

The Agile Transformation

ILKKA MIKKONEN, VENLA MANNINEN

Information Technology, Oulu University of Applied Sciences
Oulu, Finland

Abstract: Within the past ten years, the ways of developing products and services have undergone significant changes. The software and service development environment has been transforming, as manifested in technologies, people and processes. As a result, organizations have been facing pressure to be highly adaptive to change. To study these changes, it is necessary to examine the development processes as well as human and business-related aspects. Recent studies of agile development have not seemed to focus on changes on the organizational level. Insights about agile transformation are significant as the environment is in a state that is continuously evolving, which will affect the methods and frameworks chosen to develop products and services. This paper tends to distinguish factors, which differentiate between a traditional and an agile organization.

Keywords: Agile; Scrum; project management; change management; knowledge management

1 Introduction

Today we are facing an environment which has become increasingly difficult to predict. Agile is a new concept aiming to respond to such uncertainty, and the methodology has been adopted as a preference to developing software. According to some studies, it has a long history, with earliest origins tracing back all the way to 1940's. The principles and values, which would provide a definition of Agile, referred to as "the Agile Manifesto", arose in 2001. At that time, the concept of Agile became widely known and the implementation of different frameworks began. Of those frameworks, Scrum has been the most widely used framework in the world [1]. As the methodology has since evolved, it has created other frameworks, such as Lean and Kanban.

One definition of the agile transformation describes it as "an act of transforming an organization's form or nature gradually to one that is able to embrace and thrive in a flexible, collaborative, self-organizing, fast changing environment." [2]. Upon reflecting the agile transformation, the matter is seen as something more than simply choosing a set of methods or practices to deliver in an agile environment. Rather, it also involves the issues of culture change and mindset, to be able to support a self-organized, collaborative environment inside an organization.

The purpose of this paper is to study the impacts of Agile not only in software development but also on an organizational level, to identify the differences between traditional and agile organizations and to examine the benefits and challenges of agile adaptation.

2 The Agile Transformation

The core idea of Agile may be included in many business environments, alongside but not limited to software development. This chapter will expand the ideology by identifying some

of the characteristics which are essential for an organization to call itself agile. The related concepts will include assessing the changing role and significance of management as well as introducing the Agile Performance Model framework (APM). Finally, in chapter 3, a case company example will aim to provide a practical example regarding agile transformation.

2.1 What makes an organization agile?

Before moving further with the concepts of agile change, it is interesting to consider what kind of agile definitions there exist. Agile refers to adaptability, flexibility and delivering solutions at speed. The Agile Manifesto defines the core values and supporting principles, which act as a guideline to introduce what agile is fundamentally about. This provides a good framework for assessing how agile an organization is. However, to study how the agile values and principles manifest themselves inside organizations, it is necessary to examine which other agile definitions there are.

Despite a software-development-related or a process-oriented perspective, Agile can be explored as a mindset – a way of thinking. Having an agile mindset involves absorbing agility into one’s identity to the extent that becomes the new norm. While an organization may implement different tools, practices and support various agile principles and values, the agile mindset is seen as sitting on top of everything while wrapping everything together [3].

Consequently, for Agile to find success within an organization, it can often be a question of adopting the mindset. For example, when a new framework is introduced, individuals may begin to implement it; however, if they do not understand why it is being used, the temptation of gradually going back to old habits can be high. To look at the issue more practically, it is worthwhile to consider how the agile mindset compares with a “fixed” mindset, which refers to the non-Agile way of thinking.

Tab. 1 *Fixed and Agile mindset* [3]

	Fixed mindset	Agile mindset
Ability	Static, like height	Can grow, like muscle
Goal	To look good	To learn
Challenge	Avoid	Embrace
Failure	Defines identity	Provides information
Effort	For those with no talent	Path to mastery
Reaction to challenge	Helplessness	Resilience

The differences between the mindsets are evident from the examples mentioned in the table 1. The agile mindset is about evolving continuously rather than remaining at a certain level, welcoming and overcoming challenges instead of backing away from them and taking failure as a chance to learn. Where a fixed mindset sees threats, an agile mindset may see opportunities. The goal of continuous improvement lies at the heart of the agile ideology. Agile organizations do not tend to punish employees for their mistakes. This is due to

accepting the idea that to be constantly able to improve can involve things occasionally going wrong. This applies particularly to software design as no system is without flaw, but expectancy to having flaws will encourage putting in place necessary practices to monitor and respond to vulnerabilities. In terms of project management, agility allows to experiment and then analyze whether experiments are bringing value and abandon them if that is not the case.

“Business agility” is a term created to describe the adaptability of businesses to an ever-changing environment. Organizations that have the capability to act and adapt when facing changes operate under an agile mindset. These organizations welcome new ideas and support flexibility in their processes and systems. Openness and adaptability are also characteristics of their corporate culture. Simon Sinek [4] has argued that the values of the company lie at the very core of the agile business principle. According to his theory, organizations should have a clear idea about the reasoning behind their existence before focusing on the practicalities of their operations. This rationale, along with the values of the organizations, should thus be the driver for their decision-making and operations. Another argument by Sinek emphasizes the importance of delivering products and services which respond to customer needs. An agile organization should always place the customer in the center of what they do. Many organizations that have first adopted agile software development methods are now considering how to introduce agility into their business operations.

To discuss briefly agile business, a set of core business objectives which are the most relevant when discussing agile projects is identified. According to Jim Highsmith [5], agility stresses the following five as the most meaningful: continuous innovation, product adaptability, improved time-to-market (including return on investment), people and process adaptability and reliable results. An agile mindset may connect with innovations since the self-organizing nature of agile enables to set up an environment to innovate new ideas. Agile delivery of products requires adaptability as it strives for technical excellence, using customer value and adaptation as ways of measurement.

Agile software development involves prioritizing product features and delivering them in small, frequent increments. This will push the teams to consider the number of features which should be included in the releases and eliminating less valuable requirements. Concentrating on value-adding activities and including the necessary skills to complete a project would result in improving the time-to-market in agility. The people and processes need to adapt similarly to products, to create value for customers. Processes in agile is a topic which has been under discussion. Many organizations tend to include repeatable processes into their development. This may respond well to situations where expectancy to change is low. As agility expects changes to happen any given moment, it may prefer reliability of processes. Reliable processes operate under certain boundaries while aiming to meet deadlines and expecting changes to occur [5].

A very recent article by Aghina et al. has identified five trademarks, which an agile organization possesses in terms of strategy, structure, process, people and technology. Without going into too many details, organizations were discovered to have an overall purpose and ambition by which they navigate (The North Star) a network of empowered teams, supporting of rapid decisions and learning in their processes, having dynamic, passionate people including a cohesive community as well as highly advanced technology [6].



¹The 5 trademarks include 23 practices for organizational agility; 18 are based on survey research. Five additional practices are included that have emerged from recent experiences with large global companies transforming into agile organizations.

Fig. 1 Five trademarks of agile organization [6]

2.2 Agile culture change

It can be said that an organization is defined and shaped by its culture, which can manifest itself in many aspects – work roles, processes, frameworks, tools, etc. While being visible in many day-to-day practices, ultimately, culture will always come down to people and interaction. Understanding what kind of a business culture dominates a business is seen as vital before implementing Agile, however it can be quite challenging to identify and visualize the subtle elements that affect how people interact [6].

There are many ways in which culture effects the operations of an organization. It can include the following basic characteristics: mission and direction, adaptability and flexibility, involving and engaging the people and creating consistency from core values. Culture is a complex entity, which includes internal factors, such as the core values and capabilities as well as external factors like strategy [7]. The issue of corporate culture may be difficult to define and describe despite of the fact that it is present everywhere in the workplace. That is

because corporate culture includes certain characteristics, which make it difficult for individuals to give precise descriptions of it.

According to Edgar H. Schein, titled as a “leadership guru”, culture is deep in the sense that it is very challenging to manipulate it. It is also broad as instead of having people controlling culture, usually it is the case that culture ends up controlling the people. Culture tends to remain relatively stable due to people naturally tending to prefer predictability [8]. Furthermore, culture includes a large variety of influential environmental factors, for example the market situation, social change or political climate. It exists through having a context and that context is much wider than people usually realize.

2.3 Management and leadership in Agile

Management in Agile is a very broad subject, which involves the organizational culture, tools and frameworks, project and product management and leadership. This paper will merely consider a few, relevant concepts. As mentioned, inspection and adaption are some of the core agile principles. Moving away from top-to-down management and into empowering teams is characteristic of forming an agile style of managing projects and people. Motivating employees and providing them an environment built on support and trust is a fundamental part of the agile principles. Therefore, it is relevant to study the issue of motivation and attitude between management and workers.

The Human Side of Enterprise is a publication created in 1960 by Douglas McGregor, which was later revised in 2006 [9] and which introduces a model to study how managers interact with their employees. The model includes two different management perspectives, divided into Theory X and Theory Y. The Theory X is an example of a control oriented view. It involves a set of beliefs that assume employees needing strict supervision due to their lazy tendencies, lack of ambition and tendency to avoid responsibility unless encouraged by centralized incentives. It regards that employees should be controlled as their individual goals would not be meeting the needs of the organization. Quite on the contrary, Theory Y assumes that employees are able to motivate themselves, be responsible for their learning and have a positive reaction to allowing them the freedom to exercise their talents in the workplace. Employees would not need to operate in a “stick and carrot” manner like in Theory X as their goals would align with the organization through commitment [3].

Tab. 2 *Theory X and Theory Y* [9]

Theory X managers believe that employees...	Theory Y managers believe that, given the right conditions, employees...
Hate work	Like and need work
Seek money and security	Seek to be involved and realise their potential
Have to be forced to work	Drive themselves and work effectively
Prefer to be told what to do	Take initiative
Are rarely creative	Are naturally highly creative
Are selfish	Commit themselves to larger goals

The theory regards the attitude of the management as a key to how employees will act and deliver their work. It assumes that when the management has a predetermined attitude and imposes it in the workplace, the employees will end up acting exactly the way the managers presume. This means that in Theory X, the employees would expect to be told what to do, having a negative mindset and regarding the work as merely a source of income and not as a means to express their creative needs. This is due to the management having such a key role in setting the underlying cultures and atmosphere at the workplace. As such, the managers' input will typically be manifested in the workers' output. Organizations following a model closer to Theory Y are being more productive according to studies [3]. This would be particularly true for agile organizations, as already discussed in the previous section. The Theory Y aligns more conveniently with Agile, which values motivated individuals before processes and expects that teams consisting of individuals will be able to self-organize.

When discussing agile management, the teams and their level of collaboration are an essential part for consideration. The issue is thus the team dynamics. For teams to function well together, certain functions either help or prevent teams from achieving a high level of performance. Patrick Lencioni [10] has made such a list of characteristics, which includes the following: trust, conflict, commitment, accountability and attention to results. According to the theory, these can be both positive and negative. A team can be regarded dysfunctional if it has not invested in achieving results, avoids being accountable, is fearful about conflicts and lacks commitment and trust.

Accountability refers to owning responsibility so that other team members, as well as the management, can expect the individuals to complete their tasks without too much involvement. With attention to results, the teams can practice a form of shared accountability. When speaking of conflict, it is generally associated as a negative term. This is not always the case where teamwork is concerned. When members of a team wish to keep their opinions to themselves due to a fear of getting into a debate, it can result in the team operating from a very narrow point of view. It would be better to raise discussion even when having conflicting views to avoid falling into a trap of "group thinking", which may not create very innovative ideas, for example.

Openness towards failure and shortcomings is one relevant point when discussing the building of trust. As already acknowledged in this paper, agile leaders will allow employees to make mistakes without the need to punish or be very critical or harsh. They too, should acknowledge not being perfect and realize how much they need to develop personally, just like any other worker. It can be a good idea to communicate this to the teams as well. Leaders can learn a great deal by observing what is happening around them and in other organizations and communities. Where commitment goes, agile leadership will aim to define and effectively communicate with the team about goals, making sure that the team is heading towards them together.

Gathering the different functions into a form of a pyramid demonstrates a value structure with trust forming the base upon which everything else is constructed. When colleagues trust each other, they are more open to sharing ideas and opinions even when it may result in debate, which may have a very fruitful outcome. When a team is committed, it is more eager to take initiative and share accountability, which will keep the team focused on achieving results. The management's role then becomes more about enabling and encouraging all these fundamental aspects [10] [3].



Fig. 2 A functional team according top principles by Lencioni [10]

Going back to the core agile principles, a publication titled Agile Project Management, written by Jim Highsmith [5], offers a simple yet effective quote about the difference between how a traditional manager plans projects compared with an agile manager. It goes: “A traditional project manager focuses on following the plan with minimal changes, whereas an agile leader focuses on adapting successfully to inevitable changes”. This stresses the issue that almost every project requires at least some amount of planning, but the differentiating issue lies in the perception of the plan and the expected outcome. Highsmith also points out three main values, which an agile leader should have: delivering value over constraints, leading the team over focusing on tasks and adapting to change over complying on plans. These values are familiar from The Agile Manifesto and are good indicators for examining how agile the style of leading is [5].

As emerging trends have been transforming and continue to transform the way organizations operate and act, the organizations of today are almost like “living organisms”, in need of some stability while being able to function dynamically [6]. In an agile organization, which is marked by less bureaucracy than before and an effort to act in a quick and flexible manner, the leader is an enabler, with a clear long-term goal to lead the direction. The theory about organizations being living organisms is demonstrated in the illustration below.

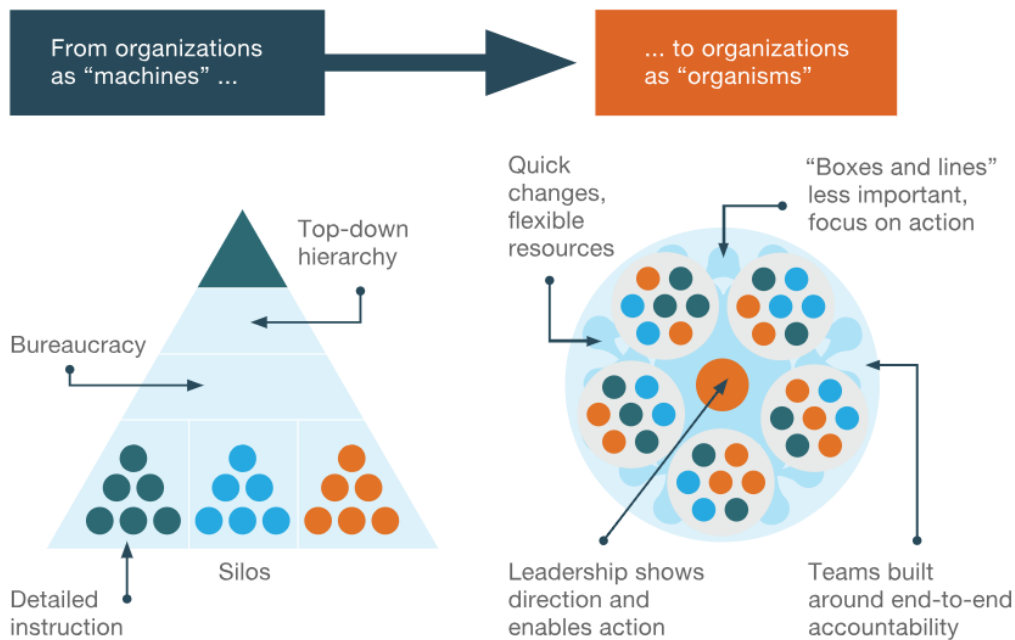


Fig. 3 Agile organization as a living organism [6]

2.4 Change management

During the latest few decades, organizations have been battling with a variety of significant changes, which touch on many different levels, such as economic, demographic, political, financial, collaborative as well as individual. The environment where products and services are developed has become increasingly competitive and the results may have taken a big toll on morale, for example through reducing staff due to outsourcing. Rapid advancements in technology have transformed the way organizations run their operations, aiming to produce feasible outcomes in an environment marked by a great deal of uncertainty. Many companies have failed to react to the changing requirements promptly enough and have died out as a result, while others have blossomed being able to grow even stronger with innovations, a focus and strategy, which support continuous improvement.

For an organization to stay competitive in times of extreme uncertainty, it needs to be able to adjust to a changing environment. Managing change includes many challenges; it requires short-term as well as long-term planning, and particularly in an agile environment, the objectives may include a great deal of inconsistency. This is because the future has become increasingly difficult to project, but projections are necessary to form a sense of direction.

Scrum, for example, prefers to develop iteratively in short-cycles, highlighting how important it is to be fast and innovative, which sometimes allows leaving decision-making at the last minute. However, even in Scrum projects and particularly dealing with complex issues in large organizations, long-term goals and broad guidelines are put to place, guiding the teams to aim towards a unified vision that is managed from above. Agile is not as chaotic as it is sometimes interpreted to be. Keeping in mind that Agile tends to rely on technical excellence, this means that a level of precision and risk management must be involved.

Obviously, organizations must always bind to certain laws, so there are always limitations to how they can operate and act.

Dr. Paul Evans (2000) has studied the paradoxical nature of the requirements for planning projects, extending on the ideology by creating the “The 11 Paradoxes of Leadership”. It introduces the following traits, seen listed below, as suitable for change leaders and managers of today. It may act as a “checklist” for examining the considerations how an agile leader should behave, recognizing the conflicting nature of the values [3].

- To be able to build a close relationship with one’s staff, and to keep a suitable distance.
- To be able to lead, and to hold oneself in the background.
- To trust one’s staff, and to keep an eye on what is happening.
- To be tolerant, and to know how you want things to function.
- To keep the goals of one’s department in mind, and at the same time to be loyal to the whole firm.
- To do a good job of planning your own time, and to be flexible with your schedule.
- To freely express your view, and to be diplomatic.
- To be visionary, and to keep one’s feet on the ground.
- To try to win consensus, and to be able to cut through.
- To be dynamic, and to be reflective.
- To be sure of yourself, and to be humble.

Regarding change, the team and its leader can be imagined sailing in a boat with changing weather conditions surrounding them. Neither the team nor the leader can control the weather, but a boat typically has someone directing it, even when facing a storm or another unexpected event. It could be said that this is when the one in charge of directing the boat can become particularly focused and invested in the job, having to make decisions about how to approach a challenging situation. This describes the characteristics of change management. The more uncertainty there exists in the real world in terms of technological developments and trends, market fluctuations or growing demands, the more need it creates for managing change.

Change always involves culture. It is complex to manage because culture itself includes levels of complexity. Returning to the model of the four major aspects of culture: adaptability, mission, involvement and consistency, an organization would benefit from reflecting on how it is addressing these issues. A mission will typically be focused on the long term, setting the direction where the organization is headed to. To demonstrate the complexity of this theory, the following figure will highlight the issue [7].

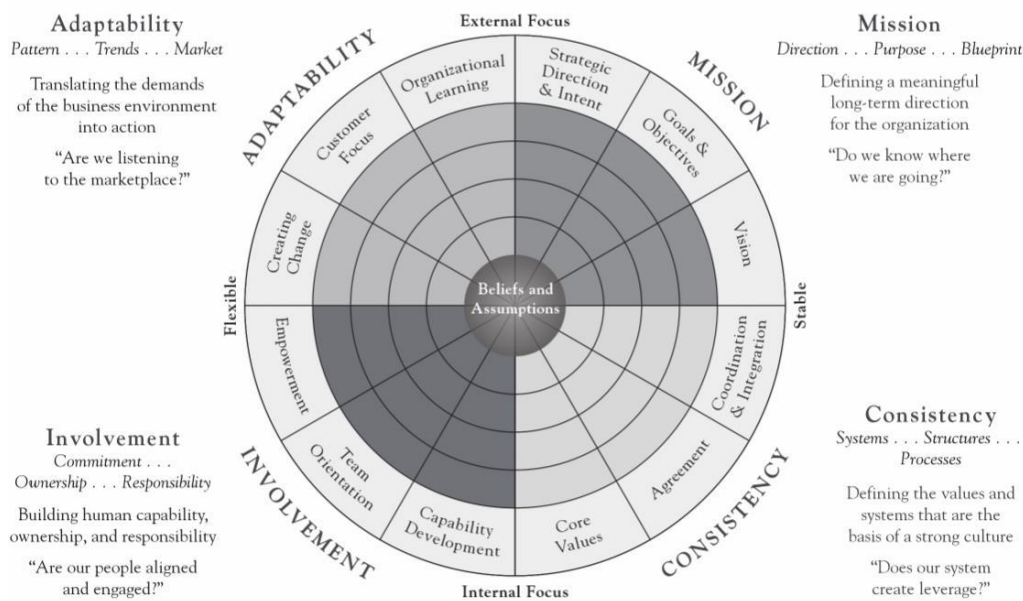


Fig. 4 Organizational culture and business performance [7]

Adaptability may refer to a variety of things, which relate to the environment where the organizations operate. Involvement refers to commitment and responsibility, which have already been discussed. It has been established that agile organizations require a level of consistency, despite of seeking high adaptation and being on stand-by for unexpected changes. For the agile leaders, it is relevant to study the aspects of how adaptable the organization is as regards the changing environment. This includes operating under a meaningful long-term mission, which is guided by vision and reflected in the goals and objectives of the organization. It would also be worth considering how engaged and capable the people are and if the systems and processes support the organization’s culture. Agile will encourage organizations’ awareness by constant reflection on these issues as that is how an organization can achieve continuous improvement. The agile leaders have an important and challenging role in practicing and sharing of awareness.

2.5 APM Framework and agile delivery

As we have mentioned in this paper, Agile has some constraints despite its flexible and adaptable nature. While planning of agile projects may often include having to deal with contrasting values, agile project planning includes some of the same objectives as traditional projects. Measuring agile performance is regarded as necessary to create a correlation between what the self-organizing teams are aiming to achieve and what the managers regard as a successful outcome. All projects tend to have some constraints; typical examples of these are: requirements, time and cost. To explore the issue of constraints in agile projects, something called “the Iron Triangle” is used to demonstrate the differences between agile and traditional projects. Technical quality has also been added as new addition to the figure [3].

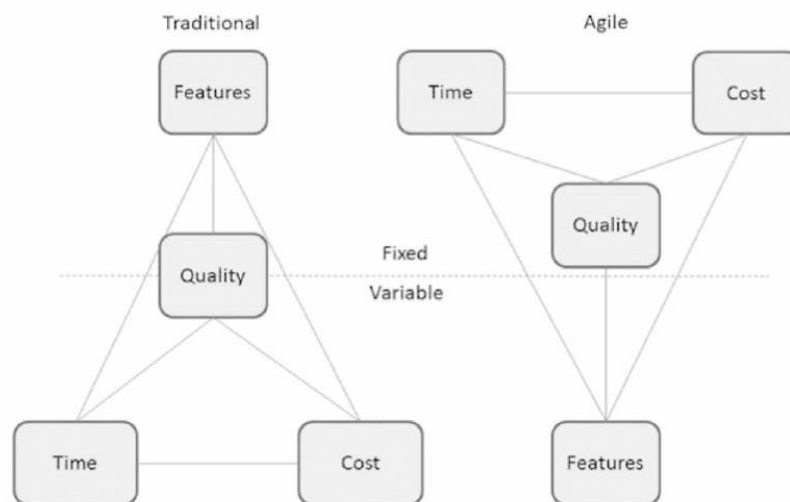


Fig. 5 *The Iron Triangle* [3]

The traditional model is consistent with the Waterfall method. Projects following the Waterfall approach include defining the features and the project in advance and assuming that the time and cost may change while the requirements stay the same. In the Agile model the pyramid has been turned upside down, having the expectancy that the requirements will change while cost and quality can be relatively fixed. The goal of managing the time constraints in short sprints is referred to as “time-boxing”. Depending on the product and project, time-boxes can vary from days to weeks, and sometimes months while tending to prefer short cycles. Before a project begins, a high-level design or a prototype is introduced. Regarding the designs and prototypes, Agile prefers simplicity as requirements may change. For drawing estimations of the project constraints, Agile prefers that the team, together with customers and other stakeholders, collaborate and experiment with products to make effective decisions about requirements and choice of technologies [3].

The Agile Project Management (APM) Framework is a model, originally introduced by Jim Highsmith, in the publication “Agile Project Management – Creating Innovative Products” [5]. It describes the lifecycle of a project as consisting of the five following steps:

- Envision – determining the vision and objectives of the project
- Speculate – creating a capability or feature-based plan
- Explore – planning and delivering of tested stories
- Adapt – reviewing the results and team performance
- Close – concluding of the project

In the envision phase, the teams will figure out what will be delivered, who will be the people involved and how the teams plan to work together on achieving the vision. The success of the project relies greatly on this first stage. Highsmith regards the speculate phase as “to conjecture something based on incomplete facts or information”, which is in fact how the dictionary defines the word speculate. This is to address the issue of having unknown factors involved, which replaces planning as more of gathering a collection of assumptions. The speculate phase will include having a wide set of product requirements, which are put in a

product backlog, having a release plan based on the requirements and estimating potential risks as well project costs [5].

The explore phase includes user or product stories. A user story is known from engineering but can typically be created by product managers in Agile projects. They can follow a structure of: as a <type of user>, I want <a goal> so that <a reason> [11]. The teams must decide how many stories are possible to deliver in the iterations or sprints for which they will seek reference from 1-5 earlier sprints. The term for this sort of retrospection is called “velocity” [3]. The explore phase also has the project leaders form a collaborative, self-organizing community. How the customers, product managers and stakeholders interact is also managed in this phase [5].

The issue of adapting has been discussed in many instances in this paper. It is mentioned in the Agile Manifesto that “responding to change is more important than following a plan”. In the adapting phase, a plan can be revised according to feedback from customers, tech people or as a result of process performance evaluation. The project or iteration is then ended with a goal of learning from implementing the previous steps. The APM-framework is not expected to complete these steps continuously in this exact order; the loop of speculate – explore – adapt can be repeated until enough data are gathered to form a good view of the final product [5].

The APM Framework is a model for agile delivery. Large organizations or enterprises may have hundreds or more projects, which can use a mixture of agile and traditional practices. The transformation of a large enterprise may include using several methods and learn with time which ones work best. Highsmith has suggested an Agile Enterprise Framework, which operates on several different layers. They touch on governance, project management, iteration management and technical methodologies. Without going further into this theory, Highsmith has stated [5] that a framework should support and include the following:

- A culture of envisioning, exploring and adapting
- Self-organized, self-disciplined teams
- Reliability
- Flexibility and easy adoption
- Visibility
- Learning
- Practices for supporting each phase
- Management review

Another framework for examining aspects of agile delivery is the Cynefin framework (Snowden and Boone, 2007) [12], which separates environments into domains according to how simple or complex they are. A simple domain operates on a cause-and-effect basis, allowing to project the results with relative ease. The teams operating in a simple domain can draw a defined delivery plan up front. Such as situation would be an example of the Waterfall approach. A complicated domain is less predictable, but a defined plan can be used after spending some effort on analysis and accepting that some flaws may be included. This domain works for both Waterfall and Agile as well as Lean. The third domain is called a complex domain, where cause and effect no longer apply or can be accepted to change rapidly. Up-front planning is not suitable where so many complexities are involved, therefore the Waterfall method would not work well in this domain, while it would be ideal for Agile [3].

In the fourth domain, which is a chaotic domain, cause and effect have no place, which makes planning obsolete. Teams working in a chaotic domain will rather conduct experiments and try to get into another, more manageable domain. Kanban can be an option for a chaotic domain. It may also be an option for innovative brain storming sessions. The final domain is called disorder and it does not have a definition. This would mean that team members would use a working style that comes naturally for them but may not meet the needs of the project [3].

3 Case: Spotify's Agile Model

Spotify [13] is an established entertainment company which provides music, podcast and video streaming content. It operates on a freemium basis, offering basic features free of charge with advertisement while a subscription payment enables users to download and stream content with higher quality. [14] It is the world's biggest streaming company with 35 million songs uploaded to the service and having about 170 million monthly active users, of which 75 million were paying for its premium, ad-free subscription in 2018. Users can access Spotify using their computers, smartphones and tablets. Browsing or searching for content is enabled by using parameters such as artist, album, genre, playlist or record label. Spotify allows users to create, edit and share content on social media as well as make playlists with other users. Spotify has grown rapidly into a clear market leader in the music streaming sector. Some investors estimate the company to reach a value of 50 billion in a few years[15].

Spotify has an interesting history, having moved from a start-up to a global enterprise with users currently in 61 countries. The company hires 180 teams and 1800 people in the field of engineering and R&D. In total, the company employs 3500 people. Spotify adopted Agile in 2008 as they first started to implement Scrum. With the company growing rapidly, the Scrum teams were soon multiplied. It was discovered at the time that Scrum practices, such as sprint planning meetings and breaking down tasks, were no longer working efficiently. This resulted in a change of culture, where it was encouraged to break rules when needed as agile values would matter more than Scrum itself. Upon reinventing itself, the company changed the role of a Scrum master to act as an Agile Coach, which was a trend at the time Agile emerged. The new role of a manager was regarded more as being "a servant leader rather than a process master" [16].

Instead of having Scrum teams, the company organized development teams into autonomous "squads". These squads were small, cross-functional, self-organizing teams of less than 8 people. The teams would conduct end-to-end development, being in charge of designing, committing, building, deploying and maintaining operations. Autonomy meant that the squad would decide what to build and how, as well as learn how to work together while doing it. However, the teams would have some boundaries, such as strategy and short-term goals to be negotiated every quarter. Each squad would also have a long-term mission. The physical office space at Spotify was optimized for collaboration, with members working closely together, having walls acting as whiteboards and including a common area for retrospect sessions. Autonomy was regarded as an important value as it would keep team members motivated and allow them faster decision-making. In accordance with agile values, Spotify wanted to minimize hand-offs and unnecessary waiting for purposes of efficient scaling. The different squads would be tightly aligned by product strategy, company priorities and focusing on the overall mission over individual squads. As a quote from Spotify says: "Be autonomous but do not sub-optimize". [16]

Spotify regards itself as an organization where high alignment would mix with high autonomy. This includes a culture where the management figures out which problems to solve but lets the team members do the actual solving, a practice which is very much in accordance with agile principles. As far as development methods go, some may implement Scrums and sprints while others use Kanban. The methods are not standardized, but as certain tools are increasingly adopted, they may spread between teams and become a standard. A balance of delivering consistently while remaining flexible is the main goal at Spotify.

Spotify has over 100 separate systems, which are coded and deployed independently. While interacting with each other, one system focuses on one specific need, for example play list management and search or monitoring. The systems are small and de-coupled with clear interfaces and protocols. Each system is owned by one squad while most squads own several systems. Spotify supports an internal open source model, promoting a culture of sharing. If a squad needs help with coding from another squad, they can edit the code themselves while another squad may review it. This is regarded, firstly, as saving time since anyone can edit any code, and secondly, providing a culture of peer code review to result in better quality and a focus on knowledge sharing [16].

Since Spotify would soon have over 50 squads spreading across different cities, there was a need to develop more structure. As a result, the squads were grouped into tribes. The squads are focused on product delivery and quality while the tribes share knowledge on specific areas of expertise, for example web development or management, etc. This enforces an idea of having communities rather than hierarchical structures. As it is believed at Spotify, a strong enough community would be able to operate in a way that is less formal [16].

The teams deliver small but frequent product releases. There used to be bigger investments, having only a few coders, but as Spotify grew, it became a problem as dozens of squads had to synchronize with each other for each release and it would take months to get a stable version. To solve the issue, software architecture was changed in such a way that it would enable decoupled releases. This meant that each client platform would form a client app and would be assigned to a specific client app squad. This would allow easy product releases on one specific client platform (desktop, iOS, Android). The squads were also divided into feature squads, which would focus on one feature area, for example a search-feature. Infrastructure squads were formed to make other squads more effective by providing tools and routines, such as continuous delivery, monitoring and testing [16].

For product release and testing, Spotify implements release trains and feature toggles. The release trains mean that each client app has a release on a regular schedule (every week or every 3 weeks depending on the client). When the releases are kept frequent and regular, it means that less up-front planning is needed. The feature toggle is something that is used to hide an unfinished code in the case that it is not completed for release at the same time with the others. This is regarded as a good practice for integration testing, since feature toggles allow to hide or show features for testing and production purposes. This enables to gradually roll out the features as they are finished [16].

With assigning different types of squads working on different aspects, Spotify is aiming for a self-service model, where handoffs can be avoided by squads rather establishing a system based on enabling and providing of support. Spotify has invested in creating a liberal culture, which is based on strong mutual respect and motivation. It is tremendously focused on gaining very high worker satisfaction. This reflects on the way Spotify deals with surveys about worker satisfaction. According to a survey conducted at Spotify, worker satisfaction

gained a high result, with 91% stating to be satisfied; however, the first response by Spotify was to raise concern about a 4 % stating to be unhappy according to the survey. From this strong investment in satisfied employees, Spotify has gained a good reputation as a workplace [17].

The Spotify Agile Model is a very intriguing one. The company provides open information about the agile journey it is taking, with adjusting the process along the way and not being afraid to ditch things that do not seem to work well. Many could presumably want to imitate the model. By continuing to experiment to gain the best results, Spotify seems committed to embracing agile values in its operations, development methods and corporate culture. It can be stated that the experimental nature of Spotify may not be suitable for every organization. It is also worthwhile to recognize that despite having a staggering amount of monthly active users, Spotify has not yet managed to become profitable.

4 Conclusions

To study agile transformation, it has been necessary to study the technology aspect as well as the definitions of what agile can refer to. Defining agile may depend on which aspect is being under a microscope while it seems that the agile mindset and culture are the underlying principles, which affect how the practices, frameworks and tools are chosen to support organizational culture and values.

The difference between traditional and agile organizations is an issue, which involves the style of management, the ability to adapt to change and to continuously reflect on what could be improved. It includes adding a level of flexibility, which will allow the organization to respond quickly when things, such as product requirements or the service environment, change. Top-to-down management is not supported in Agile as this may reflect negatively on the motivation and attitude of the employees.

The question of whether organizations are truly agile or not will once again return to the Agile Manifesto and its core principles: individual and interactions over processes and tools, working software rather than clear documentation, customer collaboration over negotiating contracts and responding to change over following a plan. The research highlights the importance of an organization being invested in its employees. This includes having flexible processes, encouraging collaboration with teams and customers and being able to adapt to change through various ways, such as having a shared mission.

Managers and leaders in Agile have a demanding task since they are battling between factors which may argue with each other. In a fast changing, adaptive and flexible environment, they are required to provide an element of consistency and constraint. Change management is and will likely continue to be a key issue in how projects and people are managed today. As team sizes increase, Agile seems to become a question of re-organizing and scaling. The experimental nature of organizations will vary, which will result in the agile methods and frameworks varying accordingly.

Regarding agile frameworks and tools, it would be difficult to define how an organization should make the selection of which ones to implement. Agile will not give a direct respond to that question but it will encourage organizations to practice awareness, define their long-term goals clearly, align the short-term goals to match them and examine the internal and external factors involved. This is a healthy advice for any organization that wants to avoid being stuck

on the same level and, instead, wants to continuously improve and reflect on how it is performing.

The issue of mindset and culture, while relevant, is also very challenging to measure or provide a definite meaning to. Culture is something that surrounds people everywhere; perhaps that is why the effects of it are not always recognized although they surely exist and affect how people behave at work. Managers and leaders have an important role when it comes to organizational culture. By acting and managing others according to a certain prejudice, they can create a culture marked by negativity and control or, vice versa, a blossoming, creative and motivated self-organized individuals and teams.

Agile transformation is a very broad topic, which can be viewed from many different perspectives, whether it is the business, people, products, technologies or project management. Further research will be needed to examine the agile transformation and the characteristics of agile organizations. Business agility is also an area where further research could be done.

References

1. Prime Worldwide. What is Agile? What is Scrum? [online] Available at: <<https://www.cprime.com/resources/what-is-agile-what-is-scrum/>> [Accessed 21 September 2018].
2. Agile Transformation: Understanding What it Means to be Agile. [online] Available at: <<https://www.castsoftware.com/research-labs/agile-transformation-what-is-it-definition>> [Accessed 21 September 2018].
3. MEASEY, P., WOLF, L., BERRIDGE, C., GRAY, A., LEVY, R., LES, O., ROBERTS, B., 2015. Agile Foundations: Principles, practices and frameworks. Swindon, United Kingdom. BCS, The Chartered Institute for IT.
4. SINEK, S., 2011 Start with why : how great leaders inspire everyone to take action. USA. Penguin books Ltd.
5. HIGHSMITH, J., 2016. Agile Project Management. Creating Innovative Products. USA. Pearson Education Inc.
6. AGHINA, W., De SMET, A., LACKEY, G., LURIE, M., MURARKA, M. 2018. The five trademarks of agile organizations. [online] Available at: <<https://www.mckinsey.com/business-functions/organization/our-insights/the-five-trademarks-of-agile-organizations>> [Accessed 24 September 2018].
7. DENISON, D., HOOIJBERG, R., LANE, N., LIEF, C. 2012. Leading Culture Change in in Global Organizations: Aligning Culture and Strategy. USA. John Wiley & Sons Inc.
8. SCHEIN, E. Organizational Culture and Leadership. 2016 USA. John Wiley & Sons Inc.
9. MCGREGOR, D. The Human Side of Enterprise, annotated edition. 2006. USA. The McGraw-Hill Companies, Inc.
10. LENCIONI, P. The Five Dysfunctions of a Team. 2002. USA. John Wiley & Sons Inc.
11. User Stories. Mountain Goat Software. [online] Available at: <<https://www.mountaingoatsoftware.com/agile/user-stories>> [Accessed 25 September 2018].

12. A Leader's Framework for Decision Making - Harvard Business Review. [online] Available at: <<https://hbr.org/2007/11/a-leaders-framework-for-decision-making>> [Accessed 25 September 2018].
13. Spotify. [online] Available at: <<https://www.spotify.com/fi/>> [Accessed 25 September 2018].
14. HARRIS, M. 2016. Essential Details on the Spotify Music Service. [online] Available at: <<https://www.lifewire.com/spotify-music-service-2438399>> [Accessed 25 September 2018].
15. SASSARD, S., SODERPALM, H., SWAHNBERG, O. Reuters. 2017. Spotify is now valued at \$16 billion — and it could be worth a lot more when it goes public. [online] Available at: <<http://www.businessinsider.com/spotify-now-valued-at-16-billion-2017-9?r=US&IR=T&IR=T>> [Accessed 25 September 2018].
16. Vimeo. Spotify Engineering Culture – part 1 and 2. [online] Available at: <<https://vimeo.com/85490944>> [Accessed 25 September 2018].
17. FERNANDES, T. Spotify Squad Framework – Part 1. 2017. [online] Available at: <<https://medium.com/productmanagement101/spotify-squad-framework-part-i-8f74bcfd761>> [Accessed 25 September 2018].

Contact data:

Ilkka Mikkonen

Head of the Degree Programme in Business Information Systems
Oulu University of Applied Sciences
Teuvo Pakkalan katu 19
FI-90130 Oulu, Finland
ilkka.mikkonen@oamk.fi

Venla Manninen

Bachelor of Business Administration
Oulu University of Applied Sciences
v.manni@hotmail.com