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Agile Readiness Assessment of IT Audit Function at Indonesia's State-Owned Bank

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Abstract

Recently, there has been increased interest in using Agile methodologies in auditing to improve efficiency and adaptability. This study examines whether Bank XYZ in Indonesia is ready to adopt Agile for IT auditing, marking a first for the country's banks. The need for Agile is driven by a significant reduction in audit staff, increased demands from management, and higher fraud risks, all of which call for a more effective and responsive audit process. The research employed both surveys based on the CA Agile Framework and qualitative analysis. It found that Bank XYZ is moderately ready to adopt Agile, showing strengths in commitment to user research, organizational culture, and training support. However, challenges such as utilizing past Agile experiences and enhancing governance must be addressed. The study recommends a gradual adoption of Agile, focusing on building a supportive Agile culture, enhancing training for auditors, and improving governance structures. This step-by-step approach will help Bank XYZ effectively integrate Agile into its IT auditing practices to better meet management's expectations for more business-focused auditing.

A. Introduction

Throughout 2023, the Indonesian banking sector experienced strong and stable growth. This was driven by government policies that supported financial stability[1]. The demands of customers for banking services led banks to adopt new methods in their product development, namely by adopting agile[2]. In the era of rapid technological advancements, many companies are adopting a more adaptive and responsive approach, known as Agile approach. This approach enables companies to respond to market changes more flexibly, reduce development time, and deliver faster business value[3]. In this context, the necessity to implement Agile Audit emerges. Agile, a project management methodology widely recognized and initially designed for software development, can be adapted for projects across various disciplines. Applying this methodology in auditing can help address, or at least mitigate, the view of auditors as being primarily focused on uncovering errors or misconduct after the fact[4]. The IT Audit function will be adapted to concentrate on the needs of stakeholders and to speed up audit cycles[5]. The implementation of Agile audit methodologies offers the advantage of better alignment with management's expectations compared to traditional auditing approaches, such as waterfall or cycle-based methodologies[6]. Like other industries or professions, Audit must continuously evolve and adjust to stay relevant in the ever-changing landscape. One project management approach that offers great potential is Agile, initially popularized in software development but applicable to projects across various fields. Agile software development refers to a collection of frameworks and practices rooted in the core values and principles defined in the Agile Manifest[7]. Agile Audit focuses on integrated oversight and control within the agile development process. This approach enables auditors to engage early in the development cycle, identify potential risks, and provide faster recommendations for improvement. By involving auditors proactively in development[7], the risks of project failure, information security, and development errors can be identified and addressed more effectively. The goal of implementing agile audit is to initiate field execution as quickly as possible[8].

In the Indonesian banking landscape, Bank XYZ distinguishes itself as the first to adopt Agile methodologies in audit processes. This transition, set for 2024, is driven by the urgent need to enhance audit efficiency and responsiveness, particularly following a significant workforce reduction and rising operational challenges. As one of the leading banks in Indonesia, it maintains a comprehensive network of branches throughout the nation, in addition to its international presence. Integral to its operational integrity is a well-structured internal control system, featuring an audit unit in the head office and several regional audit units across Indonesia. The bank's management is dedicated to a strategic approach in auditing, aiming to derive audits that offer deep and comprehensive insights for a holistic evaluation of the bank's operational activities. At its core, auditing is a project, and agile represents one of the project management methodologies[9]. In applying the Agile audit approach, it is essential to adopt an agile project management approach to effectively manage the audit project[10].

The Agile Transformation Process (ATP) represents a holistic shift in an organization towards agile practices, affecting all areas, including individual

mindsets, team dynamics, and management styles. This necessitates a comprehensive reevaluation and adjustment of organizational processes and behaviors. Understanding the full scope of ATP's impact is crucial for effective implementation[11]. Currently, a pilot project is underway in one of the central office's audit unit projects, establishing a foundational strategy for future audit methodologies. The pilot implementation of the agile audit approach in IT Audit function of Bank XYZ raises a pertinent question: Is the IT audit function of Bank XYZ sufficiently prepared to undertake a comprehensive implementation of agile IT auditing in the upcoming year 2025?

There are limited frameworks available to measure agile readiness assessment. One such framework is the California Agile Framework (CA-Agile). The assessment evaluates readiness across seven fundamental aspects: Organizational Culture, Previous Experience, Environment and Technology, Organizational Flexibility, Training and Assistance, Commitment to User Research, Governance[12]. The assessment will be conducted on a pilot project audit that employs an agile approach.

B. Research Method

In this section, we explore and define a methodology for assessing Agile readiness in the organization using the CA-Agile Framework. Data collection will be performed using questionnaires from the audit team that has conducted a pilot project using Agile methodology[12].

A. *Questionnaire*

There are 7 areas that will be assessed, with each area having the following questions:

Table 1. Detail Count Of Assessed Readiness Assesment On The Questionnaire.

No	Area	Questions
1	Organizational Culture	6
2	Previous Experience	5
3	Environment and Technology	8
4	Organizational Flexibility	4
5	Training and Assistance	5
6	Commitment to User Research	4
7	Governance	5
Total Question		37

For each question on the questionnaire, respondents should assign the values as follows: 0=No, 1=Not sure, 2=Sometimes/Partial, 3=Most of the time, 4=Yes. The CA-Agile Framework mechanism will then be employed to compute the results.

B. Data Collection.

The questionnaire was created and distributed using Google Forms to the audit team members who are running the pilot project using agile methodology. The details of the respondents are as follows:

Table 2. Audit Team Classification

No	Name	Position	Experience
1	AA	Team Manager	Retired
2	BB	Team Leader	10 Years
3	CC	Audit Member	10 Years
4	DD	Audit Member	9 Years
5	EE	Audit Member	7 Years
6	FF	Audit Member	6 Years

In the table provided, it is shown that initially, six employees participated in the pilot project based on agile methodology. However, following the retirement of one of these participants, only five individuals are now eligible to respond to the questionnaire

C. Result and Discussion

The agile readiness assessment was conducted through a survey of 5 workers, covering 7 areas as detailed in Table 3.

Table 3. Agile Readiness Assesment Summary

Agile Readiness Assesment Summary	
Knowledge Area	Score
Organizational Culture	2,3
Previous Experience	2,0
Environment and Technology	2,0
Organizational Flexibility	2,0
Training and Assistance	2,2
Commitment to User Research	2,5
Governance	2,0

Based on the survey results mentioned above, the framework produces an illustration in Figure 1 below.

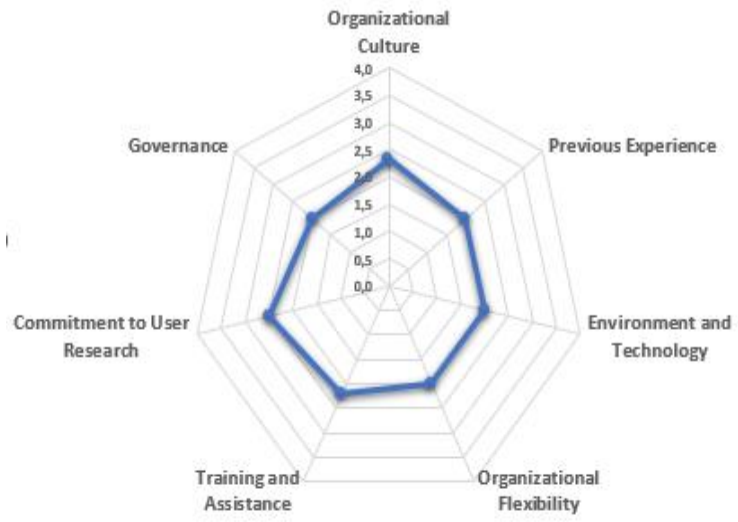

Figure 1. Radar Chart of agile readiness assessment

C. Organizational Culture

In this section, there are six questions that essentially evaluate an organization's preparedness and commitment to implementing agile methodologies, encompassing leadership support, understanding of benefits and challenges, staff autonomy and accountability, and realism in project outcome expectations.

Table 4. Agile Readiness Assesment For Organizational Culture

Name		BB	CC	DD	EE	FF	Average	
Organizational Culture	1.1	2	3	4	3	3	3	2,3
	1.2	2	2	4	4	3	3	
	1.3	1	2	4	2	2	2	
	1.4	2	2	3	3	1	2	
	1.5	2	1	3	2	4	2	
	1.6	2	2	3	1	1	2	

As observed in the Table 4 above, for questions related to leadership support (q1.1) and the organization's understanding of the advantages of implementing agile (q1.2), the majority of respondents answered 'most of the time'. However, for questions regarding the organization's awareness of the challenges and costs associated with agile (q1.3), the workers' ability to make decisions independently without manager assistance (q1.4), the incremental product release adding value to customers (q1.5), and the organization having realistic expectations towards agile projects (q1.6), the average response was 'sometimes/partial'.

Furthermore, the qualitative insights gathered from participants unveil a spectrum of challenges and opportunities in the adoption of agile practices within the organizational context. These qualitative inputs encompass facets such as a discerned lack of comprehension among select leaders, the necessity for adaptation, relative unfamiliarity with the terminology 'agile,' and scenarios where the complete realization of agile adoption remains pending.

In light of these qualitative findings, the recommendations provided by the participants include an aspiration for the holistic implementation of agile practices, the anticipated support stemming from the newly introduced departmental head structure in mid-2023, the proposition of establishing uniform understanding and unambiguous regulations governing agile practices, and the encouragement of broader acceptance of agile principles within the organizational framework.

D. Previous Experience

This set consists of five questions that delve into the organization's previous experience with agile methodologies, assessing past project completions, skill in dividing large projects, availability of experienced resources, process maturity in managing sizable projects, and success in creating agile contracts within specified time and budget limits.

Table 5. Agile Readiness Assesment For Previous Experience

Name		BB	CC	DD	EE	FF	Average
Previous Experience	2.1	1	2	3	2	4	2	2.0
	2.2	1	2	2	3	1	2	
	2.3	2	1	3	3	4	3	
	2.4	2	2	1	2	3	2	
	2.5	2	0	1	2	2	1	

As shown in the Table 5, for questions on the organization's past agile project completion without vendor direction (q2.1) and breaking larger efforts into manageable pieces (q2.2), respondents predominantly indicated 'Sometimes/Partial'. In terms of having resources with previous agile project experience (q2.3), the response leaned more towards 'Most of the time'. For the organization's process/practice maturity level in managing medium-large projects (q2.4), the response indicated 'Documented', meaning processes are defined with metrics and activities measured. Finally, for the success in developing agile contracts within defined constraints (q2.5), the predominant response was 'Not sure'.

The respondents indicate that the current implementation of Agile in auditing is limited, primarily applied to only one project, hence not showcasing its full potential. The organization lacks experience in Agile audit practices. Resource availability falls short of requirements, leading to imbalances in task allocation and underscoring the need for practical experience in Agile application. The respondents hope for wider Agile adoption across all audit projects, with a focus on targeted, high-quality audits, and call for more directed guidance and understanding of Agile methodologies.

E. Environment and Technology

This set of eight questions is part of the Environmental and Technology section, investigating the organization's experience with technical decision-making, leadership's stance on software solution choices, evaluation of technical debt, allocation of competent personnel for agile processes, efficacy of project management tools in agile settings, keeping the project team size within optimal numbers, the technical team's understanding of architectural standards, and the team's openness in discussing and resolving project challenges.

Table 6. Agile Readiness Assesment For Enviromental And Technology

Name		BB	CC	DD	EE	FF	Average
Environment & Technology	3.1	2	1	1	2	3	2	2.0
	3.2	2	2	2	2	3	2	
	3.3	2	2	3	2	3	2	
	3.4	2	1	3	2	1	2	
	3.5	1	4	1	4	2	2	
	3.6	2	2	1	2	2	2	
	3.7	2	2	3	3	2	2	
	3.8	2	2	4	2	2	2	

The questionnaire as shown in the Table 6 reveals a pattern of 'Sometimes/Partial' across these domains. Technical decision-making autonomy (q3.1), leadership's impartiality in software solutions (q3.2), and the approach to technical debt (q3.3) are practiced intermittently. The dedication of skilled personnel to manage sprint deliverables (q3.4), the functionality of project management tools for agile development (q3.5), maintaining a limited project delivery team size (q3.6), the technical team's architectural knowledge (q3.7), and the frequency of candid discussions on project issues (q3.8) also align with this 'Sometimes/Partial' trend.

Respondents cite the lack of optimal technical explanations for audit project testing mechanisms as a reason for their ratings. There is also an absence of supportive, user-friendly worksheets. A general lack of understanding about Agile across the organization, coupled with the need for extensive internalization due to its size, is also noted.

For improvements, they suggest more detailed testing worksheets, especially for evaluating KPIs where outputs are not strictly right or wrong. An efficient worksheet system to streamline excessive administration and documentation is desired. Additionally, there is a call for widespread internalization and understanding of Agile principles throughout the organization.

F. Organizational Flexibility

In the Organizational Flexibility section, four questions explore the organization's adaptability in project management, evaluating flexibility in changing project priorities, balancing just-in-time and detailed requirements, success in fixed deadline deliveries with iterative releases, and the implementation of new IT products using OCM strategies.

Table 7. Agile Readiness Assesment For Organizational Flexibilty

Name		BB	CC	DD	EE	FF	Average
Organizational Flexibility	4.1	2	2	3	2	2	2	2.0
	4.2	2	2	4	2	2	2	
	4.3	2	1	1	2	2	2	
	4.4	2	2	3	2	2	2	

Referring to Table 7, responses suggest a 'Sometimes/Partial' trend. The organization's adaptability in modifying project priorities or delivery orders (q4.1), the ability to balance initial and detailed requirements during iterations (q4.2), the success in delivering products within set deadlines using progressive releases (q4.3), and the effectiveness in implementing IT products with OCM strategies (q4.4) are all seen as achieved to some extent.

Respondents point out that the scope of audit projects often changes late in the process, necessitating increased effort for timely completion. The dynamic nature of the business and rapid shifts in business models frequently introduce new issues requiring attention. The size of the organization is noted as a factor requiring time to adapt.

To address these challenges, respondents suggest early project discussions to clarify the scope of testing, thereby easing the audit reporting process. They advocate for leadership decisions on prioritization strategies and emphasize the need to allocate time for organizational adaptation.

G. Training and Assistance

Under the Training and Assistance category, a series of five questions are posed to determine the organization's capabilities in securing knowledgeable agile resources, providing access to agile expertise for stakeholders and management, understanding the benefits and efforts of agile projects, offering ongoing training, and having resources with prior agile experience or training.

Table 8. Agile Readiness Assesment For Training And Assistance

Name		BB	CC	DD	EE	FF	Average
Training & Assistance	5.1	2	2	4	2	2	2
	5.2	2	2	4	2	2	2
	5.3	2	2	3	2	1	2
	5.4	2	1	3	1	2	2
	5.5	2	2	4	3	2	3

2.2

As shown in Table 8, survey results indicate a trend of 'Sometimes/Partial' for most queries. Questions inquire if the project can secure experienced agile resources (q5.1), if stakeholders and management will have the necessary knowledge for agile support (q5.2), if there's an understanding of the agile benefits and required efforts (q5.3), and if ongoing training will be provided where needed (q5.4). A more positive response, 'Most of the time', was given to whether the organization has resources with prior work experience or training in agile methodologies (q5.5).

Respondents indicate that training and mentoring for Agile are not yet optimal in the organization, as the external support was still refining the approach for Agile implementation in audits. The organization faces a scarcity of experienced Agile resources in audit, limited knowledge, and stakeholder understanding of Agile, with a general hesitance to leave comfort zones.

They suggest that the mentoring team should have a clearer, more informed role and be familiar with the organization's audit processes to avoid a trial-and-error approach in implementing Agile. A serious, concerted effort to implement Agile practices and an increased awareness and proactive involvement among stakeholders are also recommended.

H. *Commitment to User Research*

The section on Commitment to User Research includes four questions assessing the organization's preparation for user research, budget allocation, dedication to understanding user needs, and leadership's support for research findings.

Table 9. Agile Readiness Assesment For Commitment To User Research

Name		BB	CC	DD	EE	FF	Average
Commitment to user Research	6.1	2	1	2	4	1	2
	6.2	2	3	3	4	3	3
	6.3	2	2	3	3	3	3
	6.4	2	2	1	2	2	2

2.5

Survey responses, as summarized in Table 9, indicate a 'Sometimes/Partial' stance on the organization's preparation for user research (q6.1) and leadership's backing of research findings (q6.4). A more affirmative 'Most of the time' is seen in the organization's budget allocation for user research (q6.2) and its commitment to understanding user needs (q6.3), reflecting a selective yet significant commitment to user research practices.

The respondents acknowledge the positive commitment of auditees in the Agile audit process, yet they identify a challenge in the extensive scope of audits, leading to a diluted focus. The integration of research findings into Agile methodologies is not fully realized. The participants advocate for a comprehensive understanding of roles and responsibilities in Agile audit implementation, emphasizing the need for concentrated efforts in narrowing audit scopes through intensive joint planning sessions. Furthermore, they underline the necessity of leadership support in assimilating research outcomes to enhance the efficacy of Agile audits.

I. Governance

The Governance section assesses the organization's establishment of IT project governance principles, clarity in project prioritization, adaptability of governance to project complexity, adherence to governance best practices, and capacity to manage agile projects effectively.

Table 10. Agile Readiness Assesment For Governance

Name		BB	CC	DD	EE	FF	Average
Governance	7.1	2	2	1	2	2	2
	7.2	2	2	3	2	2	2
	7.3	2	2	4	2	2	2
	7.4	2	2	4	2	2	2
	7.5	2	2	4	2	2	2

2.0

Survey responses, as detailed in Table 10, show a 'Sometimes/Partial' pattern. There is occasional alignment with established governance principles (q7.1), logical project prioritization (q7.2), and suitable scaling of governance requirements (q7.3). Additionally, there is intermittent support for governance best practices and executive decision-making (q7.4), as well as a varying capacity to manage and support agile projects given the current demands of the project portfolio (q7.5).

Respondents highlight that the guidelines for Agile audits are still in a nascent phase, primarily being trialed in one project, and there's a lack of a defined

methodology to measure the implementation of Agile audits. They also note that not all governance principles are aligned with or reference Agile practices.

They recommend that existing regulations be clarified and made more conducive to future audit processes. There's a need for evaluative bodies to review and provide feedback on Agile applications. Additionally, governance principles, project prioritization, governance scaling, support for best practices, and managing Agile projects in line with portfolio demands are areas needing enhancement.

D. Conclusion

This research aimed to assess the current level of Agile readiness at IT Audit Function of Bank XYZ, specifically within the context of its IT auditing processes. The Agile readiness survey highlighted "Commitment to User Research," "Organizational Culture," and "Training and Assistance" as areas of strength, indicating a solid foundation in user research, organizational support for Agile practices, and a baseline of training and resources for Agile delivery. Meanwhile, "Previous Experience," "Environment and Technology," and "Governance" were identified as areas meeting the threshold, suggesting a need for further focus and development in these aspects. Based on these assessment results, this paper proposes recommendations for phased improvements to enhance Agile practices and governance within the bank.

In conclusion, while Bank XYZ has made strides towards Agile readiness, there remains significant room for improvement, particularly in leveraging previous Agile experience and strengthening Agile project governance. The bank is advised to adopt a phased approach to enhancement, concentrating on training, skill development, and adjusting governance principles to align more closely with Agile project needs. This research output provides a crucial framework for Bank XYZ to evaluate and improve their current audit processes. The insights gained extend beyond the specific areas assessed, offering guidance for addressing challenges in other projects. The recommendations are aimed at facilitating a more comprehensive adoption of Agile methodologies in future audit initiatives at Bank XYZ, and these findings could also assist other organizations looking to enhance their Agile readiness in auditing and compliance functions.

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F. References

[1] Otoritas Jasa Keuangan, "Sp - Kinerja Perbankan Yang Kuat Dan Stabil Dorong Optimisme Di Tengah Gejolak Global," Sp 07/Dhms/Ojk/I/2023, 2023. [Online]. Available: https://ojk.go.id/id/berita-dan-kegiatan/siaran-pers/Documents/Pages/Kinerja-Perbankan-yang-Kuat-dan-Stabil-Dorong-Optimisme-di-Tengah-Gejolak-Global/Sp%20-%20Kinerja%20Perbankan%20Yang%20Kuat%20Dan%20Stabil%20Dorong%20Optimisme%20Di%20Tengah%20Gejolak%20Global.Pdf. Accessed: Nov. 21, 2023.

[2] D. Dewantari, T. Raharjo, B. Hardian, A. Wahbi, and F. Alaydrus, "Challenges of Agile Adoption in Banking Industry: A Systematic Literature Review," in *ICSEC 2021 - 25th International Computer Science and Engineering Conference*, Institute of Electrical and Electronics Engineers Inc., 2021, pp. 357–362. doi: 10.1109/ICSEC53205.2021.9684622.

[3] D. Beerbaum, "Application of agile audit: A case study research," 2021. [Online]. Available: https://ssrn.com/abstract=3824285

[4] L. Truong, "AGILE AUDITING: MORE VALUE, LESS RESOURCES," EDPACS, vol. 62, no. 1, pp. 4–7, Jul. 2020, doi: 10.1080/07366981.2020.1769764.

[5] Deloitte Touche Tohmatsu India, "Agile internal audit Elevating Internal Audit's performance," 2019. Accessed: Nov. 22, 2023. [Online]. Available: https://www2.deloitte.com/content/dam/Deloitte/in/Documents/risk/in-ra-agile-internal-audit-placemat-noexp.pdf

[6] T. DeRoche, "Agile Audit Transformation and Beyond," 2022. [Online]. Available: https://www.routledge.

[7] Catlin, R. (2021). Agile Auditing Fundamentals and Applications. John Wiley & Sons.

[8] Price Waterhouse Coopers, "Agile Auditing Mindset Over Matter," Price Waterhouse Coopers, 2018.

[9] S. Alexiou, "Going Agile in Audit," 2022. [Online]. Available: https://www.isaca.org/

[10] C. D. Schrock, "AGILE AUDITING: EVOLUTION OVER REVOLUTION," Internal Auditing, vol. 36, no. 1, pp. 16–21, 2021, [Online]. Available: https://www.proquest.com/trade-journals/agile-auditing-evolution-over-revolution/docview/2522188074/se-2?accountid=17242

[11] E. Dubois and K. Pohl, "Agile Transformation Success Factors: A Practitioner's Survey," *Lecture Notes in Computer Science (including subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics)*, vol. 10253 LNCS. Springer Verlag, pp. V–VI, 2017. doi: 10.1007/978-3-319-59536-8.

[12] State of California, "Agile Readiness Assessment," [Online]. Available: https://projectresources.cdt.ca.gov/agile/agile-readiness-assessment/. Accessed: Mar. 18, 2024.