

DISCOVERING ADOPTION OF AGILE MANAGEMENT PARADIGM IN SOFTWARE DEVELOPMENT AT PT. ASURANSI ALLIANZ LIFE INDONESIA

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ABSTRACT

The new way of running the organizations require shifting from traditional way to the Agile management paradigm. In a volatile, uncertain, complex and ambiguous world, organizations face challenges to be able to compete in a marketplace with rapidly changing technology and customer needs. Many organizations face the difficulties when adopting Agile where the outcomes are limited to the adoption of few practices and methodologies with less value to the products being produced and to the people. Organizations face confusion on why they should adopt Agile and how do they proceed with the adoption? This study uses single exploratory embedded case study research design to observe and explore the adoption of Agile management paradigm in software development at PT. Asuransi Allianz Life Indonesia. The research is intended to answer the research questions of why organizations should adopt Agile practices and how do they proceed with the adoption of the Agile practices. This study uses six semi-structured interview questions which focuses on the motivation, benefits, challenges, and guidelines, how to scale up and organizational cultural impact of the Agile adoption. This study uses direct interviews with 5 senior managers at PT. Asuransi Allianz Life Indonesia and it is compared with external literatures search. This study found similarities between the interview results and external literatures regarding the motivation, benefits, challenge and organizational cultural impact of the Agile adoption. The study discovered significant findings on the guidelines and scaling up of the Agile adoption. We found out that there is no exact guidelines in the Agile adoption because what works in one organization may not work in other organization. Adopting Agile in the organization have to be started by creating right and flexible processes according to what works in each individual team with the foundation of Agile values and principles. The adoption have to start small and not scaling up too fast to see what works and does not work. The Agile adoption is scaled up by creating balance between team empowerment and organization command and control. Finding commonalities that can be shared and creating working environment that enables collaboration and coordination make the Agile adoption scalable within the organization.

Key words: Agile adoption, software development, Agile management

INTRODUCTION

A revolution is having started and in progress everywhere in the world today. It is very simple and affecting almost everyone. The revolution is being conducted by some of the largest and respected companies. It is a revolution in how companies are being run. Nowadays, companies are connecting everyone, everything in everywhere and at all the time. Companies are having capability to deliver the value instantly, intimately and smoothly on a large scale. They are establishing a world where people, perceptions and money interact each other in easier, cheaper and quicker time. For some companies, the revolution is morally elevating and inspiring. But for the others, it is considered as disrupting and threatening (Murray, 2015).

The revolution of new way of running companies is apparently being demonstrated everywhere. Companies like Apple and Samsung offer devices with the installed applications that can be tailored to meet individual needs and expectations of millions of users. Companies like Tesla and Ericsson are upgrading the functionality of their cars and networks, not by installing new hardware items physically, but by delivering the new software to the products via internet (Colvin, 2015). Company like Spotify matches billions of musical playlists all over the world and delivers tailored playlist to individual users' preferences. Companies like Whatsapp and Skype are taking money away from earlier established telecom companies by giving customers free calls functionalities. Company like Amazon and Alibaba have shown what can be achieved when customer value is prioritized ahead of short-term profits. Currently Amazon is not just the world's biggest retailer, it is even bigger than all the other retailers put together (Desjardins, 2017). Google become big and powerful company very quickly because it provides search capabilities to customers for completely free of charge. Facebook has gained users population which is bigger than the population of China's citizen. Companies like Airbnb and Uber are presenting how to unlock value in existing users' assets which were previously idle and not being used (Denning, 2018).

Simultaneously, what is lifting those companies is also disrupting and killing the others. There were a lot of examples of the market-leading companies which had missed the transformations in their industry, such as computers (from mainframes to PCs to laptops), telephony (from landline to mobile), photography (from film to digital), not because of "bad" management but because they practiced the earlier known as "good" management. In fact, the "good" management that they followed had become obsoleted in the 21st century era and it simply did not work anymore (Murray, 2010).

PROBLEM BACKGROUND

There is a belief in our society that today's competitiveness is a matter of access to technology or big data. In fact, the difference between the successful and the unsuccessful companies are not a matter of that access. They are generally having access to the same technology and data. Recently, technology and data are largely commodities. Traditionally managed companies also use digital technology and big data but typically get unsuccessful results. For instance, on the case of Kodak, they invested on the new technology of digital camera but has failed to exploit it. It is obviously not access to technology and data that makes the

difference. The difference lies in a different way of running the companies that using technology and data more nimbly. Trying to exploit technology and data with the management practices that are still pervasive in many big companies today is like driving horse on the freeway. To succeed in the very different world that is emerging in 21st century era, companies need a radically different kind of management (Denning, 2018).

Agile methodologies have become phenomenon in organizations around the world nowadays, from small to large companies, since it can address the problems related to time-to-market and rapidly changing requirements (Mishra & Mishra, 2010). The physical products and services in many industries are increasingly software driven and all organizations are becoming dependent on software due to the presence of the “Internet of Things” (Denning, 2018). According to Marc Andreessen, software is eating the world in all sectors. In the future, every company will become a software company (Andreessen, 2011), therefore it accelerates the spread of the adoption of Agile management paradigm in all organizations (Denning, 2018). Many organizations demonstrated the benefits that they can reaped by successfully adopting Agile practices (Barnett, 2006; Barnett & Schwaber, 2004; Law & Charron, 2005; Schatz & Abdelshafi, 2005).

The movement of Agile management paradigm began many decades ago but took-off in a major way more recently in an unexpected place: software development. Currently the adoption of the Agile management paradigm is spreading to all type of organizations regardless it is big or small. It is adopted by all kinds of organizations not limited only for software, hardware and technology organizations but also by automobiles, aircraft, telecommunications, health, pharmaceuticals, manufacturing and health (Denning, 2018).

The number of organizations that attempts to adopt Agile management has risen since Agile movement took off in 2001 as Agile Manifesto for Software Development. Adoption of Agile management is a complex process that involves changes to the organizational culture and requires the stakeholders’ involvement (Laanti, Salo & Abrahamsson, 2011; Nikitina & Kajko-Mattsson, 2011; Sochova, 2010). Many organizations face the difficulties on adopting Agile where the outcome of the Agile adoption are limited to the adoption of few practices and methodologies with less value to the products being produced and to the people (Sochova, 2010).

This thesis tries to explore and analyze the adoption of the Agile management paradigm. It is going to provide relevant answers to the research questions: why organization should adopt Agile practices and how does organization proceed with adopting Agile practices, so then the adoption outcome bring more customer value rather than just methodology adoption. In order to answer the research question why organization adopt Agile, researcher attempts to find the key points of adopting Agile management regarding motivation, benefits, and challenges. In order to answer the research question of how Agile management being adopted, researcher study the guidelines, how to scale up Agile and organizational cultural impact of the Agile adoption within the organization.

Relationship With And Value Added To Previous Research

This research has relationship with previous research made by Arturs Rasnacis and Solvita Berzisa about Method for Adaptation and Implementation of Agile Project Management Methodology, published in *Procedia Computer Science* 104 (2017). The previous research was talking about how to adapt and implement Agile methodology based on the project team specific. It determined and proposed methods for adapting and implementing the Agile methodology. The previous research used several theories such as best practices in change management, methodology adaption and implementation, socio-metric and motivation research methods.

This research provide value added to the previous research by discovering the underlying reasons of the organization to adopt Agile. The research also provide value added by revealing the approaches to scale up the Agile adoption within the organization, especially on the real case of the Agile adoption at PT. Asuransi Allianz Life Indonesia and compare the observation outcome and interview results with the theory stated in the external literatures.

Description of Research Method and Data

This thesis uses qualitative and single exploratory embedded case study research design. This thesis uses data triangulation method to ensure validity of the single case study research. The data triangulation are coming from direct interviews, direct observation and external literatures, using four research questions to find the key points of adopting Agile management within the organization. The direct interviews are interviewing 5 senior managers in PT. Asuransi Allianz Life Indonesia starting from grade level 6 (manager level) until the grade level 10 (Chief Executive Officer). The direct observation is observing day-to-day software development performed at PT. Asuransi Allianz Life Indonesia. The external literatures review is using defined query of “adopting Agile” and “software development” to search relevant literatures from the most known scholarly web indexes such as Google Scholar and IEEE Explore.

The interviews are conducted following all the legal ethical requirement including a consent form for reputable and trustful researcher position. There is also an information sheet informing about the reason of the research being conducted, the expectation from the participants, the expected benefits of the research, the potential risks and guarantee confidentiality of the participants to ensure their freedom of expression during the interview. A consent form and an information sheet are circulated and gathered sign off from each of the participants prior to the interview.

Four research questions are determined before running the interview which deep dive about motivation, challenges, guidelines and way to scale up Agile within the organization. The research questions are printed and circulated to the participants prior conducting the interview. The interview is conducted by semi-structured ways according to the main four research questions and the follow up questions are asked to gain more information from the participants.

The research studies the motivation of the organization adopting Agile, challenges faced by organization when adopting Agile, guidelines used by the organization when adopting Agile, and how to scale up agile methods for complex project within the organization. The researcher found similarities and findings between interviews and external literatures when studying about the motivation and the challenges. The researcher discovered findings based on the interviews result when studying about guidelines used and the way to scale up Agile methods within the organization. It was discovered that no exact guidelines or best rules for

adopting Agile that fits for all organizations. The study also revealed that scaling up Agile within organization should start small and not scaling up too fast.

Scope and Limitation of the Study

This thesis study the adoption of the Agile management paradigm in managing projects of software development at PT. Asuransi Allianz Life Indonesia. The study tries to explore and investigates the adoption of the Agile practices in developing software at PT. Asuransi Allianz Life Indonesia.

LITERATURE REVIEW

VUCA world

Nowadays VUCA has become famous managerial acronym. It stands for volatility, uncertainty, complexity and ambiguity (Bennett, Lemoine, 2014. Barber, 1992). Volatility is related with the fast and quick change happened in an industry, market or in the world. The quicker and the more things in the world which change means the world is become more volatile. Uncertainty is associated with inability of people to confidently predict the future and understand what is going on. The world that harder to predict means the more uncertain the world is. Complexity is associated with how many number of aspects, variations, components and relation between each of them that need to be considered. The more complex world is associated with more elements, greater the variations and more interconnection between the factors which make it hard to analyze. Ambiguity refers to a vagueness and less clarity when explaining about the meaning of something. The world that harder to interpret means the more ambiguous the world is. (Kraaijenbrink, 2018).

Each parts of VUCA provides enhancement for the strategic meanings and importance of VUCA forethought and awareness including the behavior of teams and individuals in organizations (Johansen, 2007). Those who are learning to be agile, flexible, open to change, quick learning from experience and move forwards with new ideas will be best suited for success in VUCA world (Smith, 2017)

Software is eating the World

The Internet of Things era makes software became the integral parts of many other industrial sectors (Denning, 2018). Information technology driven by software is transforming how the organizations operate and the entire process organizations operate and create their products or services (Porter & Millar, 1985). A lot of businesses from different types of industries such as agriculture, movies to government national defense agency are being driven by software, run on software and deliver products or services as online services.

Software and information technology contributes on transforming the traditional physical value chain become virtual / information value chain (Porter & Millar, 1985). Automotive industries use software to run the engine of the cars and any other features embedded on it such as safety, entertainment, GPS network, etc. The trend of electric cars or autonomous and driverless cars are also completely controlled and powered by software. Oil and gas industries utilized software including data visualization and data analysis for exploration efforts. The financial services industries has been transformed to software-based businesses for every financial transactions. Most of the retailer businesses use software to power their capabilities for logistics and distribution. Airlines industries utilize software for price ticketing and routes optimization. The software based transformation is also reaching government national defense on the modernization of combat soldier capabilities to provide intelligence, communication, logistics and weapons guidance (Andreessen, 2011).

Project Management in VUCA world

Project management is the practice that involve initiation, planning, execution, control and close the work of a team to gain certain objectives and fulfill particular success criteria (Harelimana, 2017). Over time, projects have become much more complex (Baccarini, 1996; Harvett, 2013; Hillson & Simon, 2007; Philbin, 2008; Williams, 1999). The VUCA world is more complex than ever and is being increasingly recognized that it is the challenge for the management to improve (Aritua et al., 2009). It needs to have different project management approach in order to face the dynamic effects in VUCA world (Hertogh & Westerveld, 2010). The awareness of the volatility of the project environment is started in 1990s and is still growing until now (Bosch-Rekveltdt, 2011). The level of complexity and volatility in a project makes the project has some degree of uncertainty and lot of ambiguity. The degree of uncertainty and ambiguity leads to frequent business requirement changes in the project and instead of avoid it, it needs to be included, merged and addressed properly in the project (Priemus & van Wee, 2013; Bosch-Rekveltdt, 2011).

Waterfall Project Management

Conventional project management which known as waterfall approach arose in the aerospace industry and defense sectors which was less complex and little flexible during that time of 1950s (Morris, 1997). The waterfall project management is a model in which each phase of product life cycle takes place in sequence so the progress of the project flows constantly downwards phases like a waterfall (Bowes, 2014). Figure 1 shown the Waterfall model according to Bowes.

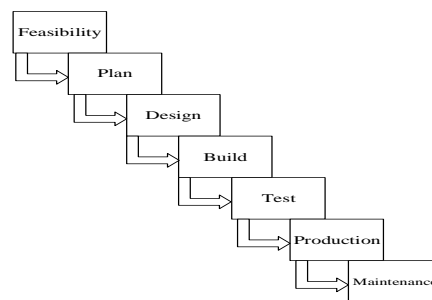
In the waterfall model, the product development life cycle is following an order sequence of activities starting from capturing product requirements document; analysis models, schema and business rules; designing the build architecture; developing, proving and integrating the component of the product; testing functionality; and installation, migration and maintenance of the complete system (Royce, 1970).

Waterfall Project Management in VUCA world

In waterfall project management method, once certain phase of the product life cycle is complete (like put foundation of a building for instance), it was extremely hard, costly and impractical to go back to the previous phase and make changes on it

(Bowes, 2014). A waterfall process requires a complete requirement to be written down at the beginning of the project and then it will be built exactly according to what was written (Stellman & Greene, 2014).

Figure 1: The Waterfall model (Bowes, 2014)



In VUCA world where the rapid change happened in the market and it is hard to predict the future, changes to the requirements are frequently occurred due to huge variation in the market demand ((Kraaijenbrink, 2018). Changes to requirements cannot easily be incorporated with the waterfall method and it usually needs to go through change control procedures which requires considerable efforts and time when it needs to change the previous phase result (Bowes, 2014). Therefore the biggest cause of many projects failures was the inability of the waterfall process that company followed to handle change (Stellman & Greene, 2014).

Agile

Agile is a set of methods and methodologies that help team to think more effectively, work more efficiently and make better decisions. Agile is also an established set of attitudes, it is a mindset, because the right mindset can affect and make a significant difference in how a team uses and applies the practices effectively (Stellman & Greene, 2014). Agile is about adopting a set of values and principles that require change in behavior of people and the organizational culture (Moreira, 2013). Agile is a movement that took off in 2001 as a set of values and principles articulated in Manifesto for Agile Software Development developed by seventeen of the leading thinkers in software development. It is then commonly known as The Agile Manifesto (Denning, 2016, 2018). The Agile Manifesto stated better methods of software development by working on it and helping others work on it, it is frequently recognized as the Agile values which are:

- valuing people and its interactions more than processes and tools,
- valuing working software more than comprehensive documentation,
- valuing customer collaboration and engagement during the development process more than negotiating contract details before and after the development, and
- valuing accommodating and responding to change more than just following a plan which was defined only at the beginning.

(“Manifesto for Agile Software Development”, 2001)

The 12 principles of the Agile Manifesto are:

1. Prioritize on customer satisfaction by delivering valuable software earlier and continuously.
2. Accept and received the changing on the requirements, even it is late in the development process.
3. Continuously delivering working software in weeks rather than in months.
4. Face-to-face conversation is the most effective and efficient communication within a team.
5. Business people and developers have to closely cooperate in daily project activity.
6. Projects should be built around people who are motivated, supported by trusted environment.
7. The progress is measured primarily by the working software released.
8. The development has to be sustainable and maintained with a constant pace.
9. Put attention continuously on good design solution and technical excellence.
10. The essential part is making simplicity of the work
11. Self-organized teams generate the best architectures, requirements and designs.
12. The team think, tunes and adjusts regularly to become more effective.

(“Manifesto for Agile Software Development”, 2001)

Agile Project Management and Methodologies

Agile project management and methodologies are collection of practices combined with ideas, advices, knowledge and experience among Agile practitioners. Agile project management and methodologies are constructed around the Agile values and principles and intended to help teams adopt agile and improve projects (Stellman & Greene, 2014). Agile methodologies allow for changing in the requirements over time using cross-functional teams which work on consecutive iterations of the product over fixed time duration (Bowes, 2014).

Agile methodologies appeared in the middle of 1990s as an alternative option to the waterfall method. It was appeared due to the limitations of the traditional waterfall method which has strict sequence plan-driven and the assignment based characteristic (Ryan & O’Connor, 2009; Crawford & Monfroy, 2006). Each of the Agile methodologies and approaches follow the values and principles of agility and flexibility described in the Agile Manifesto (Chau, Maurer & Melnik, 2003). There are a lot of Agile methods such as Extreme Programming (XP), Scrum, Kanban, ScrumBan, Crystal Family Adaptive Software Development (ASD), Feature Driven Development (FDD), Dynamic System Development Method (DSDM), Agile Modeling, Scrum/XP

hybrid or any other Hybrid/multiple methodologies (Bowen & Maurer, 2002; Holz & Maurer, 2002; Crawford, Castro & Monfroy, 2006; Tessem & Maurer, 2007; Stellman & Greene, 2014). The most popular Agile methodologies is Scrum (Schwaber, 2004).

Scrum: Agile Management in Software Development

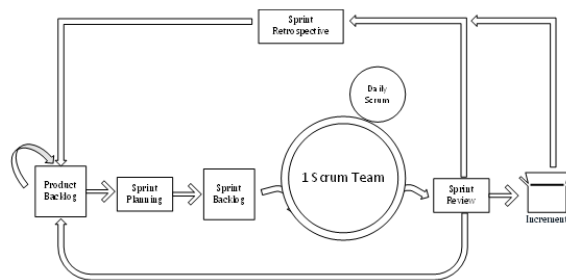
One of the most popular Agile method used in software development is Scrum (Schwaber, 2004). Scrum is a lightweight framework which enabling people to address complex problems, to manage product development and deliver products or services with the highest possible value to customer (Sutherland & Sutherland, 2014). Figure 2 shows the Scrum framework.

The scrum framework challenges the waterfall project management which use sequential approaches when develop software or products (Takeuchi & Nonaka, 1986). The framework acknowledges customer and business requirement volatility where the requirements are always changing because customer always change their expectations about what they want and required (Henry & Henry, 1993). Scrum adopts an approach which accepting that the problem, expectations or requirements cannot completely be defined up front. Therefore the framework adopts an approach that maximize abilities of the team to deliver products or services quickly, to be able to adapt and respond to the emerging requirements and changes in the market demands (Sutherland & Sutherland, 2014; Alliance, 2016)

Agile Mindset and Characteristics

Over time, Agile evolved into a movement of people with a specific mindset. The mindset focuses on delivering continuous value to customers as the primary goal of work (Denning, 2018). It embraces iterative, incremental approaches to working in small teams and aims at enterprise-wide agility by operating as a network. The Agile mindset is a learning mindset (Manifesto for Agile Software Development, 2001). People with Agile mindset knows what they do, what they value and why they value what they value (Stevens, 2016).

Figure 2: Scrum Framework (Schwaber & Sutherland, 2012)



Agile management is about how to best deliver value to our customer. It is about “Deliver value to customers faster. Minimize bureaucracy” (Cockburn, 2001). Agile is about working in a smarter ways rather than just work harder. It is about producing more added-value to customer from less work. Organizations that embrace agile management have three core characteristics which emphasize the importance of small team, customer and network (Denning, 2016, 2018).

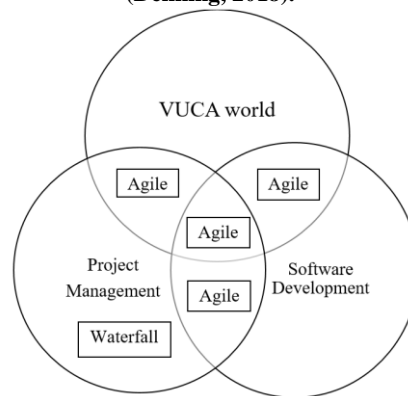
Embracing agile management requires organizations to emphasize the importance of the small team. It is about a mindset that activities and tasks should be performed in small, independent, within teams with members from across functions, performed in cycles with short period of works on quite small tasks and receiving constant and ongoing feedback from customer or users. Big and complex problems are resolved by descaling them into tiny and manageable pieces (Denning, 2016, 2018). The team can be made effective and efficient where it meets three necessary factors: commitment, skills and accountability. Teams are committed when they have a meaningful purpose, specific goals and a common approach to their work. Each of the team member in a team need skills in problem solving, technical skills to accomplish their task and interpersonal skills to enhance teamwork. Team member must have mutual accountability to one another as well as individual accountability to one’s own work and ideally these teams must be made up of only a small number of people (Smith & Katzenbach, 1993).

Embracing agile means that organizations have to focus to the customer. In Agile organizations, everyone are obsessed to deliver better value to customers. The character of focus to the customer is about continuous delivery of better value to customer and completely remove anything that does not provide any value. Agile organization is viewed as a flexible and transparent network of small teams that are working together towards a mutual goal of delighting customers. The whole organization is tempted with approaches to best deliver value to customers. The small teams take their own initiative and engage other small teams interactively to solve problems. As a result, people within the company shares and have a similar mindset and run as a big network of high-performing small teams (Denning, 2018).

Conceptual Framework

As shown in Figure 3, there are approaches of software development in the world with high volatility, uncertainty, complexity and ambiguity. It may use waterfall traditional approach where the development follows an order sequence of activities (Royce, 1970) or follows Agile values and principles which emphasize the importance of small team, customer and network (Denning, 2016, 2018). Scrum is one of the most popular Agile framework used to develop software in VUCA world (Schwaber, 2004).

Figure 3: In VUCA world, project management in developing software requires Agile mindset and characteristic (Denning, 2018).



METHODOLOGY

This thesis uses single exploratory embedded case study research design as an empirical study that explore the phenomenon of Agile within the real-life context, provides a way to observe the Agile implementation and identify the explanation of the implementation (Yin, 2018). The case study is chosen as a research method for this thesis since it allows the close access to understand the complexity and the practice of particular situation such as implementation of Agile management (Miles, 2015).

The case study uses single-case design under common case rationale where the purpose is to capture the states and conditions of the observed phenomenon such as Agile implementation on an everyday situation (Yin, 2018). The degree of researcher interference with the study is minimal since the study is conducted in the natural environment of the organization to capture the actual conditions of the observed events during normal flow or work (Sekaran & Bougie, 2010). The single-case design uses embedded type of study since it involves units of analysis at more than one level (Yin, 2018). The unit of analysis in this study involved individual subject matter expert, senior managerial level and software development activities in digital project teams within Digital department at PT. Asuransi Allianz Life Indonesia.

Exploratory case studies are used to explore and examine a phenomenon, such as Agile management, provide in-depth explanation of the particular situation and answer the research question of why and how (Yin, 2018). An exploratory study is undertaken to get better understanding of the nature of the phenomenon such as the implementation of Agile management since few studies might have been conducted in the past (Sekaran & Bougie, 2010).

The selected single case in a single exploratory case study is the sample case and the importance of it is the relevancy of the sampling (Patton, 2015) which will be explained in the data collection section. The data for the case study is gathered from interviews and literature which enable researcher to explore details and values to make the findings relevant and applicable (Denzin & Lincoln, 2018).

The findings of the single exploratory case study are coming from direct interviews, and review of the external literatures which enable researcher to make the documentation and ensure the validity of the single case study research (Erickson, 2012; Maxwell, 2012; Miles & Huberman, 1994). The interview and external literatures review offer the validity of the single case study research by connecting the source of data, the theory and the methods (Denzin & Lincoln, 2018; Patton, 2015; Yin, 2018). The reliability of the single case study research is provided by obvious explanation of the operations of the study such as data collection setting, data collection process and the data interpretation (Yin, 2018).

Data Collection Setting

Data collection was done at PT. Asuransi Allianz Life Indonesia, one of the operational entity of Allianz in Asia Pacific. Allianz is a German multinational financial services headquartered in Munich. Allianz entered Indonesian life insurance market by opening PT. Asuransi Allianz Life Indonesia in 1996. Allianz in Indonesia is one of the leading insurance groups in the market with more than 1.400 employees and 20.000 sales forces who has been trusted to serve more than 7 thousand policyholders consisting of individual and corporate customers (Allianz Indonesia, 2019).

The researcher selects PT. Asuransi Allianz Life Indonesia as a target study because the organization is shifting from the traditional ways of working on software development using Waterfall approach towards the new ways of developing software according to Agile values and principles. PT. Asuransi Allianz Life Indonesia is an example of the organization that used to works with traditional mindset and legacy services and started to adopt Agile mindset and characteristics. PT. Asuransi Allianz Life Indonesia adopted Agile management paradigm starting from Digital department to develop software and scaling it up to the whole organization.

Research Questions

Four research questions as shown in Table 1 are determined to deep dive and gather the information regarding the motivation, challenges, guidelines and how to scale up Agile adoption within the organization.

Table 1: List of Research Questions

Code	Research Questions
RQ-1	Why Allianz encourage the adoption of Agile methods within the organization?
RQ-2	What are the challenges faced by Allianz in adopting Agile methods?
RQ-3	What are the guidelines used to adopt Agile methods in Allianz?
RQ-4	How Allianz can scale Agile methods for complex digital projects?

Data Collection

Data collection includes interviewing 5 senior managers at Allianz Life Indonesia’s headquarters. As shown in Table 2, the interviewees include all the level of management within PT. Asuransi Allianz Life Indonesia starting from grade level 6 (Manager) until grade level 10 (CEO). The outcome from interviews are combined with external literatures which relevant to adoption of the Agile methods.

Table 2: Interviewees’ information

Code	Designation	Level	Length of Work
I-1	Chief Executive Officer	10	2 years
I-2	Chief Digital Officer	9	7 years
I-3	Head of Application Solution Delivery	8	8 years
I-4	Head of IT Business Middleware	7	6 years
I-5	IT Development Coordinator	6	15 years

The interviews are conducted following all the legal ethical requirement including a consent form for reputable and trustful researcher position. A consent form and an information sheet are circulated and gathered sign off for each of the interviewees regarding the detail of the research which inform the reason of the research being conducted, the expectation from the participants, the expected benefits of the research, the potential risks and confidentiality concern.

External literatures are searched from electronic databases using key words “agile”, “adoption” and “software development”. The research query to the databases uses logical operator of “AND” in order to get the expected literatures. The research query that is used is “adopting agile” AND “software development”. There are four electronic databases being used as shown in Table 3 as sources to search the external literatures related to the Agile adoption.

Table 3: Sources of selected electronic databases

Sources	URL
Google Scholar	https://scholar.google.com
IEEE Explore	http://ieeexplore.ieee.org
Springer	https://link.springer.com
ResearchGate	https://researchgate.net

Data Interpretation

This study uses data triangulation method from interview results, day-to-day observation at PT. Asuransi Allianz Life Indonesia and the external literatures. The data gathered from interviews are recorded into the audio format and transcribed using software NVivo Transcription. The software transcribe the interviews from audio recording format into the written form. The following actions are taken to interpret the data results:

1. Encode the emerging key points from the interviews
2. Observed the day-to-day software development activities
3. Examine external literatures from the selected electronic databases using the defined query about adopting agile and software development. The selection process was started by reading the title and abstracts of the literatures and select the literatures about adopting Agile in software development. Several literatures from the searching results were excluded due to not related with Agile adoption in software development, the literatures are not provided in English and the full text of the literatures are not available. There are total 20 external literatures are used for the study. The 20 external literatures are encoded to find out the emerging key points.

Table 4: Number of external literatures are used for the study

Databases	Number of literatures are used
Google Scholar	10
IEEE Explore	8
Springer	1
ResearchGate	1

RESULTS AND DISCUSSIONS

Motivation of Adopting Agile

I-1 highlighted that the organization adopt Agile since the old ways of doing projects using waterfall methodology was not efficient because there was lack of collaboration between the stakeholders and resulted to the project deliveries which took too long. The organization is adopting Agile to have more collaboration, more creativity and faster solution releases. I-1 said that: “By having more Agile approach, we want to have more direct collaboration between the business and the developers. I also

believe that this approach will give more creativity within teams and more brainstorming and more thinking about solutions instead of limitations.”

I-2 emphasized that the motivation of organization to adopt Agile is because using the traditional waterfall methodology is prone to uncertainty and too much unknown which introduce too much rework in the project activity. According to I-2, by adopting Agile the project is broken down into small deliverables to produce software quicker, get instant feedback from customer, better quality and lesser rework. I-2 said that: *“So ultimately what we’re trying to get to is a point where you produce software quicker.”*

I-3 mentioned that the background of the organization adopt Agile is because the expectation from customer about faster new features releases, faster products, with the different level of services. I-3 pointed that the traditional way of developing services and products used by Allianz is too slow to address the customer expectation. The motivation of the Agile adoption is to help the organization to respond quickly to the changes in the customer expectation, to have the cost efficient and consistent service quality, to be able to become more innovative and creative to keep ahead of the competition especially facing disruptors in financial and insurance industry. I-3 said that: *“And in order to stay ahead of the game Allianz also needs to become more innovative and creative and agile methods and other things like design thinking lean and so forth hopefully help us to create an environment in an organization which is also more creative and innovative and can respond to changes quickly.”*

I-4 stated that the motivation of organization adopt Agile is because of the fact that many Fortune500 companies in 20th century were over taken by disruptive players that are not predicted earlier, the new players that live the values of Agile and have the Agile methods. I-4 said that: *“One problem which is the driver for most of the organizations that are doing these journey is they have seen so many Fortune 500 companies crashing many fast and being over taken by surprise by companies that come out of the blue from nowhere.”*

According to I-5, the motivation of the organization adopt Agile is to be more focus on customer values, to ensure better service quality, faster products releases and make software developers happy. The Agile adoption in the organization was also driven by organization value streams strategy focus derived from regional head office. I-5 said that: *“...basically we want to make things faster, we want to make things better and more focus on the customer value and then also make sure that the quality is better and make the developers happy.”*

Table 5: Interview main points and key values regarding motivation in adopting Agile

Code	Main points	Key values
I-1	Old ways of doing projects was not efficient, lack of collaboration. Organization adopts Agile to have more collaboration, creativity and faster releases	More collaboration More innovative and creative Faster and quicker solutions releases.
I-2	Traditional method of managing the project is prone to uncertainty and introduce too much rework. Organization adopts Agile to produce software quicker, get instant feedback, better quality and lesser rework.	Better and consistent quality. Faster and quicker solutions releases.
I-3	Traditional way of developing software was too slow. Organization adopts Agile to respond quickly to changes, to have consistent service quality, to be more innovative and creative.	Faster and quicker solutions releases. Better and consistent quality. More innovative and creative. Respond quickly to changes.
I-4	Organization adopts Agile to keep ahead of the competition and faces the disruptive players.	Respond quickly to changes
I-5	Organization adopts Agile to be more focus on customer, ensure better service quality, faster products releases.	Better and consistent quality. Faster and quicker solutions releases.

According to the external literatures, the motivation of organization adopting Agile method was to be able to deliver solutions to fulfil market demands in an effective and efficient ways (Shen et al, 2012). Most of software development organizations are adopting Agile practices to establish the effectiveness and build common standard for their development efforts (Ghani & Bello, 2015). Organizations are expecting that by adopting Agile method they are able to be adaptable enough to manage frequent scope and requirement changes and have better capability to fulfil customers’ needs by delivering the software and business services faster and with higher quality (Silva & Goldman, 2014).

Based on the coding from all the interviews results and the external literatures, it was emerged several key points, which are related to the motivation of organization adopting Agile. The emerged key points are: more collaboration, more innovative and creative, ensure better and consistent service quality, traditional ways of developing services and products within the organization was too slow to address customer expectation, produce faster and quicker solutions and software releases.

Challenges in Adopting Agile

I-1 emphasized that the challenges in adopting Agile within the organization are the changing mindset of how people work, the availability of resources such as Agile coaches and timing allocation of people who work in the project and their business as usual tasks. I-1 said that: *“It is not easy to have people to work in a new way. People very used to working in a certain way so you have to get them out of their comfort zone and try something new”*

I-2 highlighted that culture is the key challenge when adopting Agile in the organization. According to I-2, the culture challenges are related to empowerment, ownership and self-organized capability. I-2 mentioned that time involvement of business users and technical skill within each team members are another challenges. I-2 said that: *“The key one is culture. Culture plays a big part and a lot of that is related to empowerment and ownership and self-organizing teams.”*

I-3 highlighted that one of the challenge of adopting Agile is breaking the habits and established practices of decision making from higher up in hierarchy moves down to the team. According to I-3, it leads to another challenge of trust the team to do the

decision making and accountability within the team. I-3 mentioned that cross-skilling and up-skilling is another challenge since the Agile adoption requires people within the team to have all capabilities to perform all the work tasks. I-3 said that how to be Agile is another challenge, because people is required not just do it but live it, means understand, implement, improve it and continuously learning. I-3 said that: *“First of all it requires a different way of working and different responsibilities. Because we have smaller teams and the teams are responsible for delivering, it requires first of all a level of trust that the team can do it.”*

I-4 emphasized that the knowledge is the most challenge when adopting Agile. According to I-4 the knowledge is related to techniques, tools and theoretical knowledge about Agile concepts and practices. Another challenge based on I-4 is top management attitude when they overruling team’s decision that had already been made. I-4 said that: *“The one that they see often happening is knowledge. I see a lot of wrong decisions being taken and a lot of attitude being adopted. Because of the lack of knowledge.”*

I-5 highlighted that the main challenge of adopting Agile in the organization is mindset change in every level of the organization including the management. Because according to I-5, people are used to live with the traditional methods and now have to think differently. I-5 said that: *“Mindset change is difficult because you are used to live like that, used to think like that.”*

Table 6: Interview main points and key values regarding challenges in adopting Agile

Code	Main points	Key values
I-1	Challenges face by organization when adopting Agile are changing people mindset, resources availability and timing allocation of people	Changing mindset of people. The availability of resources. Timing allocation and involvement of people.
I-2	Challenges face by organization when adopting Agile are time involvement of people and culture challenges such as empowerment, ownership and self-organized capability.	Organizational cultural changes. Empowerment and accountability. Timing allocation and involvement of people.
I-3	Challenges face by organization when adopting Agile are breaking the habits, trust team to do decision making, cross-skilling and up-skilling, and living on Agile.	Organizational cultural changes. Empowerment and accountability. Technical cross-skilling and up-skilling. Sustainability of the Agile adoption.
I-4	Challenges face by organization when adopting Agile are knowledge related to Agile and top management attitude	Organizational cultural changes. Agile related knowledge
I-5	Challenges face by organization when adopting Agile are mindset change for all people within the organization	Organizational cultural changes.

According to the external literatures, the complexity level of the software development project, technical and non-technical or social aspects of the product development are challenges that faced by organizations during the Agile adoption which require organizational cultural change in order to make the successful adoption within the organization (Srinivasan, Dobrin & Lundqvist, 2009). Another challenge is managing the Agile adoption within the organization (Bishop, 2017), because the mismanagement of the adoption will introduce delay products delivery, lowering down the productivity and may significantly increase the operational costs. (Goncalves et al., 2016). The complexity when measuring Agile value, maintain the sustainability of the adoption and understand the organization culture change are another challenges for organizations to adopt Agile (Gregory et al., 2015).

Based on the coding from all the interviews results and the external literatures, it was emerged several key points, which are related to challenges face by organization when adopting Agile. The emerged key points are: changing mindset of people, the availability of resources, timing allocation and involvement, organization cultural changes, empowerment, accountability, technical cross-skilling and up-skilling, living on Agile to make the adoption sustainable, the complexity level of the project including how to measure the Agile value and knowledge including techniques, tools and theory of Agile concepts and practices.

Guidelines for Adopting Agile

I-1 emphasized that there is no exact guidelines nor rules for adopting Agile, because every organization will find by themselves which are working and not working for them. According to I-1, when organization adopts Agile, there are only ground rules and guide set up by the team together with the Agile coalition group of people. I-1 mentioned that each of the team within the organization set up their own rules and figure out what rules work for them in the best possible approaches. I-1 said that: *“We don’t believe in approach where you have to follow certain rules that are Agile rules and otherwise Allianz Indonesia is not Agile. But there are some ground rules being set by the team themselves together with the Agile coalition as we have it.”*

I-2 highlighted that guideline of adopting Agile is started by creating the right process because the process drive behavior and drive culture of Agile within the organization. According to I-2, the procedures and processes have to be flexible, they should not be fixed. I-2 mentioned that people within team adapt it, make the process works in the team environment and decide by themselves which are working and which are not working for them. I-2 said that: *“If you want to change people’s behavior which is what you are trying to do when you introduce the Agile methodologies then you have to have proper process in place. I am a firm believer in process drives behavior which drives culture rather than culture drives behavior which creates a process. So you have to make certain that your process is right.”*

I-3 pointed that adopting Agile in the organization is guided by some people that have interested in changing the way we works to have faster releases and less reworks. I-3 highlighted that the guideline that organization provided when adopting Agile is the learning resources including training, books, certification, conferences, regular meet ups and establishing community of Agile practice. According to I-3, the Agile adoption in the organization is also guided by external consultants to bring in knowledge, external insight and experience to the team. I-3 said that: *“So first of all I think you need to have some people who really want to*

do something differently. And then of course, what we did is we got some training especially on scrum and the framework, the basics and then also on scrum masters. And then we started to do certain things like setting up small teams and following scrum practices and using tools.”

I-4 mentioned that there is no exact guidelines when adopting Agile in the organization because there is no guarantee that the adoption ways that works in previous organizations will work in other organization. According to I-4, the adoption of Agile in the organizations start with top management support and coming with open minded thinking based on Agile values and principles and learn what is going to work in each of the team. I-4 said that: “...the things that work in the previous organization will not work. So we are basically coming like open minded to learn what is going to work. Constantly and very fast cycle of experiment and see what happens.”

I-5 emphasized that there is no best practices used for adopting Agile in the organization. According to I-5, the Agile adoption is guided by Agile manifesto and following the emergence practices related to what works in the team. I-5 mentioned that the Agile adoption is following Scrum framework where the practices can be changed accordingly depend on the team condition. I-5 stated that the adoption is performed by way of inspect and adapt, and see what is working and what is not working. I-5 said that: “There is no best practice. There’s no good practice, there is only emergence practices and sometimes normal practice also. And more to that we do inspect and adapt. We see what works and what is not working.”

Table 7: Interview main points and key values regarding guidelines for adopting Agile

Code	Main points	Key values
I-1	No exact guidelines nor rules for adopting Agile. There are only ground rules and guide set up by the team.	The guide, rules or practices for adopting Agile are decided by the team themselves.
I-2	Guidelines for adopting Agile is started by creating right process. The procedures and processes have to be flexible. Team decide by themselves for procedures and processes which works and which does not work.	Creating the right and flexible process. The guide, rules or practices for adopting Agile are decided by the team themselves.
I-3	Guidelines for adopting Agile in the organization are provided by people with interest of change people works, Agile learning resources and guided by external consultants.	Create Agile guiding coalition group
I-4	No exact guidelines when adopting Agile in the organization. There is no guarantee that the adoption ways that works in previous organizations will work in other organization.	Agile adoption is performed by way of inspect and adapt based on Agile values and principles.
I-5	No best practices for adopting Agile. Agile adoption is followed the emergence practices which works in the team.	The guide, rules or practices for adopting Agile are decided by the team themselves. Agile adoption is performed by way of inspect and adapt based on Agile values and principles.

According to external literatures, Software Method Adoption (SMA) is one of the guidelines that can be used which emphasizes the procedure model of adopting Agile method in software deployment and also considering the list of indirect factors of managing the deployment of the methodologies. The SMA model as shown in Figure 4 includes the list of activities when adopting the software development methodologies. The exercises activities are organized in several stages which involves a set of factors that need to be considered when performing changes in software development processes. The SMA model has two main phases which are method adoption phase and continuous improvement phase (Nikitina & Mattson, 2014).

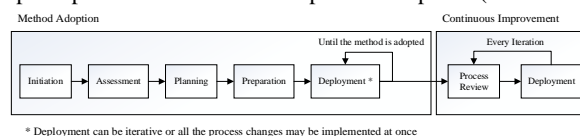


Figure 4: General Representation of the SMA Model (Nikitina & Mattson, 2014)

According to external literatures, Agile deployment framework can be used by organizations as a guideline when adopting Agile. The framework consists of systematic options and deployment of the Agile practices and enable the practices to be adjusted according to what works in the organization (Pikkarainen et al., 2012). The framework highlights the processes and methods for selecting Agile practices that suitable for the organizations. (Pikkarainen et al., 2005). The effectiveness of the Agile adoption in the organizations can be checked by utilizing and performing identification of strengths, barriers and suggestions (Pikkarainen et al., 2012).

Based on the coding from all the interviews results and the external literatures, it was emerged several key points, which are related to guidelines used by organization when adopting Agile. The emerged key points are: no exact guidelines for adopting Agile, there are only ground rules, no guarantee that what work in previous organizations will work in other organizations, creating the right process, the procedures have to be flexible, guided by people who have interest, guided by learning resources including the community, guided by external consultants, guided by open minded thinking based on Agile value, the practices of adoption are decided by team themselves, the adoption is performed by way of inspect and adapt, Software Method Adoption (SMA) and Agile deployment framework can be used as references.

Scaling Agile Methods for Complex Project

I-1 highlighted that scaling up the Agile methods for complex projects is performed by finding the commonalities so that it can be reused, shared, less reworks and makes it scalable. I-1 mentioned also that having working environment where people can share each other and enable the connection between projects make the Agile adoption scalable within the organization. I-1 said that: *“I think sharing is the most important thing. We also try to find commonalities between complex projects. The other one that makes it scalable is having innovation floor where people are sitting in one floor together which they can share each other so that we don’t have disconnect between the projects.”*

I-2 emphasized the important of balancing of the empowerment within a single team when scaling up Agile within the organization. According to I-2, the key of scaling up Agile is bring empowerment to individual team as much as possible and not shift the ownership out of the team even though it may make the team become more centralized and introduce duplication with what other teams are doing. I-2 mentioned that the empowerment has to be balanced, so then every single team empowered to deliver the outcome by themselves, not rely too much to other team to do so and not introduce too much duplication with what other teams do. I-2 said that: *“My preference is to bring as much of the ownership within a single team as you possibly can, and not to shift it out. And obviously that itself has challenges. And I don’t think you can ever escape from this decentralized teams. Because one of the reasons you do this is to stop duplication. So you want to stop each team building something separate or does the same thing. But I think if you want to increase velocity you have to accept a certain level of duplication in order to be able to achieve that. And that is by moving as much empowering individual team as much as possible even if that means making teams centralized. But there is no easy answer to that. This is kind of a balancing act and trying to get that balance right.”*

I-3 highlighted that the key points of scaling up Agile adoption within the organization is by starting from small and not scaling too fast so it can be seen what is working and what is not working, can get the experience and learning, emphasizes what works and correcting which does not work. I-3 said that: *“The most important thing is when it comes to scaling is to start small and not do too much so that you will get experience and the learning and you don’t lose sight of what is working and what is not working so that you can emphasize on repeating the stuff that works and avoiding this stuff and correcting this stuff which doesn’t work.”*

I-4 mentioned that scaling up Agile within the organization have to be done by starting small and not too fast. According to I-4, scaling up Agile is not necessarily have to follow the scale Agile framework such as SAFe (Scaled Agile Framework). I-4 mentioned that scaling up Agile requires to run small and continuous experiments but not running a lot of experiments at the same time to see what works and what does not work. I-4 said that: *“I think we should not run SAFe. It is okay to doing SAFe actually to some extent. I think SAFe is good a because of the knowledge base that the knowledge body that comes behind and you learn a lot from the knowledge body behind SAFe. Again I think you should not try to scale too fast... then second is like the only way to know what work is to run experiments, but we cannot run too many experiments at the same time.”*

I-5 stated that scaling up Agile in the organization get the help from Agile consultant for giving the external experience and suggestion based on the current condition. I-5 said that: *“Different methods for every situation. We got another help also from the consultant. They are giving us the sharing experience based on what they do in other place and also they give us the suggestion looking at our current condition. We learned a lot from them.”*

Table 8: Interview main points and key values regarding scaling up Agile for complex projects

Code	Main points	Key values
I-1	Scaling up by finding commonalities that can be reused and shared and having working environment that enable collaboration	Finding commonalities. Having working environment which enable collaboration
I-2	Scaling up Agile by balancing the empowerment of the team and not introduce duplication works.	Balance between empowerment and works duplication
I-3	Scaling up Agile by starting small and not too fast.	Start small when adopting Agile. See what works and what does not work.
I-4	Scaling up Agile by starting small and not too fast. Scaling up Agile by seeing what works and what does not work. It is not necessarily have to follow scale Agile framework such as SAFe.	Start small when adopting Agile. See what works and what does not work.
I-5	Scaling up Agile within the organization was helped by Agile consultant.	See what works and what does not work.

According to external literatures, certain frameworks such as Scaled Agile Framework (SAFe) and Large-scale Scrum (LeSS) are available for scaling up Agile within the organizations (Paasivara, 2017). According to the 13th Annual State of Agile Report, the Scaled Agile Framework (SAFe) is the most popular framework to be used when scaling Agile in the organization (VersionOne Inc., 2019). The Scaled Agile Framework (SAFe) provide framework for scaling up Agile in the large enterprises (Leffingwell, 2007) which involve portfolio, programs and grouping levels includes potential level of the value stream (Schwaber & Beedle, 2002).

Based on the coding from all the interviews results and the external literatures, it was emerged several key points, which are related to scaling up the Agile adoption within the organization. The emerged key points are: finding commonalities so it can be reused and shared, having working environment where people can share and enabling connection between projects, balancing the empowerment within a single team, scaling up by starting from small and not too fast, several frameworks such as Scaled Agile Framework (SAFe) and Large-scale Scrum (LeSS) are available for scaling up Agile.

Limitations and Validity Issue of the Study

The main limitation of this thesis is related to the scope of the study where it is emphasized on the context of adoption of the Agile management specifically on software development at PT. Asuransi Allianz Life Indonesia. There is possibility of any other

factors outside of the context of the study which may be overlooked and not being considered in the study. To mitigate the potential impact of the main limitation, the study uses external literatures review to provide validity by combining both of the findings from the interview and the external literatures search.

It is essential to know that there is still a potential validity issue in the external literatures selection process. The issue is related to the possibility of losing relevant literatures due to keyword and search terms were being used. To mitigate the possibility that some relevant literatures are being overlooked, the most known scholarly web indexes are selected such as Google Scholar and IEEE Explore.

Discussion

In the research study, five senior managers from PT. Asuransi Allianz Life Indonesia were interviewed, day-to-day software development activities were observed and external literatures were reviewed from four electronic databases such as Google Scholar, IEEE Explore, Springer and ResearchGate. The study compares emerged key points from the interviews and observations with the emerged key points from the external literatures search. The study found similarities and findings which relates to motivation, challenges, guidelines and scaling up Agile within the organization.

The most important key factor for adopting Agile within the organization is understand the guidelines behind the adoption. When answered the question about guideline for adopting Agile, I-5 said: "And more to that, we do inspect and adapt. We see what works and what is not working." I-2 answered the same question: "Team decide by themselves for procedures and processes which works and which does not work". I-4 said: "So we are basically coming like opened minded to learn what is going to work. Constantly and very fast cycle of experiment and see what happens." According to the interview result, the adoption is guided by the team themselves by way of inspect and adapt. Each team determines what works and what does not work for them. Another important key factor is the way to scale up the Agile adoption within the organization for complex project. I-3 said: "The most important thing is when it comes to scaling is to start small and not do too much so that you will get experience and the learning and you don't lose sight of what is working and what is not working." I-4 said: "Again I think you should not try to scale too fast." According to the interview result, scaling Agile up to organization level for complex project have to be performed by starting small and not too fast. It is important to see what works and what does not works when it is scaled up. Organization may also considering the challenges faces during the adoption which are related to changing mindset of people, organizational cultural changes and make the adoption become sustainable within the organization.

Table 9: Key values of the Agile adoption

Code	Main focus	Key values
RQ-1	Motivation of adopting Agile	Faster and quicker solutions releases, Better and consistent quality, Respond quickly to changes, More innovative and creative, More collaboration.
RQ-2	Challenges in adopting Agile	Organizational cultural changes, Empowerment and accountability, Timing allocation and involvement of people, The availability of resources, Agile related knowledge, Technical cross-skilling and up-skilling, Sustainability of the Agile adoption.
RQ-3	Guidelines for adopting Agile	The guide, rules or practices for adopting Agile are decided by the team themselves, Agile adoption is performed by way of inspect and adapt based on Agile values and principles, Creating the right and flexible process, Create Agile guiding coalition group.
RQ-4	Scaling Agile methods for complex project	Start small when adopting Agile, See what works and what does not work, Balance between empowerment and works duplication, Finding commonalities, Having working environment which enable collaboration.

Motivation of Adopting Agile

From both of the external literatures and interviews, it is found three similarities and two findings on the motivation of organizations to adopt Agile.

Table 10: List of Similarities and Findings Related to Motivation of Adopting Agile

Similarities from external literatures and interviews	Findings based on the interviews result
To be able to deliver and release solutions faster, quicker, in an effective and efficient ways	To have more collaboration between the stakeholders
To be able to keep consistently delivering service faster and with better and higher quality	To be more innovative and creative to keep ahead of the competition and facing the financial disruptive players in the industry
To be able to respond quickly and adaptive enough to rapid requirement and customer expectations changes	

Challenges in Adopting Agile

The study found three similarities and one finding between interview results and external literatures.

Table 11: List of Similarities and Findings Related to Challenges in Adopting Agile

Similarities from external literatures and interviews	Findings based on the interviews result
Organizational cultural changes including mindset changing of how people work, breaking the old habits, empowerment and trust team, ownership, self-organized capabilities and top management attitude to not overrule team decision.	Time involvement and allocation of the people and business users when they work in the project and business as usual tasks.
Maintain the sustainability of the Agile adoption within the organization which means make people not just do Agile but live it.	
Technical cross-skilling and up-skilling and non-technical skill including knowledge, techniques, tools and theoretical knowledge about Agile	

Guidelines in Adopting Agile

It is found one similarity and three findings between interview results and external literatures.

Table 12: List of Similarities and Findings Related to Guidelines for Adopting Agile

Similarities from external literatures and interviews	Findings based on the interviews result
That the Agile practices have to be adjusted according to what works in the organizations. The Agile adoption is started by creating the right process because the right process will drive behavior and the behavior will drive the culture of Agile within the organization, but the processes, procedures and practices created have to be flexible and adjusted based on what works in team environment.	There is no exact guideline when adopting Agile.
	There are only ground rules and guide set up by the team themselves according to what works for them.
	The Agile adoption at PT. Asuransi Allianz Life Indonesia is guided by people who have interest, by learning resources including the community, by external consultants and guided by open minded thinking based on Agile values and principles.
	The Agile adoption at PT. Asuransi Allianz Life Indonesia is performed by way of inspect and adapt and see what is working and what is not working for the team.

Scaling Agile Methods for Complex Project

The study found three findings between interview results and external literatures. According to the study there is no similarities found between interview results and external literatures.

Table 13: List of Similarities and Findings Related to Scaling up Agile Methods for Complex Project

Similarities from external literatures and interviews	Findings based on the interviews result
None	Finding commonalities that can be reused and shared so it introduces less rework and makes it scalable.
	Creating working environment where people can share each other and enable the connection between projects.
	Scaling up by starting from small and not scaling to fast to see what works and what does not work.
	Scaling up by balancing the empowerment within a single team which means that every single team empowered to deliver the outcome by themselves, not rely too much to other team to do so and not introduce too much duplication with what other teams do.

CONCLUSIONS

Motivation of Adopting Agile

The motivation of adopting Agile in the organization is to respond quickly to the changes in the market demands, to produce solution or software quicker with better and consistent service quality, to deal with uncertainty in the project requirements by having instant feedback from customer which lead to lesser rework, to increase the degree of collaboration between stakeholders, to become more innovative and creative to keep ahead of competition including face the disruptive players in the industry.

Challenges in Adopting Agile

There are several challenges face by organization when adopting Agile. One of the challenge is changing mindset of how people work in every level within the organization including the management. Because people are used to live with the traditional ways of work and now they have to think and work differently. Other challenge is the availability of resources to support the adoption. The resources include people with the technical cross-skilling and up-skilling, because the Agile adoption requires people within the team to have all capabilities to perform all the tasks. The resources also include knowledge related to techniques, tools and theoretical knowledge about Agile concepts and practices.

Organizational cultural changes are other challenge face by the organization during the Agile adoption. It relates to empowerment to team to make their own decisions. Top management of the organization should give some degree of trust to team to do the decision making and not trying to overrule every team decision that had already been made. The teams themselves have to have accountability, ownership and self-organized capability within the team. Other challenge is maintaining the sustainability of the Agile adoption within the organization. People in the organization have to understand, implement and continuously learn about it. To make the Agile adoption is sustainable and institutionalized within the organization, people is required not just do it, but they have to live it in their daily activities. Some other challenges including timing allocation and involvement of people who work in project and business as usual tasks and the complexity level of the project including the measurement of the Agile values.

Guidelines for Adopting Agile

There is no exact guidelines when adopting Agile in the organization. There is no guarantee that the adoption ways which works in previous organizations will work in other organizations. Adopting Agile within the organization can use Software Method Adoption (SMA) or Agile deployment framework just for references. The adoption in the organization have to start with top management support, guided by some people who have interest in changing the way people works and who have open minded thinking based on Agile values and principles. The Agile adoption is also assisted by external consultants and supported with the learning resources such as training, books, certifications, conferences, regular meet ups and establishing community of Agile practice. The practices for the adoption are decided by the team themselves, they learn which practices are working and which are not working for them.

The Agile adoption is started by creating the right process that works for the team, because the process drive behavior and behavior drive culture of Agile within the organization. However, the processes and the procedures created have to be flexible. It should not be fixed and has to be frequently adjusted according to what works in the team and within the organization.

Scaling Agile Methods for Complex Project

Scaling up Agile in the organization have to be done by starting small and not try to scale too fast. Scaling up Agile requires to run a lot of experiments to see what works and what does not work depend on the condition on each team within the organization. There are several frameworks available for scaling up Agile within the organizations. The frameworks are Scaled Agile Framework (SAFe) and Large-scale Scrum (LeSS). Scaling up Agile in the organization is not necessarily have to follow the scale Agile frameworks.

In order to scale up Agile within the organization, it is important to have balance of the empowerment within a single team. The key point of scaling up Agile is bring empowerment to individual team as balance as possible with the duplication works of other teams. The balancing of the empowerment means that every single team is accountable to deliver the outcome by themselves without relying too much to other teams and not introduce too much duplications with what other teams have done.

Scaling up Agile in the organization is also performed by finding the commonalities between projects that can be reused and shared. So it will introduce less reworks and makes it scalable. Having working environment where people can share each other and enable connection between projects also make the Agile adoption scalable within the organization.

Field Work Findings

According to the data triangulation from interview, daily observation and literatures search, field work findings can be determined as per shown in Fig 5. The field work observes several similarities and differences between interview results in PT. Asuransi Allianz Life Indonesia and the external literatures. The interview results are confirming what mentioned in the external literatures that the organizational culture is helping the Agile adoption. PT. Asuransi Allianz Life Indonesia has culture of trust, care and easy. Leadership characteristic in PT. Asuransi Allianz Life Indonesia especially under Digital department which responsible for the software development is valuing team empowerment, employee development, provide continuous feedback, care for employee wellbeing and emphasizes on collaboration and exchange best practices. The collaborative leadership create freedom and guide for team to inspect and adapt what process works and does not work for the team. It also create the balance between team empowerment and organizational command and control so it helps to scale up the Agile adoption within the organization.

Theoretical Implications

Theoretical implications according to the study are: adopting Agile in the organization have to be started by creating right, adjustable and flexible processes. The process and procedures within the organization have to be build according to what works in the team. Organization have to be flexible enough to change the way people work and have open minded according to Agile values and principles.

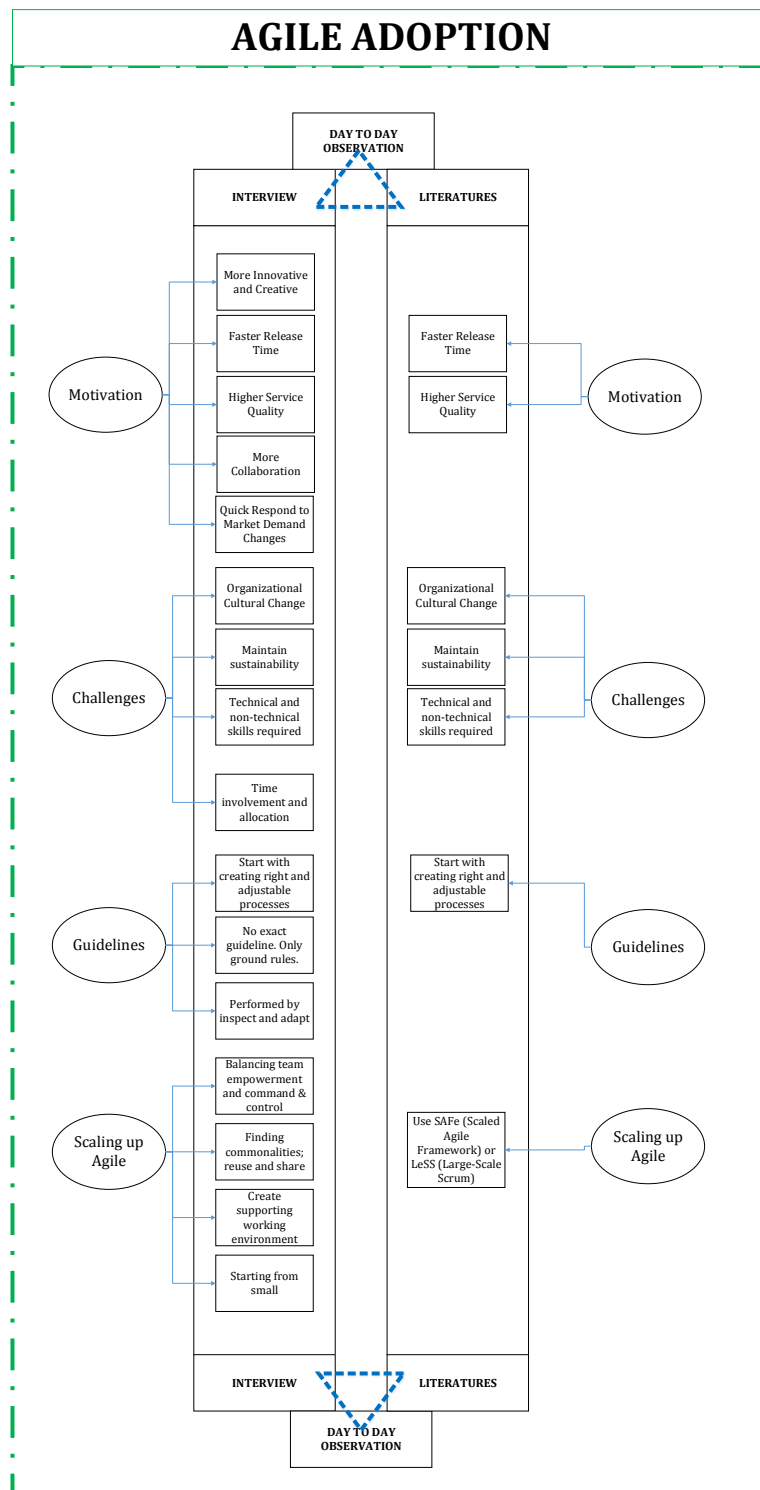
The Agile adoption is scaled up within the organization by create balancing between team empowerment and command and control in the organization. Each of the team is empowered to deliver the outcome by themselves, not dependent too much with other team, but in other hand the team does not create duplication with what other teams have been done.

Managerial Implications

Managerial implications according to the study are: adopting Agile in the organization is performed by way of inspect and adapt in order to see what is working for the team and what is not working. In order to see what works and what does not work, the Agile adoption have to start from small and not scaling up too fast.

The Agile adoption is scaled up by finding commonalities which can be shared and reused across teams in order to introduce less rework and make the adoption is scalable within the organization. The organization need to create supporting working environment that enable people to share each other in order to improve collaboration, communication and coordination across teams.

Figure 5: Field Work Findings of the Study



Future Work Needed

Further research need to be performed quantitatively to determine the relation between organization type of leadership and the successfulness of the Agile adoption. The quantitative research may also explore the importance of organizational collaborative culture to drive to scale up Agile adoption within the organization.

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