularity of the Scrum framework is also evident from other surveys, like the 2022 State Of Agile report (Digital.ai, 2022)

Answers to Open Ended Question on Things to avoid

User Diligent-Floor-156 answered on March 21, 2023

"I was a developer in a waterfall company, then we transitioned to SAFe and after a while I became a Scrum Master. What I don't like is that developers lose a lot of freedom on how they organize their work, all has to be planned, no room anymore for creativity and exploration.

All in all there are some super positive aspects (more customer feedbacks, constructive decision making based on KPIs and estimates, some great events such as Process Improvement Plans and demos), but there's a lot of ceremonies without any value, politics (Scrum Master

manipulating KPIs because business looks at them as an evaluation tool), and way too much time spent in meetings and irrelevant presentations.

I'm still a bit new to this but I feel like if I had to choose with the developers how to change our methodology, we'd just keep a kanban board, some refinement sessions to have an estimated backlog (not too detailed), a stand-up every other day, and demos every month with whatever was finished since then. KPIs available on a shared spreadsheet but no presentation to anyone whatsoever. Then, the Product Owner/Scrum Master (who could be the same person for me) would just review regularly the estimates and pace VS the deadlines, communicate to the stakeholders and propose solutions if the plan doesn't fit. Retrospectives when needed but not forced."

User GangSeongAe answered on March 18, 2023:

"I hate nothing about the agile approach - it is absolutely essential for managing the complexity of software engineer projects, and produces great software.

What I hate is how, 9 times out of 10, it's completely misunderstood. It's become the latest excuse for non-engineers to dictate how the execution of technical tasks occurs - engineers having their work defined and executed by project managers is how you get garbage software.

Fortunately, my job is best described as "A disaster software project rescue consultant", which means I go into teams who have often run themselves into the ground with some abortion of an agile "process" and are willing to engage in a root-and-branch restructure of all of their working practices.

I'm forever deleting all of the tickets in a backlog and replacing them with a few mutually constructed and agreed-upon user stories, and taking the 50+ random tasks stuffed into garbage, unreliable "sprints" and turning them into one or two work items that can be fully executed and released."

User simianjim Answered on 17 March 2023:

"A number of agile & scrum practitioners/champions that I've encountered over the years are very black & white about it and quite often very disparaging about companies/teams "not doing it by the book". This kind

of inflexible approach just increases the number of people in senior positions who get turned off by the idea of agile."

User batouttahell1983 answered on March 17, 2023:

"One of the biggest problems I have seen with Scrum in general is its tagline, twice the value in half the time.

The focus tends therefore to be on the process of Scrum itself and not what makes Scrum valuable. Most product teams don't focus on things like why what they build has value, why a particular solution was chosen, who are they solving this problem for, what business objectives does it help fulfill and will people pay for using it.

Scrum is a way of taking and organizing the above information. But the tagline given above causes focus on scrum itself as valuable and not as a delivery of value based on the above information. Garbage in, garbage out.

Scrum is expected to be a magic bullet that substitutes itself for the above legwork (spoiler alert: It isn't, it wasn't and it will never be).

The scrum guide should have a STRONG disclaimer that it won't help you if you haven't done the above steps and before taking any sort of scrum course or exam, each candidate should be tested on the above knowledge and how they think Scrum will help organize the information they have."

User "Jitsu_apocalypse" answered on March 17, 2023:

"We're fully agile, we do stand ups and sprint planning"

User "thomasgroendal" answered on March 17, 2023:

"The number of agile advocates who are smug. I'm a big fan and an active proponent of Agile approaches to complex problems, but lots of people I encounter in advocacy activities have a zeal that outpaces the universal applicability of agile principles and often leads to some ungenerous interpretations of intent. Why deal with the orderly but boring realities of complicated (not complex) projects or be sympathetic to the emotional strain on people trying to make terrifyingly big business decisions when you can just be ideological, smug and reductive instead. "

User Me_Like_Wine answered on March 17, 2023:

"If you rely on a framework as a solution, you're doomed. A framework isn't going to solve your company problems. If you simply recite frameworks when relevant and think that's all you need to do, your company will never innovate and just continue to ship garbage that doesn't majorly impact anything.

Show me an org that seriously considers velocity or burndown charts as a success metric, and I'll show you a horrible company that hasn't shipped anything meaningful in a long time."

User Equivalent_Loan_8794 answered on March 16, 2023:

"Managers want to waterfall the plan but agile the changes"

User hippydipster answered on March 15, 2023:

"When you really tie someone down and make them understand what agile truly entails, generally the reaction is "oh hell no, that's just not practical/feasible!"

Very very very few businesses really want to do an XP or true agile process. What they want is for there to be a black box called "the dev team", and to that black box they send half-formed wishes and desires, and out of it comes software they can sell for millions.

Agile requires a great deal from all the folks outside the black box of "the dev team", and none of them want to do that work, and so there are no real agile teams. Instead, we have dev teams creating a cell membrane around them as thick and tough as possible to protect themselves from the outside world of business types that generally just really hate developers and anything technical."

User buzzstsvlv answered on March 14, 2023:

"when agile is sold as a solution with religious motivation and it ends up in bureaucracy hell and blame game. kinda goes in the same direction as: here is a modern thing but we stay the same."

User craygun answered on March 13, 2023:

"For me it's that it's turned into Corporate Speak for 'We really don't know what we're doing, and don't really have a plan..we're doing this Agile'"

Part 2: Qualitative (Case Study) Results

As mentioned in Chapter 3, Part 2 of the research was a case study that examined the transformation of an IT organization based in Nicosia, Cyprus to Agile methodologies. Below are the interview results with key stakeholders involved in the transformation process:

Interviews

Interview 1: The CEO

Interview Date/time: March 15, 2023, 11:00 AM

Interviewer: Can you tell me about your Agile transformation journey and how it came about for your company?

CEO: Our company has recently completed the transformation to Agile methodologies.

We were always a Waterfall organization, since our inception in the early 90s. Our first experience with agile was a disaster, and almost put everyone off the path of Agile. This came when we had to subcontract two of our employees to a client, in order to execute a software project. The client brought in a project manager that kept talking about "Agile" and being "Agile" and how he was going to do the project in an Agile way. The problem was that this person knew nothing about Agile or Scrum, and worse yet, he had all the misconceptions that people have about Agile. He was advocating for accepting change whenever it came and whatever it was. He was insisting that the team write no documentation whatsoever. He was insisting that the team should not bother with the analysis of the system, or with writing the functional requirements of the project because it was "excessive documentation" and that was not what agile was about. It was clear that this man knew only the Agile buzzwords and nothing of substance. What ensued was a total disaster. Our subcontracted employees almost resigned on a few occasions, due to the stress and the chaos that followed. Needless to say, this project never finished and the client ended up firing the project manager.

However, we couldn't and didn't want to escape Agile. Our next experience came soon after: we were awarded a software development contract for the implementation of a project for a major Cyprus

government agency. The usage of Agile was a contract stipulation so we had no choice. In addition, our subcontractor who was the major undertaker of the project, was operating in Agile. So we had no choice but to "dive in" so to speak. I was initially very skeptical about the change, especially given the fiasco with our first experience. However, after the successful completion of the project, I was convinced.

And since we are an IT organization, by definition it is evident that in order to stay competitive and continue to innovate, we need to be more flexible and responsive to changing market conditions. I realized that the Agile way of thinking could help us do just that. So with the help of the rest of the management team, we started looking into ways to be more Agile company wide, not just in our IT operations.

Interviewer: What were some of the challenges that you faced during the transformation process?

CEO: Initially, I thought that the culture and mindset change was going to be our biggest challenge. However, we were pleasantly surprised by the high score of our company's Agility Readiness Assessment report. It turned out that we were operating in a hybrid Waterfall-Agile without even realizing it: We always delivered products in an iterative way, not in the official Scrum way, but nevertheless, it was iterative. We also had many of the technical tools that Agile requires in place: we used Trello for project management, Microsoft Teams for collaboration and we had version control and continuous integration and delivery tools in place (Jenkins and Hudson). It seemed that we were Agile ready, and the Agile coach, an outside consultant we had brought in to help us with the change confirmed exactly that.

The next challenge we faced was the always present resistance to change, including mine I have to admit. Many of our staff, including myself, were used to working in a specific way for so many years now, and given the success of our company, we were all initially skeptical of Agile methodologies. But the numbers don't lie: There is hard evidence everywhere about the improvements that Agility brings to an organization so I knew we had to push through and execute the change.

Finally, I also had to relinquish some of my authority and delegate some decision making to my subordinates. This was one area in the assessment report that we scored low. Maybe it was our beginnings as a small

company that instilled in me a mindset of micro-management but the Agile consultant insisted that empowering teams and decentralization of authority was a necessary step towards Agility.

Interviewer: How did you address that resistance to change?

CEO:We had to work hard, have an open mind, and educate everyone about the benefits of Agile. I believe we provided everyone with the training and support they needed to make the transition. And at the end of the day, numbers speak for themselves. It helped greatly that the second pilot project was a success. In addition, both the Agile Coach and the subcontractor greatly supported us throughout the process.

Interviewer: How did you implement Agile in non IT departments?

CEO: After the success of the pilot project we took a phased approach to the transformation, starting with small pilot projects in all departments and gradually expanding. This allowed us to demonstrate the benefits of Agile in a tangible way and get buy-in from employees. We also made sure to communicate regularly with employees about the transformation process and address any concerns or questions they had.

Interviewer: What are some of the benefits that you've seen since implementing Agile methodologies?

CEO: One of the biggest benefits has been increased speed and efficiency in our product development process. By breaking down silos and promoting cross-functional collaboration, we've been able to get products to market more efficiently, faster and with fewer errors. We've also seen improvements in employee morale and engagement, as people feel more empowered to take ownership of their work and contribute to the success of the company.

Interviewer: What is your advice for other companies that are considering a similar transformation?

CEO: My advice would be to approach the transformation with an open mind and a willingness to experiment and learn. Have a reason and a vision about Agile, and communicate it early and often throughout the organization to get people on board with the change. Agile methodologies are not a one-size-fits-all solution, and you may need to customize them to fit your company's unique needs and culture. It's also important to

invest in the training and support that your employees will need to make the transition successfully. Also, be patient and persistent - change takes time, but the benefits are well worth the effort. Finally, don't think of agile as just another buzzword, a passing fad, and at the same time don't think of agile as a panacea that will marginally solve all the organization problems. In fact, if done wrong, it will create more problems.

Interview 2: Project manager

Interview Date/time: March 15, 2023, 9:00 AM

Interviewer: What was your involvement with the recent Agile transformation?

Project Manager: I was the project manager of the pilot project, the first project that was executed using Agile methodologies in our organization. We recently won a major contract for a Cyprus Government project, as a subcontractor for a French firm, so our personnel would have to complete the project by working closely with teams from our French contractor, who is exclusively operating in Agile mode. In addition, the client (the Cyprus Government) demanded that the project was executed using Agile methodologies.

Interviewer: How was your experience with Agile?

Project Manager: Overall, with the help of the Agile coach we hired and of the subcontractor, the transition to Agile was successfully implemented. Overall it has not been a significant change for our team, since we were operating from before in a semi-agile way so to speak: We always delivered products in frequent time windows to avoid the risk of surprising the customer. Also, many technical tools required by Agile were already in place.

Interviewer: Which Agile framework did you use?

Project Manager: We used Scrumban, a mix of Scrum with Kanban. The team was very enthusiastic with the visual Kanban work board.

Interviewer: Can you tell me more about the specific improvements you've seen?

Project Manager: As a Project Manager, I've noticed improved employee motivation. I think this is because of the emphasis we gave to empower

and "allow" for self-organizing teams, where individuals have autonomy and are trusted to make decisions. This led to a greater sense of ownership and accountability, which motivated some team members to take on more responsibility and feel more invested in the success of the project.

I have also noticed an increased customer satisfaction, which I reason is because of the improved change request management.

Another quite obvious change was a more efficient and productive way of doing things in general. This was brought upon by the change in mindset, with a shift to always seeking to provide value and prioritize work backlog by value offered to the customer. This was the biggest change in my opinion.

And lastly, relative to the improved change management I mentioned before, I have seen a great improvement in our ability to manage project scope and priorities by focusing on delivering value to our customer instead of just blindly following a plan. Before Agile, we were always breaking down projects into smaller manageable pieces, but with Agile we are also prioritizing them in the Product Backlog based on value offered to the customer. This has helped us stay on track and deliver projects on time and on budget.

Interviewer: Have you noticed any improvements in team collaboration and communication?

Project Manager: Absolutely. One of the core tenets of Agile is collaboration and communication, and we've definitely seen an improvement in these areas since the transition. We're having more frequent team meetings and stand-ups, which have helped us stay aligned and identify potential roadblocks early on. We're also using tools like Kanban boards and user stories to improve transparency and visibility into project progress. The visual Kanban boards have been a hit with the team.

Interviewer: Have there been any challenges associated with the transition to Agile?

Project Manager: Any major change like this will come with some challenges. One of the biggest challenges has been in keeping up with the more experienced French team of our subcontractor. Also, another

challenge was managing upper management expectations. In our case, top management was initially skeptical about the change, since we have been using the Waterfall approach for so long. Agile requires a different mindset and approach to project management, and it can take some time to get stakeholders (management, team members) on board with this new way of working. But it did help that our organization scored very high in the Agile Readiness Assessment. It meant that our organization had the right culture and mindset in place. We were ready for Agile after all.

We also faced some challenges with some major misconceptions that people had about Agile. Some of our people thought that Agile meant no planning, no documentation and any change is welcomed and implemented, at any time. We had to work hard to educate our people and eliminate these misconceptions.

Interviewer: Have you received any support or training to help with the transition?

Project Manager: Yes, we've had some training sessions and workshops to help us understand and implement Agile methodologies. We've also had support from an Agile coach that mentored us and helped us navigate the transition and overcome any challenges.

Interviewer: Finally, do you have any suggestions for other Project Managers who may be considering a transition to Agile methodologies?

Project Manager: Yes, my main suggestion would be to be patient and open-minded. Agile requires a different way of thinking and working, and it can take time to adjust. It's also important to communicate clearly with stakeholders and team members throughout the transition and to provide adequate training and support to ensure everyone is on board. Finally, it's important to continually assess and adjust your Agile practices to ensure they're meeting the needs of your team and organization.

Interview 3: Software Developer (Senior Level)

Interview Date/time: March 15, 2023, 10:00 AM

Interviewer: Can you tell me about your experience with the recent Agile transformation?

Employee: In all honesty, I'm finding the transition to Agile very difficult. I was used to working in a more traditional, hierarchical environment, and the shift to Agile has been a big change for me.

Interviewer: What are some specific challenges that you've faced?

Employee: I'm used to working independently and having clear guidelines and expectations for my work, so one of the biggest challenges has been the increased level of collaboration and communication required in Agile. With Agile, there's a lot more interaction with other team members, and it can be hard to keep track of everything that's going on. Also, I am not very big on meetings, so the daily standup meeting that is supposed to take 15 minutes, well, it never does. Sometimes we go on for an hour. In addition, I was under the impression that Agile requires no documentation, but I am finding out that this is not true. Now I write more documentation than before.

Also, I don't like this pressure to deliver value every two weeks. I wished the Scrum sprints were longer. And the constant acceptance of change requests and re prioritization just stresses me out.

In addition, in the beginning of the pilot project there was too much emphasis on tools and processes, without fully understanding the underlying principles and values of Agile. I think at the end of the day it did more harm than good to the productivity of the team. It's very fortunate that with the help of the Agile Coach we were able to see the light so to speak, and with time we gained a better understanding of the why and where of these tools and processes. For example, in the beginning we were following the Scrum process to the letter, without knowing why we had to have all those ceremonies and titles.

Interviewer: Have you received any support or training to help you with the challenges above?

Employee: Yes, we've had some training sessions on Agile methodologies, and the Agile Coach has helped. But I feel like I need more one-on-one support to really understand how to apply the concepts in my day-to-day work.

Interviewer: That's understandable. Have you shared your concerns with your manager or other team members?

Employee: I have, but due to the nature of the transition - it was forced upon us by an associate - there was nothing really we could do. Now that the project was successful and there's a movement towards Agile within the company, the perception is that if you're not fully on board with Agile, you're not a team player or you're resistant to change.

Interviewer: Do you have any suggestions for how the company could better support employees who are struggling with the Agile transition?

Employee: I think it would be helpful to have more one-on-one coaching and support, particularly for employees who are struggling to adapt to the new way of working. This will help us gain a better and deeper understanding of the Agile principles and values, which should get us on board with the change. Reading the Agile manifesto and the 12 Agile principles out loud every now and then doesn't really help that much.

It would also help if our managers communicate to us in a very transparent way, what it is that we are trying to achieve and why. I mean, I know we are moving towards becoming a more Agile organization, but why do we need to do that? What is wrong with the old way of doing things? And frankly, what's in it for me?

It's also important for managers to listen to employees' concerns and provide clear guidance and expectations for how Agile should be implemented in the team.

Overall, I think there needs to be more recognition that the Agile transition is a big change for many people, and that it will take time and effort to get everyone on board.

Interview 4: Software Developer (Junior Level)

Interview Date/time: April 7, 2023, 10:00 AM

Interviewer: How has the transition to Agile impacted your work?

Employee: The transition to Agile has been a positive change for me. It has made our development process more transparent and efficient. We now have regular meetings where we can discuss our progress and any issues we are facing, which has improved communication within the team. I also appreciate the emphasis on delivering value to the customer in

shorter time frames, which has helped us focus on what is most important.

The Kanban board has become a favorite with the team, with the visualization that it offers making it much easier to have a sense of what is left to do.

There is also a feeling of excitement among team members as we are finally "mainstream", as we are using a modern methodology instead of the old Waterfall. At the end of the day, it's good for the company and good for us employees, career wise.

Interviewer: Do you think the transition was successful? If so, what do you think made the transition successful?

Employee: Overall, I believe that the transition was successful for the whole company. I can "feel" the customers being happier with the increased collaboration. I see an easier flow of information between our company departments.

I think the key to our success was the vision and support we received from management. They made it clear that the switch to Agile was a priority and provided us with the necessary resources and training.

We also had a great Agile coach who helped guide us through the process and made sure everyone was on board. Finally, I think the team's willingness to embrace this change and adapt to new ways of working played a big role in our success. It also helped that most of us younger employees were eager to leave the waterfall methodology behind us.

Interview 5: Software Developer (Entry Level)

Interviewer: How has your experience with Agile been so far?

Employee: I was a bit skeptical at first, but now I am a big fan of Agile and Scrum in particular. It has helped us become more productive and deliver better quality products. I also like the focus on continuous improvement, delivering value, and the ability to adjust our approach as needed. Before Agile, I feel that there was too much effort exerted in tasks that had no value whatsoever. An example was excessive design meetings that at the end of the day offered nothing to the final product.

Interviewer: Do you find the transition to be a successful one?

Employee: It depends what you mean by "successful". We are almost a 100% Agile company in all our departments in the sense that we are following the 12 principles of Agile. Even our Marketing department is using Scrum sprints now. Also, I can see that projects get done in time at a much more comfortable pace, even with the short 2 week Scrum sprints.

But at the same time, not everyone is happy and people complain of over emphasis in processes and lack of predictability, presumably because of the ever changing requirements. Some people get stressed by the constant change.

Interviewer: What do you think contributed to the success of the transition?

Employee: I think one of the biggest factors was that the company culture before the transition was very Agile ready, as we scored high on our Agile Readiness Assessment.

Also, the backing and support by upper management played a major role. And of course the enthusiasm by our agile coach.

Also, the emphasis on collaboration and teamwork. Agile and Scrum in particular has brought us closer together as a team and encouraged us to work more closely with our stakeholders.

Interview 6: Software Developer (Entry Level)

Interviewer: How has the switch to Agile impacted your work?

Employee: I am not a fan of Agile at all. To me, It has added unnecessary bureaucracy and has made my work more stressful. I don't like the constant pressure to deliver something every two weeks, and I feel like our team is always rushing to meet deadlines. Also, there is a rigid way of doing things, with too much emphasis on tools and processes in my opinion.

Interviewer: What do you think could have been done differently to make the transition a better, smoother process for you?

Employee: Agile was sort of forced upon as by management, on a take it or leave it basis. I think more consideration could have been given to the impact on individual employees. For me, the training I received was not

adequate enough to adjust to the Agile way of working, and there was a lot of confusion about what was expected of me. I also think more attention could have been given to the culture of our team and how Agile would fit into that. Overall, I think more communication and transparency could have helped make the transition smoother.

Also, in the beginning we lucked the experience to effectively handle the ever changing requirements. The Scrum master was constantly adding to the pipeline, and there was a general sense of unpredictability. It felt like the project was never going to finish.

However, I have to admit that the project success rates have been on the rise. Especially after And I am slowly adjusting and even starting to see the reason and the benefits of the Scrum sprints and Retrospectives and the Kanban visual work board.

Document Analysis

In the case study about the implementation of agile practices in the above organization, the following documents were examined and analyzed, to gain insights into the organization's agile transformation. The analysis results of this review is listed at the next chapter.

    1. Organizational Readiness Assessment document. This was a word document report, prepared by one of the project managers of the company. Various questionnaires were used to assess the readiness of the organization for transformation. The scores reported were the following:

    2. Transformation Project Plan and relevant reports: These documents provided information on how the organization planned and executed its agile transformation. They included timelines, milestones, and key deliverables.

    3. Training materials: These were the manuals, presentations, and recorded videos of training sessions, recorded on the Teams platform. This material provided insights into the organization's approach to educating employees on agile methodologies. The analysis revealed the types of training methods used and the content covered.

4. Agile artifacts of the pilot project: These included artifacts such as product backlogs, sprint backlogs, and burndown charts. These were analyzed to understand how the organization's teams planned and executed their work using agile methodologies, and provided insights into the level of collaboration and communication among team members.

5. Organizational policies and procedures: A detailed comparison was conducted on the policies and procedures related to project management, product development and quality assurance, before and after the implementation of Agile. This analysis helped gain insights into how the organization's approach to these areas changed with the adoption of agile practices.

6. Internal employee feedback and surveys: These gave valuable insights into the employee perception of the organization's agile transformation, including any challenges or benefits they experienced.

Overall, the above analysis provided a comprehensive understanding of the organization's agile transformation, including the processes and practices involved, challenges faced, and outcomes achieved. The results are presented in the next chapter of this Thesis.

Chapter 5: Discussion of Findings

This chapter presents the discussion of findings obtained from the analysis of existing quantitative research on the best way to transition from Waterfall to Agile. The purpose of this chapter is to discuss the implications of the findings and their contribution to the literature on the topic. The chapter is organized into three main sections: (1) summary of findings, (2) interpretation of findings, and (3) implications of findings.

Summary Of Findings

According to our primary data, less than half of the transformation journeys ended in success. This shows the difficulty of the endeavor.

Interpretation Of Findings

In our primary data, twenty six (29) out of sixty (60) responders felt that the transformation was successful, that is they answered Agree or Strongly Agree. That is slightly under the 50% mark. The table below lists the results in detail.

Was the Transition Successful?	Count	%
Agree + Strongly agree	29	48.33%
Disagree + Strongly disagree	15	25.00%
Neutral	16	26.67%
	60	100.00%

As shown above, 25% of the respondents did not feel that the transition was successful, and another 25% was neutral.

The data clearly show that transitioning to an Agile methodology can be a challenging process for an organization, and there is just almost 50% chance that the transition will be a successful one. We will try to identify the reasons for this, by examining and analyzing our primary and secondary data. First, we will discuss the successful transformations

Successful Transformations

From both primary and secondary data, the following factors emerge that organizations can use to successfully implement Agile methodology:

1. Pilot Projects: Common sense as well as overwhelming statistical evidence suggests that the transformation is best started with a small pilot project, and then branch out to the rest of the organization. This approach allows teams to experiment with Agile practices in a controlled environment, and make adjustments based on feedback before implementing Agile on larger projects.

The table below, lists the approach used from the survey responses that were answered with "Agree" or "Strongly Agree" in the question "The transition to Agile in the organization was successful". Over 84% used the bottom-up approach.

Approach - Successful Transformations	COUNT	%
The bottom-up approach: The journey started with pilot project(s)	23	79.31%
All in approach: The whole organization embarked on the journey to agility	6	20.69%
	29	100.00%

2. Leadership Support: Successful Agile transformations require strong leadership support at all levels of the organization. Our data shows that over 80% of the successful transformations had strong leadership support. It is evident that organizational leaders need to understand and embrace the principles and values of Agile, and provide the necessary resources and support to enable teams to implement Agile practices effectively.

Leadership Support - Successful Transformations	Count	%
Agree + Strongly agree	22	75.86%
Disagree + Strongly disagree	3	10.34%
Neutral	4	13.79%
	29	100.00%

3. Training and Education: Over 75% of our respondents in successful transformations reported receiving adequate training.

Training Support - Successful Transformations	Count	%
Agree + Strongly agree	19	76.00%
Disagree + Strongly disagree	6	24.00%
Neutral	0	0.00%
	25	100.00%

This includes formal training sessions, workshops, and coaching to help individuals understand the principles and values of Agile and the framework chosen, as well as how to implement Agile practices effectively.

4. Agile Assessments: Organizations can use Agile readiness assessments to identify areas where they need to concentrate efforts during their Agile transformation. This can help organizations set priorities for their Agile transformation efforts, and ensure that they are focusing on the areas that will have the greatest impact. Kremenak, 2021, proposes the following :

"When assessing agile principles and practices, you are looking at those that are going to help your teams be successful. Refer back to the Agile Manifesto and select those items that you feel are absolutely necessary for your teams to be successful. Remember, while they are all important, you want the assessment to be lightweight so you may not want to assess all 12 principles. Consider things like prioritization, visualization, continuous improvement, customer collaboration and predictability as a starting point. You want to assess the adoption of agile principles that start to drive behaviors that shape a mindset shift."

5. Agile Coaches: This was the most surprising finding of the survey. It turned out that hiring an Agile Coach played no role whatsoever to the success or not of the transition.

Here are the relevant statistics of successful transitions:

Agile Coach Present - Successful Transformations	Count	%

Yes	17	58.62%
No	12	41.38%
	29	100.00%

Contrasting with unsuccessful transitions, it's clear that the presence of an Agile Coach did not make a difference in the eventual outcome if the transition:

Agile Coach Present - Unsuccessful Transformations	Count	%
Yes	21	67.74%
No	10	32.26%
	31	100.00%

Many organizations hire Agile coaches to help guide their Agile transformation efforts. These coaches can provide guidance, training, and coaching to individuals and teams, and help ensure that the organization is making progress towards its Agile goals.

6. Company Culture And Mindset: Digital.ai's 12th Annual State of Agile Report, 2022 found culture and mindset to be the most critical factor in the success of an agile transformation. But having a strong alignment between organizational culture and agile values as stated in the 12 principles in the Agile Manifesto was the No. 1 challenge in agile adoption cited by survey respondents.

A method that can be used to shift company culture and mindset is clear and effective communication of the benefits of agile to the organization. There must be a clear explanation how it can improve collaboration, productivity, quality, and customer satisfaction. Also, there must be transparency about the challenges and potential risks of the transition.

Another method is to decentralize decision making and empower teams to make decisions and take ownership of their work. In addition, encourage cross-functional collaboration and foster an environment of continuous improvement.

Lastly, the aforementioned Leadership support and vision, adequate training and continuous assessment and improvement, all help shift

attitudes and culture towards a more agile mindset in the organization.

Effects of Successful Transformations

Nearly 87% of Successful Transformations report improved productivity, and 10% are Neutral:

Improved Productivity - Successful Transformations	Count	%
Agree + Strongly agree	25	86.21%
Disagree + Strongly disagree	1	3.45%
Neutral	3	10.34%
	29	100.00%

Improved quality has similar high success percentage of 83%

Improved Quality - Successful Transformations	Count	%
Agree + Strongly agree	24	82.76%
Disagree + Strongly disagree	2	6.90%
Neutral	3	10.34%
	29	100.00%

Improved time to market also has high success percentage of almost 90%

Improved Time To Market - Successful Transformations	Count	%
Agree + Strongly agree	26	89.66%
Disagree + Strongly disagree	0	0.00%
Neutral	3	10.34%
	29	100.00%

As expected, collaboration between team members was improved with over 90% agreeing to the fact:

Improved Collaboration - Successful Transformations	Count	%
Agree + Strongly agree	27	93.10%
Disagree + Strongly disagree	0	0.00%
Neutral	2	6.90%
	29	100.00%

Team Satisfaction improved with 83% agreeing to the fact:

Improved Team Satisfaction - Successful Transformations	Count	%
Agree + Strongly agree	24	82.76%
Disagree + Strongly disagree	1	3.45%
Neutral	4	13.79%
	29	100.00%

Customer satisfaction was the first success factor with less than 80% agreeing that the implementation improved customer satisfaction overall.

Improved Customer Satisfaction - Successful Transformations	Count	%
Agree + Strongly agree	21	72.41%
Disagree + Strongly disagree	0	0.00%
Neutral	8	27.59%
	29	100.00%

Surprisingly, most responders found that the Agile implementation did not have a positive effect on cost savings for their organization.

Cost Savings - Successful Transformations	Count	%
Agree + Strongly agree	12	41.38%
Disagree + Strongly disagree	6	20.69%
Neutral	11	37.93%
	29	100.00%

Almost 80%, quite high, agreed that their organization realized faster response times to customer needs.

Improved Response Times to Customer Needs - Successful Transformations	Count	%
Agree + Strongly agree	23	79.31%
Disagree + Strongly disagree	0	0.00%
Neutral	6	20.69%

	29	100.00%

This is one of the early premises of Agile: improved project success rates. The original aim of the Agile Manifesto.

Improved Project Success Rates - Successful Transformations	Count	%
Agree + Strongly agree	20	68.97%
Disagree + Strongly disagree	1	3.45%
Neutral	8	27.59%
	29	100.00%

Overall, our primary data shows that successful transformations to agile have a significant positive impact on an organization. By embracing agile methodologies, organizations became more productive, flexible, and customer-focused. These are potentially critical factors in helping them stay ahead of the competition and thrive in an ever-changing marketplace.

Agile Shortcomings

After analyzing the data and the interviews, as well as the Agile groups in Reddit and Linked in, some of the shortcomings of Agile methodologies come into light. Here are the specific problems identified:

1. Overemphasis on Tools and Processes: One of the most common Agile shortcomings identified on both platforms is that organizations tend to focus too much on implementing Agile tools and processes, rather than the underlying principles and values. This can lead to a lack of focus on collaboration, communication, and continuous improvement, which are the core tenets of Agile. The end result is Agile In Name Only, the acronym AINO as it is known in management circles, or a hybrid Agile-Waterfall methodology where things are done the Waterfall way, but with Agile tools.

2. Lack of Predictability: Agile methodology is based on the idea of embracing change, which means that the project requirements can change frequently. As a result, it can be difficult to predict

project timelines and deliverables. This lack of predictability can be a challenge for project managers who need to provide stakeholders with clear timelines and budgets. This problem can become an even heavier burden if people involved in the project have the misconception that Agile means we accept any and all changes at any time (See Agile Myths section below). This problem was frequently brought up by interviewees during the qualitative study interviews.

3. Team Dependency: Agile methodology relies heavily on teamwork and collaboration between team members. This means that if one team member is unavailable or unable to contribute, it can impact the entire team's progress. This dependency can create challenges in meeting project timelines and delivering products on time.

4. Limited Documentation: Agile methodology emphasizes the creation of "just enough" documentation, which means that there may be less documentation available for future reference. This can make it difficult to maintain the software and can lead to issues when new team members need to join the project. Again, this problem is sometimes compounded by the misconception that Agile means no documentation. It should be emphasized to teams that no documentation is unacceptable and will bring problems to the maintainability of the system.

5. Limited Documentation: Scaling agile can be challenging, but it is possible with the right approach and tools. Agile methodologies were originally designed for small, co-located teams, and scaling these practices to larger, distributed teams or entire organizations can be difficult.

One of the biggest challenges in scaling agile is maintaining consistency across multiple teams. Although not a problem with Agile specifically, it is true that as the number of teams increases, it becomes more challenging to ensure that everyone is following the same process, using the same tools, and adhering to the same standards. Additionally, as organizations scale, they may encounter new complexities, such as compliance requirements, that can make it more difficult to implement agile practices.

To overcome these challenges, organizations can use some of the frameworks mentioned in Chapter 2, such as SAFe (Scaled Agile Framework), LeSS (Large-Scale Scrum), or Nexus, which provide guidance on how to scale agile practices. These frameworks provide a structured approach to scaling, defining roles, responsibilities, and processes that can be applied across multiple teams.

Another approach to scaling agile is to adopt a culture of continuous improvement. By continuously evaluating and refining their agile practices, teams can identify areas for improvement and work to optimize their processes over time. This approach requires a commitment to learning and collaboration, as teams must be willing to share their successes and failures and learn from each other.

In summary, scaling agile can be difficult, but it is possible with the right approach and mindset. By adopting frameworks and best practices for scaling agile, and by fostering a culture of continuous improvement, organizations can successfully scale their agile practices to meet the needs of larger, more complex projects and teams.

Agile Myths - what Agile isn't

While Agile has become a widely used methodology in the industry, there are still several myths and misconceptions surrounding it. These surfaced during the interviews and from examination of secondary data and the most common are listed below:

Myth 1: Agile is just a buzzword.

Fact: While "Agile'' has become a buzzword in the Management world, it is actually a well-established and defined methodology with clear principles and practices. The principles are of course listed on the Agile Manifesto web page, here: https://agilemanifesto.org/principles.html. The practices are well defined in the documentation websites of the various Agile frameworks, one of which is http://www.scrum.org

Myth 2: Agile means no planning.

Fact: No, agile does not mean no planning. Agile methodologies do emphasize flexibility and adaptability, but planning is still an important part of the process.

In agile, planning is typically done in short, iterative cycles. Instead of creating a detailed plan for the entire project upfront, teams create a high-level plan for the next iteration or sprint. This allows the team to be more responsive to changes in the project requirements or priorities.

During each sprint, the team plans the work they will complete and estimates how long it will take. This planning is done collaboratively, with the team members working together to break down tasks and identify dependencies. As the sprint progresses, the team may adjust the plan as needed based on feedback, changes in requirements, or unexpected issues.

Agile methodologies also emphasize the importance of continuous planning and re-planning. This means that the team is constantly evaluating progress, adjusting plans, and making decisions based on feedback and new information.

Myth 3: Agile means we accept all and any change requests

In Agile, change is expected and even encouraged, but it needs to be managed effectively to avoid chaos and ensure that the project stays on track. Agile methodologies provide several mechanisms for controlling change requirements, including:

1. Prioritization: Changes are prioritized based on their impact on the project and the value they provide. The product owner is responsible for prioritizing the backlog items based on their importance to the project and their alignment with the overall project vision and goals.
2. Continuous planning and re-planning: The team collaborates to assess the impact of changes and adjusts the plan accordingly, ensuring that the project stays on track. If a change request risks the project delivery time, the team can re-prioritize the product backlog, seek stakeholder input and effectively communicate the risk that the change introduces to the delivery of the product. This

can help manage stakeholder expectations and ensure that everyone is on the same page.

   3. Incremental delivery: Agile teams deliver increments of the product on a regular basis, allowing stakeholders to provide feedback and make changes early in the process. This approach reduces the risk of major changes being required late in the project, which can be difficult and expensive to implement.

Myth 4: Agile is just for software development.

Fact: Although Agile was originally developed for software development, its principles and practices can be applied to other fields and industries.

Myth 5: Agile means no documentation.

Agile recognizes that documentation is important, but it values working software and collaboration with stakeholders more. In Agile, the emphasis is on creating just enough documentation to support the development process, rather than on creating extensive documentation that may not be necessary.

Agile teams typically follow the principle of "working software over comprehensive documentation", which means that they prioritize creating functional products and value to the customer over creating extensive documentation. However, Agile methodologies still require documentation, but they emphasize creating documentation that is useful, valuable, and relevant to the project.

Documentation in Agile can take different forms, such as user stories, acceptance criteria, sprint plans, test cases, technical documentation, and release notes. The Agile team collaborates with stakeholders to determine the appropriate level of documentation for the project and creates documentation that supports the development process and meets the needs of stakeholders.

The Agile Manifesto includes the value of "working software over comprehensive documentation", but it also emphasizes the importance of "customer collaboration over contract negotiation" and "responding to change over following a plan". These values suggest that Agile teams

should focus on creating the right documentation to support the development process and to collaborate with stakeholders to ensure that the project is delivering value to customers.

In summary, Agile does not mean there is no documentation involved in the development process. Instead, it emphasizes the creation of "just enough" documentation that is necessary for the development process.

Myth 6: Agile means no deadlines.

Agile certainly does not mean there are no deadlines involved in the development process. Instead, it emphasizes the importance of delivering working software in short iterations, with each iteration having a clear goal and deadline.

Myth 7: Company wide Agility is a silver bullet.

Company wide Agility is not a silver bullet that can solve all problems in an organization. It is a methodology that requires a certain mindset, discipline, teamwork, and continuous improvement to be successful.

In summary, while Agile has become a widely used methodology in the industry, there are still several myths and misconceptions surrounding it. It is important for teams to understand the true principles and practices of Agile in order to successfully implement it in their development processes.

Agile Implementations, non Software Development

1. Marketing: Agile methodology is being used in marketing to improve campaign management, increase flexibility, and optimize ROI. Agile can help marketing teams to quickly respond to changes in customer behavior, test and refine campaigns, and continuously improve performance.

A practical example of how Agile is helping marketing teams is in marketing campaigns development and execution. Agile marketing teams treat campaigns just like software products, breaking them down into smaller campaigns, scheduled for release frequently. This

allows them to review their analytics data frequently and adjust their campaigns based on the performance indicators of the campaign period (sprint). This allows them to continuously test and refine their messaging and targeting, and adapt strategies based on frequent customer feedback. This leads to better data-driven decisions and theoretically at least, to better results over time.

2. Education: Agile methodology is being used in education to improve student engagement, increase collaboration, and promote continuous improvement. Agile can help educators to adapt to changing student needs and learning styles, test and refine teaching methods, and continuously improve learning outcomes.

3. Construction: In an industry that in theory resembles the software development industry, the most obvious use of Agile methodology is to improve project management, increase collaboration between the stakeholders, and optimize project delivery. Agile can help construction teams to quickly respond to changes in project requirements, test and refine construction methods, and continuously improve project outcomes.

4. Healthcare: Agile methodology is being used in healthcare to improve patient outcomes, increase collaboration between healthcare providers, and optimize healthcare delivery. Agile can help healthcare teams to adapt to changes in patient needs and healthcare requirements, test and refine healthcare practices, and continuously improve healthcare outcomes.

5. Finance: Agile methodology is being used in finance to improve financial management, increase flexibility, and optimize financial performance. Agile can help finance teams to quickly respond to changes in market conditions, test and refine financial practices, and continuously improve financial outcomes.

Some practical examples include:

a. Agile budgeting: Refers to using an iterative approach to budgeting, where financial plans are reviewed and adjusted on a regular basis in response to changing market conditions or business needs, as opposed to the traditional, once a year budgeting. This allows finance teams to quickly respond to

changes in the business environment, adjust budgets as needed, and allocate resources more effectively.

b. Agile forecasting: This involves using a flexible forecasting approach that can adjust to changing market conditions. Finance teams can use Agile forecasting to regularly review financial projections and adjust them based on new information or changes in the business environment. This allows organizations to make more informed financial decisions and respond quickly to changes in the market.

c. Agile decision-making: This involves using an iterative and collaborative approach to decision-making. Finance teams can use Agile practices to involve stakeholders in the decision-making process, gather feedback, and make decisions based on real-time information. This allows organizations to make more informed and agile decisions that can respond quickly to changing market conditions.

Commented [15]: chapter 5 is well written, informative and makes clear your contribution

Chapter 6: Conclusions

In conclusion, when embarking on an Agile Transformation Journey, there are several factors that organizations can use to successfully implement the Agile methodology. These are, primarily (1) A shift in culture and mindset towards the 12 principles of Agile, (2) leadership vision and support (3) training and education, (4) start with pilot projects, and although primary data did not show it, an important factor is to have an Agile coach or champion on board. In addition, frequent Agility Assessment reports help to give the whole endeavor an Agile iterative "flavor."

By using the above methods, organizations can overcome Agile implementation challenges and achieve success with Agile.

Appendices

Appendix 1 : The Twelve Principles of Agility

From the Manifesto for Agile Software Development

1. Our highest priority is to satisfy the customer through early and continuous delivery of valuable software [product].

2. Welcome changing requirements, even late in development. Agile processes harness change for the customer's competitive advantage.

3. Deliver working software [products] frequently, from a couple of weeks to a couple of months, with a preference to the shorter timescale.

4. Business people and developers must work together daily throughout the project.

5. Build projects around motivated individuals. Give them the environment and support they need, and trust them to get the job done.

6. The most efficient and effective method of conveying information to and within a development team is face-to-face conversation.

7. Working software [product] is the primary measure of progress.

8. Agile processes promote sustainable development. The sponsors, developers, and users should be able to maintain a constant pace indefinitely.

9. Continuous attention to technical excellence and good design enhances agility.

10. Simplicity – the art of maximizing the amount of work not done – is essential.

11. The best architectures, requirements, and designs emerge from self-organizing teams.

12. At regular intervals, the team reflects on how to become more effective, then tunes and adjusts its behavior accordingly.

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