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Radical digital transformation - enabler for team agility?

Colophon

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Picture on cover	Hommes Evolution Compétition, ©Pict Rider, fotolia How a dormant organization can transform into an agile organization

Preface

It was with great pleasure that I started early 2017 with this Master Thesis, part of the Master of Science in Business Administration (MSc.) program of the Rotterdam School of Management (RSM), Erasmus University. The program was an exciting journey and has given many new insights, new views to reality and knowledge of which some I could directly apply in my field of work.

The research for my thesis is about team agility in the context of radical digital transformation. A topic I find fascinating and a topic I am facing at the very moment. The change my organization currently is in has had its effect on me as well. A new team was brought under my management, my manager was replaced with a new manager that was rather new to the organization and works with other methods. For some of my colleagues the change means a new opportunity while for others that opportunity lies with another organization. Turbulent times that make you feel you are on a journey within a journey, with many parts moving. At least one journey has now come to an end allowing myself to rebalance and focus on the remaining journey.

I would like to thank the people that made it possible for me to take this journey. It is a list that I will start with my employer, my former manager and my new manager that supported me with their flexibility, trust, interest and opportunity to perform my research within our company in the middle of a reorganisation and digital transformation. My colleagues I would like to thank for taking time for the interviews, their interest and appreciation in, for some, exciting times. My fellow students with whom I shared many hours in the past two years on projects, reports, preparing for exams and shared a great mind-opening experience in South Africa. The staff of the RSM I would like to thanks for their support and organization, the professors of the RSM for sharing their knowledge and in particular my coach Justin Jansen and co-reader Eric van Heck for their guidance and critical questions that guided my through this last part of the journey.

A special thank you to my family, my wife Thérèse and sons Jasper and Lucas for their support, patience and space for me to take this journey. Without their support my journey would have been troublesome.

Ard-Jan van Amerongen

Oud-Beijerland, October 2017

1 Introduction

"Customer behaviour, however, was rapidly changing in response to new digital distribution channels, and customer expectations were being shaped by digital leaders in other industries, not just banking" says Bart Schlatmann[1], COO of ING Netherlands in an interview about the journey to become an agile organization.

In the financial industry information technology has been playing a vital role for decades and in the past decade information technology has become a force driving disruption for incumbent's business models. Fintech companies use information technology to drive digital innovation targeting profitable customer-facing financial services by replacing the intermediary services with technology (Dietz et al. 2016). The digital disruption requires incumbent organizations to rethink their strategy and find ways to rapidly adapt to this fast changing reality. Traditionally incumbent originations make use of well-established information systems, organization structures and processes that are designed for controlled incremental change. These organizational models do not work well for disruptive or radical change. Disruptive and radical changes requires a high degree of organizational agility in order to absorb such change and for many incumbent firms this requires transformation. But what makes an organization agile?

Organizational agility is a firm's ability to cope with rapid, relentless, and uncertain changes and thrive in a competitive environment of continually and unpredictably changing opportunities (Lu et al. 2011). In order to do so an organization must unite organizational processes and people with advanced technology to meet customer demands for high quality products and services in a relative short time frame (Kidd, 1994). Youssef (1992) formulates organizational agility in a model that links technology, suppliers and customers upon which agility is built in terms of speed, quality and cost minimization within the periphery of customer responsiveness and flexibility. In 2003 this model was extended by Crocitto et al by including the human and organizational dimensions of employee participation. In an agile organization employees are required to adapt to change and be open to learn and utilize their new trained capabilities. This calls for an organizational culture that is open to change and learning. Incumbent organizations not custom to change may face a culture that is resistant to change and where staff is operating in routine and organizational models support the routine. This is where leadership, staring at the top, plays an essential role in promoting a learning organization and acceptance of change. A culture of change requires leadership buy in at every level to pervade at every level within the organization. Changing organizational culture takes time and is typically a long-term transition for an organization. Little empirical work is done on how organizations and teams attain and maintain the agility crucial to their success and researchers tend to focus primarily on the technological and/or quantitative side of organizational agility leaving long-term characteristics including culture and leadership a side. As these characteristics appear to be of influence to the success of a transformation towards an organizational agility empirical research on these characteristics will contribute to the knowledge and literature in this field. Will this exclude technology from contributing to organizational agility?

In times where organizations are confronted with continuous and rapid change due to digitization, organizational and Information Technology (IT) agility are seen as a key competitive advantages. Research by Tallon et al. (2011) reveals that, particularly in volatile and uncertain markets, IT flexibility (resulting from IT agility) is positively related to organizational agility. IT agility is

[1] Interview on ING's agile transformation, Mahadevan, D. (2016), McKinsey Quarterly.

considered as the speed in which an organization is capable to detect and respond to new business requirements resulting from detecting and responding to changes in the environment, and assign its IT assets (consisting of infrastructure, transactional processing, information processing and strategic positioning) and utilize its IT capabilities (competencies and practices) to meet those business requirements (Aral et al 2007). Organizations that have the capability to adapt their IT swiftly can capitalize on this competitive advantage by supporting process adaptation hence supporting organizational agility. For an organization to survive in a fast changing competitive environment with unpredictable disruptive change due to digitization, agility for both organization and IT becomes key and even more so the alignment between them. Sambamurthy et al (2003) proposes that the strategic role and value of IT should be reframed in terms of digital options, agility capabilities, and competitive actions where digital options and agility represent the enterprise's capabilities for competing in a digital economy, ultimately contributing to the firm's performance and survival.

1.1 Research question

Organizational agility and IT agility have become essential for organizations confronted with continuous and rapid change due to digitization. Organizational agility is influenced through an organizational culture that is open to change and learning, adaptive processes, leadership and IT flexibility resulting from IT agility. For incumbent organizations working with well-established information systems, organization structures and processes that are designed for controlled incremental change this is a major transformation. With little empirical work done on how organizations and teams attain and maintain organizational agility crucial to their survival the following research question has been formulated:

How do leadership and culture influence the process of teams becoming and maintaining agility in the context of radical digital transformation?

The following sub questions have been defined:

1. What makes a team agile?
2. What style of leadership influences team agility?
3. How does leadership influence team agility?
4. What antecedents of culture influences team agility?
5. How does culture influence team agility?
6. Do other factors influence the process of becoming and maintain agility and if so, how do they influence team agility?
7. How does radical digital transformation influence organizational change?

1.2 Methodology

The research will be conducted in the organisation where I work, an international holding company with subsidiaries in retail, real estate, private equity investment management, private wealth management and banking activities. The research will be qualitative based to an understanding of the underlying mechanisms that support organizational and team agility. For the research interviews will be conducted with members of 4-5 teams that work in different parts of the organization and

are in a different state of organizational agility. The teams in scope for the research all have a strong link with information technology and digital transformation. One team is part of the internal IT department that is working as an agile organisation since several years and are challenged to maintain and extend their agile setup. Other teams involve people from both financial business and IT and work on projects to implement (radical) business changes driven by digital transformation. The interviews will be semi-structured allowing for individual depth interviews. For the analyses of the data the Gioia method will be used. This method allows to organize our analyses in terms of 1st and 2nd order categories to facilitate the later assembly into a more structured form leading to aggregate dimensions.

2 Literature research

2.1 What is agility?

Many definitions of agility exist and are used in literature. In this paragraph we explore various definitions of agility found in literature in order to funnel those to a definition that will be used in this research. A definition of agility according to the Oxford dictionary[2] is 'the ability to move quickly and easily'. When taking agility in the context of organizations and businesses multiple definitions surface. Sambamurthy et al. (2003) writes that agility is synonym for the ability to detect and seize market opportunities with speed and surprise and that it is vital for innovation and competitive performance. In 2011 Lu et al. defines organizational agility is a firm's ability to cope with rapid, relentless, and uncertain changes and thrive in a competitive environment of continually and unpredictably changing opportunities. Aghina & DeSmet (2015) defines the agility for an organization as an organization that renews itself, adapts, changes quickly, and succeeds in a rapidly changing, ambiguous, turbulent environment. Conboy (2009) provides the definition from his research as the continual readiness of an method to rapidly or inherently create, proactively or reactively embrace change, and learn from change while contributing to perceived customer value (economy, quality and simplicity), through its collective components and relationships with its environment. These definitions may paint the picture that agility is only about change and fluid organizational models and thereby the opposite of structure and stability. The opposite is more the case, agility requires stability for most organizations. In order for an organization to become agile it must unite organizational processes and people and (advanced) technology to meet customer demands for high quality products and services in a relative short time frame (Kidd, 1994).

In 1992 Youssef created a model for organizational agility where agility is formed in terms of speed, quality and cost minimization within the periphery of customer responsiveness and flexibility. In 2003 this model was extended by Crocitto et al. by including the human and organizational dimensions of employee participation. In an agile teams employees are required to adapt to change and be open to learn and utilize their new trained capabilities. This calls for a culture that is open to change and learning. Traditionally incumbent originations make use of well-established information systems, organization structures and processes that are designed for controlled incremental change. These organizational models do not work well for fast and sometimes even radical change. Incumbent organizations not custom to change may face a culture that is resistant to change and where staff and organizational models operate and support the routine. This is where leadership, staring at the top, plays an essential role in promoting a learning organization and acceptance of change. A culture of change requires leadership buy in at every level to pervade at every level within the organization. Changing organizational culture takes time and is typically a long-term transformation for an organization. As culture and leadership appear to be of influence to the success of a transformation towards an organizational agility empirical research on these characteristics will contribute to the knowledge and literature in this field.

In times where organizations are confronted with continuous and rapid change due to digitization, organizational and Information Technology (IT) agility are seen as a key competitive advantages. Research by Tallon et al. (2011) reveals that, particularly in volatile and uncertain markets, IT flexibility (resulting from IT agility) is positively related to organizational agility. IT agility is considered as the speed in which an organization is capable to detect and respond to new business

[2] https://en.oxforddictionaries.com/definition/agility

requirements resulting from detecting and responding to changes in the environment, and assign its IT assets (consisting of infrastructure, transactional processing, information processing and strategic positioning) and utilize its IT capabilities (competencies and practices) to meet those business requirements (Aral et al 2007). Organizations that have the capability to adapt their IT swiftly can capitalize on this competitive advantage by supporting process adaptation hence supporting organizational agility.

The many definitions for agility, regardless their focus on organizational agility, team agility or IT agility, al share a common set of attributes. These attributes are used for the definition of team agility for this research and concludes: team agility is the speed in which a team can react in response to changes in the environment.

2.1.1 Characteristics of team agility

Based on the definition for team agility characteristics of team agility can be derived. Taking the definition 'team agility is the speed in which a team can react in response to changes in the environment' directly emphasize terms like speed, reaction, response and change. Taking these terms separately help to highlights the characteristics for team agility.

- Speed is a clear characteristic but also relative. Speed is measured as a movement in time where movement is relative to the position of the observant. Speed in context of agility is movement in relation to the position and pace and of the environment. In other words, speed in context of agility may differ per environment, per organization or even per team but should generally be considered as noticeable faster than its environment.
- Reaction is a simultaneous response to an action according to Newton's third law in physics. A parallel can be drawn when placing reaction in context of team agility where the reaction is a direct response of the team to an action (change) towards the team.
- Response in the context of agility is a set of activities executed by the team. Activities include a single or multiple activities carried out by a single or multiple team members. Activities can be tangible and/or intangible products being created and/or delivered.
- Change in the context of agility is any action towards the team from the environment. Change in this context could entail a request for support towards the team.

Based on the literature and the characteristics the following antecedences can be derived:

- Speed of response. A team that has the capability to respond swiftly to a request is considered to be an agile team. A non-agile team cannot respond swiftly to a request for various reasons, for example due to strict procedures that need to be followed, first-in-first-out principles where ongoing work first needs to be completed before new work can be taken on-board. Agile teams work differently eliminating such hurdles.
- Speed of delivery. A team that has the capability to deliver swiftly, typically in short cycles, is considered to be an agile team. A non-agile team cannot deliver swiftly due to limitation, for example due to limited capacity, lack of priority setting. Agile teams work differently eliminating such hurdles.
- Continual readiness. A team that is open to change and ready to receive new request is considered an agile team. A non-agile team will find it difficult to absorb changes and new requests. Agile teams work differently eliminating such hurdles, for example by using a single person to receive such request and priorities the work before it reaches the team.
- Flexibility. A team that has the capability to vary in capacity, workload, expertise, priorities is considered an agile team. A non-agile team cannot vary in capacity, switch workload, is

limited in its range of expertise, is not capable in switching priorities. Agile teams work differently eliminating such hurdles, for example by having multiple disciplines work in the same team.

2.1.2 Conclusion

Team agility can be seen as the ability of a team to respond quickly and easily to changes in the environment and organization. The digital disruption demands many organization to rapidly adapt to a fast changing reality requiring teams that are capable to act and deliver swiftly. Traditionally incumbent originations make use of well-established information systems, organization structures and processes that are designed for controlled incremental change which inherently has led to a culture resistant to (radical) change. Organizations that require agility to swiftly respond to changing market conditions require a culture that is open to change and learning. Leadership, at every level, is required to support the transition towards an open and learning culture. In a climate of rapid digitization and fast changing demands from the market IT agility is considered as a key competitive advantage to support organizations to rapidly adapt their information systems and processes.

2.2 How does organizational culture influence team agility?

In this section the influence of culture on team agility is described. In order to define an answer to that question we first need to have an understating what culture is and what it is about. Many researchers and practitioners from various academic disciplines including sociology, anthropology and organizational agree culture is of influence on an organization but a single definition or agreement of culture does not exist (Groseschl & Doherty, 2000). Previous research by Kluckhohn and et al (1961) share similarities in their approach to defining and identifying culture. They relate differences between cultures in an abstract form and define it as differences in approaches in solving common human problems. Culture exist at various levels and always in groups settings, e.g. geographical, national, local, organizational, tribe, religion, family and many more and simultaneously in a combination of them.

2.2.1 Layers of culture

More recent research seems to follow a similar approach to the definition of culture. Work of Hofstede (1980) defines culture as a system of collective mental programming of the human mind that distinguishes members of a group from others. Hofstede (1980) states: “The subculture of an organization reflects national culture, professional subculture, and the organization's own history. Professional subcultures are to some extent international: there is something common in the behavior of bank employees, journalists, policemen, or university professors from one country to another”. Mental programming occurs at three different levels. The least unique is the universal level which contains the values that are shared with most or a very large group such as a nation or religion. The collective level is in the middle and contains values that are shared with some like a group, a region or a profession. The individual level of human mental programming contains the set of values that is unique to the individual and shapes the personality of the person.

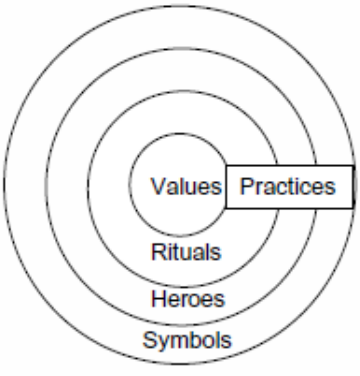


Figure 1: Layers of a culture, Hofstede (2001)

In his later work (2001) Hofstede introduced a model for organizational culture as different layers wrapped around the other like an onion as in Figure 1. At the core of the onion lie ‘values’, most implicit and personal to the individual’s culture. Values are hard to change and represents what the individual believes what is right and what is important. It is not visible from the outside world but

manifest itself through the other layers. The first layer around the core is rituals followed by heroes and symbols. 'Rituals' are a collection of activities considered essential for the social interaction. Examples of rituals include personal hygiene, the way of greeting people, paying respect and communicating with each other. 'Heroes' or icons are admired by the cultural group for its characteristics and thereby influences that group. This person or persons can be fictional or a real person, alive or decedent and have a religious, historical, family or other background. 'Symbols' represents the most outer layer and represent superficial characteristics of a cultural group. Clothing, haircut, pictures, words and gestures are examples of such symbols. They can easily be copied by other cultural groups or changed. Hofstede states people belong to multiple groups at the same time. He refers to this as the mental programming of the human mind corresponding to different levels of culture, for example at national, professional and organizational level.

Schein (2010) uses a similar model of layers for organizational culture and their interaction. The base of his model is formed by the 'basic underlying assumptions' at the bottom of the model followed by the espoused values (goals and vision in the middle) and the use artefact or symbols (the visible activities in the outer layer). Schein (2010) states that people are not aware of the underlying basic assumptions they have. These are formed in their childhood and by experience and contain emotions, feelings and perceptions. The basic underlying assumption can be best compared with Hofstede's 'values' at the core. Espoused values represent the desired vision of a group or organization. A mission statement is an example of espoused values which reflects the long term position where an organization would like to be over time. The espoused values of an organization can also include business principles and key beliefs of the organization. The artefacts can be compared to Hofstede's symbols and are most visible and tangible in representing the social and physical expressions of an organization. Artefact can include communication, rules, procedures, behaviour patterns, logo's and more.

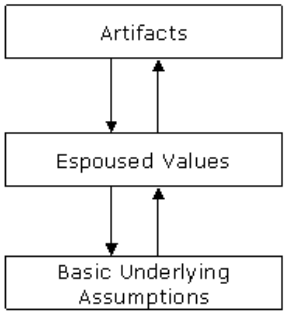


Figure 2: Levels of culture, Schein (2010)

As organizations can be defined as a group of people organized to pursue a collective goal they as such also share a culture. The way people dress in an organization is an example of a cultural symbol. Organizations where people dress in suites and ties are likely to be more formal compared to organizations where people dress casual which will likely be more informal.

In summary culture can be seen as mental programming of the human mind that distinguishes members from one group from others (Hofstede, 1980). Culture is constructed in layers stacked on top of each other and interacting with each other and is visible in the tangible world through symbols and artefacts that give an indication of the culture of the team or organization. Rituals and espoused values bring common ground and shared believe to the a group which can be enriched through 'heroes' that act as an inspirational source related to the goal the group is pursuing. Alignment of these layers and understanding the basic assumptions (Schein, 2010) or 'values' (Hofstede, 1980) of the individuals of the group will support cultural alignment and cohesion of the group or organization.

2.2.2 Types of organizational and team culture and character

In the previous section we concluded that individual organizations and teams as institutes can have a culture of their own and as such has influence on the way work is performed in a team. Research by Etzioni (1975) distinguishes three types of organizations that fundamentally drive different organizational cultures viewed from an authority point of view. Within these organization cultures peer relationship and intimacy evolve differently shaping the culture of the organization. The first type is the coercive organization where a strong culture of obedience to the rules or commands is present. Examples of such organizations include military, prisons, religious extremist training camps and others. In this type of organization the authority is absolute and relationship between the authority and person can be labelled as exploitation and negative. Peer relationships are formed as a defence against the ruling authority and thereby develop a counter culture as protective mechanism. The second type of organization is an utilitarian type where a person is trading his or her work for recompense and thereby accept to a degree the imposed rules or commands. This type of organization is the most common form of businesses of all kind. Authority is negotiated and the type of relationship between authority and people is typically transactional and role based. Peer relationship evolves around the group people work in which is often task oriented. Close relationships are avoided on the assumption these may distract from the focus on the task. The third type of organization is the normative organization where an individual provides services and accept authority because the organizational goal aligns with his personal goals. Examples of such organization include voluntary organizations, churches, political parties and more. Close relationships are formed more naturally and on more personal bases and includes a higher level of trust due to the shared belief in the cause of the organization. The shared belief results in stronger commitment and motivation to the goals of the organization. The importance of the basic differences of these three typologies lies in the expectation of members to be subordinate, calculative or normatively engaged. The difficulty is that the three typologies can be found in any given organization in a variety of combinations. Some businesses make an effort to become more normative in the attempt to get stronger commitment and motivation from their staff towards the organizational goals. Examples of such utilitarian organizations are consultancy and law firms that work with a partnership model.

Harrison (1979) identified four types of organizational culture, a mix of the before mentioned typologies, that are easier to identify. The first culture he describes as power-oriented where organizations are dominated by an autocratic and charismatic authority, examples of such organizations are private enterprises headed by the founder(s). The second culture is achievement-oriented where the organization is dominated by task driven work and results. Commercial enterprises are examples of such organizations. The third culture is role-oriented where activities and authority are based on the role a person is assigned. Examples of such organization include governmental and public organizations. The fourth culture is support-oriented where people perform activities based on personal motivation which is aligned with the organizations motivation or goal. Non-profit and religious organization are examples of such organizations.

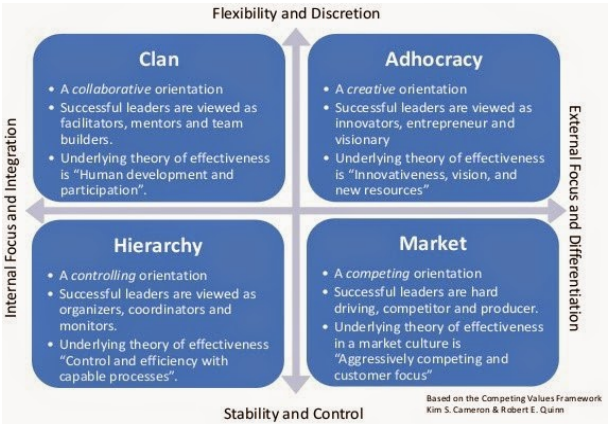


Figure 3: Four organizational culture types

As incumbent organizations make use of well-established information systems, organization structures and processes they can be considered as stable organizations with a high level of control. Start-up organizations are often considered to operate more flexible structures and processes and more external focused. From their research Cameron and Quinn (2011) developed the competing values framework, a theoretical model to plot organizational culture across two competing dimensions. Stability and control represent continuity and order whereas change emphasizes flexibility and discretion. Internal focus represents integration, optimization and maintenance whereas external focus represents competition and interaction with the organization's environment. The result is a four category model as shown in Figure 3 which describes the typologies as follows:

- **Clan** - internal focussed and flexible: characterized as an extended family with shared values, close participation, mentoring and nurturing of personnel. Underlining development of human potential and member commitment.
- **Adhocracy** - external focussed and flexible: characterized by a dynamic entrepreneurial mind set. Risk taking and creativity become key values of the organization in order to pursue their goal. Adaptation to the external environment.
- **Market** - external focussed and stable: characterized as result driven and getting the job done. Achievements count and form an important value of the organization. Productivity, efficiency and goal achievement.
- **Hierarchy** - internal focussed and stable: characterized as structured and a stable, more formal organization. Top-down coordination for efficient operations and control.

Once identified these characterizations can help to position an organization, or a part of it like a department or team, in this model and thereby can a better understanding of the culture of that organization. An incumbent organization is more likely to be associated with stability and depending their market focus become associated with an hierarchy culture or an market culture. Start-up organizations would, due to their inherent dynamics and flexibility, typically become associated with an adhocracy culture or clan culture. For agile teams and organizations flexibility is of importance as noted in section 2.1 and cultures like clan and adhocracy can be expected to best support them.

The research of Mumford (2000) suggest that organizations in the future will likely move away from the traditional hierarchical structured organizations into more network structured organization in which teams operate, individually and connected with a shared goal. In these teams people work on projects based on temporary contract and with strong shared stakeholder values, important for the commercial success of organization competing in tomorrow's globalization. The success of these teams depend among others on communications, trust and shared values between the team members. The model suggest a flexible approach where new teams can be formed instantly to solve new upcoming problems assuming people with the right capabilities and skills are available from the internal or external market. This future model of operation highlights the importance of a culture of shared values, trust and self-managed of teams.

2.2.3 Factors of team culture that influence agility

Culture, and in particular team culture, is of influence on the actions of people individually and in teams and thereby in the way people operate and cooperate. Consequently organizational culture is of influence on the agility and flexibility of an organization and its ability to learn and be open to change, essential to embrace agility as identified in section 2.1. For her research in 2009 Strode et al reviewed literature on organizational culture for agile methods and performed an detailed analyses of five published agile methods including ASD, Crystal, DSDM, Scrum and XP, each of them are briefly described in the following sections. The five methods are all related to agile development of

software and product developments, areas where requirements change frequently throughout the development stages based on acquired insights during those stages. In the context of radical digital transformation being the context of this research these agile methods also seems appropriate.

Adaptive Software Development (ASD) is an agile software development process based on the principles of Rapid Application Delivery (RAD). Being an agile methodology its intention is to be a dynamic methodology that is tolerant to change and open for continuous learning and adaption due to new insight of a project. Other characteristics include mission focused, iterative, feature based and time boxed.

Crystal is seen as a collection of methods and processes for software development and considered as an agile methodology. Its main characteristics include the focus on people rather than processes and products, direct communication between people involved by working in a single room, fast delivery of portions of software and much automated testing.

Dynamic Systems Development Method (DSDM) was created in 1994 as an agile project delivery framework primarily used for software development based on the principles for Rapid Application Delivery (RAD). The methodology supports an iterative with customer involvement and incremental deliveries. To control the process it fixes costs, quality and time with the variable being functionality. The functionality is prioritized using the MoSCoW principle which divides functionality into Must, Should, Could and Won't to adjust the project deliverables.

Scrum as agile mechanism has been introduced in a research paper by Takeuchi and Nonaka in 1986 in which they analysed the work of multi-disciplinary projects teams that proved to perform better over time. The results of this research led to the development of the scrum methodology by Sutherland in 1993. Scrum as terminology is derived from rugby sport where it represents the teams grouped closely together to restart a match and where various rugby disciplines within each team work together to achieve their goal. The purpose of scrum as methodology is that multi-disciplinary teams, led by a scrum master that facilitates the team, work together in a single room to stimulate interaction. The product owner prioritizes the work after which the teams divide the work in sprints, fixed periods of time varying between one and four weeks in which the work is done. At the end of each sprint the team deliver the work they agreed upon and start with a new sprint. The intention of the scrum methodology is to deliver tangible results at fixed intervals allowing measurable progress and room for changing requirement by the product owner.

The XP agile method originates as a software development methodology and was introduced in 1996 by Kent Beck. The intention of the XP method (eXtreme Programming) is to improve software quality and the responsiveness to changing requirements from customers. By frequent deliveries of portions of the software in short development cycles it intends to improve productivity and introduce checkpoints allowing adoption of customer requirements based on new insights from the software being delivered.

Through his literature research of both above mentioned agile work methods and the organizational culture based on the competing value framework of Cameron et al (2011) Strode et al (2009) identified nine factors associated with organizational culture that she believes are essential to be present in an organization in order for that organization to be able to successfully adopt agile work methods. From her empirical research Strode et al concluded that two of those nine factors were not significantly correlated with agile methods yet three new factors were identified that were.

- The organization values feedback and learning.
- Social interaction in the organization is trustful, collaborative, and competent.
- The organization values teamwork.
- The organization is flexible and participative and encourages social interaction.
- The project manager acts as a facilitator.
- The organization enables empowerment of people.
- The management style is that of leadership and collaboration.
- The organization values face-to-face communication.
- Communication in the organization is informal.

The organization values feedback and learning. Communication in the team is open, trustful and, collaborative. The team manager acts as a facilitator and the management style is that of leadership and collaboration.

2.2.4 Alignment of team culture with agile methodologies

It is not only Strode et al (2009) that suggests that organizational culture is related to effective adoption of agile work methods. From the research by Kompella (2014) it is suggested that it is essential that, in order for agile development to take place, the organizational culture is compatible with the software development methodology used within the organization. The effect of organizational culture is significant and influences teams from displaying agile behaviour. This suggestion is further supported by the research performed by Iivari et al (2010) who concludes that incompatibility between agile development methods put in place and organizational culture will limit the effectiveness of the agile methodology in place. For their research they made use of the theoretical model of the competing values framework by Cameron et al (2011), section 0, and conclude that organizational agility would be best represented in this model in a culture that is external focused and focused on change. As the competing values framework is a theoretical model practice would provide a more balanced view on where an agile organization culture would be positioned, it is unlikely an organization will fit in a single culture segment. Iivari et al (2010) supports this practicality and states there is not a single organizational culture within an organization. Culture appears at various levels like corporate, departmental, location and team level and will differ per level and between levels.

Similar to organizational culture agile methodologies cannot be plotted in a single domain of the competing values framework. Agile methodologies representing adaption and flexibility suggest a representation closely related to the position of organizational agility as discussed in the previous paragraph but a more balance positioning is required. Agile methods require trust, motivation and commitment, characteristics of the clan culture. Time boxed deadlines and effectiveness are core to agile methods and are characteristics of the market culture. Lastly agility requires stability and structure for most organizations in order to flourish according to Aghina et al (2015) which are characteristics of the hierarchy culture. Agile methodologies require an organizational culture that is aligned and compatible with the agile methodology being implemented. It will be a balance between the four culture types represented in the competing value model and should align at the various levels within an organization. This can be achieved by the unique combination of people and process related changes.

Strode et al (2009) concluded, similar to Kompella (2014) and Iivari et al (2010), that organizational culture is considered to be a factor of influence for effectively implementing agile work methodologies in teams making teams become agile. As teams become more agile they effectively change the way they work and adopt espoused values from the agile methodologies. With their new

way of working teams start to change the culture of their team and thereby the culture of their organization and as such contribute to the agility of the organization itself. Strode et al (2009) came to similar insight in his conclusion and recommended additional research to be conducted on the influence of agile methods on organizational culture. For organizations facing radical digital transformation the adoption of agile methodologies derived from software development may be considered as a logical fit.

2.2.5 Conclusion

Culture, including team culture, is a form of collective mental programming of the human mind that distinguishes members of one group form others. Mental programming occurs at three different levels that form layers on top each other. Hofstede (1980) and Schein (1985) both used a similar approach to visualize their models of culture and how they interact. At the core you find the most individual values that shapes the personality of the person. The middle layer contains espoused values that reflect the values of the group. The most outer layer is the universal layer and contains artefacts and symbols that are tangible and represent a physical expression of the culture of a group, organization or even a country.

Etzioni (1975) identified three types of organization: coercive organizations with a strong culture of obedience to the rules or command; utilitarian organizations where people perform work in exchange for a pay; and normative organizations where people work who share the same believes or value the goals the organization is pursuing. The importance of the basic differences of these three typologies lies in the expectation of members to be subordinate, calculative or normatively engaged. The difficulty is that the three typologies can be found in any given organization in a variety of combinations shaping the culture of the organization.

Organizational culture applies to both the organization as a whole as within at different levels, departments or teams and can differ between those. The competing values framework by Cameron et al (2011) is a theoretical model that can identify the type of organizational culture and its characteristics present in an organization, team or group. The effect of team culture on a group is significant and influences teams from displaying agile behaviour. For an agile methodology to be effective in a team it must be attuned with its team and organizational culture. Agile methodologies do not fit with a single type of organization or team culture that is to say they require characteristics from all four team cultures even though the hierarchical culture could be considered to be the least compatible type of team culture. Strode et al (2009) identified ten factors that are associated with organizational culture that he believes are essential to be present in an organization in order for that organization to be able to successfully adopt agile work methods.

The effect of organizational culture on team agility is significant and influences teams from displaying agile behaviour. It is essential that the organizational culture is compatible with the agile methodology being used within the organization in order to be effective (Strode et al (2009), Iivari et al (2010), Kompella (2014)). As teams become more agile they effectively change the way they work and adopt espoused values from the agile methodologies. With their new way of working teams start to change the culture of their team and thereby the culture of their organization and as such contribute to the agility of the organization itself.

2.3 How does leadership influence team agility?

In this section the influence of leadership on team agility is described. In order to define an answer to that question we first need to have an understating what leadership is and what it is about. It is not the intension of this section to provide an exhaustive overview of the multitude of definitions and forms that exist of leadership. Leadership in the context of this research is considered to be a factor on influence on team agility and consequently it is important to make use of a common definition of leadership. Leadership may be characterized as a process that occurs in a group or team and involves common goals and influence. Northouse (2015) provides a definition for leadership where he describes: 'Leadership is a process whereby an individual influences a group of individuals to achieve a common goal'.

Leadership seen as a process implies it is a transactional event between the leader and followers and that it is not a trait of characteristic on an individual that provides leadership. Leadership only occurs in a group as leadership implies a leader and followers where leaders need followers and follower need leaders (Burns, 1978; Heller & Van Til, 1983; Hollander, 1992; Jago, 1982). The size of a group is in principle not relevant, it can occur in small groups like teams and in large groups like a company or even a country. Leadership is about a single individual influencing a group of individuals with the purpose to achieve a common goal. The wording of 'common' here is of importance as it represents a mutual goal for which the leader requires to work together with the followers. This legitimizes the influence the leader places over his followers having the followers accept that influence. The absence of a mutual goal would make the influence less acceptable and would require the leader to practice his/her influence with force which may be considered as unethical (Northouse, 2015). The influence of a leader should hereby not be mistaken for the power that an individual could have from his position in the role of manager.

2.3.1 Leadership vs. management

Leadership should not be mistaken with management even though there are similarities between both constructs. Leadership and management both involve working with teams, both aim to achieve a common goal and both share the use of influence by an individual onto a team. Despite these similarities leadership and management also differ from each other. According to Kotter (1990) leadership and management fundamentally differ from each other. The purpose of management is to bring order and stability whereas the purpose of leadership is to provide direction towards constructive change. Bennis and Namus (1985) describe management as accomplishing activities and master routines while leadership is about influencing others and create vision for change. A frequently used quote of Bennis et al (1985) is "Managers are people who do things right and leaders are people that do the right thing". To some extent one could say that management is more about directing a team towards achieving a common goal while leadership is more about persuading people to voluntarily move towards the common goal.

Power over people is another element where leadership and management differ from each other. Power over people through management is deducted from the position of the manager in the hierarchy and therefore referred to as position power. French and Raven (1959) identified five bases of power and Raven (1964) extended that base a few years later by adding an sixth power. Four of these six bases are related to position power and include: legitimate power, where power is deducted from a formal job authority like a judge or CEO; reward power, which provides the capability to provide a material reward like a bonus; coercive power, which relates as a negative version of reward power where not meeting an objective can lead to punishment in the form of withholding rewards; and information power, which is derived from possessing information and/or

knowledge that others require. The two remaining powers are related to the individual, and thus not to the position in the hierarchy, and include: referent power, which is based on the attraction and liking of an individual by others, potentially as a role model; and expert power, which is based on the skills and knowledge an individual possesses. The difference between information power and expert power lies in the position and the need of the information required to perform a task. Information power provides power when someone else is depending on that information to perform their task. Expert power includes the knowledgeability of an individual as recognized by others where that knowledge is not required by those others to perform their tasks. Taking the differences between leadership and management in account along with these six bases for power we can conclude that management, being more about directing a team towards achieving a common goal, is more related to position power as the position in the hierarchy provides the base of power like tools to steer the group towards the common goal. Leadership on the other hand is more about persuading people to voluntarily move towards the common goal and thereby relies more on personal power using either or both referent or expert power as a base of power.

From more recent research Simonet and Tett (2013) identified a number of distinctive competences associated with either leadership or management. Leadership was found to be associated with the distinctive competences including motivating intrinsically, creative thinking, strategic planning, tolerance of ambiguity and people reading. Management was found to be associated with rule orientation, short-term planning, motivating extrinsically, orderliness, safety concern and timeliness.

Even tough leadership and management have much in common and in practice are likely being practiced simultaneously (a manager can show leadership and a leader can have managerial tasks) there are also clear differences. The unique competences associated with leadership and management from Simonet and Tett (2013) along with the six bases for power (French & Raven, 1959; Raven, 1965) identified useful antecedents to distinguish and confine managerial from leadership activities.

2.3.2 Leadership styles and impact to agility

When studying literature around leadership it becomes clear there are many forms, styles and theories of leadership and even an almost unlimited number on combinations of these. Leadership can be looked at from a leader centric perspective including: the traits of a leader like neuroticism, extraversion, openness, agreeableness and conscientiousness, also known as the five main personality factors by Goldberg (1990); the skills a leader masters like technical, human or conceptual skills (Katz, 1955); or the behaviour a leader shows stretched along the axles of concern for production and concern for people, also known as the leadership grid® (Blake & Mouton, 1978; Blake & McCanse, 1997).

Traits from a leadership perspective are considered as more personal characteristics of an individual that can be used to strengthen the leadership role and as such is considered a characteristic related to the behaviour of a leader. The perspective of skill is also considered to be an individual characteristic gained though experience over the years in the professional career of the leader. Skills can be learned and mastered only through years of experience in practice. It cannot be taught from a book and applied as an effective characteristic of leadership that for followers will recognize. Behavioural leadership is expected to be more demonstrable in practice and as such better deductible from the interviews. Furthermore behaviour can be learned and is often seen as part of the curriculum of many leadership and management trainings. For the above reasons behavioural leadership will be taken as the viewpoint for deepening the research of leadership styles. From the literature a number of leading approaches to leadership style can be deducted which are listed

below, each with a brief description to it. The first three listed leadership styles have been identified and described in 1939 by Lewin, Lippitt, and White. The latter three are considered more recent developments of leadership.

- Directive and autocratic leadership; this form of leadership is characterized by the leader directing tasks and orders to the followers. The followers typically are not consulted and simply execute what has been ordered. A directive leader sets clear goals to achieves and standard to adhere to. Though directive leadership can be effective is very specific situations, in modern teams with high skilled followers such leadership is considered ineffective as it does not take advantage of the potential and knowledge of followers and negatively influence follower's motivation.
- Democratic leadership; is a leadership style where followers participate in the decision making process. A democratic leader will consult followers, obtain their ideas and integrate their suggestions in the decision making process. This leadership style is considered an effective leadership style when the support or buy-in from the team is of importance.
- Laissez-faire leadership; Laissez-faire is a term used in economy for a free and non-regulated market, a market without any form of control. For a leader laissez-faire leadership will require little activity and followers have a maximum level of freedom to act according to their own view and make decisions accordingly. This form of leadership may be very effective for highly skilled and developed followers and drive high levels of satisfaction (Lewin et al, 1939). However, if followers are not capable of handling this level of freedom it may also lead to it ineffectiveness. In this latter perspective laissez-faire is also considered synonym for non-management where a manager has no control over the work or followers.
- Supportive leadership; is a form of leadership where the leader is approachable and where the leader is attending to the wellbeing and needs, including development, of the followers. It is thereby more follower centric rather than leader centric and considered to be an effective leadership style for teams in development.
- Transformational leadership; is a leadership style that is follower centric with concentrates on the motivation of the follower, empower the follower and providing in the needs of the follower. In the process the followers as well as the leaders are affected and work towards achieving higher level goals that transcend the individual and even team or organizational goals.
- Transactional leadership; is a leadership style that is based on a system of rewards and punishment. Contingent rewards is a transactional leadership style where rewards are provided for good performance. These rewards can be either material of psychological or a combination of both. Management-by-exception is a form of transactional leadership style where the leader intervenes when followers deviate from the projected route or do not perform conform expected levels.

These different leadership styles all share a common set of attributes that varies in concentration, emphasis and balance in each style. These attributes includes care of people, care of result, active and passive leadership, reward and punishment, motivation and development. In many of the leadership styles you find an need to balance between care of people vs. care of result. As an example, autocratic leadership tends to have a stronger focus on result and less on people where supportive leadership has a strong focus on people. Also transactional leadership tends to be more result driven. The amount leadership activity can be expected to be relative passive for the laissez-faire leadership style whereas the transformational leadership style can be expected to take a more active approach. Reward and punishment is also expected to be an element found in many

leadership styles. Transactional leadership is based around this very principle but also transformational leadership has transactional components in the form of feedback provided by coaching style of leadership associated with this form. The last attribute identified is the motivation and encouragement, typically related to the earlier mentioned care of people for which both the supportive and transformational leadership styles are good examples.

Continuing this research a number of modern leadership style models have been identified that standout for their support of empowerment and development of the followers and teams, characteristics strongly associated with agile teams. These models include the following and are discussed in more details in following sections.

- Transformational and transactional leadership.
- Servant leadership.
- Situational leadership.

2.3.2.1 Transformational and transactional leadership

Transformational leadership is considered to be one of the more recent leadership style developments. The style focusses more on the charismatic and affective traits of leadership and emphasizes the intrinsic motivation and the development of the followers which lines up with the need of modern workgroups (Bass & Riggio, 2006; Northouse, 2015). For agile teams, being a modern workgroup variant, transformational leadership may be an appropriate style of leadership.

As the name implies transformation leadership is about change and transformation of people and is follower centric. However, the process will include transformation of the leader as well as the leader is part of the process and environment. The influence practiced by the leader will focus on the motivation of the follower, empower the follower and providing in the needs of the follower which in turn will have the follower accomplish more than initially is expected, turning the follower into a high performing individual. Through the process the leader will first increase the follower's level of awareness about the importance and value of the specified goals. The follower's self-interest will then transcend towards team and/or organization level interest moving even further due time to higher interest that lie beyond the organization's boundary, for example community interest.

Bass created a model in 1985 in where both transformational leadership and transactional leadership are placed in a single continuum which visualizes the relation and trajectory between laissez-faire leadership (also known as non-leadership) through transactional leadership towards transformational leadership. The model was extended by Bass and Avolio extended in 1994 into the Full Range of Leadership model where the continuum is positioned across the axle of leadership activity and leadership effectiveness. For each of these leadership styles in the continuum Bass identified a number of factors that are plotted individually in the Full Range of Leadership model.

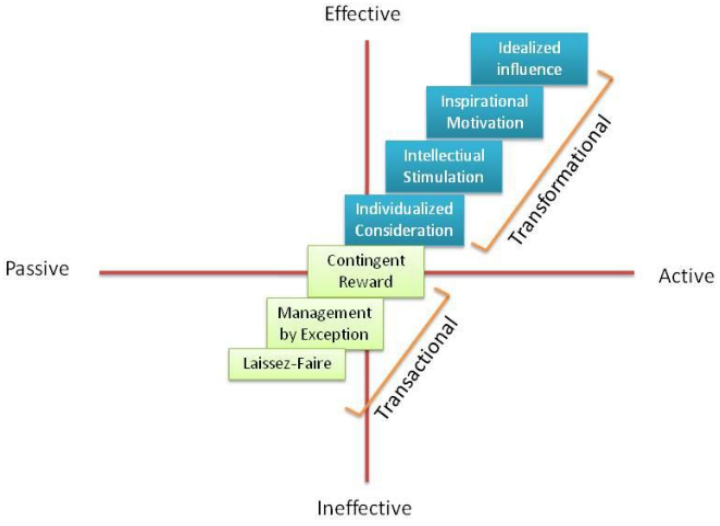


Figure 4: Full Range of Leadership model by Bass & Avolio (1994)

- Laissez-faire; this is a term used in economy for a free and non-regulated market, a market without any form of control. For a leader laissez-faire leadership requires little activity and followers have a maximum level of freedom to act according to their own view. This form of leadership may be effective for highly skilled and developed followers and drive high levels of satisfaction (Lewin et al, 1939). However, if followers are not capable of handling this level of freedom it may also lead to it ineffectiveness. In this latter perspective laissez-faire is also considered synonym for non-management where a manager has no control over the work or followers.
- Management by exception; This involves leadership with a negative focus as the leader gets involved with a corrective action, criticism, negative feedback or reinforcement. This can take an active form where the leader takes action at the moment the follower deviates from the desired path or an passive form where action takes after the follower has deviated from the desired path. An example of passive management by exception is the review of a project with the focus only on tasks that went wrong.
- Contingent reward; this is an exchange process where the follower is rewarded in exchange for achieving a predefined goal. The reward can vary in form and size and can both be immaterial and material. Examples vary from getting additional responsibilities, a training to support further development, a pay raise or promotion.
- Individualized consideration; the leader provides a supportive climate where the leader takes the role of coach and guides the follower with advise and support self-actualization. In this role the leader learns about the followers needs required to achieve the common goals.
- Intellectual stimulation; the leader stimulated the follower to be creative and innovative and to challenge his work methods, beliefs and values and those of the team and leader. The purpose of the leader is to challenge the follower with experimentation dealing with problem is new ways finding new solutions, and even challenge the existing rules if needed.
- Inspirational motivation; the leader motivates the follower with a vision and communicates high expectations of the follower and team. The purpose is to enhance the team spirit and make the followers part of a shared vision that will motivate them to accomplish more than what initially is expected from them.
- Idealized influence; This is also known as the charisma and is the influence a leader has over his followers which is that large that they would like to emulate the leader's behaviour. Typically such leaders show high standards of ethical and moral conduct and a high level of commitment. The impact of idealized behaviour is measured over the behavioural component, referring to the behaviour followers adopt from the leader, and the attributed component that refers to the attributions the followers made based on their perceptions of the leader.

2.3.2.2 Servant leadership

The concept behind servant leadership is to assure the followers are empowered and equipped with the tools they require to perform their job and that they can develop their full potential. From an agile perspective servant leadership may be considered as a very useful form of leadership as agile teams typically run autonomous (Denning, 2016) meaning they are empowered to organize their work, a key objective of servant leadership. Since the early seminal work by Greenleaf (1970) many researchers have worked on the theory surrounding servant leadership. In 2014 a servant leadership model was created based on three main components: antecedent conditions, servant leader behaviours and leadership outcomes (Day & Liden & Panaccio & Meuser & Hu & Wayne). The model,

shown in Figure 5, is providing a framework that is intended to help understand the complexity of servant leadership as a construct.

Antecedent conditions are of influence on how servant leadership is practiced. These three condition are not exclusive, other condition may exist that are of influence as well yet these three are to be taken in account at all time.

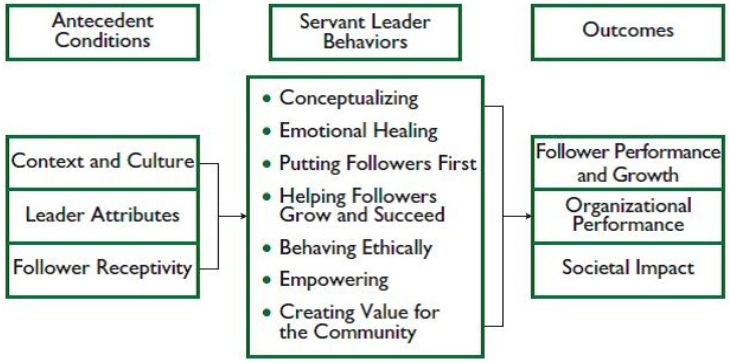


Figure 5: Servant Leadership model by Day & Liden & Panaccio & Meuser & Hu & Wayne (2014).

- Context and culture; the context and culture in which a team operates will influence not only the behaviour of the leader but also that of the follower. In a hierarchical culture empowerment will have a different tenor compared to an agile culture.
- Leader attributes; as with any leadership situation every leader will bring own traits, qualities and dispositions which will affect the way servant leadership will be practiced.
- Follower Receptivity; the level of receptivity of the follower is of influence on the impact servant leadership can have. A follower that is not willing to be empowered or has no desire to grow and succeed may experience servant leadership as counterproductive micromanagement (Liden & Wayne & Zhao & Henderson, 2008).

Servant leader behaviours are at the core of the model and have emerged from the earlier research done by Liden et al in 2008. Collectively they form the core of the model while each of them individually makes a unique contribution.

- Conceptual skills; possessing the knowledge of the organization and tasks at hand so as to be in a position to effectively support and assist others, especially immediate followers.
- Emotional healing; the act of showing sensitivity to others' personal concerns.
- Putting followers first; using actions and words to make it clear to others (especially immediate followers) that satisfying their work needs is a priority (Supervisors who practice this principle will often break from their own work to assist subordinates with problems they are facing with their assigned duties).
- Helping followers grow and succeed; demonstrating genuine concern for others' career growth and development by providing support and mentoring.
- Behaving ethically; interacting openly, fairly, and honestly with others.
- Empowering; encouraging and facilitating others in identifying and solving problems, as well as determining when and how to complete work tasks.
- Creating value for the community; a conscious, genuine concern for helping the community.

Leadership outcomes are the results of work and effort performed by the leader. These outcomes are measure across three dimensions being the outcome for the follower as individual, which is the primary focus of servant leadership, the outcomes for the team and organization and the societal outcomes.

- Follower performance and growth; most of the work in the servant leadership model is focussed around the follower with the intend to empower the person so they can do their job to their best abilities and improve their in-role performance as well as to support them to reach their full potential and improve their self-actualization.

- Organizational performances; with the followers empowered and improving their in-role performance the team or organization performance will benefit from this as well.
- Societal impact; society is likely to benefit from servant leadership as well although the impact is not often taken in account in empirical research.

Servant leadership is a leadership style complementary to how agile teams organize their work. It is follower centric and aims to develop the develop the follower to their full potential which will lead to improved performance.

2.3.2.1 Situational leadership

When viewed from a leadership style perspective situational leadership shows four leadership styles that are mapped in the situational leadership model® (Blanchard, 1985; Blanchard & Zigarmi & Zigarmi, 2013) as shown in Figure 6 across the axles directive behaviour and supportive behaviour. The first style is known as the directive style with a high directive and low supportive mapping. With this style the leader gives instructions on what and how to perform activities and monitors progress closely. A directive style is used when trust in followers to independently and successfully achieve a goal is low. The second style is called supportive and has a high directive and high supportive mapping in the model. The leader still provides a clear direction and makes the decisions but is more involved in coaching the followers and soliciting their input to support the process. This is a style typically used in a transformational process where the leader coaches the skill development of the followers and their input is being used to steer the activities to achieve the goals. The third style is called supporting and has a low directive and high supportive mapping in the model. In this style trust in the followers has increased to the level that the leader allows the followers to drive their activities to achieve the goal. The leader is focussing on supporting the further enhancement of follower's skills and less on achieving the goal. The fourth goal is the delegation style which has a low directive and low supportive mapping in the model. Tasks are delegated to the team by the leader and entrusted they will achieve the goal. The team is empowered to make decisions and entrusted to determine how to best perform their activities. The leader will have more focus on strengthening the followers confidence and motivation. The situational leadership model can be used to support the transformation or development of a team and as such includes a model for development of followers well, shown as D1-D4 in Figure 6. This model is intended to guide followers from a developing level towards a developed level, from a developing state with low competence yet highly motivated (D1) to a developed state where followers have high competence and are highly motivated (D4). The situational leadership model is a useful model to support group that are transforming towards self-organizing teams with followers that are developing their skills and competences.

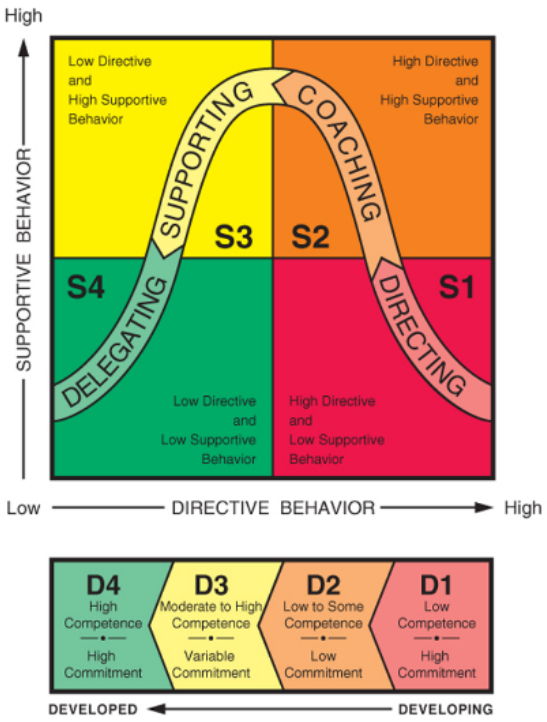


Figure 6: Situational leadership model® (Blanchard, 1985; Blanchard & Zigarmi & Zigarmi, 2013)

2.3.3 Conclusion

Leadership can be viewed from either a trait, skill or behaviour perspective and the behavioural perspective is found to be most suitable as viewpoint as it is expected to be more demonstrable in practice and as such better deductible from interviews. Leadership requires a leader to balance the focus and attention between often discordant attributes including care for result vs. care for people and active vs. passive leadership involvement. For a leader to decide when to focus on what aspect is depending on multiple factors including the level of skills and development of the followers, the level of agility of the team and influences from the team's environment. As agile teams typically thrive when they are empowered, experience a high level of trust and have highly skilled and developed team members, leadership styles associated with such characteristics will be most effective. This includes leadership styles like democratic leadership, which allows followers to participate in decision making; supportive leadership, which is focussed on providing in the follower's needs; transformational leadership which is focussed on the development of the followers to reach goals higher than individual goals; and laissez-faire leadership, allowing a high degree of freedom for the followers and their team to make decisions on their own.

These leadership styles have a relative static focus and are descriptive for a particular state of a follower or team. Many organizations struggle to move teams into agile teams and one could argue that different styles of leadership are required depending on the state a team is in as part of such process. As an example one could use a more directive leadership style to get the team initially organized and change that leadership style into supportive leadership when the team settles in their new setup and starts learning by doing and develop themselves to higher levels and adopt new skills. The leadership style can be changed into a laissez-faire form once the team has become agile and is well developed and highly skilled so they are trusted and empowered to make decisions on their own and are driven by higher than individual goals. The change in leadership style throughout the transformation of a team would be required to prevent a single leadership style, one that is successful at one particular stage, to becomes a blocking factor for the next stage jeopardizing the team's development to reach and maintain an agile stage.

To support transformation the situational leadership model is suggested as a valid model as it supports various leadership styles in a single model that is aimed on supporting a team in transformation. As a logical consequence the situational leadership model makes use of several different leadership styles ranging from a directive style through various supportive styles towards a laissez-faire style. As part of the supportive style you will find elements of specific leadership styles including servant leadership, adaptive leadership and transformational leadership.

Leadership style forms an important factor of influence for teams in their transformation towards agile team as well as for team to sustain agile. Applying the right style at to right stage of the process will be effective whereas applying an inappropriate style to the wrong stage of the process is expected to impede the process and potentially lead to frustration with the leader, the follower and the team.

2.4 How does radical digital transformation influence organizational change?

Digital transformation is in progress for many businesses as new digital distribution channels, shaped by digital leaders, become available for consumers which changes customer behaviour[3]. Digital transformation does not only concern large technologies companies like Google, Apple, Microsoft, Amazon.com, Facebook or such from you may expect such behaviour. They may be seen as a driver for digital transformation but even they may be considered incumbent compared to the many Fintech start-up companies. Fintech companies make use of information technology to drive digital innovation targeting profitable customer-facing financial services by replacing the intermediary services with technology (Dietz et al. 2016).

Many incumbent companies will require to embrace the digital transformation in order to maintain relevant to their customers and survive as a company. Examples of companies found to be incapable to take this step are already available. A well-known example is Kodak, once a leader in high quality physical and chemical photography film material invented digital photography and developed and patented many of the components used for this new digital technology. Digital photography transformed the consumers' view on photography through the use of the digital camera and the specific capabilities to store, edit and display photographs on personal computers, tablet, smartphones and others at virtually no cost. It was Kodak's middle management, culture and rigid, bureaucratic structure hindering a fast response to new technology. Film is a physical, chemical product, and despite a succession of new CEOs, Kodak's middle managers were unable to make a transition to think digitally (Lucas, 2009). Kodak failed to understand and adapt to the customer demand derived from the technology they, ironically, brought themselves to the market.

Examples of incumbent organizations capable of making such a transition also exist. ING is an example of an incumbent financial organization that has recognized the urgency to embrace the digital disruption and initiate their digital transformation. Their interview cited at the start of this section illustrate how ING transformed their organization into an agile organization where the digitization of processes is now considered as the source for innovation for new products through the digital distribution channel available to consumers today. The case of ING shows that the digital transformation is not merely a topic for the technology departments, it concerns the whole organization including marketing, sales, accounting and others and as such the whole organization, its includes their operating model, culture and leadership that has transformed to embrace the agile philosophy. With this transformation ING has positioned itself as a company that is in a better position to cope with rapid, and uncertain changes and thrive in a competitive environment with continues and unpredictably changing opportunities. The success of ING has not been unnoticed, yet one its competitor in the Dutch financial market ABN AMRO, seemingly lacking a clear digital transformation agenda like ING, continues to struggle[4,5,6].

Information technology has become the driving force for digital innovation targeting established processes and replacing them and transforming them into digital and automated processes. Companies capable of managing such transition successfully and thereby use digital technology to drive higher levels of productivity and performance feature digital capabilities and leadership capabilities that set a vision and execute it (Westerman, 2014).

[3] Bart Schlatmann, COO of ING Netherlands in an interview with McKinsey in 2017 about the journey to become an agile organization.
[4] https://fd.nl/ondernemen/1160575/wisseling-van-de-wacht-moet-digitalisering-bij-abn-versnellen
[5] https://www.businessinsider.nl/abn-amro-gaat-nog-eens-1500-extra-banen-weg-digitaliseren/
[6] https://cfo.nl/artikel/digitalisering-verandert-manier-van-zakendoen-abn-amro-

2.5 Theoretical framework

The central research question is an explorative question to determine how leadership and culture influence the process of teams becoming agile and for team the maintain agility once achieved. It is suggested that these factors each have their own influence on team agility and that they may vary along the evolution of teams towards team agility. The teams operate in a context of radical digital transformation bringing the team and team members in a flux of change. The central research question entails:

How do leadership and culture influence the process of teams becoming and maintaining agility in the context of radical digital transformation?

The following sub questions have been defined to support the central research question:

1. What makes a team agile?
2. What style of leadership influences team agility?
3. How does leadership influence team agility?
4. What antecedents of culture influences team agility?
5. How does culture influence team agility?
6. Do other factors influence the process of becoming and maintain agility and if so, how do they influence team agility?
7. How does radical digital transformation influence organizational change?

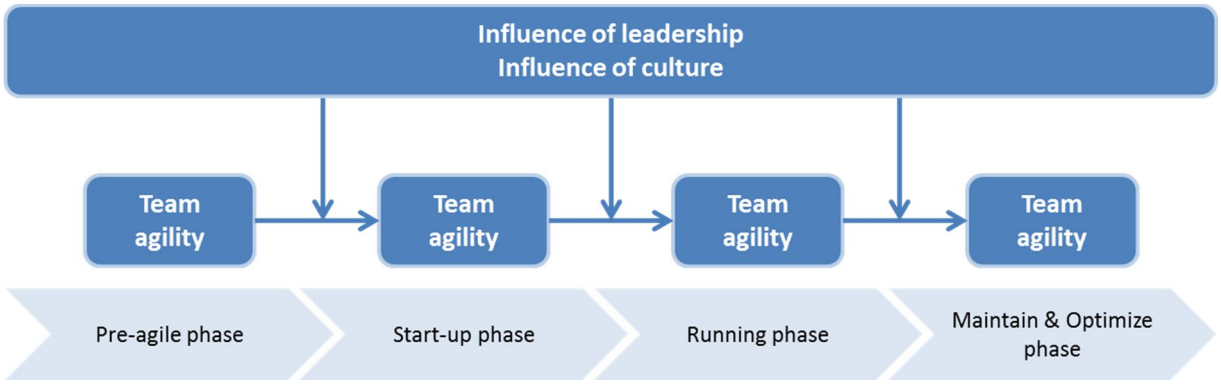


Figure 7: Theoretical framework influences on team agility

In order to perform the research on the central question a theoretical framework has been crafted based around the two themes from the central research question being 1) leadership and 2) culture and their effect on the process of a team reaching an agile state and maintain the agile state. Figure 7 shows the theoretical framework. The antecedents for each of the themes including team agility itself have been derived from the literature and are listed in Table 1 along with the supportive characteristics in posted in italic

	Leadership	Culture	Team agility
Antecedents	Empowerment of people	Trust	Speed of response
	Entrepreneurial	Values participation	Continual readiness
	Risk taking	Shared values	Flexibility
			Cross functional
Characteristics	*Brings focus*	*Informal communication*	*Result oriented*
	Motivates	*Open to change*	*Learning by doing*

Table 1: Antecedents and characteristics related to the theoretical framework

3 Methodology

This chapter describes the methodology used for the research, paragraph 3.1 describes the type of research used for this theses, for this research a case study research is found to be most applicable. Paragraph 3.2 provides details on de the unit of analyses. Paragraph 3.3 describes how the validity of the research has been addressed whereas paragraph 3.4 addresses the case study design and selection criteria. Paragraph 3.5 provides details how data is collection and what sources have been used. The last paragraph, paragraph 3.6 provides details on the techniques used for the data analysis. The research has been conducted in the organisation where I work, an international holding company with subsidiaries in retail, real estate, private equity investment management, private wealth management and private banking activities.

3.1 Case study research

This research contributes to the understanding how the social and organizational phenomena of the 'how' and 'why' organizational culture influences transformation towards team agility. Research on this these types of questions are explanatory by origin. For our research we can make use of direct observations of contemporary events and interview people who are directly involved in these events flanking available sources like artefacts and documents. This makes historical research as an explanatory research method unfit for our research as historical research is a preferred method for non-contemporary events where direct observations and interviews are not possible. Experimental research neither fits our purpose as this research method involves the manipulation of behaviour directly which would better fit a laboratory research. Case study research allows to focus on one or more cases while retaining an holistic and real-world perspective (Yin, 2014). This allows the researcher to perform more in-depth research in the particular case or cases and drilldown on certain answers or deviate from questions. When our research would focus around questions including 'what' or 'how many' other research methods would be appropriate including quantitative methods like surveys and statistical analysis.

3.2 Unit of analysis

The unit of analysis in case study research defines the boundaries of the case(s) being investigated and separates contextual condition in relation to the case (Yin, 2014). This research is focusing on improving our understanding of team agility and therefore the unit of analysis will be at team level. The context is the organization in which these teams operate. Criteria for a team to be included in the research, and thereby bounding the unit of analyses, include:

- the team is operated by at least three people;
- the team is multi-disciplinary by having people with various disciplines work together;
- the team is operational for at least three months;
- the team is working on digital transformation;
- the team work using an agile methodology;
- the team has a well-defined purpose;
- the teams operate with different scopes and have different sponsors;
- per team at least three person will be interviewed individually;
- the team may be considered successful and less successful to assure diversity.

The teams may operate as a project team and work together for a particular period or as operation teams without a predefined end date. Each team has a strong link with information technology and digital transformation. In order preserve diversity teams will not share sponsorship or objective, e.g. sub teams working for the same project as this will limit diversity. The success rate of the team's

agility is important to foster diversity. One team is stretched across the internal IT department and the asset management business unit and is working as an agile team since several years and currently challenged maintain and extend their agile setup. Other teams involve individuals from both financial business units and the internal IT department and work on projects to implement (radical) business changes driven by digital transformation. All teams operate within the same holding organization yet as they operate under different entities, sponsorships and locations (countries) it is expected they operate with a different organizational culture. From the teams working for the holding organization four teams will be selected that match best with the criteria. For each team between three and six people will be individually interviewed producing about twenty individual interviews.

3.3 Validity

The validity of case study research is attested by four validity design tests which are common for any empirical social research. These four test include: construct validity, the degree in which operational measures are developed to objectively study the object; internal validity, the extent to which a causal relationship between conditions can be justified and secured; external validity, the degree in which the study's finding can be generalized towards existing scientific theories; reliability, demonstrating that the operations of the study can be repeated and results will be consistent.

Construct validity is addressed in our semi structured interviews by making use of questions based on the hypothesis which in their turn are inferred from literature by Strode et al (2009), Camron et al (1999, 2006), Kompella (2014) and Iivari et al (2010). Internal validity is addressed by the use of data analyses techniques for the transcribed interviews. In particular coding and pattern matching is used using the Gioia's methodology. External validity is limited to any form of work, cooperation or team work of one or more individuals. Reliability is addressed by using a protocol for case study design taking in account construct validity and internal validity. From each interview a transcript is made, validated and approved by the interviewee and can be made available. Data analysis methodology is documented and performed using recognized techniques allowing replication of both research and analysis. This approach allows the same research to be replicated by another researcher.

3.4 Case design and selection

A primary design choice for case studies is the one for a single case study or a multiple case study. This decision is not to be confused with the unit of analysis or the amount of units you plane to analyse which in this design context is consider a deeper level in the design stage. The main differentiator between a single- and a multiple case study is the context. In a single case study you operate in a single context, for example a case study in a single institute. In a multiple case study, each case study is performed in its own context, for example the same study performed in multiple institutes, each with its own context. For this research a single case study has been selected as the research is conducted in the single context of an organization. The rational associated with the case study is that of a common case where the research may provide additional insights about the social processes involved with organizational and team culture as well as leadership style affecting team agility and vice versa.

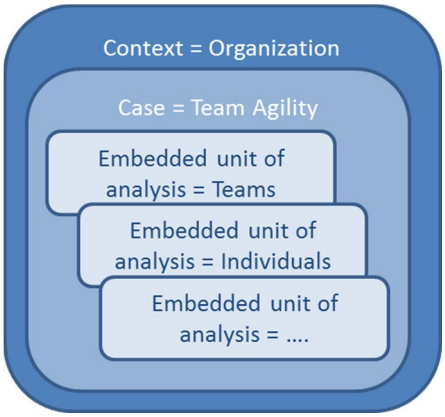


Figure 8: Design of single case study

The next design choice is between an holistic approach, where the global nature of a case is being studied, or an embedded case study where multiple units of analysis and/or multiple levels of

analysis are included. An embedded case study typically is used for in-depth studies. This research involves the study of four different teams operating within the same context, each with a different scope and level of agility. Within the single case design embedded units of analyses are used which include the team level as well as the individual team member level.

Overall, the context for the single case design is that of the organization the teams operate in, the single case is team agility and the unit of analysis includes the five teams as units and their individual team members. Figure 8 shows the single case design which matches a type 2 design following Yin's (2014) case design principles.

3.5 Data collection

The data collection is performed through the use of primary data sources and secondary data sources. The data will be treated and processed anonymously and where used in the thesis presented as anonymous data.

3.5.1 Primary data sources: semi structured Interviews

The primary data sources are individual interviews using semi structured interview list and have been recorded with permissions. All interview data will be treated anonymous as communicated with the interviewees. Per interview a verbatim transcript has been created and send for consent to the interviewee. An explicit remark was added that failure to respond to the consent within two weeks will be considered as an acceptance of the transcript. The approved transcripts are used for analyses in the research.

3.5.2 Secondary sources

Secondary data sources include both direct and participant observations during the individual interviews and when interacting with the team in the run-up and during the research. Observation from team members and team stakeholder outside the interviews are also considered as secondary sources.

Secondary data furthermore include presentations and documentation shared for the research that illustrated team structure, principles or others.

3.6 Data analysis

The analytical strategy uses data analyses from the Gioia method which is based on pattern matching that lead to first order concepts which can be grouped into second order themes and result in aggregated dimensions. The first order concepts are essentially quotes from the interviews that have a (potential) relation to the research question or stand out for any other reason. The second order themes are derived as characteristics from the antecedents of the factors in scope and leave room for other factors to surface from the research. The second order themes consolidate into the aggregated factors in scope of the research being leadership, culture, team agility and a place holder called other. The latter is used to group findings that surface from the research and do not match any of the factors. This approach allows to work data from the ground up to match the antecedents and factors derived from the theoretical framework.

The analytical techniques being used use explanation building as the core as. The pattern matching is used as input to explain why something occurs in a certain phases or pint in time helping to identify casual connection and how and why this is happening. The explanation is used to reflect the theoretical proposition as outlined in the theoretical framework.

4 Findings

In this chapter the findings of the research are reported. In paragraph 4.1 a description of the teams is provided. Paragraph 4.2 provides a description of the phases identified from the process for the teams to reach and maintain agility. In paragraph 4.3 the findings for the individual teams are presented and discussed followed by paragraph 4.4 where the findings of the cross case analysis are described. Paragraph 4.5 is where the conclusion of the finding are reported and discussed.

4.1 Description of the teams

The teams that have been selected for this research are all teams that operate in the same organization though in different business units and support different strategies. All teams make use of one or more IT platforms as part of their product or solution delivery. Team compositions are a mix of business and IT representatives and for some teams extended with representatives from external partners or vendors to deliver the product/solution in scope. A brief description of each team is provided below.

- Team A is working in an agile proposition for close to two years supporting a financial business unit. Driven by the business unit's strategy to digitize processes to increase control and efficiency the they implement a wide range of changes to processes and IT platforms. Being an agile team they have shown the capability to shift focus and delivery when priorities change.
- Team B is an IT team working dedicated for a single business unit with business intelligence and reporting providing them powerful and automated insight to their financial performance. This team is closely aligning their planning with the business' priorities and is operating in an agile mode using scrum methodology for over two years.
- Team C is a multi-disciplinary team with both business and IT representatives working on a single product that is supporting multiple business units with a digital transformation. They apply scrum methodology to their needs and are a relative young team.
- Team D is a multi-disciplinary team with both business, IT and partner representatives that work on a single product to replace legacy financial reporting systems and digitizes manual control processes. Now that the product has been delivered in its first release the team is in hibernation until a second release of the product is prioritized. Members of the team have been reallocated to other teams.
- Team E is a multi-disciplinary team with both business, IT and various partner representatives working on a single product that replaces multiple manual processes spread across multiple business units with a single automated straight through processing product. After the launch of the prototype the team manager was replaced with a manager that will bring the product to a productive state and maintain operations.

4.2 Four phases

From the research four phases have been identified that cover the process for a team to become and remain agile. The first phase is described as the 'pre-agile' phase and describes the phase where the team is not yet operating as an agile team. The second phase is the 'start-up' phase where the team is preparing their change and have started the implementation of new work methods that support working agile. This phase covers a period of around three months before the team moves to the next phase. The third phase is called the 'running' phase and is reached once the team has gained an operational state where operation run smoothly and adequately. Changes are expected to be made over time as the work methods settle within the team and the environment. The fourth

phase derived from the research is the 'maintain and optimise' phase and is considered when the team is operating as an agile team for around a year. The team is challenged to maintain agile in an environment that is not operating in an agile manner or an environment that is changing requiring the team to adapt to maintain agile. A fifth phase can be envisioned where the agility of the team is decaying to a state where it can no longer be identified as an agile team. This phase has not explicitly been identified from the research.

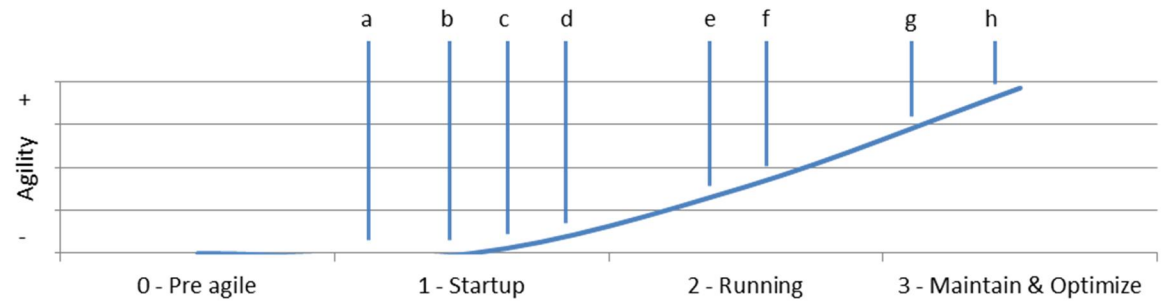
4.3 Findings per team

In the following paragraphs the findings for each team are presented per team individually. For each team the evolution of team agility has been plotted in a timeline across the aforementioned four phases. The factors that influence team agility are illustrated across the line of team agility in this time line. A narrative is used to describe the process how team agility evolved per team followed by a more detailed description of each phase supported with relevant quotes from the research. This approach allows for understanding how team agility evolves in time and how it relates to the presence and degree of leadership and culture as main factors during that particular phase. Next to leadership and culture other findings may be reported when those findings indicate a significant or potential influence on the process.

4.3.1 Findings for team A

Team A has been working with the scrum methodology for almost two years and has passed all phases and is currently residing in the maintain and optimize phase. Figure 9 shows the evolution of team agility across the four phases over time highlighting the moments where the process was influenced by one or more factors. The following narrative describes the process of team A with the points of influence indicated in the text.

One could conclude that in the pre-agile state leadership is missing which leads to the situation where the team has no focus nor a shared goal and thereby missing a push and leadership to change. The lack of communication leads to a situation where team members perceive a low level of trust towards each other. New people joining (a) is not altering the appearance of a status quo. When new leadership took charge (b) at the start of the start-up phase and introduced a new way of working (c) using a directive management style it broke the perceived resistance to change. At the same time is stimulated open and informal communication within the team leading the team to experiment and learn (d). New leadership also practiced what was preached as the new manager led by example. The introduction of scrum methodology supported the transformation towards agile teams became visible in the research in the running phase along with increase of trust, open communication (f) and a shift of leadership style from directive towards a more coaching style stimulating the team to develop. The shift in leadership (g) marks the transition to the maintain and optimize phase. For the team the scrum methodology has become their normal mode of operation. Leadership is valued for bringing focus by driving the shared goal and set priorities for the team. Team agility has reached a high level due to the flexibility of the team and result orientation for delivery of agreed work products. Continues evaluation (h) helps the team the learn and improve their work methods. The team seems to have reached a steady mode of agile operation yet findings also indicate a weakening of agile methods being applied indicating that team agility is likely to decrease in time.



a) New external people join
b) New manager with directive leadership
c) Experiment with scrum methodology
d) Learn from mistakes
e) Facilitating/coaching leadership
f) Trust and open communication
g) New manager
h) Continuous evaluation

Figure 9: Evolution team agility across phases for team A

4.3.1.1 Pre-agile

In the pre-agile phase, where the team is not considered an agile team, culture is the dominant factor.

Leadership

Leadership is hardly mentioned as a factor of influence. Moreover the lack of leadership expressed by the lack of focus provided by leadership is the only factor identified from the research.

> Quote team member: “Basically the projects were run by the business people who didn’t have time, so that’s also not the best set up”.

Culture

Both communication and trust, antecedents for agile working, are missing while their negative counterparts being missing trust and lack of communication are clearly identified. The main reason for the lack of trust is that the team perceives the organisation as standoffish even though simultaneously the team perceives the organisation as a likeminded organisation.

> Quote team member: ”So that feels more as a distant organ, but that's with most banks”.

> Quote team member: “Yes, I do see a difference in how people experience this at the bottom of the tree and the people who are higher in the tree. I see a difference in experience therein”.

Taking in account the absence of frequent communication the team may be considered to be an assimilated part of the organization’s culture that is further identified as resisting to change. New people that have been added to the team to mitigate the identified resource limitation did not significantly influence a change of culture.

> Quote team member: ”But at the same time, it is also lacking a bit of window on the outside. Because it is a bit closed and still a bit secretive so that can’t really communicate easily with the other into the outside world. So that’s the biggest drawback of this-“.

Other

Findings of other factors include resistance to change and limitation in resources.

> Quote team member: “But, but for this business unit I think it has also been, they were lacking the concept of a project and changing”.

Team agility
No findings that indicate team agility in this phase.

4.3.1.2 Start-up

The start-up phase is marked with a new interim manager being added to the team that introduced scrum as agile methodology for the team. This is a decision driven by the manager and not by the team itself.

Leadership
The influence of leadership is noticeable in our findings where leadership is associated with a directive leadership style and leads by example. The influence of leadership is significant compared to the pre-agile stage and is more in balance with a changing culture.

> Quote team member: “He then decided: boys we are going to work agile scrum, and so it happened”.

> Quote team member: “He was the head of IT-change at that time and he started to set up the scrum team first, so we had this thing, this meeting everyday where we are discussing what we are doing.”.

Culture
Culture of the team has changed as communication has become informal and open, people value participation and people are open to change and to improve. New people being added to the team who are experienced in working with scrum, including the new manager, have a positive contribution to culture moving away from the organizational culture into an new team culture.

> Quote team member: “Well, I think it is different, because it is a new team. It’s I think most senior people in the team, they have been there only eight months. So that’s very, people who are not from the business unit or the holding company for a long time”.

> Quote team member: “So basically more open discussion, so yeah, like this incrementally we added more and more elements of the scrum, and working agile, actually the difference between the two”.

Other
Other factors identified are an increase of experimentation and adoption of the new ways of working and learn from it. During the start-up phase time was reserved for team building by allowing the team to get to know each other, work together, experiment, make mistakes and learn from it.

> Quote team member: “Scrum, then we also enrich the, by weekly session with the, also trying to discuss what went good in the previous print, what went bad, what can improve”.

Team agility
No findings that indicate team agility in this phase.

4.3.1.3 Running

In the running phase the research starts showing evidence of agility of the team and their contribution to the organization.

Leadership
The leadership style has changed to one more motivating people and empowering people and brings clarity and focus to the team and their individual roles and responsibilities.

> Quote team member: “leadership is turning more into not really leadership, but more- How do you call it, facilitation, like just helping people to get the tools and to understand by themselves what they need to do and not really- It’s almost like more coaching than managing”.
>
> Quote team member: “Everybody knows what he is doing and knows what needs to happen in a certain time”.

Culture

Team culture is shaped through trust and informal communication. The trust is being established and identified through the feeling of belonging to a team, trust each other to make themselves vulnerable to each other and by helping each other to reach the same shared result, in time.

> Quote team member: ”When we have something that we see an issue, you put it on the issue column that everyone is aware that there is an issue there and that you need time to investigate or you need help”.
>
> Quote team member: ”being able to communicate openly with your team members, whether professional or personal”.
>
> Quote team member: ”that when you discuss your mistake, your team members also deal with it in a good way”.
>
> Quote team member: “The atmosphere is just fine, people know each other, open dialogue, there is mutual communication, that's all, yes. Actually, a bit of what you think of a team, what you hope to find in a team actually”.

Other

Other factors of influence include a wide mix of factors that individually are of insignificant value expect for the learning capability. Experimenting and learning from that is a factor identified that has a positive contribution to the team.

> Quote team member: “you make the decision that if I change this, how much time do I save myself or my colleagues, that's what I'm experimenting with”.
>
> Quote team manager: “We make many mistakes on a continuous basis, but we learn from that. One time a mistakes ok, second time same mistake is not”.

Team agility

The multi-disciplinarily character of the team is contributing the their agility as are result orientation, speed and flexibility.

> Quote team manager: “As Change and IT team very agile”
>
> Quote team member: “and assured I put that signature as quickly as possible, because then everyone can go on. If that's between everyone's ears, everyone can move on very quickly.”
>
> Quote team member: “We are a relatively young team and we understand several disciplines, not just IT business but also the business and the organization.”

4.3.1.4 Maintain & optimize

The maintain and optimise phase is marked with a transition of leadership from the interim manager to a new manager. As the team has adopted the scrum methodology over time the team is primarily maintaining their agile way of working and perceive this as their new normal way of working.

Leadership

Leadership's contribution is valued for driving the shared goal of the team and setting priorities supporting the result orientation of the team. Leadership supports team members to reflect on their work. The findings identify that attention to the agile method is weakening and evaluation of team performance and retrospectives are being held less frequent reducing the team's ability to learn.

> Quote team member: "The team now has another manager, who gave more direction and a wider goal. Now more product driven delivery".
>
> Quote team member: "Really take the time to identify what went well and what didn't and keep your priorities tight".

Culture

The culture of the team remains on of open to change.

> Quote team member: "And yes, then we try to learn also from the agile methodology, what we do good on that. So that's also what we do every two weeks, trying to see what's better or not. Which we have stopped to do, but we need to do it again. So trying to improve the methodology itself".

Other

Other factors identify the team's ability to learn from mistakes and each other, factors under pressure by the weakening attention to their agile way of working.

> Quote team member: "and we try to learn from each other when we see there are people working with it, common practice".
>
> Quote team member: "We regularly check if things can be done differently. If you run into something that stops you, it may be that you will run into it structurally. And that should be better and faster".

Team agility

Team agility reaches a high level as the team is now more result driven due to the clear priorities and shared goal. The frequent evaluation allows the team to adjust where needed making the team flexible in responding to changing condition. A remark however is to be made as the team identifies that focus on evaluation is under pressure weakening the agile way of working.

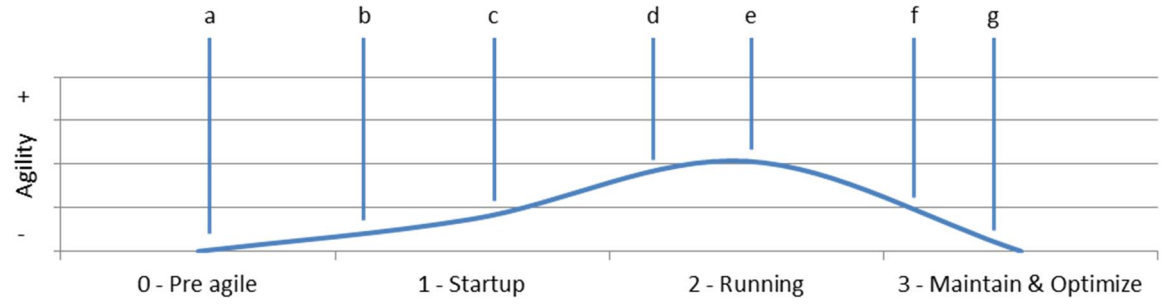
> Quote team member: "So fine that you have achieved your goals, but hey, let's also take a look at the conditions under which we have achieved it. Didn't I not plan too much or too little for myself or I did make the right decisions, while I so busy with my scrum sprint."

4.3.2 Findings for team B

Team B has been working with the scrum methodology for one and a half year and has passed all phases and is currently residing in the maintain and optimize phase. Figure 10 shows the evolution of team agility across the four phases highlighting the moments where the process was influenced by one or more factors. The following narrative describes the process for this team with the points of influence indicated in the text.

In the pre-agile phase the team manager wants to remain in control of all the work assigned to the team and is handing out only small tasks for execution to the team members in a directive style (a). Business representatives continuously interrupt the team, change priorities of work and often dictate the solution the team needs to provide. Altogether the team is not empowered and lacks a clear focus and shared goal. The start-up phase is marked by new leadership that introduces the

team to the scrum methodology (b) with a directive leadership style. With this style clarity was given on focus, priority, roles and responsibility (c) which became appreciated overtime by the team. This approach resulted in focus for the team members to deliver as promised which is supportive to the level of trust within the team. In the running phase the leadership style changed to one of empowering people allowing the individual team members to make decisions (d) within their domain of responsibility. The empowerment and informal communication within the team allowed the team to further open up, support each other, share their strong and weak points (e) with each other which further increases the level of trust. In the phase of maintain and optimize the leadership style has become one that is more facilitating the team and to assure the team is empowered (f). At the same time the focus of the team to continue to apply scrum methodology is weakening resulting in reducing focus on delivery, spending more time on meetings. Effectively this is resulting in decreasing the team's efficiency (g) resulting in reduction of team agility.



a) Directive leadership
b) New (directive) leadership introducing scrum
c) Provide focus and clear roles and responsibilities
d) Team empowerment, decide within own domain
e) Share weak and strong point, increase of trust
f) Facilitating leadership and maintain level of empowerment for team
g) Focus on applying scrum methodology weakens resulting in decreasing efficiency and agility

Figure 10: Evolution team agility across phases for team B

4.3.2.1 Pre-agile

In the pre-agile phase the team does not feel empowered by their team manager as many tasks are taken by the team manager before moving parts of the task to the team.

Leadership

The leadership style can be considered as directive and autocratic in this phase. The feeling of not being empowered is strengthened by the business representatives that heavily influence the solution direction and in some cases even the solution.

> Quote team member: "He tried to do the most himself and to solve problems himself, sometimes making him very busy while we had nothing to do at all".

Culture

Communication is interactive with frequent contact with business representative walking in to discuss progress, provide direction and change priorities. This form of communication in itself is appreciated and forms a positive contribution though the directive approach to influence or ene determine the solution has a negative influence.

> Quote team member: "So the culture was a bit of yes, we ask and you implement, that's a bit changing now".

Other

Even though the frequent contact with the business in itself is appreciated the interruptions and changing priorities are considered as disruptive and reduces focus to deliver the work agreed upon. The work that was picked-up immediately resulted in planned work being delayed.

> Quote team member: “It was very agile, when they walked in us with a problem, that was taken care of immediately”.

Team agility

Although the team responded swiftly to each individual request from business representative overall the team agility was limited. Little team agility was reported from the findings.

> Quote team member: “It was very agile, when they walked in us with a problem, that was taken care of immediately”.

4.3.2.2 Start-up

The start-up phase is marked by a change in leadership that introduced scrum methodology to the team. Although some team members at first resisted the change as some tasks and responsibilities where taken away they agreed to try this new approach.

Leadership

The new leadership, although directive in style, brought focus and clear roles and responsibilities which became appreciated by the team as time progressed.

> Quote team member: “Is that something like, it has been implemented and now, now you are working Scrum? Y: Yes, actually”.

> Quote team member: “And yes, it became for everyone clearer and more comfortable because we knew exactly what we were going to do within those two weeks”.

Culture

As part of accepting the new way of working team culture started to change. Trust within the team is increasing as the focus and clear roles and responsibilities allow people to deliver on their promise while they improve their planning skills.

> Quote team member: “And now, first of all, it is very interactive, so every day we have a fast talk, so we know who is working on what and whether there are some difficulties”.

> Quote team member: “So rules were clear, but to understand that I actually really benefit from those rules, it took me some time. Months, two months or so”.

Other

Other factors considered as positive include the improved planning capability due to the focus of the team and breakup of work into smaller pieces. Activities the team adopted and learned from. The doubts at the start of the process to adopt scrum as methodology is considered as a negative factor.

> Quote team member: “Also, this time, I learned that we have a backlog item and then you need to break it into task and tasks should be, let’s say, should try to make it small and then, it is also learned to estimate better”.

Team agility

Team agility starts to emerge as the team’s flexibility increases due to breaking up tasks into smaller pieces, deliver in small cycles and interaction that allows the team to quickly absorb new or changing request.

> Quote team member: “And therefore more flexible, because you can make much easier an estimate, how much time does something will take”.

4.3.2.3 Running

With the scrum methodology adapted by the team the team moves into the running phase.

Leadership

Leadership style has transformed from a directive style to one that empowers people to make decisions within their domain. The risk appetite is that of risk avoiding and even though the team is focused on delivering result and as promised they are willing to delay delivery when that reduces of potential rework in the near future.

> Quote team member: “So the users decides what we need and we decide how we do it”.

> Quote team member: “I am responsible to deliver their for example report, so I would make a decision”.

> Quote team member: “we have Scope for the sprint and we work on that Scope without being interrupted here and there, definitely it affect us in a positive way”.

> Quote team member: “In terms of quality and numbers, I will not compromise, because if number is the wrong. It is better deliver it later, but right. It is- No, I guess I am on the safe side”.

Culture

Culture has become a dominant factor in the running phase as trust increased to a new high in the team. High confidence and understanding each other’s strong and weak points combined with the trust to be allowed to make and admit mistakes are key drivers for the high level of trust. Informal communication, short feedback loops and transparency are additional attributes.

> Quote team member: “You need to trust each other. You need to be able to share what you think and know it will not be- Will have no bad consequences for you for example”.

> Quote team member: “It is easier to address a problem to your colleagues to say: this is the problem and I am not going to make it, what are we going to do?”.

Other

The team puts effort in experimenting with solutions, both planned and unplanned experimentation, and even reconsider their way of experimentation. Mistakes are being made and the team learns from those in order to improve themselves.

> Quote team member: “So, in that respect, we are certainly trying out different things. And that's not even when we had time left, that's also planned, and at a certain moment in time we stopped because we noticed that it could be better in a different way”.

> Quote team member: “X: What did you learn from it? Y: Be more careful. But also I learned that even the worst mistakes, just it’s okay. It’s most important you should be able to put it back, to solve it”.

Team agility

Team agility has increased as speed of decision making increased and the various disciplines became complementary. This results in more efficient team work and product delivery.

> Quote team member: “Yes, I think because we can do much more, just because of those multiple disciplines and the way it is being tackled, it is also possible to switch faster

between certain things as of the rest of the organization that do not work in this manner work still yeh, get stuck in their fixed procedures, their fixed structures and the hierarchy".

4.3.2.4 Maintain & optimize

Leadership is the dominant factor in this phase where team culture is greatly reduces and team agility is no longer observed.

Leadership

Leadership is the dominant factor is this phase where the team is empowered and is expecting and appreciating a leadership style that is facilitating the team. The focus on applying scrum methodology is weakening which has impact on the level of team agility.

> Quote team member: "But I think it is the most important in the case for leadership, is just being helpful, knowing who is working on what and making sure they don't have obstacles and they get all of the required support, if needed".

> Quote team member: "Yes, it's a bit dying. I'm not sure how that-, we had fixed moments in a sprint or we did that once in the two weeks or once in the month, I do not even remember. But that, I think lack of time actually. That it will be postponed once or a while and one point we will not do it at all anymore".

Culture

The influence of culture has reduced to an insignificant level although transparency and informal communication are appreciated factors though becoming weaker at this moment.

> Quote team member: "-because I don't understand why it's happening. So, if I would- instead of, for example, scenes of strange like early retirement, I would have a very good explanation why exactly it's happen, it would give me more trust".

Other

A number of individual factors including in-efficiency and an increasing number of meetings to attend are individually rated as insignificant but when placed in context support the findings of reduced agility and weakened focus on scrum methodology. Other factors rated as insignificant on their individual bases include equality, knowledge sharing and learning that all three are supportive to the trust level within the team.

> Quote team member: "So basically, the more scrum teams that we have, that also has the effect that you more, basically have less time for your work, because you need to be involved in more meetings. Y: Yes".

> Quote team member: "We're all learning of course, during the process, it takes time to understand what is working better".

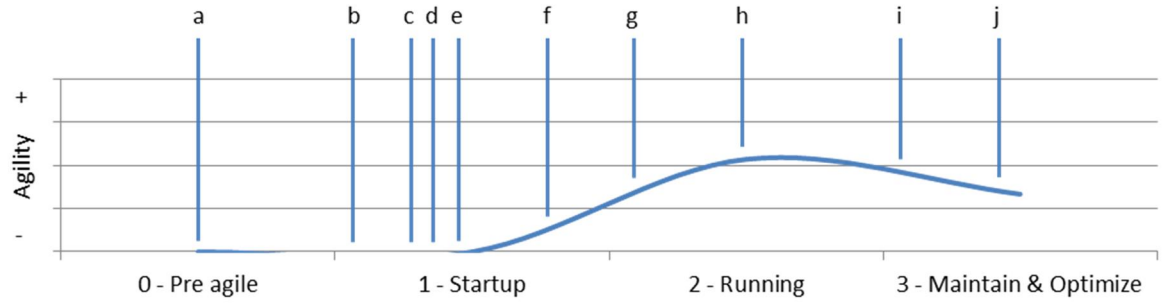
Team agility

As the focus on working agile is weakening team agility is reduced to a level where it is no longer observed in the research.

4.3.3 Findings for team C

Team C has been introduced to the scrum methodology and carefully picked elements from it to their likings and needs. The evolution of team agility across the four phases is shown in Figure 11 highlighting the moments where the process was influenced by one or more factors. The following narrative describes the process for this team with the points of influence indicated in the text.

Directive leadership and micromanagement (a) disempowers people in the pre-agile phase leading to a culture where people do not make choices nor take ownership. Risk taking is being avoided leading to decision making processes that are based on consensus with a large group of people. Long decision making processes through consensus is leading to inflexibility and inefficiency. With the new assignment (b) to radically digitize the numerous processes the team enters the start-up phase and the team is taking risk by applying scrum methodology (c) at the start of their journey. However, due to the support of an experience scrum master assigned to the team (d), having new people joining with scrum experience (e) and being open and transparent to each other the team is building trust. The start-up phase is used as a learning experiment by the team members to identify what elements of scrum work for the team (f). In the running phase the team has reached an agile state with clear focus and fast feedback loops (g) allowing them to adjust where needed. With a high level of trust within the team they have faith in each other's expertise and value the participation in the team increasing the team's capability. Rather than delivering 100% functionality the team opts for delivery in time and deliver at minimum 80% of correct functioning functionality (h) illustrating their wiliness for accepting calculated risk. In the maintain and optimize phase the leadership has transformed into facilitating leadership (i) yet focus and attention on agile work methods are slipping (j). Feedback from previous deliveries start to oppress the delivery of new functionality reducing the team's efficiency.



a) Directive leadership and micro management
b) Assignment to digitize processes
c) Decision to apply scrum methodology
d) Coaching with experienced scrum master
e) New experienced people join team
f) Experiment what works for the team
g) Clear focus and short feedback loops
h) 80% delivery in time preferred over 100% delayed delivery
i) Leadership style becomes facilitating
j) Attention to scrum and work methods decreases

Figure 11: Evolution team agility across phases for team C

4.3.3.1 Pre-agile

For this team the pre-agile phase is considered the period before the team was assigned with the tasks for the digital transformation of numerous business processes. Some members of the team already worked and supported the product.

Leadership

In this period the team members did not felt empowered as the structure they work in is experienced as hierarchical supported by directive leadership and micromanagement.

> Quote team member: "If someone is micro managing continuously, it will not work".
>
> Quote team member: "It's too hierarchical, far too many management layers, which makes it work too stifling on the work floor I think".

Culture

The culture the team is operating in is one of avoiding risk and one that involves many people into any decision around the product to support consensus. This behaviour is delaying decision making and makes the team and organization sluggish.

> Quote team manager: “Anyway, it is also very much an organization in which you are working very hard on compromises”.
>
> Quote team member: “Also inert - we must - ask three people is not enough. No, we have to ask thirty people. Or thirty people have to have their say about it”.

Other

The team experiences their environment as resistant to change, inflexible and in-efficient making the team to operate as a non-agile team.

> Quote team manager: “Not open for change. A very special combination of formal and informal and therefore it can be very confusing. Conservative, also ... risk avoiding”.

Team agility

No findings that indicate team agility in this phase.

4.3.3.2 Start-up

With the new assignment to radically digitize the numerous processes the team is expanded with external consultants and a team manager that would like to apply and experiment with scrum methodology thereby consciously taking risk. The team manager is coached by an experienced scrum master.

Leadership

In this phase leadership is directive, brings focus and provides clarity on the roles and responsibility. Team members start to receive and accept empowerment. The new external consultants have more experience with scrum which increases trust within the team.

> Quote team manager: “Well, actually very bluntly, we just started”.
>
> Quote team manager: “And quite clear roles are important. Roles within a team that make you... and then trust in each other, that combination of clear roles and clear areas of expertise combined with some trust so that you contribute and focus on your own area of expertise and that will contribute to the final product”.
>
> Quote team member: “But I think that trust is important as well, because you actually have a kind of cart blanche in a sense with such a project approach. If this goes wrong, you just have a bad luck”.

Culture

As the team members are open and transparent in their communication trust is building up and people start to rely on each other’s expertise. Team members start to take ownership for their tasks which enriches the formation of an own team culture.

> Quote team member: “Courage and be vulnerable and transparent to each other and just dare to start this together”.
>
> Quote team manager: “What really plays a lot and what may be a success if you look at where we come from is that some (external) team members have also worked agile. So they have experience. Three out of ten members”.

Other

The adaptation of the scrum methodology enables the team to a new learning experience where they make mistakes and learn from them as they move along.

> Quote team member: “And also dare to make mistakes and be transparent on that and learn from it”.
>
> Quote team member: “but as we move on, we are becoming more agile in the course of the time”.

Team agility

No findings that indicate team agility in this phase.

4.3.3.3 Running

In the running phase the team has adopted the scrum methodology and operate in a more agile way which shows in the findings.

Leadership

Empowerment of the team members along with the focus introduced by the leadership allows the team to deliver the result according to planning. The team is more (calculated) risk taking by delivering products that meet at minimum 80% of the requirements to support fast delivery and allow for incremental improvement delivered from community feedback after release. Decisions involving people from the organisation are still experienced as cumbersome and delay the team in delivering.

> Quote team member: “I'm experiencing it as useful because you have a clear overview with these subprojects, these we will do in the next two weeks. You also have clarity who does what”.
>
> Quote team member: “And you can decide how to achieve that in the most effective, efficient way within the frameworks we have agreed. And keeping standards in mind, I think is very important”.
>
> Quote team member: “I'd rather take some risks. Because the products we produce are the products that can still be improved. - And I think if you want to get the business on-board that you have to astonish them in the area you are working on and what the future is offering them”.

Culture

Team culture is in this phase one of trust due to informal and open communication, deliver on promises and trust on expertise.

> Quote team member: “I think the level of trust in this Scrum team is higher than in some other teams within the organization. Because you have to trust in each other's expertise”.
>
> Quote team member: “… we're sitting in the same room, you know of each other what is playing and you can speak up much easier about what we're doing on this topic or that topic everybody's immediately responding to it. I think that is very pleasant”.

Other

Other factors like the ability the learn including experimentation, learning by doing, from mistakes, from others have a positive influence. Other factors are less specific, wide spread and individually insignificant.

> Quote team manager: “Just build something and then go and confront the users with it. Just say to your users or to your stakeholders or to your ... There's also a piece of vulnerability, because then you're going to show something that's not yet optimal, but what you're going to expose it to them”.

> Quote team member: “And if you look at it if it's not what you expected or it does not work, do not consider it to be a total failure, but more like a lesson, then we just have to adjust it”.

Team agility

In the running phase team agility is surfacing from the findings. Short feedback loops allow for evaluation of solutions being introduced and fast decision making. The team’s multiple disciplines complement each other strengthening the team’s overall capabilities.

> Quote team member: “And what works very well is deliberate with the product owner, on a daily basis, which is always present at the stand-up every day, making it quicker to make decisions and move on with the rest”.

> Quote team member: “So every two weeks you get a little bit of feedback about what is being delivered. And if that's not correct then you can modify it”.

4.3.3.4 Maintain and optimise

Leadership

Leadership remains a factor of importance for the team and has transformed into a facilitating and informal leadership style. However the findings do show that team agility is reducing and that half of the leadership findings indicated weakening of agile work methods.

> Quote team member: “Much more informal leadership”.

> Quote team member: “So, and I think, senior management, if you are talking about leadership, it should be open to it and empower the team to do this in this way too. That is very important and fundamental and –“.

> Quote team member: “And those are very often things that remain. And now we have the chance to do that, but you often build up technical depth, as we call it. But you try to build a new functionality in the system. And then you simply build that functionality. That is your focus. That will work more or less, but in the meanwhile, other things may break”.

Culture

The culture of the team remains one of trust where the team members value participation, informal communication and remain open for continual change.

> Quote team member: “I think that is also a mindset that you just have to keep changing, otherwise you will always come in a situation you do not want to end in. Then you have to change the course of a large cargo ship again. That simply can't be done”.

Other

The findings suggest that the incremental improvements from previous deliveries, where at least 80% was delivered to make deadlines, has generated feedback that requires in some degree more fundamental changes and increased product maintenance. While this feedback is translated into new requirements these start to oppress, and thereby delay, the delivery of new functionality.

> Quote team member: “And that point, not many organizations reach that point. They just keep building things, because sales and marketing that all want things. X: So the backlog stays filled? Y: Yes, exactly. And you do not solve the fundamental problems”.

Team agility

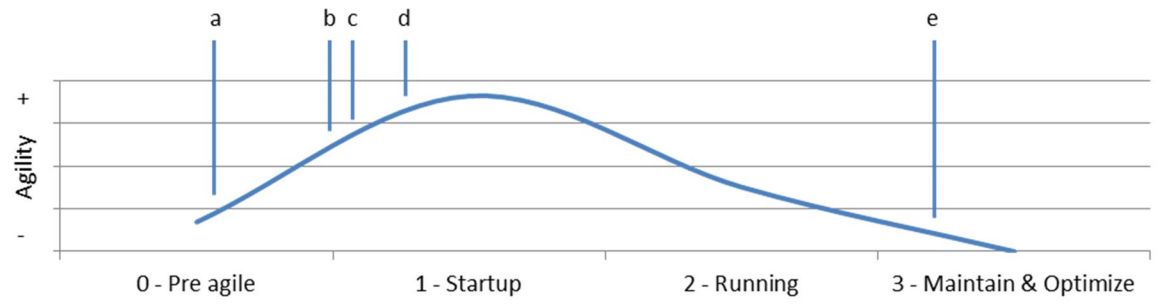
The flexibility that the new way of working brings due to the short feedback loops remains visible in the findings.

> Quote team manager: “But within that bandwidth you really need so to speak, at any given time and if it makes sense, you need to be able to adjust your course, I think. So especially flexible and also aim for simplicity”.

4.3.4 Findings for team D

Team D is considered as an agile team that has worked for a year to implement a first release of their product covering the start-up phase till the maintain and optimise phase. Figure 12 visually represents the evolution of team agility across the four phases highlighting the moments where the process was influenced by one or more factors. The following narrative describes the process for this team with the points of influence indicated in the text.

In the pre-agile phase directive leadership and micromanagement (a) of labour intensive processes disempowers and disengages people. The start of the project to digitize and automate parts of the financial reporting process marks the start of the start-up phase. Team D received empowerment from senior management (b) as well as clear goals and boundaries (c) they can operate in. The clear roles and responsibilities allows the team to focus on their tasks without being distracted. Short delivery and feedback cycles (d) allows the team to adjust where needed resulting in showing flexibility and speed of delivery. In the running phase the combination of empowerment of the team, make decisions within their mandate, a clear goal and informal and frequent communication brings motivation to the team. It forms a positive contribution to the level of trust within the team. The frequent feedback sessions and delivery cycles allow them to adjust and make their progress visible. The team continues to work as an agile team in the maintains and optimise phase as long as the work is done within the team itself. As the product’s first release is nearing its delivery the external people are excused from the team and the internal team members continue with the work that



a) Directive leadership and micro management
b) Empowerment from senior management
c) Clear goals and boundaries to operate in
d) Short delivery and feedback cycles allow for adjustment resulting in speed of delivery
e) Interaction with non-agile teams breaks agile pattern and grows dis-trust

Figure 12: Evolution team agility across phases for team D

requires cooperation with other team in the organization. Interacting with other teams, which are considered as non-agile teams, break the pattern (e) of agile working as dis-trust starts to emerge when other teams fail to deliver as agreed upon. This situation weakens the level of team agility to a point it is no longer present in the research. The level of experimentation has grown over the past phases as the team is putting more effort in learning by doing.

4.3.4.1 Pre-agile

The financial reporting process is a very manual and labour intensive process and thereby error prone. In the pre-agile phase much attention was given by management to assure correct reporting.

Leadership

Leadership, the dominant negative factor in this phase, is characterized as directive, extremely client driven and one of micromanagement resulting in team members not feeling empowered.

> Quote team member: “In my view it is going through every division, it is going through the entire organisation. My impression is that the manager doesn’t focus on the manager role. He focuses on the nitty-gritties, doesn’t delegate, doesn’t empower people. And not only in IT, it’s really throughout the organisation”.

Culture

The culture is one of risk avoiding and where people work in silo’s. Trust is failing due to not delivering on agreed actions or decisions that are delayed or not taken.

> Quote team manager: “Exactly. And then no decision was taken until it was a hundred percent. And because you never reach a hundred percent, no decision was taken. In a hard way, there were decisions taken of course, but not in that way they do now”.

> Quote team member: “We work in many, many different islands. Don’t know the reason really. I try to question it always. So, it is not the way I experienced in the past”.

Other

In-efficiency is an factor of influence in the pre-agile phase due to a perceived lack of resources and people having to follow-up on agreed action.

> Quote team member: “So, we actually on one of the regular basis I go back to the stakeholders and say, guys, it's all delayed again. We need to see how we get out of that. So let's set back. Let's plan again and take it up from there. But often you don’t manage to get all delays wrapped up and all the tasks done”.

Team agility

Little team agility is found from the research in this phase except for the frequent collection of feedback by the team member individually which allows for adjustment throughout the process.

> Quote team member: “Chase them up. Get the feedback. Get agreed on the next tasks. All that is actually nearly one of the major issues in all the other projects, which I didn't have in AX. Everyone was clear that's the task, that's what we're going for”.

4.3.4.2 Start-up

As part of the digital transformation the business unit decided to digitize and automate parts of the financial reporting process. A team was formed with people with different expertise from the business unit, the IT department and an external consultancy company.

Leadership

The team was headed by the team manager for client reporting who requested and received explicit empowerment from senior management to rationalize and digitize the process. The clear goal and boundaries provided and agreed upon with senior management brings focus and clarity to the team. The leadership style of the team manager is one of coaching team members. As task are broken up into smaller pieces the team was able deliver frequently, adjust where needed and stay focussed on the shared goal.

> Quote team member: “So they made it much more easier to say, hey we need to have certain things finished on a certain time and we all were aware that we have to put resources into it”.

> Quote team member: “But you need really to clear up the governance, because as I’m also the line manager then of this team member. You have to take care that it doesn’t go into the tendency, yes because I say it, it’s going in. Like, it has to be like this. So you need to build up that kind of, that you really discuss the topic”.

Culture

The team culture is newly developed as new external people joined the team allowing for a fresh start. Communication was informal with short feedback cycles and frequent deliveries. The agile approach was appreciated by the likeminded team members.

> Quote team member: “So there is always a mix of people coming new in, which may be- X: A kind of new blood, so that anyway it blends the culture? Y: Exactly”.

> Quote team member: “So they made it much more easier to say, hey we need to have certain things finished on a certain time and we all were aware that we have to put resources into it”.

Other

Another factor of influence is the urge of the team to understand why processes are designed as they are. This critical attitude allowed the team to better understand the process and adjust the process and deliverables when needed.

> Quote team member: “So we got further into discussions, we got further into clarifications”.

> Quote team member: “We were maybe getting more people on board to clarify the situation like connection issues or whatever”.

Team agility

The combination of above factors and the fast adoption on new work methods allow the team to become an agile team during the start-up phase.

> Quote team member: “Make sure you have the option to change if you see things are not going the right way”.

> Quote team member: “You put the deadline behind the tasks. You also allocate immediately who is doing it. And that way, everyone is pretty clear and I think that's one of the key issues. Everyone is pretty clear what he has to do”.

4.3.4.3 Running

In the running phase the team gains tractions with the execution of agreed work.

Leadership

Leadership as a positive contribution continues to be the dominant factor during the running phase. Team members feel empowered as they have been given responsibility to make decision in field of their expertise and as a team which has a positive effect on team's motivation. This clarity on the governance structure as well as on the common goal allows the team to stay focussed.

> Quote team member: "I would say yes actually, because in most cases I made the decisions about the interface. Also said before, the team manager approached me, what is the best way? Let's hash this out. We bounced it with the supplier. And we could see that this is actually a good way forwards and that's making the decision okay, that's the way we go".
>
> Quote team member: "I think we mentioned this several times, one really key issue is that we empower people in this project and the stakeholder, which is the team manager, really had the authorities to make decisions to go in with the project. And he was backed up by the senior management".
>
> Quote team member: "I think it's a natural way if you encourage people, they come forward and they are prepared to take responsibilities".

Culture

The informal communication, frequent feedback sessions and trust in each other's expertise are examples of elements that build the trust level within the team. The trust being provided motives the team members to step up and take responsibility.

> Quote team manager: "And the project manager was really trying to- We can even call him business partner. He was really to come into our situation. He said, he needs to fully understand- What we are doing, in order to come up with solutions. And that I think was a very crucial part in the whole process".
>
> Quote team member: "Virtually over the entire interface how we run that. So, how do we set up databases? How do we set up the programming for the interface? How I see the AX receiving it? All this technology-based issues was really left over for me to make the decisions on".

Other

The team remains agile due to the combination of the expertise, frequent feedback session that allow them to adjust and visible make progress due to their short delivery cycles. Mistakes were made and excepted as long as the team learned from it.

> Quote team member: "Classical examples where we had the reloading the whole reference data in the one weeks efforts work and then at a certain point we have to say, now we're going to delete everything and make it again. And, we have to make mistakes. We have to learn from it".

Team agility

Team agility continued to surface. The progress was visible due to the speed and empowerment of decision making was within the team itself. The different expertise grouped within the team were complementary allowing to view different angles to a problem and come up with solutions that work.

> Quote team member: "Important in this of course is the speed, that you actually see progress, that you see that you're actually making steps in the right directions as well".

> Quote team manager: “Because that was what I experienced also in this team … - You need people from different angle who can bring in their expertise to find a common way of going forward”.

4.3.4.4 Maintain and optimise

In the maintain and optimize phase the team is nearing the completing of the first release of their product. The intense cooperation with the external consultants is reducing and the team is now interacting more with other teams in the organisation, teams that do not work agile.

Leadership

The findings brings forward a negative effect from leadership as other teams lack the focus team D has experienced.

> Quote team member: “It also has to do with other stakeholders, which do not focus on the project that much, due to other activities they have on the task. So it's much less concentrated on that particular chunk of work you need to do”.

Culture

The dominant negative factor is trust where the high level of trust as reported in the findings in the previous phase is not passed on to the other teams. Instead a lack of trust is emerging as the teams in the organizations fail to comply with agreed, short cycle, deliveries.

> Quote team member: “So you make a meeting, you agree to do this. You don't get response back. You don't get a testing back. You don't get many, many other things back from the user, which again delays my task. I cannot close it off. I cannot continue”.

Other

Positive other factors also emerge as teams experiment more through learning by doing compared to previous phases.

> Quote team member: “Well, that’s a process I do, actually on a frequent base. Because, before I actually make a suggestion to them and say hey, that’s the best way to go, I’m pretty certain that this is working out. Because I have prior to that already checked, how can I do this best?”.

Team agility

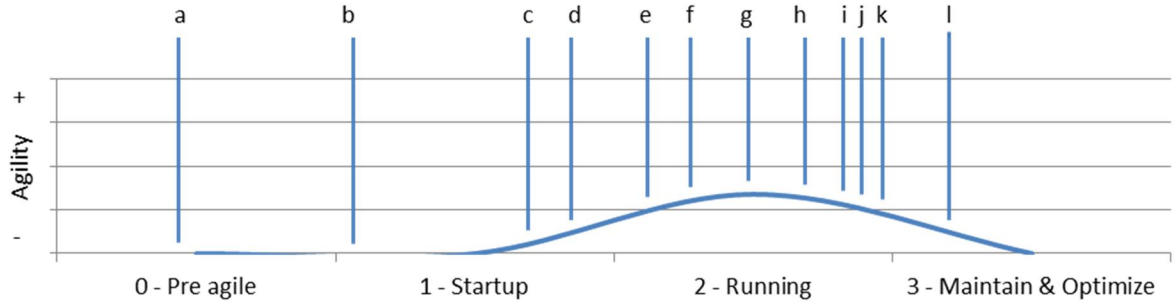
For the team to cooperate with team that do not work agile has an effect on the agility of the team as the level of agility reduces to a level it can no longer be reported from the findings.

4.3.5 Findings for team E

Team E is considered as an agile team due to their approach towards creating a new product as a multi-disciplinary team. Despite a change of leadership with a significant change in leadership style during the running phase team agility was not significantly affected. Figure 13 visually represents the evolution of team agility of the team across the four phases highlighting those moments that influence team agility. The following narrative describes the process for this team with the points of influence indicated in the text.

The narrative for team E starts with the pre-agile phase where the team does not feel empowered and is lacking focus for a clear goal (a). The team culture is one of open and informal communication with an attitude of being risk avoiding. The start of the project marks the start-up phase. Leadership is providing a common goal to achieve along with a clear direction and boundaries for the team (b) resulting in focus. As the work is divided in smaller pieces progress is made visible. The agile approach taken from the start loosens (c) during this phase and the in–transparency of the

leadership (d) brings a negative twist. The intensive collaboration and frequent short meetings have a positive impact on team culture. In the running phase the leadership style is becoming more directive and in-transparent (e). The place where decisions are made is moved out of the team by the project manager and towards higher management. Team members understand less of the context of the decision and start to feel less involved (f) in the project. As a result the team members start to work more in silos and agreed deliveries are more frequently being delayed decreasing the overall level of trust within the team. Team agility in the running phase however is increasing as the joined expertise, flexibility and speed of decisions making (g) add to team agility. The speed of decision making however is contradicted by other findings in this phase bringing forward a split in team experience. The end of the running phase is marked by the departure of the project manager and handover to a new team manager (h) with a different leadership style. The change of leadership is noticeable in the findings as the current leadership style is one of coaching and facilitating (i) the team. Team members become empowered as the decision making process shifts to the team members for their field of expertise (j). The frequent contact between the team manager and the team members assures the team stays focused (k) and sharpens the feeling of belong to a team while supporting an open team culture. In the maintain and optimize phase the leadership style continues the empowerment of the team. By allowing the team to decide on how solutions are build and by providing the team room to experiment the team gains motivation (l). Along with the motivation also the trust in each other's expertise grows as the team works close together contributing to an open team culture. Despite the positive changes for the team, team agility decreases.



a) Lacking of focus and clear goal
b) Project starts with a common goal and clear direction and boundaries for the team
c) Agile approach loosens
d) In-transparency of leadership
e) Leadership more directive and in-transparent
f) Team members feel less involved
g) High agility due to speed of decision making
h) Change of leadership
i) Coaching and facilitating leadership style
j) Team get to decide in their field of expertise
k) Frequent contact assures focus
l) Empowerment and room to experiment motivates the team

Figure 13: Evolution team agility across phases for team E

4.3.5.1 Pre-agile

Leadership

People do not feel empowered as the decision making structure is unclear and does not lie with the teams. Focus of management is individual client driven lacking a clear focus for the team.

> Quote team member: “You exactly raise the question, where was the decision taken? At some point nowhere. We have documents who stayed in drafts forever. And that was basically the working document”.

Culture

The culture one of is risk avoiding while communication is considered to be open and informal with an attitude open for change.

> Quote team member: “X: Could you maybe also say from that one, that in the old way, our aim was basically a hundred percent and anything less than a hundred percent was not acceptable. Y: Exactly. And then no decision was taken until it was a hundred percent. And because you never reach a hundred percent, no decision was taken. In a hard way, there were decisions taken of course, but not in that way they do now.

> Quote team member: “Yeah, rather conservative. That’s just my experience. I think we in the Treasure department is very open and flexible, whereas the rest of the organization, that’s just my experience, is a bit old-fashioned. And people stick to their tasks and are not very open to do things differently”.

Other

Other factors include the lack of resources with too few people in the team to perform the work while the same argument in the wording of a relative small team provides the team a clear overview of their work.

> Quote team member: “Maybe this lack of resources could- Or you could increase the efficiency by working agile. Which at the end would help to free some resources”.

Team agility

No findings that indicate team agility in this phase.

4.3.5.2 Start-up

The start-up phase reflects the start to digitize the payment process and along automate multiple manual steps in the process. An external project manager was assigned to manage the multi-disciplinary team.

Leadership

Taking an agile approach in the start-up phase leadership is a positive dominant factor as the project manager provides focus by providing clear directions and boundaries along with a single common goal to achieve for the team. Work is divided in smaller pieces to improve planning and make progress visible. Next to the positive leadership attributes also negative leadership attributes have been identified through in-transparency of the leadership and by quickly lose focus on the agile approach.

> Quote team member: “No, having a clear end product in mind, which is not- Which is achievable in a certain time period. So which is a stretch, but not something that requires twelve months to do. Which you break down into small pieces, which you can- Where it kind of concentration and intensity really tackle well.”

Culture

Cultural aspects that contribute positively are the intensive cooperation with frequent short meetings and new people the team. Negative associated is the deliberate isolation by management of the team from the organisation.

> Quote team member: “And I think there were then, weekly update, and let’s say from the beginning that it felt like it’s going in that way”.
>
> Quote team member: “Y: So there is always a mix of people coming new in, which may be- X: A kind of new blood, so that anyway it blends the culture? Y: Exactly”.
>
> Quote stakeholder: “Establishing, or shielding it in a way from the rest of the organization which does not work in that way, which has lots to do with installing a decision making mechanism which then also yields those instant or short term decisions”.

Other

Other factors do not have significant impact on the findings.

Team agility

No findings that indicate team agility in this phase.

4.3.5.3 Running – pre leadership change

As the project progresses in time negative leadership attributes start to dominate.

Leadership

As the project progresses in time negative leadership attributes start to dominate. The leadership style is now more directive and autocratic and in-transparent and the empowerment of people is reducing as more decisions are taken outside the team. A decision structure is emerging where decisions are taken by the project manager to higher management for decision making and not with the team.

> Quote team member: “Whereas on the decision making there was a more, let’s say, was more a top-down, it was, felt like a top-down approach”.
>
> Quote team member: “X: So basically, it’s kind of when the going gets tough, you basically notice that other people, or the Scrum Master, they basically start going into micromanagement? Y: Yes”.
>
> Quote team member: “I think basically the one leadership style in team one was yes well it comes, it’s now maybe a little bit repetitive, it’s a top-down approach really”.

Culture

The impact of culture in this phase is increasing, both positive as negative as if the team has different faces or is becomes split. Cooperation and participation along with the frequent and informal communication and trust through delivering on agreed actions and taking ownership are appreciated and are positively associated with culture. Negatively associated with culture are risk avoidance, working in silos and missing trust due to not delivering on agreed actions and lack of trust in each other’s expertise.

> Quote team member: “I mean, what personally, you know, you start, you don’t know each other and then you learn your counterparty, you learn to know his personality and you’re building trust. I mean, that’s something you learn through- And I think that leads toward better work, collaboration and teamwork”.
>
> Quote team member: “If you commit to a deadline then someone expects something from you. And if you don’t deliver then you let that person hang. And that’s not good at all”.

> Quote team member: “Where there was no really progress sometimes one the task list. Or they were just kicked as completed, although nobody even started on working it, so it felt like, let’s make that the extreme case”.

Other

Other factors include findings where it is questioned if the team still working as a team or is working as a group or individuals or small island. The context in which decisions are taken outside the team is missing leaving team members guessing on the intensions which demotivates team members to take their responsibilities.

> Quote team member: “Now I have to talk to the team manager and ask, do you have problem? How does it run? What's the next plan? Do you- What steps comes next? Are there new banks? Is this APS tour going? When is the pilot finished? All these kind of stuff- Nobody knows in the Treasury department.

> Quote team member: “Yeah, that’s what I explained during this trust question. I think you shouldn’t lose- Or you clearly go this agile way, then you have to do it from the beginning to the end and not just in the middle of the project start doing this micromanagement. That’s something that should be done differently in a project”.

> Quote team member: “X: Did you feel you were working in a real team when you worked in this team on this project? Y: No, not actually, no.

Team agility

Despite the more negative influences team agility is emerging in the findings due to the joined expertise in the team and the focus of the team, flexibility to adjust when needed and speed of decisions making. The latter being contradicted and balanced by slow decision taking as finding for this phase as well bringing forward a split in team spirit.

> Quote team member: “The difficulty is not within the team. The difficulty is more to- Once it comes to decisions which somehow effects the rest of the organization, which has not been part of that experience and that way of working. That it does not hinder the decision making process. So for example, in APS I think the decision taking in the team was very effective and quick”.

> Quote team member: “Second, because they have a rather complimentary profile in terms of the roles, which they are very effective in. Although it has been a bit IT or tech-heavy”.

4.3.5.4 Running – post leadership change

Leadership

Leadership is the dominant positive factor in the findings due the focus and empowerment stimulated by the new team manager. Leadership style is one of coaching and facilitating the team and the decision making process is returning to the team.

> Quote team member: “The main change driver I think, was- Difficult to say. I would also say that the project manager did also the change by changing the story line. Or more focusing on the- Changing the focus, I think that’s the best word. To change the focus, by changing that focus it became clear what needs to be- What we need to talk about”.

> Quote team member: “And also by kind of implementing a certain governance, who is making decisions, what can be done right now. And what we are working on, who is

> improving on every tiny little step to be developed yes. And also by addressing what needs to be sorted out".

Culture

Team culture is a positive factor in this phase as the informal communication within the team and the appreciation of team members participating both contribute positive thereby supporting the feeling of belonging to a team which increases the level of trust within the team. Working in silo's is reducing limiting the negative association for culture.

> Quote team member: "And also by involving of course people who are then working the client service team, for example, who are really working with clients. Then of course the questions and the input became also a complete different one, then talking with eight to ten engineers, which do not have client contacts".

> Quote team member: "So team, you could consider then maybe that within the team there's a much more like real group feeling, and the trust level within the group".

Other

Other factors that positively contribute include a positive critical attitude to understand why things are done as they are proposed and the feeling of team members that the project manager is engaged, understands where people are at and thereby is in control. A negative finding for the team is the closed culture of the environment the team is operating in limiting the team in some areas.

> Quote team member: "Because the PM approached me directly in, okay he said you are going to that and that, can you please explain me again, and so on. So it feels more controlled, why are you doing this and so on. Whereas in team one we simply had the one week's meeting. Where you said something that you have done it, but nobody was controlling it right".

> Quote team manager: "How I experience it myself? Yes, it's something very natural to me nowadays".

Team agility

Team agility is limited identified due to the cross functional support within the team allowing them to proceed at pace.

> Quote team member: "Yes, true. And also by let's say, having different representatives from the different teams. And then dividing who is really responsible for what. I think that also completely changed the approach".

4.3.5.5 Maintain and optimise

In the maintain and optimise phase leadership continues to be a factor of importance along with other factors.

Leadership

As the team manager of the team continues to use the same leadership style the team members remain empowered. Their empowerment includes deciding how the solutions needs to be built which motivates the team to experiment with different solutions and learn. By empowering the team and by providing the space to experiment the team manager motivates the team to try new options and learn.

> Quote team member: "The second is that you have a certain degree of- You have to let go of things. You have to give confidence, but it's not unconditional. They demand a clear story,

> otherwise they can never excel within the agreed boundaries. That's what it takes to get people into it. So you should not start telling everyone how to do things. And you have to stimulate their enthusiasm".

Culture

As they work and experiment together they learn from each other and start to trust on each other's expertise, both positive contributors to the level of trust within the team supporting an open team culture.

> Quote team member: "Be prepared to adjust it and to completely flip or overturn if you need to".
>
> Quote team manager: "As you talk to each other, ohers learn. So you also get a kind of master-companion, but that sounds like..., but because you are looking at a particular problem and taking time to explore it and trying to explore the different aspects, you are also automatically training and learning each other".

Other

Other factors with a positive influence is that in this phase the content prevails over procedures and politics. This also influences the team's confidence in a positive manner.

> Quote team manager: "The content will again be ruling and it is up to the professional to make his assessment together with his team, about how difficult something will be, how long will it take?

Team agility

Despite the empowerment of the team along with facilitating leadership and an open team culture with a high level of trust the team the findings did not reveal factors that mark the team as agile.

4.4 Cross case findings

For the cross case analysis the findings from the individual cases have been grouped into a single overview to allow for cross case comparison. Table 2 shows these results grouped per phase vertically and per focus area horizontally. The level of team agility is illustrated through the amount of dots on a scale from zero dots to four dots where a high number of dots corresponds to a high level of team agility. For the other areas key wording is used to best address the influence that particular area has in that particular phase. Though reducing the influence to one or more key words eliminates the nuance and context of the influence it also sharpens the differentiating element of the influence supporting the cross case analysis. Nuance and context will resurface as part of the detailed analysis from those cases that standout from the cross case analysis. The cross case analysis allows to compare the evolution of team agility of all teams and helps to understand which teams are successful in reaching team agility, maintain agility and which are not? To support the process the evolution of team agility has been visualized in Figure 14.

		Pre-agile	Start-up	Running	Maintain & optimize
Team agility[7]	Team A	○○○○	○○○○	●●○○	●●●●
	Team B	○○○○	●○○○	●●○○	○○○○
	Team C	○○○○	○○○○	●●○○	●○○○
	Team D	●○○○	●●●○	●●○○	○○○○
	Team E	○○○○	○○○○	●●○○	○○○○
Leadership	Team A	none	directive	transformational	supportive
	Team B	autocratic	directive	transformational	servant
	Team C	micro-management	directive	transformational	supportive
	Team D	micro-management	transformational	transformational	laissez-faire
	Team E	none	directive	autocratic[8] transformational[9]	transformational
Culture	Team A	lack of trust	informal and open	trustful	open to change
	Team B	hierarchal	trust is building	trustful	transparent
	Team C	slow-moving	trust is building	trustful	open to change
	Team D	low trust	informal and open	trust is building	distrust in org.
	Team E	open to change	isolation	silo's[8] trust is building[9]	trust is building
Other	Team A	too few resources	adaptation	learning	learning
	Team B	changing priorities	planning	experimentation	in-efficiency
	Team C	Inflexible	learning	experimentation	re-work
	Team D	In-efficiency	critical attitude	learning	experimentation
	Team E	too few resources	none	unclarity[8] critical attitude[9]	content prevails

Table 2: Cross case analysis findings

[7] Level of agility is identified by the number of dots ranging from low (○○○○) to high (●●●●).
[8] Relates to pre leadership change in this phase.
[9] Relates to post leadership change in this phase.

Based on the information from Table 2 it is team D that is able to reach team agility already in the start-up phase whereas team A is able to continue to develop team agility throughout the maintain and optimize phase. Team agility seems to be a transient phenomenon as only a few teams seems to be able to maintain a certain level of team agility. With team agility as the main focus a few cases standout from the cross case analysis that will be analysed in more detail. These cases are listed below in random order:

- Why does team A excel in the maintain and optimize phase?
- Why does team D show high team agility in the start-up phase?
- Why does team agility for all teams, except for team A, decrease in the maintain and optimize phase?
- Why is directive leadership the dominant leadership style in the start-up phase?

In the following sub paragraphs each case will be discussed in more detail.

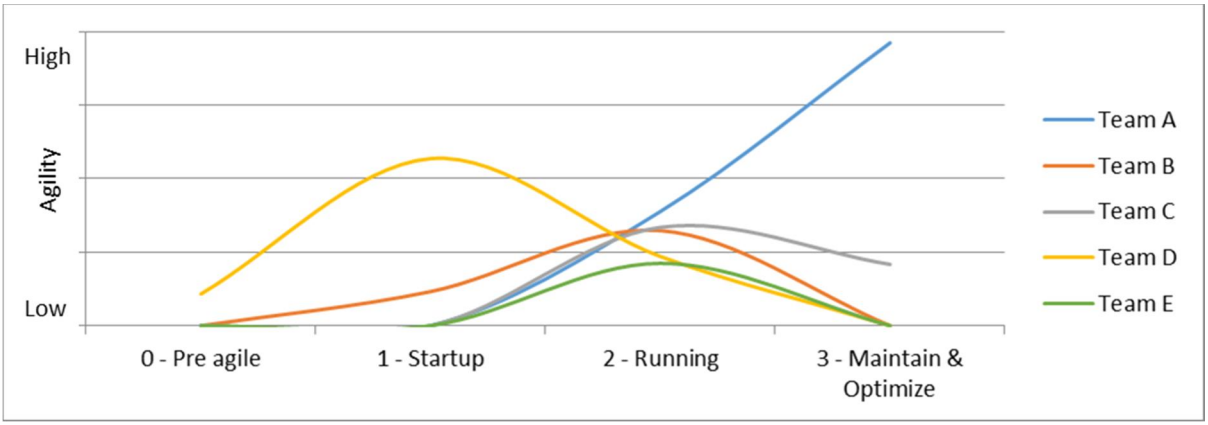


Figure 14: Evolution of team agility between teams over time

4.4.1 Why does team A excel in the maintain and optimize phase?

Compared to other teams the team agility of team A excels in the maintain and optimize phase. What differentiates team A from other teams is that team A has a change of leadership in this last phase. But could change of leadership be the reason for team agility to excel?

In order to answer that question we first have to look at the relation between change of leadership and team agility. A relation between these two can be made based on the finding of this research. For team A and B a change of leadership of the team in the start-up phase marks the start towards an increase of team agility. For team C, D and E it was not new leadership that was introduced to the existing teams rather new teams were formed for a specific purpose and as such these teams start with new leadership as well. All team starts with new leadership in the start-up phase.

What all teams furthermore have in common in their start-up phase is the use and/or experimentation with new agile methodologies. Team A, B and C use the scrum methodology where team D and E do not make use of a specific methodology though they do apply forms of agile work methods. Applying any new way of working in a new team gets the attention of the team and brings focus on working together and get to know one and other. As part of using a new work method the teams become focussed.

Another element associated with bringing focus are clear roles and responsibilities for the team members and a common goal. These element are present in all teams, for most of them in the start-up and for some in the running phase. For team A however, along with the change of leadership in

the maintain and optimize phase, the common goal, setting priorities and evaluation of the team's work methods are reemphasised in the maintain and optimize phase. This brings renewed focus to the team and is the main differentiator in reference to the other teams.

The leadership role that brings focus through the use of communicating a common goal, providing clear roles and responsibilities for the team, is recognized for all teams in the start-up phase or in the running phase. It is among this focus that all teams reach a certain level of team agility in the running phase. As opposed to the other teams that lose focus in the maintain and optimize phase and see reduction of team agility it is team A that, as part of the change of leadership in this phase, brings back focus into the team through the use of reemphasising the common goal of the team and reemphasise the clarity on roles and responsibility. As a consequence team agility for team A is propelled to a higher level.

> Quote team member: "The team now has another manager, who gave more direction and a bigger goal. Now more product driven delivery".

In line with the positive effect that bringing focus has on team agility for all teams in the start-up and running phase, reemphasizing that focus in the maintain and optimize phase has a cumulative effect on team agility.

4.4.2 Why does team D show high team agility in the start-up phase?

Compared to other the teams the level of team agility for team D in the start-up phase is relative high. Cross case analysis shows that in the start-up phase team D has very few negative factors to influence team agility, the majority of factors are positive. Leadership provides clarity on the roles and responsibilities within the team in both the start-up phase and running phase which is similar to the other teams. What differentiates the role of leadership is the level of motivation within the team during the start-up phase. That motivation is triggered by the push from the external company supporting the team in delivering the new product and thus deliver result. The new people joining the team have a positive effect on the team culture and motivation of the team. The short cyclic delivery of results that has been adopted during the start-up phase is part of an agile work method and helps the team to stay focussed on delivering results. But how does that differ from the other teams?

New people joining the team is rather common compared to the other teams and equally positive in contribution. A difference is noticed how the external partner supporting team D is motivated to drive results and thereby pushing team D into an agile approach with clear tasks and delivery dates. This directive style of leadership coming from an external partner is what drove the result orientation of the whole team directly from the start. Clear tasks, clear delivery dates along with short cyclic delivery periods bring a strong focus to team D on the work ahead and as such makes the team to become a result orientated team. Decisions in the field of expertise of the team members could be made within the team preventing delays from extensive decision making processes. Other teams required more time to transpose their focus and agile work methods into result oriented activities that contribute to their team agility.

> Quote team member: "The push came actually from the external partner. Took us along, I would say. And it was quite clear on tasks and on target dates."

Other factors that have been identified are the curiosity and critical attitude of team D's team members towards the reasoning behind the processes in scope and the ability to bring in expertise when required. The curiosity and eagerness of the external team members along with the critical attitude acted as a reflection board on how to structure the reporting processes in an optimal way.

Where required the team was able to bring in additional expertise to support this process. The critical attitude challenged the status quo and contributed to the motivation of the team from the start in the start-up phase thereby contributing to the level team agility. Though team C and E also show a critical attitude towards the status quo of existing processes, they show this attitude in the running phase therefore contributing to team agility in the running phase.

The directive leadership style carried by the external partner pushed the team and the team manager to be very focussed on delivering results directly from the start of the start-up phase. Clear roles, tasks, decision making process and delivery dates through short cyclic deliveries were agreed upon requiring strong focus to prevent getting side-tracked. The directive leadership style resulting in strong focus within the team is the main differentiator between team D and the other teams and the main driver towards team agility in the start-up phase for team D. Curiosity, eagerness and a critical attitude towards the status quo of financial reporting processes contributed to the team's motivation early in the process.

4.4.3 Why does team agility decrease in the maintain and optimize phase?

In chapter 4.4.1 the reason for team A to excel team agility in the maintain and optimize phase has been analysed. The reason being new leadership that brought (renewed) focus to the team through communicating a common goal and providing clarity on the role and responsibilities of the team members. When analysing the maintain and optimise phase of the remaining teams it comes clear that some teams, team B, C and D, start to lose focus on applying their agile work methods. But what could be the reason for teams to lose their focus on agile work methods if they were previously successful in using it?

For team B the focus on applying scrum methodologies in the maintain and optimize phase is weakening and that more meetings start to impact the efficiency of the team. It also in this phase that the leadership style is changing from a more directive one to one that is more facilitating working towards a team that is more autonomous in managing itself. As the team has settled their agile work methods and take this as their new normal way of working the sharpness and energy of the team may be fading. Could it be the novelty of agile working is transient?

The strategy for team C to deliver in time and for minimum 80% of correct working functionality allows the team to respond quickly to new request yet has a counter effect that the technical debt is building. Rework is added to the backlog as updates of functionality battling for priority with new to be added functionality delivering value for the stakeholders, something the team is eager to deliver. The stretch between resolving technical debt and provide new functionality is starting to starting to reduce responsiveness of the team to these new requests. Nevertheless the team is still able to manage priorities jointly with its stakeholders ensuring an amount of flexibility remains. Leadership in this phase for team C is transforming into one that is more informal and shared within the team slowly turning the team more into a self-managing team. This transition seems to be accompanied with a reduction of focus within the team as factors associated with bringing focus to the team are no longer derived from the interviews in this phase. Despite the weakening focus on agile work methods team agility still remains yet is reduced in the maintain and optimize phase.

After a period where team D was mainly focussed on work with the team it is, in the maintain and optimize phase, interacting more with (non-agile) teams. The strong focus, clarity on task and responsibilities and short cyclic deliveries that the team members were used to now need to blend with teams that are not attuned to agile teams and in some cases require strict procedure to follow. This is delaying work for the team and brings difficulties and sometimes frustrations leading to lower

levels of trust within the team. There is no indication of change of leadership style in this phase so the leadership style remains one of coaching the team member to take responsibility and be assertive. Factors associated with focus are no longer reported by the team in this phase suggesting that the strong focus available in the start-up and running phase is decaying.

Analysis for team E reveals factors that are positive associated with team agility are in place. Nevertheless antecedents for team agility do not surface from the findings hence the team does not shown signs of team agility anymore. Most factors are associated with leadership with that has a focus on empowering the team and share responsibilities and decision making processes within the team. The leadership style is one that in not directive but one that is more of a servant style. Team E shows sign of a team in transition, open to change, adopting a new style of working and governance and as such preparing itself for a new phase. These are similar activities as in a start-up phase.

Where team A excels team agility in the maintain and optimize phase, team C is facing reduction of team agility while teams B, D and E fail to maintain the level of agility. Both team B and C are in a process of transition of leadership towards self-managing teams where more responsibilities will lie within the team itself. In both cases the focus on agile work methods is reduced leading to less focus on result delivery of the team, both in product delivery as speed to respond thus resulting in less agility. For team D the interaction with non-agile teams led to difficulties as work methods are not attuned. Agreed work became delayed resulting in decrease of trust in the organisation. Factors associated with focus that were present in previous phases are no longer reported. The transition of leadership for team E during the running phase has a consequence in the maintain and optimise phase where the team shows similarities to a team in transition during the start-up phase. The result is less focus on result delivery and reduced speed of response. The common factor the teams share is the reduction of focus in the maintain and optimize phase. The reasons differ per team but the result is similar, less focus leads to lower team agility. Team A experienced an increase in focus due to the new leadership that reemphasises focus and the agile work methods with an increasing level of agility. From these findings a direct correlation is made between leadership bringing and maintaining focus to the team and reaching and maintaining team agility.

4.4.4 Why is directive leadership the dominant leadership style in the start-up phase?

Analysis of the leadership style shows that directive leadership is a dominant leadership style in the start-up phase for four of the five teams. This is contradictive to the literature where leadership styles including servant and transformational leadership are positioned as the dominant leadership style for agile teams and directive leadership is positioned as a negative influence on agility and empowerment. What is the rational for the findings to show directive leadership as a dominant factor in the start-up phase for agile teams?

For team A the start-up phase is marked with a change of work method as scrum as work method is introduced. New leadership has been added to the team and new people join the team bringing a change into the team dynamics as well. In the flux of change for the individual team members clarity and grip are most welcome. Directive leadership is able to provide clarity on the goal to achieve, the timeline in which to achieve the goal and the instructions to use. These are the clear instructions and directions that help the team to experiment with the new work methods and focus on the task at hand helping the team to get grip and clarity in their changing world. As the directive leadership style is helping the team to get grip and clarity the leadership style is appreciated and tolerated in this phase of evolution towards team agility.

Team B and C shows similarities with team A as the new leadership introduces a new work method using scrum methodology. The directive leadership style in the start-up phase brings the team clarity on what is expected of them using the new work method. The scrum method brings guidance on how to break down work in smaller pieces, how to handle disruptions and interruptions and how to plan the activities. Directive leadership along with the new work method provides grip for the team members in their changing environment.

For team E the directive leadership style provides the team with a common goal to achieve along with a clear direction and boundaries for the team resulting in focus. The focus is what helps the team to deliver as agreed in the their short cycles.

Directive leadership can have a positive function in the start-up phase for the teams, especially when those teams experience much change in their environment. The directive leadership style provides clarity to the team in numerous areas. Clear tasks and instructions describing what is expected of the team member, how it should be done and the timeline to deliver the agreed activity. The same goes for the standards, rules and regulation that potentially apply.

4.5 Conclusion and discussion on findings

In the cross case analysis four cases stand out and have been analysed in detail. Conclusions have been drawn for each individual cross case. In this paragraph the individual conclusions are brought into context of each other in an attempt to distil proposition from them.

4.5.1 Team agility is transient

From the cross case analysis on why team agility decreases in the maintain and optimize phase, paragraphs 4.4.3, it is concluded that reduction of focus in agile teams leads to a lower level of team agility. Figure 15 illustrates the transience of team agility across the phases and the effect of reduced focus on team agility over time. The opposite is also true as this research concludes in paragraph 4.4.1 (Why does team A excel in the maintain and optimize phase?) that (re)accentuating the common goal, (re)clarify the roles and responsibilities for the team and re-emphasize the agile work methods revives the focus of the team leading to a higher level of team agility. The latter conclusion suggests that the level of team agility can be increased and extended when the common goal, role and responsibilities and agile work methods are periodically reemphasised. These activities are typically found in the start-up phase when limiting the scope to this research and when (re)applied in a light form in the maintain and optimize phase, as performed by team A, leads to a continuation and increased level of team agility. When merging both conclusions a proposition emerges stating that team agility is transient and requires maintenance in order to maintain and/or grow team agility.

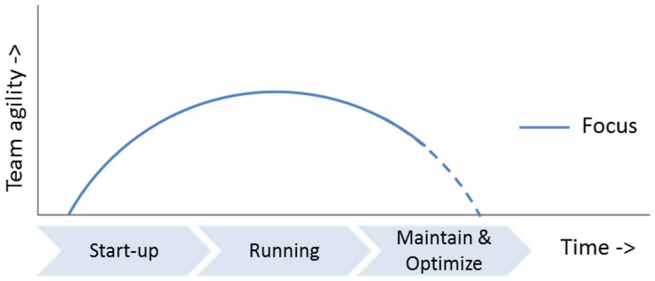


Figure 15:A cycle of transient team agility

Proposition 1: Team agility is transient and requires maintenance to maintain.

Next to this proposition an additional proposition emerges as the findings suggest a direct correlation between the level of focus and the level of team agility where focus is applied in the agile context. Focus in the agile context includes but is not limited to focus on agile work methods, deliver as agreed upon, roles and responsibilities and the common goal. A high level of focus in the agile

context of the team will lead to a high level of team agility and vice versa a low focus of the team in the agile context will lead to a low level of team agility.

Proposition 2: The level of focus in the agile context has a direct correlation with the level of team agility.

Another conclusion that is drawn includes the emergence of a program which re-emphasizes the common goal, re-clarifies the roles and responsibilities for the team and re-emphasizes the agile work methods that bring team agility to a higher level. These activities, as observed in the maintain and optimize phase of team A reviving team agility, can be grouped into a program to revive team agility and is called for further reference an agile revival program. The seemingly cyclic behaviour of team agility and the effect of running an agile revival program in the maintain and optimize phase as seen with team A suggest that team agility can be extended beyond the initial reached level. This approach suggests that the timely application of successive agile revival programs can bring team agility to higher levels over time. This leads to the proposition the precisely timed application of successive agile revival programs can extend and increase the level of team agility of team over time. Figure 16 illustrates how precisely timed application of agile revival programs can both extend team agility and increase team agility over time. The focus illustrated in this figure represents the focus in the agile context covering the focus on agile work methods, deliver as agreed upon, roles and responsibilities and the common goal.

Proposition 3: Precisely timed application of agile revival programs can extend the level of team agility of teams over time.

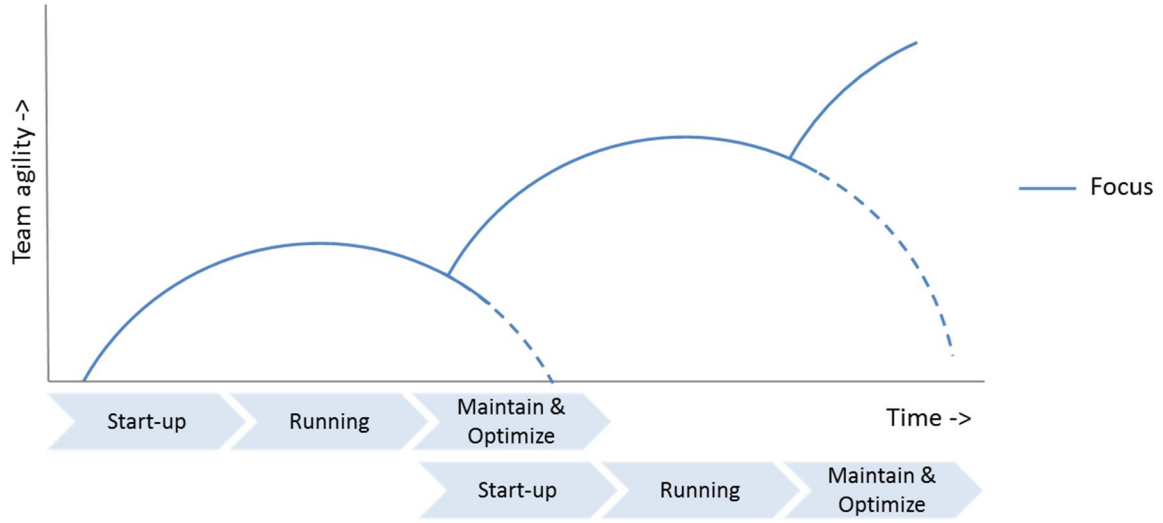


Figure 16: Precisely timed application of agile revival programs extends and increases team agility.

4.5.2 Team agility requires situational leadership

When reviewing the leadership area of Table 2 the multitude of leadership style across the various phases standout. A wide variety of styles have been observed during the research varying from directive leadership to servant leadership and from micro-management to laissez-faire. From the literature on the leadership styles associated with agility those that promote empowerment, support and facilitation of the team members dominate while the leadership styles that are directive in nature are considered as ineffective and negatively influences the followers motivation (Northouse,

2015). In line with the literature the research shows the presence leadership styles that are positive associated with agility such as transformational, servant and supportive leadership.

In contrast to the literature the research shows positive influence and contribution of the directive leadership style. Specifically in the start-up phase this form of leadership is present and is positively associated with team agility. In cases where the teams experience considerable change in their environment, as in the cases from the research to radical digital transformation that requires the formation of new teams and new work methods to be adopted, the directive leadership style provides clarity to the team in numerous areas. Examples include clear tasks and instructions describing what is expected of the team member, how it should be done and what the timeline is to deliver the agreed activity. The same applies for the standards, rules and regulation that potentially apply. These results lead to a proposition that contradicts with the literature on leadership for agile teams and agility (Bass & Riggio, 2006; Denning, 2016; Northouse, 2015).

Proposition 4: Directive leadership is an effective leadership style in the start-up phase of towards team agility in radical changing environments.

The research further shows that once teams reach an initial level of team agility in the running phase the leadership style in majority changes towards transformational leadership. In the maintain and optimize phase the leadership style is once more changing. For the more successful teams, those that manage to maintain a certain level of team agility (team C) of excel their level of team agility (team A), the leadership style is superseded by the supportive leadership style. The less successful teams see a leadership style of either servant, laissez-faire or transformational. The pattern that now emerged is one that shows that the path toward team agility and beyond requires a combination of multiple leadership styles. The style to apply depends on the environment and context the team operates in and is thereby depending on the situation. Will an optimal path for leadership style to evolve exist?

From this research a successful path for leadership styles in the context of team agility can be crafted. This is one that starts with an environment where team members are caught in a flux of change. Directive leadership brings clarity, guidance and focus in the start-up phase allowing the team members to adjust and adapt the new way of working. The running phase is dominated by transformational leadership that allow the team members to grow into their new role, take on responsibilities, become empowered and exercise their empowerment. In the maintain and optimise phase the transformational leadership is changing towards supportive leadership where the team member becomes more in control and is capable to identify what is required to optimize the performance of the team member and the team as a group. In summary the sequence of leadership styles of the most successful teams (team A and C) start with directive leadership followed by transformational leadership and end with supportive leadership. Reflecting back to leadership literature this approach is in line with the theory on situational leadership (Blanchard, 1985; Blanchard & Zigarmi & Zigarmi, 2013). Their theoretical situational leadership model, described in more detail in paragraph 2.3.2.1 includes four phases: directing leadership, coaching leadership, supportive leadership and delegation. A mapping between the sequence of leadership styles of the most successful teams from the research and the situational leadership model is shown in Table 3.

	Start-up	Running	Maintain and optimize	
Research	Directive	Transformational	Supportive	-
Situational leadership	Directive	Coaching	Supportive	Delegate

Table 3: Comparison leadership evolution from research with situational leadership model.

The research observed four phases for the process to reach and maintain team agility of which phase 0 is a preliminary phase (pre-agile) and not part of the transition process. A fifth phase has been identified, but not observed, and entails the phase where team agility has decayed and is no longer present. This leaves three effective phases for the process: Start-up phase, Running phase and Maintain and optimize phase.

Comparing the leadership evolution from the research with the situational leadership model reveals that the fourth phase from the situational leadership model is not observed from the research. This fourth phase may suggest room for further evolution of team agility assuming the situational leadership model can apply. The fourth phase from the situational leadership model represents delegation of activities to the team which implies the team operates in a more autonomous mode, as a self-managing team. Although autonomy of the team is not considered an antecedent of agile teams by the majority of literature it is identified as a trait for agile teams by Denning in 2016. The approach of Denning may be plausible when a fourth phase in the evolution of team agility would lead to autonomous teams, an observation not made in the current, time restricted, research. An implication for future research could entail a longitudinal study of team agility covering multiple years which may reveal an additional phase in the evolutionary process of team agility. Despite the absence of a fourth phase in this research a proposition emerges stating that the situational leadership model is an appropriate model to apply when transforming team into agile team in an environment that is subject to radical change.

Proposition 5: situational leadership is the appropriate leadership model to apply when transforming teams to agile teams and to maintain team agility in an environment subject to radical change.

4.5.3 Trust derived through collaboration contributes to team agility

Trust is a comprehensive and somewhat elusive theme yet it plays an important role as part of the team culture. Trust within a team acts essentially as a cornerstone for team agility (Cameron et al, 1999, 2006; Strode et al, 2009). The research shows that trust comes in many forms: trust in each other, trust in the team as group, trust in each other's expertise, feel save within the team to criticize and voice opinions and many more. The research also shows that trust isn't instant available, it grows as part of the process of becoming an agile team.

The teams that are successful in reaching and maintaining team agility (teams A and C) show similarities in the way team culture, and in particular trust, is evolving. In the start-up phase the communication within the teams is open and informal, without hierarchy. Close and intensive collaboration between the team members to achieve a common goal supports the process of people to get to know each other better and get familiar with each other's strong and weak points. Deliver within the agreed timeline contributes to the level of trust. As the initial directive leadership style gave clarity on roles and responsibilities it is the transformational leadership that is bringing empowerment to the team within their respective domain. This approach emphasises the roles and responsibilities as well as each other's strong and weak point. Being multi-disciplinary teams support the dependency on each other expertise. As a result trust is building within the team leading to a culture that is trustful in the running phase. The evolution continues as the high level of trust within the team allows the team to be more open for change. The close and intensive collaboration has strengthened the team's unity to jointly take on new challenges.

Other teams show similar evolution except for team E. Team E shows signs of isolation in the start-up phase leading to silo's within the team in the running phase until a change of leadership occurs. The initial leadership for team E started with the team to work in an agile way but soon changed the

leadership style to one that is more directive in style and moving the decision making process outside the team. This transition does not add to the feeling of the team of becoming empowered. It is the close and sometimes intensive collaboration of the team members that allows building trust between team members forming the silo's within the team thus not contribute to forming a team. After the change of leadership during the running phase trust is building up within the team and continues to improve through the next phase.

A general conclusion is drawn that trust is essential to form a team and to be successful as an agile team. In the process of becoming an agile team trust is built through intensive collaboration between team member that work on achieving a common goal. It is the intensive collaboration that helps team member to get to know each other and learn each other's strong and weak points. The result is a team where individual team member become complementary to each other. This brings forward a proposition that trust derived through intensive collaboration contributed to team agility.

Proposition 6: Trust derived through intensive collaboration contributed to team agility.

4.5.4 Agile teams continuously learn

Besides the elements of leadership and culture the research has an explorative angle to identify potential other elements that contribute to team agility. Table 2 identifies key wording for other factors that affect team agility and reveals two elements that have frequently surfaces as a dominant factor: learning and experimentation. Both factors are related to each other as experimentation will lead to a learn effect and learning may include experimentation. In the context of team agility and this research learning and experimentation are used both internally within the team, in order to learn and experiment with new ways of working, and as part of the work the team performs, such as experimenting with new technology or solutions to solve a problem. In either way the team member requires the ability to be open to change and open to learn and in some cases even be open to step out of their comfort zone.

Team A shows a consistent approach as learning and adapting to a new way of working dominates the start-up phase. Learning even becomes the main factor of influence in both the running and the maintain and optimise phase as the team is open to make mistakes and eager to learn from them as individuals and as a team. The latter two phases is where team agility for the team is continuously building and excelling. Team C shows learning as a factor in the start-up phase which correlates to the team's high level of team agility in that phase. The experimentation performed by the team in the running phase does not lead to higher agility level but rather leads to re-work in the maintain and optimize phase. However it is noted from the research that the team is learning from their experimentation and is aware of the rework that some of the experimentation has generated showing the team is susceptible to learning. For team E, the team that shows the least evolution of team agility in this research, learning nor experimentation has surfaced as a dominant as a factor.

The openness and trust to make mistakes and the eagerness to learn from mistakes contributes to team A's agility level. The opposite applies as well as for team E the learning and experimentation only come to play after a change of leadership and the level of team agility is low. From these conclusions a proposition emerges that eagerness to learn is positive correlated to team agility or even more boldly stated that eagerness to learn contributes to team agility.

Proposition 7: Eagerness to learn contributes to team agility.

4.5.5 Implication to theoretical framework

The research has delivered two new insight that affect the theoretical model. Their effect on the theoretical model are discussed in this paragraph.

The first new insight is the possibility that a fourth phase may exist in the process of team transformation towards team agility. The original theoretical framework as described in paragraph **Error! Reference source not found.** contains a total of four phases to reach and maintain team agility of which phases 1-3 are considered the effective phases for team agility being: start-up phase, running phase and maintain and optimize phase. New insights derived from the conclusion in paragraph 4.5.2 about the alignment of the situational leadership model as well as the research of Denning in 2016 suggest a fourth phase may exist where the team evolves towards a self-managing or autonomous team. Although this phase has not been observed in the current research the relative young age of the teams may play a role. As the teams are in place for less than two years it may be the teams have not yet reached the fourth phase. It is an indicator for future longitudinal research on team agility to investigate if a fourth phase is at play. The suggestion of a fourth phase has an implication to the theoretical framework where a fourth phase has been added. Figure 17 shows the amended theoretical model. Adding a fourth phase to the framework implies that the main factors in scope, leadership and culture, will have a continual effect on team agility.

The second new insight involves the effect of other factors that influence team agility. Paragraph 4.5.4 describes the factors that have surfaced and suggests that the eagerness of teams and individual team members to learn has a positive influence on team agility. The lack of eagerness to learn or the lack of ability to learn is suggested to have a damping effect team agility. As a result the eagerness of teams to continually learn is suggested as an additional factor for the theoretical model. Figure 17 shows the amended theoretical model to include the factor of influence for continuously learning of the team and individual team members.

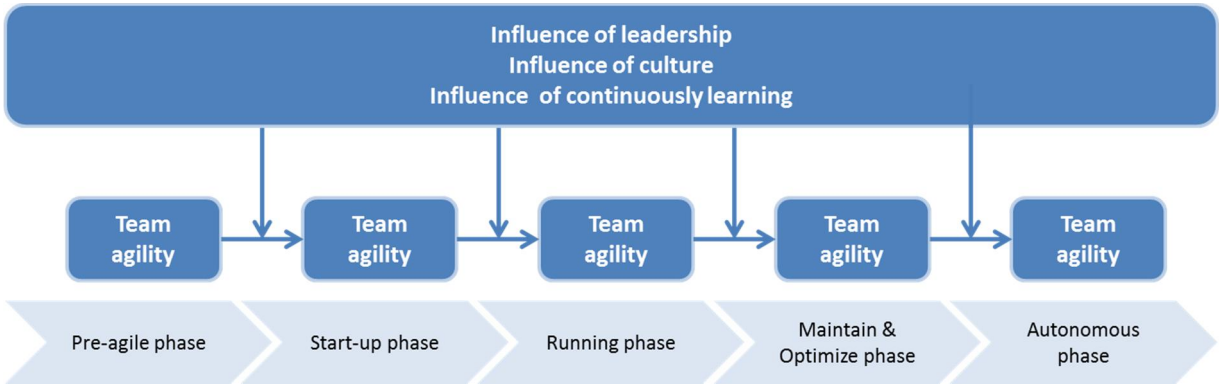


Figure 17: Updated theoretical framework

5 Discussion and Conclusion

In this chapter the discussion and conclusion of the research question are reported. In paragraph 5.1 the main finding from the research are being discussed. Paragraph 5.2 entails the conclusion and answer to the central research question and the sub question. In paragraph 5.3 the limitation of the research are reported followed in paragraph 5.4 by the recommendations and suggestion for future research.

5.1 Discussion

In this paragraph the main findings from the research are discussed in addition to the finding specific discussions in paragraph 4.5. The first finding covers the contradiction with literature that states that in order for an organization to become agile the organizational culture must be attuned with the agile methods in order to the effective. This research has shown that this is not true for all cases. The second finding that stand out is the usefulness of directive leadership is the transition towards agility in combination with radical change which contradicts to most literature that state that directive leadership is negative associated with agility.

5.1.1 Agility from within

In order for agile methods to be effective in an organization it is essential that the organizational and team culture is compatible with the agile methodology being used (Strode et al (2009), Iivari et al (2010), Kompella (2014)). This research shows this dependency does not necessarily needs to be in place. The teams in scope have been able to achieve a certain level of team agility even though the organization culture is not considered to be agile. By forming new teams combing people from the internal organization and external people the organisational culture in the team is diluting breaking down limiting habits. The realisation the organization is in a flux of change brings uncertainty to the internal people that participate in the team making them susceptible for getting grip. The introduction of agile work methods supported by directive leadership offers an handle for people to grab supporting the adoption of the agile work method work. The two additional conditions as described beforehand such as 1) diluting the organizational culture by forming mixed teams from internal and new external people along with the 2) uncertain situation for the internal people are not in scope with the literature described by Strode et al (2009), Iivari et al (2010) and Kompella (2014)). Therefore, under different conditions team can become agile even when the organisational culture is not (yet) agile. The additional conditions along with the introduction of new ways of working offers the teams to form a new team culture and identity.

As teams become more agile they effectively start to change the way they work and adopt espoused values from the agile methodologies. Thereby the teams, being part of the organization, start to change the organizational culture from inside out. One could argue that the transformation of an organization into an agile organization could be organized from the inside out when small teams start to apply agile work methods. Their adopted espoused values become visible to the rest of the organisation and will support the transition of the organization itself.

However these conclusions may not be generalizes as the research also shows how an agile team culture can conflict with the non-agile organizational culture. A specific example from the research is team D in the maintain and optimize phase which shows that the agile methodology and philosophy that are embarrassed within the team can bring conflict when the team is exposed to the organisation's non-agile work methods and culture. The longer the cooperation between the agile team and non-agile organization is in place the greater the decaying effect on agility is for the team. An approach to this situation could be to utilize such a situation and start a transformation of the

adjacent team through a radical transformation allowing the organisation to gradually transform from within into an agile organisation.

5.1.2 Radical change and directive leadership as accelerators for agility

Most literature on agility argue that empowerment of the team member is key in the process to agility and as such leaves no room for directive leadership in the process. Directive leadership is considered as one of three main leadership styles identified by Lewin et al in 1939 and continues to surf a decaying purpose in relation to modern leadership styles that focus more on the charismatic and affective traits of leadership and emphasizes the intrinsic motivation and the development of the followers (Bass & Riggio, 2006; Northouse, 2015). However, in situations of radical change and uncertainty there is a an enabling role for directive leadership as shown by the research. It is directive leadership that gives clear direction and guidance in uncertain situations. Similar to what might be expected in a warzone surrounded with chaos it is the directive (military style) leadership that is most effective. Although far-fetched, one could argue that organizations and teams facing radical digital transformation find themselves in a similar situation that feels chaotic as many of the previous perceived stabilities found within the organizational are dismantled or moving, and not necessarily in the same direction.

It is in these situations that directive leadership offers guidance, clarity and focus to a way out of the perceived chaos. The formation of new teams from multiple disciplines and new external people will dilute the organizational culture offering the teams the ability to build their own agile team culture. Through directive leadership a start with new agile work methods is quickly adopted by the team as this brings clarity and focus on the way of working and responding to request. The intense collaboration between team members, their multiple disciples and expertise along with the short feedback loop and short delivery cycles offer short learning cycles and make progress visible.

Directive leadership is not expected to be only leadership style effective in agile team. On the contrary, it is effective mainly during the start-up phase and should transition towards transformational leadership as soon as the individual team member is admissible for that. In situations of radical change directive leadership can be a meaningful style of leadership supporting a transition towards team agility.

5.1.3 Radical digital transformation as enabler for agility

In reflection to the original title of this research paper team agility was considered as an enabler for radical digital transformation. Based on the findings and conclusion from the research its role has transitioned to being the target. As the urge of the organization for radical digital transformation is eminent the radical change has become the enabler for team agility. Starting the change from within the agile teams have become part of the change of the organizational culture leading to a culture more receptacle to change and an agile culture.

5.2 Conclusion

In this paragraphs the answer to the central research question and the related sub-questions will be provided. As the answers to the sub-questions will lead to the answer of the central research question the sub question will first be answered sequentially.

5.2.1 Answering sub question 1: What makes a team agile?

Agility is considered an elastic concept and various definitions on the concept are used in the literature as reported in paragraph 2.1. For this research the following definition has been used: team agility is the speed in which a team can react in response to changes in the environment. Elements that make a team agile include four core elements: 1) the speed in which a team can

response to a request, 2) the speed in which a team can delivery, 3) readiness of a team to change when needed and 4) flexibility in ways of expertise, priorities, capacity and workload.

In order for a team to perform as an agile team the team must have clarity on the roles and responsibilities of the team and stakeholders. Team members make choices and decide to their best knowledge within the agreed boundaries. The stakeholders determine *what* need to be done and the priority but the team determines *how* this is achieved. Work is broken down into smaller work items that allows for better planning and short term delivery cycles. Along with the short term delivery cycles also come short term feedback cycles, including the stakeholders. The team operates preferably in each other's direct vicinity, preferably in the same room to assure short feedback loops and short and direct communication channels. An agile team is a multi-disciplinary team where the wide range of expertise of team members is complementary allowing the team to be able to deliver on have a wide range of requests.

5.2.2 Answering sub question 2: What style of leadership influences team agility?

There are many styles of leadership and any style of leadership, when exposed to a team, will affect the team. Based on the conclusions from the research a number of leadership styles surfaced, each with their own contribution to the process.

The situational leadership model (Blanchard, 1985; Blanchard et al, 2013) is a model that includes four phases, each with a different leadership style: directing leadership, coaching leadership, supportive leadership and delegation. The research suggest the model can be used to support a team transforming into an agile team. The following paragraphs describe how each leadership style could contributes based on the observation from the research.

Directive leadership is a leadership style one would not expect to be positively associated with the evolution of team agility. In a context of radical digital transformation that requires new teams to be formed and new work methods to be adopted the directive leadership style brings stability and grip in the form clarity in numerous areas during the start-up phase. Examples include clear tasks and instructions describing what is expected of the team member, how it should be done and what the timeline is to deliver the agreed activity. The same applies for the standards, rules and regulation that potentially apply. Directive leadership is appreciated in the start-up phase only and no longer on subsequent phases according to both the finding from the research as literature.

Transformational leadership is a style typically associated with team agility and found to be a favourable and successful style in the running stage. Transformational leadership allows the team members to grow into their new role, take on responsibilities, become empowered and exercise their empowerment. Transformational leadership is also observed successfully in the start-up phase and in the maintain and optimize phase. It is considered as one of the most effective leadership styles for teams that are actively transforming into agile team.

Supportive leadership is similar to transformational leadership often associated with team agility. Supportive leadership is a leadership style that is considered a logical choice to follow transformational leadership as team member has grown to becomes more in control and is capable to identify what is required to optimize the performance of the team member and the team as a group. The evolution process of the most successful teams, those reaching and maintain team agility, found that supportive leadership superseded the transformational leadership.

Laissez-faire is a leadership style not often associated with team agility. It may be an effective leadership style for teams that run autonomously yet none of the team in scope showed

autonomous behaviour. When applied to one of the team agility decayed to a level it was no longer reported from the findings.

Autocratic an micro-management are two styles that or considered as counterproductive in agile teams and environment. Micro-management occurred in the pre-agile phase for some teams and led to team member feeling disempowered. Autocratic was observed as a leadership style for one team in the running phase and led to disempowered team member working in silo's. Both leadership style have a negative effect on team agility.

5.2.3 Answering sub question 3: How does leadership influence team agility?

Leadership is of great influence on the process for teams to reach team agility. Leadership provides guidance and support in time of uncertainty and as most teams in scope of this research are subject or even part of change in a context of radical digital transformation, team members are looking to get grip. It is for that reason that the directive leadership style during the start-up phase is appreciated and accepted. The transformational leadership style is helpful to guide the team members to become empowered and to utilize their empowerment. Helpful attributes for team they are adopting new agile work method that allow them to be empowered and require them to use their empowerment within the agreed boundaries. The supportive leadership style is a facilitating role towards the team member who are more in control as they advanced in agile work methods. They can identify and request the support he or she requires from management. The application of the correct leadership style is delegate. A leader should be aware what the level of development is of the team member in order to provide the right support and show the right leadership. The use of the situational leadership model by Blanchard et al (1985, 2013) provides a useful framework for team that are in the process to transform into agile team.

5.2.4 Answering sub question 4: What antecedents of culture influences team agility?

Based on the research a wide range of antecedents influence team agility. Some of them have a positive and some of them are negative influence on team agility. The following antecedents that positively influence team agility have been observed from the research and are sorted in order of influence started with the one with the most influence: trust, informal communication, value participation, openness to change and shared values. Trust allows team members to feel save, share information, feel supported and voice their opinion without fear of negative consequences. Trusts also helps team members to feel part of a team. Related to trust is the informal communication which can occur only when a certain level of trust exists between team members. Value participation adds to the feeling of belonging to a team and feel welcome or welcome someone to a team. An open mind supports team members to value the sharing of other ideas and opinion that may lead to new insights. Shared values provides a team with a common understanding in work ethics, approaches or opinions and supports the feeling of belonging to a group like a team.

Antecedents of culture that are negative associated with team agility that have been observed from the research include, sorted in order of influence starting with the one with the most influence: avoiding risk, missing trust, counterproductive behaviour, missing participation and fear. Avoiding risk is related to an unwillingness to change, to preserve what we have and how we work and to deliver only when something 100% correct, no room for errors or mistakes. These latter elements tie into the fear on doing wrong and the fear of negative consequences. Such behaviour does not work well on team agility. Absence of trust will prevent people to share and to voice opinion. Counterproductive behaviour is related to the blocking new initiatives, deliberately not sharing information as knowledge is considered as a form of power and working and thinking in silos. Missing participation is about team members not feeling part of a team or not feeling connected to

the team or the goal. Those that are not connected to a team cannot contribute effectively to a team hence form a negative influence to the team.

5.2.5 Answering sub question 5: How does culture influence team agility?

Based on the research the antecedents of culture that have had the most influence on team agility include trust and the open and informal communication within the team. Both are associated with positive influence on team agility. The teams are facing radical digital transformation and find themselves in an environment subject to change. The team members are assigned to new teams with new people joining and a new way of working. During the intense collaboration in the team the team members benefit from the open and informal communications that is helping the team to get to know one another and learn each other's background which is helping to build trust. The trust is helping the team to be honest, voice opinion and support each other. The short feedback loops and short delivery cycles require that the team has a good understanding of each other's capacities and expertise. The clear roles and responsibilities that come along in the start-up phase supports the understanding of each other's position and it pivotal for the trust level within the team.

Culture also can have a negative effect on team agility. Observations from this research suggest that organizational culture does not necessarily need to be attuned with the team culture in order to be effective, in contrast of literature, as most teams in scope of the research were able to reach a certain level of team agility while the organization is not supportive of an agile. However for one team (team D) it was observed that the dis-balance in culture led to an ineffective cooperation leading to a reduction of team agility of the team in scope.

5.2.6 Answering sub question 6: Do other factors influence the process of becoming and maintain agility and if so, how do they influence team agility?

Other factors, beyond leadership and culture, have been identified from the research, each with a different level of influence. One factor, learning, stands out as a positive influence to team agility. Learning, based on the findings in the research, includes elements as learning from mistakes, experimentation, learning by doing, learn from each other, learn from the past and a few more. The learning capability of a team member and as such as a team helps the team to absorb misfortune and helps the team to get better insight, improve analyses and response. These capabilities help the team to build resilience and become flexible which is favourable for team agility. For team members to be allowed to make mistakes without a negative consequence will help them to take calculated risk which may lead to more innovative and new solutions to problems. The capability to experiment brings the team the capability to test various options, see which work best and through the short feedback cycles quickly receive feedback from the stakeholders. As such it brings speed in response to a request and as such adds to the level of team agility.

5.2.7 Answering sub question 7: How does radical digital transformation influence organizational change?

Radical digital transformation can be experienced differently for each organization and as such is much depending on the organization facing such change. In the light of this research and the organization in scope the digital transformation is considered radical resulting in a three year program. Former methods such as incremental changes on existing processes and information systems cannot cope with the short cyclic deliveries that are required and are found to be too restrictive. In order to facilitate the radical changes new approaches are required.

The organisation is heavily affected by the radical changes. Well established processes are radically redesigned and automated eliminating manual steps in the process where possible. This has a noticeable effect on the organisation of work and workforce leading to a gradually reduction of

employees over an foreseeable period. The radical digital transformational has other side effect as well. The remaining type of work is becoming more process and information oriented with a pass of change that is much higher as before. Change is becoming a new constant and the structure of the organization and team composition require change as well.

5.2.8 Answering the central research question

The central research question is an explorative question to determine how leadership and culture influence the process of teams becoming agile and for teams the maintain agility once achieved. It is suggested that these factors each have their own influence on team agility and that they may vary along the evolution of teams towards team agility. The teams operate in a context of radical digital transformation bringing the team and team members in a flux of change. The central research question entails:

How do leadership and culture influence the process of teams becoming and maintaining agility in the context of radical digital transformation?

Leadership brings focus and clarity to teams facing a transformation to become an agile team. The situational leadership model can be applied to guide the team and team members towards team agility. In the light of radical digital transformation team members may find their trusted and stable environments to be suddenly transformed into an unstable and unclear environment. Directive leadership supports team members to get a grip on the situation as it provides clarity on the goal to achieve, roles and responsibilities and how to work with the new agile work methods. Transformational leadership supports the transformation to empowerment of team members and coach them to utilize their empowerment within the agreed boundaries. Supportive leadership comes in scope when the team members become more in control in their new roles and become capable to identify what is required to optimize the performance of the team member and the team as a group. Delegation as leadership style comes in scope when the team becomes a self-managing or autonomous team although this type of leadership has not been observed in this research. Balancing leadership is important as e.g. directive leadership can be detrimental to the process blocking team members to get empowered.

Trust and open communication support the process toward team agility. Trust is considered to be the largest cultural contributor as it forms the base for open and informal communication. Trust is required within the team for team members to be honest, share information, voice opinions and support each other. Open and informal communications is helping the team to get to know one another and learn each other's background which again is helping to build trust. As the trust level rises within the team, team members feel more save and supported by the team. This brings people to stand-in for each other, support each other, share knowledge and help to quickly get solutions and share ideas and give honest feedback. Elements contributing to the speed and flexibility of team agility. Distrust acts as a negative influence and will delay or even stall the process towards team agility as information will no longer be shared within the team and people are less likely to support each other.

The factor learning, or more precise the capability for learning, emerged as an additional element for agile teams. The learning capability of a team member and as such as a team helps the team to absorb misfortune and helps the team to get better insight, improve analyses and response. Experimentation will bring the team new insight and expands their range of knowledge and expertise. These capabilities help the team to build resilience and become flexible which is favourable for team agility.

5.3 Limitations

As with every study limitations apply to the research in scope. This study is no exception to that rule. One of the limitation of the research is the scope of the research which has been conducted in a single organization. Research across multiple organizations will give a broader view and more reliable findings to generalize the findings. Along with the limitation of the organization comes the limitation of the industry as this research has been conduction in the financial sector only. Other industries may benefit more or less from agile teams and as such lead potentially to other findings. The context of this research narrows the scope as well. Team agility observed in a different context than one of radical digital transformation may find other dynamics and influences from leadership and culture. The observations within this research are based on single interviews of multiple interviewees at a single moment in time with the attempt to reconstruct the process towards team agility over time. As the interviewees look backwards in time at a single moment it is possible that valuable pieces of information are left out. This explorative research is thereby considered an interpretation of a longitudinal study. A last limitation to mention is the inevitable bias of the researcher himself as he is employed at the organisation where the research has been conducted and as such part of the organisational culture and change the organizational is currently in.

5.4 Recommendations for future research

Besides the conclusion and new insights the research has also identified suggestions for further research. The proposition that have been drafted form a valid source and inspiration for future research in the domain of team agility.

The research performed for this thesis has taken a longitudinal approach on the process of teams to become and maintain agility. The methodology used for the research is explorative and qualitative and based on semi-structured interviews. Although this approach allows the researcher to take a look into the young history of the team and thereby grasp an understanding of the evolution of the process it is in principle a single observation from a single point in time based on the input and memory of the interviewees. A suggestion for further research would entail longitudinal research of the process of team agility across multiple years with multiple moments of observation in time of the same team.

One of the limitation of this research from the perspective of generalisation is that the research has been conducted within a single organisation. A suggestion for further research would include a research conducted across multiple organizations and across multiple industries. Such research will allow for better generalisation of the results and could highlight differences between industries.

The longitudinal research is a sound method to validate and adjust a number of propositions that have been derived from this research. Propositions that would specifically qualify for longitudinal research include:

- Proposition 1: Team agility is transient and requires maintenance to maintain.
- Proposition 3: Precisely timed application of agile revival programs can extend the level of team agility of teams over time.
- Proposition 4: Directive leadership is an effective leadership style in the start-up phase of towards team agility in radical changing environments.
- Proposition 5: situational leadership is the appropriate leadership model to apply when transforming teams to agile teams and to maintain team agility in an environment subject to radical change.
- Proposition 7: Eagerness to learn contributes to team agility.

The remaining propositions derived from this research qualify for longitudinal research as well but are also candidate for other forms of research on team agility. The remaining propositions include:

- Proposition 2: The level of focus in the agile context has a direct correlation with the level of team agility.
- Proposition 6: Trust derived through intensive collaboration contributed to team agility.

References

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