Transforming to agile audit: A case study research

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"I think there is a world market for maybe five computers." - Thomas Watson, chairman of IBM, 1943. "There is no reason anyone would want a computer in their home." - Ken Olson, president, chairman and founder of Digital Equipment Corp., 1977. "Everyone's always asking me when Apple will come out with a cell phone. My answer is, 'Probably never.'" - David Pogue, New York Times, 2006.

ABSTRACT: We investigate the application of internal agile audit to compliance projects. Audit compliance projects usually apply waterfall approach, however given the fast spread of agile methodology into IT and non-It projects audit become agile. In absent of a framework for agile audit and the limited available literature on this topic, we identify a research gap. The findings have implications for practitioners for internal audit in better understanding the transformation process. The companies which undergo agile audit can better understand main drivers. The article concludes that agile audit methodology strictly applied contain major unique advantages towards waterfall approach for efficiency and effectiveness for internal audit.

KEYWORDS: Agile methodology, Audit, Agile Audit, Agile Business Process (ABP), waterfall approach, Scrum

RESEARCH FINDINGS/ INSIGHTS: This research intend to provide a better understanding of agile methodology applied in practice for regulatory compliance projects. The study is based on a case study of a large financial service provider.

METHODLOGY: A single qualitative-method approach is followed, which includes semi-structured interviews.

1. Introduction

Digitization is transforming how we communicate and assure financial information (Beerbaum and Puaschunder, 2019). A prominent concept in this context is "agility" or Agile Methodology. Agile principles of organization and work, including autonomous self-organized, collaborative forms and team-based methods are spilling over from agile software engineering and smaller companies including start-ups to companies in other fields and of other size with tremendous impact. With new forms of organization and work with human centric purpose roles and responsibilities of individuals change, as agile implies a new mindset (Leybourn, 2013, Oestereich and Schröder, 2017). This potential lead to organizations adopting agile project management to deliver IT projects on time and realize high benefits (Beerbaum, 2019b).

However, auditors especially those who are exposed to traditional and system development life cycle controls are struggling with how to audit agile projects. The problem addressed in this article also relates to the lack of an audit framework for auditing agile projects to ensure IT project success. However, as the agile methodology spreads into non-it projects the necessity to better understand the transformation to agile audit increase, for internal audit agile methodology also implies new opportunities in creation of value in comparison to maintain value. The purpose of this article is to provide explorative research through interviews to identify what the transformation to agile audits consist of. In absent of an agile audit framework identify existing approaches in the practice.

The term "Agile" is usually derived from the first use of application for software development and emphasizes group team-based decisions, customer collaboration over contract negotiation responding to change by individual decision making over following a plan (Beerbaum, 2019a).

Agile is a set of principles that allow to move forward without explicitly defining requirements nailed down (Wysocki, 2011). Daily meetings between the scrum masters, developers and the product owner allow the product to develop through a process of iteration and incremental changes. In theory, this leads to a sprint per sprint incremental better product. The development does not take place within major release but as part of smaller sprints. Usually the example which is given is that you start out with a Flintstones car and end up with a Ferrari.

2. Agile versus waterfall methodology

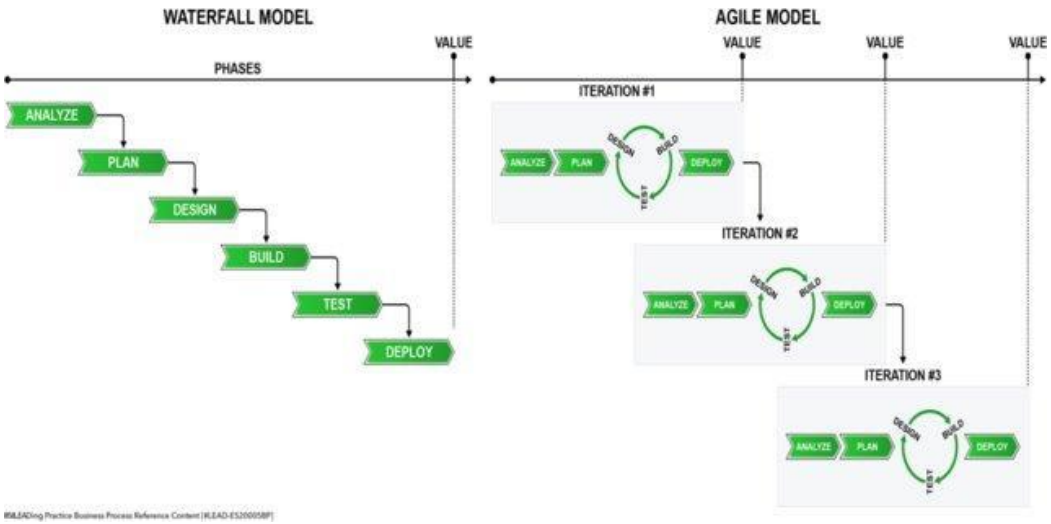
The Manifesto for Agile Software Development introduces the core principles of the agile philosophy in the domain of software development (Beck et al., 2001). These principles were the essential founding principles for the entry into the business process management involving organizational theory. This conversion from software development to Agile Business Process does not have a manifesto, neither a consensual definition accepted by practitioners and researchers. Traditional Business Process (TBP) follows a strict action sequence, creates a detailed business process model between traditional and agile Business Processes (BP). With regard to the definition of Agile Business Process (ABP), implies that IT and business change teams work together in one agile pod, which is rather small less than 10 and self-organized. Pods are designed by organizations based on the needs to fulfill specific requirements. Contrary to scrum teams self-organize from the ground up. Pods change as needed per the requirements and skillset. Scrum Teams are cross-functional and long-lived. Pods have a Pod Leader, Core Team, and Part-Time Specialists. Scrum Teams have a Product Owner, Scrum Master, and Development Team.

There is a trend towards enterprise agility (or business agility), which is confirmed in business practice and in academic research (Taipaleenmäki and Ikäheimo, 2013, Taipaleenmäki). Agile has its origin in project management methodology and particularly in software development (Martin, 2002). Agile approach is contrary to the waterfall approach a continuous change approach, which incorporates many small changes also reflecting the client demand. From a scientific method approach, agile would qualify as an inductive approach, while waterfall follows a deductive methodology (Creswell, 2013). Waterfall assumes that once all requirements are clearly stated. They are ready for an IT-implementation (Ruël et al., 2010). However, it appears strange that after many years of successful project management applying waterfall a complete paradigm change is

suggested with agile methodology and with that postulating that the past was always inefficient and agile is the only best solution.

The below figure 3 further clarifies the difference between agile and waterfall approach While waterfall approach works in array of plan, design and build phases and only starts to build once design is 100 & clear and final, agile works with iterations of so-called sprints, in which an output-oriented approach leads to many small deployments.

Figure 3: Waterfall versus Agile Model



Von Rosing et al. (2014)

This is only one aspect. A far more important aspect of agility reveals the organizational set-up. Agile organization develops further from a hierarchical approach to project management being more collaborative (Javdani Gandomani, 2016).

In business practice, enterprises aiming at agility implement autonomy and culture of self-responsibility. They seek novel approaches – such as radical transparency and openness, lateral connectivity and trust with cross-functional teams, and prototyping with quick feedback and

adaptation loops. Generally speaking, agility is frequently seen as a concept that extends adaptability and flexibility to include speed and scalability.

It is also claimed, that to be an agile organization, the resilience of its employees, i.e. the capacity to recover quickly from difficult but oftentimes necessary changes, needs to be on a sufficient level. Agile organizations are not only capable of change, but they are also nimble, capable of changing quickly and gracefully.

Similarly, as IT has influenced and will be reshaping practically all industries and organizational functions and business processes, it has been and will be reshaping management accounting and the way MA is changing (Baskerville-Morley, 2005).

An agile enterprise is capable of sensing environmental change and responding readily to both predictable and unpredictable events. On the contrary, the trend towards agility in business operations sets new agility-based requirements for management accounting, which can result in management accounting change (Taipaleenmäki).

What is the impact on audit? The internal audit is described very often as the internal corporate policy (Xiangdong, 1997, Truong, 2020). Internal audit is often criticized as “bayoneting the wounded when the battle is over”(Truong, 2020) in the sense that value is more destroyed than added as internal audit appears to be too late in the project control. There are many signs which show that a paradigm change is planned by providing real added value due to early project support and control and the concept of third line of defense against external audit issue prevention. In reality very often, checklist is only pursued in the meaning of “check the box” audits, which are too standardized and not tailor made to specific requirements of companies. Agile methodology could be adapted from the software engineering discipline by eliminating the negative stigma many

auditors are faced with. Audit intends to provide added value to the organization and its stakeholders. Agile audits can be summarized by adding new values and less resources (Truong, 2020). However, studies have shown that application of agile methodology require from auditors to think about internal controls differently. There remain lot of open questions: can the concept from software development really be adapted to internal audit without limitation or exclusions?

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3. Design of Research

Methodology encompasses analyzing the methods applied for a set of study for a theoretical and systematic purpose (Franklin, 2012). Research represents the search for knowledge (Kothari, 2004). Assessment of the methods implemented in management research plays an important role. This relates to the fact that the reliability and relevance of research is also strongly impacted by the choice of methods demonstrating to be robust and rigorous (Scandura and Williams, 2000, Beerbaum, 2016).

The focus of this study is on Agile Methodology, which has its origin in software development within the academic discipline of computer science, however, increasingly spill over to organizational and management research, as the agile methodology incorporates autonomous team-based solutioning.

The research questions address main essential topics before focusing on agile methodology practical implementation:

1. Identify main characteristics of agile thinking that deviates from non-enterprise agility
2. Identify practical actions associates with agile methodology implementation for regulatory compliance projects.
3. Apply semi-structured interviews to explore underpinning success factors

The methodology of this research incorporates the underpinnings of economics as an "application-oriented social economy" (Ulrich, 1984). According to this interpretation, practical action in enterprises is the knowledge perspective for business economics. The aim is to explore useable knowledge for leadership and management that enables the optimal contribution to solving real business cases and issues (Beerbaum, 2018).

Economic research as an interdisciplinary branch of science frequently perform surveys on methods, concepts and rules critically and modifies them to some extent. This can only be done in connection with theory-based statements and practical knowledge (Ulrich, 1984). While fundamental research focus on theory-related questions, research problems in applied sciences arise from the practical context. Therefore, theory and practice are closely linked (Ulrich, 1984). This applies particularly to the agile methodology and organizations, as the literature review will demonstrate.

4. Related Literature and Hypothesis development

There is a lot of literature available about the Agile Methodology and Scrum (Beck et al., 2001, Schwaber and Beedle, 2002), however the application to regulatory compliance projects in the financial service sector is rare. Therefore, the literature review focus on software development, as this is the area, in which the "agile movement" started before the spill-over to other industries became effective.

Similar to breakthroughs the term manifesto of agile software development was used in 2001 according to Beck et al. (2001), which involved 17 people, which met November 13, 2001, at The Lodge at Snowbird ski resort in the Wasatch mountains of Utah. Those 17 people were

representatives from Extreme Programming, SCRUM, DSDM, Adaptive Software Development, Crystal, FeatureDriven Development, Pragmatic Programming, and others sympathetic to the need for an alternative to documentation driven, heavyweight software development processes. What emerged was the Agile Software Development Manifesto. "We are uncovering better ways of developing software by doing it and helping others do it. Through this work we have come to value: Individuals and interactions over processes and tools Working software over comprehensive documentation Customer collaboration over contract negotiation Responding to change over following a plan That is, while there is value in the items on the right, we value the items on the left more"(Beck et al., 2001, p.1).

Based on Highsmith and Cockburn (2001), the agile software methodology is transferred to agile project management and in general to deliver innovative products to customers under high uncertain conditions. Existing project management is bound to prescriptive, confirmative-to-plan mentality. Agile project management follows continuous innovation and people and process adaptability. Agility is more attitude than simple process. It involves explore instead of plan and production and adapt (self-organizing, self-disciplined teams) versus anticipating.

According to Dybå and Dingsøyr (2008), 36 empirical studies on the application of agile software development were explored. Result is that advantages of agile project management found are that changes are done more easily. Disadvantages are named that team members are less interchangeable. Main success factors identified according to this study are consideration of human and social factors, particularly a high-level of individual autonomy balanced with a high-level of team autonomy.

Agile audits are rarely covered in the existing literature and seems to be evolving since 2017 (Alexiou, 2017, Truong, 2020, Ee, 2016, Kaller, 2020). In the literature the main topic is to define

the different approach between agile and non-agile audit. Agile audit contrary to focus on compliance with methodology and protocol enables more flexibility to get to know the system, settings, data and people to get audited. Agile audits therefore start very early with testing of main risk areas.

According to the reference manual of the Certified Information Systems Auditor on page 191 (CISA®): "The term 'agile development' refers to a family of similar development processes that espouse a nontraditional way of developing complex systems."(SACA®, 2013).

5. Data Collection and Data results

5.1 Qualitative Study

The study was followed by a qualitative 5 survey/ interviews with the five company representatives were accomplished during 2020. As the research project focuses on the 'why' and 'how' of agile audit, we particularly rely on semi-structured interviews with actors involved in the agile methodology. Due to the outbreak of COVID-19 the interviews could only be done based on online sessions. Interviews with 5 direct or indirect participants were conducted between March 2020 and October 2020. The interviewees included internal auditors, which are exposed to agile audits working in the financial service sector. All interviews were arranged granting anonymity to individual interview partners. The interviews had a duration between 21 and 31 minutes.

Table 1 provides detailed information about the interviews/ surveys.

Table 1 List of surveys/ interviews

#	Department (at time of project)	Date Duration (min.)
I 1	Senior Auditor	March 2020 (21)
I 2	Junior Auditor	April 2020 (25)
I 3	Senior Auditor	May 2020 (23)
I 4	Junior Auditor	June 2020 (28)
I 5	Senior Auditor	July 2020 (31)

In the following Agile Methodology for inter audits is abbreviated as IAA.

Time constraints are an integral part of every auditor's work. Audits must finish on time. Using the allotted time efficiently is a major concern.

According to the interviews agile audit is primarily about increasing the efficiency mainly of complex audits by parallelizing tasks, eliminating or mitigating bottlenecks, and assigning time to various tasks that is proportional to each task’s importance.

The following advantages were formulated for IAA by interviewers

- High flexibility when high pressure is exerted on delivery
- Design and specification documentation are kept to the bare minimum required, and the major part of documentation is created at the operations and support levels.
- High team strengths, as daily interactive sessions improve independence of agile team
- Culture of immediate feedback daily retrospective enables early addressing of issues

- Issues are not per se formulated as not conform with agility, but backlog items
- Success is celebrated with all team members

Concluding from the results of the qualitative study:

Audit has traditionally applied fairly strict standards and frameworks, resulting in rigid audit engagement limitations that. IT and Non-IT projects have similarly inflexible models. In Agile models, design and specification documentation are in comparison to waterfall projects kept to the bare minimum. That does not imply that documentation requirements are excluded but the focus of the major part of documentation is on the operations and support levels, e.g., user manuals, guidance and policies which occur much later in the system life cycle.

- IAA has superior advantages versus waterfall approach
- Agile audit projects contain the following challenges
    - Agile audit does not allow beta audit or non-completed audit, as underlying objective of audit as third line of defense does not disappear
    - Agile audit needs to purse a hybrid approach as underlying concept arising from the software development can not be taken without adoption and assimilation
    - Agile audit intends to speed-up early finding in main risk areas
    - IT and business audit are organized out of one team, by which it is ensured that communication gaps disappear and reconciliation is not any more required for a split operation
    - Due to regulations and standard on internal audits two functions business and IT audit is persistent, as functional separation is mandatory
    - Agile audit is an end-to-end mindset, which does not allow organizational gaps

- Internal audit requires step-by-step adoption to agility, as hierarchical organization needs evolutionary development to agile organizations, which cannot be executed „over night“.

5.2 Conclusions

This research project explored the transformation to agile audits. The insights gained form the qualitative study will help the internal auditor and professional community to better understand the implications of IAA in the financial service sector, what the opportunities, what are the challenges and what are the constraints and limitations, as obviously a 100% adoption of the agile software development methodology is due to regulation not permitted and possible.

Main findings can be summarized that survey demonstrates (however more case need to be explored) that IAA has superior advantages versus waterfall approach, although this is often questioned by market participants.

There are certain challenges expressed by interviewers, that agile methodology used for audits is not possible as agile methodologies in its "pure theory", as beta implementation or development or non-completed implementation are not allowed by internal audit.

While the concept of agility methodology is bounded to design thinking, in which each individual customer is considered in its product offering, leading to a variety of different and heterogenous requirements and backlog, the agile audit is characterized by few customers but per definition rather clearly defined and explicit. The essence of such requirements and inheritant that frequent refinements are not required and necessary. While a key component of successful agile projects is to have a team structure set-up cross-functionally by business and IT and the team decided on solutioning, this kind of structure is contradictory to the functional separation requirement between IT and business. IT is not allowed to write a business concept and implement. Agile audits therefore form one team consisting of IT and business auditors, however at the end

the teams have to provide their own observation and findings. So agile audits' main advantage is to set-up an aligned team and with that improve communication and reduce breaks between separated teams.

For agile internal audits projects the risk is high that agile methods are applied without providing real added value considering the different sprint cycles. Sprints and refinement sessions should not be executed without providing added value, only as they are part of the agile and scrum methodology cycle. In the sense of agile methodology not for agile (L'art put l'art), it should be carefully balanced which cycle and which tools provide added value for internal audit projects.

Given the holistic mind-set character and precondition for successful implementation, Agile software development require the whole organization to follow agility. This implies that agile software development should be embedded into an agile organization transformation.

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