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Readiness of Accounting Information Technology and Human Resources Competencies in Supporting the Digital Economy

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Abstract

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The transformation of the digital economy requires organizations in various sectors to adopt technology-based accounting information systems, especially Cloud Accounting. This study aims to analyze the readiness of accounting information technology and the competence of Human Resources in supporting the digital economy in Indonesia. The method used is a literature study with a qualitative approach, analyzing several scientific articles relevant to the topic. The results of the study show that technology readiness is still uneven, especially sector, which faces many infrastructure constraints and trust in cloud systems. Meanwhile, competencies are still limited to the basic level, with low digital literacy and resistance to change being the main obstacles. However, strategic approaches such as gradual transformation, structured training, and institutional synergy have proven to be effective in increasing the success of digital accounting system implementation. This research suggests the need for collaboration between the government, the business world, and educational institutions to accelerate the digitalization process in an inclusive and sustainable manner. In conclusion, technological readiness and human resource competencies must be developed in a balanced.

1. Introduction

Digital transformation has become a major force driving change in various sectors of the economy, including in the fields of accounting and finance. In today's digital economy era, accounting information systems are not only required to be able to record transactions, but also must support the decision-making process quickly, precisely, and accountably. The existence of technology such as Cloud Accounting has allowed organizations to conduct financial records in real-time, efficiently, and integrated from various locations (Habib et al., 2022) However, the success of the application of this technology is largely determined by two main factors, namely the readiness of information technology infrastructure and the competence of Human Resources (HR) in operating the system.

In Indonesia, the challenges and opportunities in supporting the digital economy are complex. According to the Indonesian Internet Service Providers Association (*Asosiasi Penyelenggara Jasa Internet Indonesia*/APJII), the national internet penetration rate has reached 79.5% with more than 221 million users. This figure illustrates the great potential in adopting cloud-based digital systems, including in the field of accounting (Ma et al., 2021). However, data from the Financial Services Authority (*Otoritas Jasa Keuangan* /OJK) and the Central Statistics Agency (*Badan Pusat Statistik* /BPS) show that the level of Islamic financial literacy has only reached 39.11% and Islamic financial inclusion is only 12.88%. This inequality shows that although access to technology has increased, human resource competence in using technology optimally, especially in the context of Islamic finance, is still low.

Institutions such as madrasas, Islamic boarding schools, MSMEs, and social foundations are examples of entities that urgently need an efficient, accountable, and sharia-based financial management system. However, many of these institutions still use manual methods of recording transactions, such as through spreadsheets and conventional ledgers. This leads to the risk of recording errors, reporting delays, and low financial transparency. In the research of Ahmed et al. (2020), it was stated that Cloud Accounting can be a solution that bridges the needs of value-based institutions with the challenges of digitalization, as this system allows for cost efficiency, ease of access to financial data, and increased public trust.

However, technology adoption alone is not enough. Human resource competencies play a central role in ensuring that technology implementation runs effectively and in accordance with applicable operational standards. Human resources in the field of accounting are now not only required to master the basic principles of accounting, but must also have technical skills in operating cloud-based software, analyzing financial data using analytical tools such as SQL and Power BI, and understanding the principles of digital data security. Lack of training and digital literacy is often an obstacle in the transition process to a technology-based financial system (Surya, 2018).

Furthermore, in the context of other public sectors, financial management is not only administrative, but also spiritual. Sharia principles such as trust, justice, and transparency are the foundation of every financial activity. Therefore, technology-based accounting information systems must be able to adapt to these principles, so

that the digitization process not only increases efficiency, but also strengthens the integrity of the institution morally and ethically.

Based on this background, it is important to conduct a comprehensive analysis related to the readiness of accounting information technology and human resource competencies in supporting the digital economy. This study aims to examine how ready institutions and organizations in Indonesia are to adopt a cloud-based digital accounting system and how strategies to strengthen human resource competencies can support the success of the implementation. This research uses the latest literature study approach, which is expected to provide conceptual and practical contributions for policy makers, organizational managers, academics, and business actors in supporting an inclusive and sustainable digital economy transformation.

2. Literature Review

2.1. Accounting Information Technology Readiness

In the context of the digital economy, the readiness of accounting information technology is the main key to integrating financial data efficiently and in real-time. Cloud-based accounting information systems have become a strategic solution to deal with the complexity and demands of organizational efficiency, both in the public and private sectors. This technology allows for centralized data storage, automation of accounting processes, and easy access to financial information from various locations without having to rely on local infrastructure (Surya, 2018). However, this

readiness does not solely depend on the adoption of modern software, but also involves network system readiness, data security, and internal technical support.

In research by Ahmed et al. (2020), it was found that institutions still face serious obstacles in implementing Cloud Accounting due to limited hardware and internet connectivity. This is reinforced by the findings of Putra et al. (2019) which show that many small and medium-scale organizations in Indonesia do not have adequate IT systems, both in terms of data security and reliable server infrastructure. From an institutional perspective, technological readiness also includes internal policies, management support, and information system training for employees. An organization can be said to be technologically ready if it has the tools, security systems, and policies and procedures that support digital transformation. Without such support, the use of sophisticated accounting information systems will face resistance and a high risk of error (Chen et al., 2021).

2.2. Human Resources Competencies in Digital Accounting Information Systems

Human resource competence is a determining factor in the successful adoption of accounting information technology. In the digital era, accounting professionals are not only able to understand the accounting cycle and record transactions, but must also be able to operate various financial software, understand digital data processing, and have adequate data literacy. This includes an understanding of big data, data analytics, and cloud systems. According to a study by Taib et al. (2022), the digital competence of accountants in Indonesia is still at a basic level, where most of the workforce is still limited to the ability to use Excel and

standard financial applications. In fact, to face the digital economy, it is necessary to master tools such as Xero, QuickBooks Online, SAP, and even the ability to read data from interactive dashboards such as Tableau and Power BI.

Most of the failures in the implementation of cloud-based information systems are due to a lack of training and technical assistance to end users. Without these competencies, the advanced systems adopted will be underutilized, or even abandoned because they are considered too complicated. In this context, continuous training programs are crucial, especially in educational institutions and the public sector (Rehman et al., 2019). Furthermore, HR competencies also include an understanding of digital ethics and data security. Today's digital accountants must understand how to maintain the confidentiality of financial information, handle potential data leaks, and manage the cyber risks inherent in cloud-based systems. Therefore, the accounting education curriculum at the university level and professional training programs need to adapt to the demands of the digital age.

2.3. Challenges of Economic Digitalization and HR-Technology Synergy

Economic digitalization poses new structural, cultural, and technical challenges. These changes not only have an impact on the operational system, but also on business models, work patterns, and the relationship between the organization and consumers. In Tahar (2022) research, it was stated that many business actors and social organizations have not been able to align technological transformation with internal readiness, both in terms of human resources and strategic policies. One of the biggest challenges is the lack of synergy between technology readiness and human resource readiness. Sophisticated information

systems require human resources who are adaptive, flexible, and digitally literate. Unfortunately, in practice, there is still a significant gap between the organization's technological capabilities and user competencies (Faizah et al., 2021). As a result, even though organizations already have cloud-based systems, their utilization is not optimal due to low technical understanding at the operational level.

In addition, challenges also come from aspects of organizational culture that are still conventional. Many organizations, especially in the education and religious sectors still make manual systems the norm. Digital transformation is considered something complicated, expensive, and not in accordance with the character of the organization. Therefore, a collaborative approach is needed that integrates technical training, value coaching, and participatory system development. Strengthening public policies, fiscal incentives, and digital training support from the government are also important supporting factors to encourage inclusive digitalization. Digital literacy needs to be built not only on a technical level, but also on strategic and ethical aspects. Thus, digitalization is not just a tool, but also an organizational culture that is oriented towards sustainability and efficiency.

3. Method

This research uses a literature review method with a descriptive qualitative approach. This approach was chosen because it is considered the most relevant to obtain a deep and comprehensive conceptual understanding of the readiness of accounting information technology and the competence of Human Resources (HR) in supporting the transformation towards a digital economy. The main focus of this

study is to critically analyze the results of previous research that have been published in national and international scientific journals. In other words, this research does not involve collecting field data directly, but rather utilizing secondary scientific sources that are credible, verified, and have gone through a peer-review process.

The data sources used in this study were obtained from various scientific databases from Google Scholar and national journal or International. The inclusion criteria in the literature selection include articles published, having thematic relevance to the topics of accounting information technology readiness, human resource competence, cloud-based accounting systems, and economic digitalization. The researcher also ensures that each article used has a research method that can be accounted for and has a theoretical or practical contribution to the issue being studied. On the other hand, articles that are opinionated, do not go through a peer-review process, or are not available in full text form are not included in the analysis process.

Data collection was carried out by compiling a list of search keywords, including: "Accounting Information Systems," "Cloud Accounting," "Digital HR Competencies," "Digital Transformation," and "Digital Economy." These keywords are used to find articles that fit the topic. The initial search results yielded more than some articles, but after a screening process based on inclusion and exclusion criteria, there were several articles selected for further analysis. The data analysis process is carried out by a thematic content analysis method. This means that the researcher identifies the major themes of the articles that have been collected, then categorizes

them based on certain dimensions such as technological readiness, human resource competence, implementation barriers, and system strengthening strategies.

The analysis was carried out by reading the article thoroughly, recording important points, and compiling a synthesis of the findings of each study. In this stage, the researcher also conducts comparisons between articles to see consistent patterns, contradictions, and research gaps that can still be explored. With these approaches and methods, this research is expected to be able to produce a systematic understanding of the factors that affect the successful implementation of accounting information technology and the readiness of human resource competencies in the context of the digital economy, especially in Indonesia. In addition, this study also aims to provide a conceptual basis for the formulation of organizational capacity building strategies in facing the increasingly complex and dynamic challenges of economic digitalization.

4. Results

This chapter presents the results of analysis and synthesis of fifteen relevant scientific articles, in order to understand the extent of the readiness of accounting information technology and the competence of Human Resources (HR) in supporting the digital economy in Indonesia. Based on the analyzed literature, it was found that the success of the implementation of a cloud-based accounting information system is influenced by several main factors, namely the available technology infrastructure, the capabilities and digital literacy of the human resources who manage it, and the implementation strategy implemented by the organization.

The findings of this study show that although technological developments in the field of accounting have been rapid, adoption and readiness at the practical level still experience many obstacles that need to be addressed systematically.

First, the readiness of accounting information technology in various organizations in Indonesia still shows a significant gap. Several organizations, especially large corporations and digital-based startups, have successfully adopted cloud-based accounting systems such as Xero, Jurnal.id, and Accurate Online. These systems allow for real-time transaction logging, cross-departmental integration, and ease of auditing and financial reporting. However, on the other hand, sectors such as Micro, Small, And Medium enterprises (MSMEs), Islamic boarding school-based educational institutions, and social foundations are still very limited in the use of this technology. Research by Aini et al. (2019) shows that educational institutions, for example, still largely rely on manual note-taking using Microsoft Excel. Infrastructure limitations, such as unstable internet access, outdated hardware, and lack of funds to subscribe to paid software are the main reasons for the low adoption rate of digital systems in this sector.

Another factor that is an obstacle is the low level of trust in the security of digital data stored in cloud systems. Many organizations, especially those that are not yet familiar with digital technology, are hesitant to store their financial data on external servers accessed via the internet. This is often due to a lack of socialization regarding security features such as data encryption, automatic backups, and multi-layered authentication that have actually been implemented in modern cloud-based accounting systems. Research by Putra et al. (2019) emphasizes that education about

the benefits and security of cloud systems is still very minimal, especially among MSME managers in the regions.

Second, human resource competence is the most critical aspect that affects the success of the adoption of accounting information technology. The results of the analysis show that most of the human resources involved in the financial management of the organization do not have adequate digital literacy. The study of Taib et al. (2022) revealed that the majority of accountants in Indonesia are still used to using simple desktop software and lack an understanding of cloud-based systems. Even in organizations that have adopted digital systems, many staff only use basic features without exploring the full capabilities of the software used. This shows that there is a gap between the potential of the available technology and the capacity of users to make optimal use of it.

Similar problems were also found in a study by Chen et al. (2021) that examined the experiences of developing countries. In the study, it was found that the treasurer or financial administration staff in many Islamic boarding schools did not have a background in accounting education or formal training in the use of digital systems. They tend to work self-taught and feel insecure when it comes to using new technology-based systems. Some of them even show resistance to change, feeling that manual systems are safer and easier to control. This indicates that digital transformation does not only require hardware and software, but also requires mental readiness and an open attitude from users.

The age and culture aspects of the organization also have an influence on the level of digital competence of human resources. In organizations dominated by the

senior generation or operating with a conservative culture, technological innovation tends not to get priority. This leads to digital stagnation, where organizations stick with legacy systems despite external pressure to change. In this context, technical training alone is not enough. A holistic approach is needed that also targets mindset changes and change management in the organization.

Third, several studies also present implementation strategies that successfully overcome these barriers. One approach that has proven effective is the phased transformation strategy, which is a phased transformation that begins with HR training before system procurement, system trials on a limited scale, and then full implementation after the system and HR are considered ready. This approach is considered successful because it is able to reduce the level of user resistance and provide sufficient adaptation time. Research by Faizah et al. (2021) shows that organizations that use this approach have a higher success rate of cloud accounting implementation than organizations that directly implement the system without internal preparation.

In addition, the digital mentoring strategy is also a key factor in the successful implementation of a cloud-based accounting information system. Arner et al. (2022) in their training for MSMEs, proved that the existence of a digital facilitator who actively guides users in operating the system can increase user adoption and trust. In the training, the accompanied participants showed an increase in understanding of up to 40% higher than participants who only received training modules without direct practice. This shows that hands-on experience-based training is more effective than a purely theoretical approach.

Tahar et al (2022) explained that a digital economy roadmap that encourages digitalization in various sectors, including accounting. However, there is still a lot of digital training that focuses on popular areas such as digital marketing, design, and app development, while digital accounting training is not yet a major concern. Therefore, collaboration is needed between the government, educational institutions, professional associations, and technology providers to develop a digital accounting training curriculum that is applicable and according to the needs of the field.

The study of Aini et al. (2019) also highlights the importance of the existence of internal organizational policies to support digital transformation. Organizations that have developed digital Standard Operating Procedures (SOPs), data security policies, and technology-based authorization systems tend to be better prepared to face the challenges of digital transformation. The SOPs not only provide workflow clarity, but also reduce dependencies on specific individuals and improve the overall reliability of the system. With a digitally documented system, the audit and reporting process also becomes easier and more efficient.

Furthermore, the implementation of digital accounting information systems has been proven to have a positive impact on transparency, efficiency, and accountability of organizations. Andronie and Ionescu (2019) show that the use of cloud accounting can speed up the process of preparing financial statements, reduce errors, and increase external parties' trust in the organization. In the education sector and social institutions, the ability to present accurate and timely financial reports is an added value in building the trust of donors and strategic partners.

Overall, the results of the analysis show that the readiness of accounting information technology and human resource competencies interact with each other in determining the success of organizational financial digitalization. On the one hand, advanced technology will not be effective if it is not supported by skilled human resources who are open to innovation. On the other hand, even ready human resources will be hampered if they do not have a system that supports their work. Therefore, an integrated approach that includes technical training, strengthening organizational culture, institutional policies, and infrastructure support is needed to ensure digital transformation runs sustainably.

5. Discussion

Transformation towards a digital economy is a necessity that requires comprehensive readiness from both technological and human resource aspects. Based on the results of the literature analysis, it can be seen that the implementation of cloud-based accounting information systems is not even in Indonesia. The main challenge lies in two crucial aspects: the limitation of technological infrastructure and the low competence of human resources in the field of accounting digitalization. First, regarding technological readiness, many organizations, especially the MSME sector and Islamic educational institutions, still do not have the infrastructure to support accounting digitization. The reliance on manual recording systems and on-premises software without cloud integration leads to low efficiency, transparency, and accuracy of financial statements (Shibambu, 2022). Another problem is the distrust of the security of digital data stored on external servers. In fact, modern

cloud accounting systems have been equipped with encryption features, multi-layered authentication, and automatic backups that are much more secure than manual or local systems.

Second, the aspect of human resource competence is a central issue that is often overlooked. Many accounting training is still conventional, without including a curriculum based on digital technology. HR that is not ready or even resistant to change is a major obstacle in technology adoption. In this context, the challenges faced are not only a lack of technical capabilities, but also related to organizational attitudes and culture. Organizations that do not encourage innovation or continuous learning will be left behind in the digital transformation process (Hinings et al., 2018). However, this discussion also underlines the great opportunity if the two aspects can be strategically integrated. Research highlighting phased implementation strategies and facilitative approaches shows that the success of digital accounting system adoption is largely determined by the synergy between technology readiness and human resource development. Approaches such as phased transformation, digital mentoring, and practice-based training have proven to be effective in increasing technology adoption in a sustainable manner.

Furthermore, it is important for organizations to not only focus on the technical side, but also design internal policies that support digitalization. This includes the preparation of SOPs based on digital systems, integrated supervision systems, and incentives for human resources who are actively innovating. Organizations must also actively establish partnerships with educational institutions, technology providers, and governments to get access to training and technology in

an affordable manner. This condition shows that the challenge of accounting digitalization in Indonesia is not insurmountable (Daly et al., 2022). Instead, with the support of strategic policies and adaptive approaches, organizations in various sectors can accelerate the transformation process and contribute to strengthening the national digital economy.

In addition, the importance of building a pro-technology organizational culture is a long-term foundation so that the use of cloud-based accounting information systems is not only a temporary project, but also part of a sustainable management system. Thus, this discussion emphasizes that technological readiness and human resource competence must be seen as a unit in building a strong accounting information system in the digital era. Strengthening these two aspects simultaneously is a key prerequisite for organizations to survive and grow in a competitive, dynamic, and data-driven digital economy ecosystem.

6. Conclusion

This study concludes that the readiness of accounting information technology and Human Resource (HR) competencies are the two main pillars in supporting the transformation towards a digital economy. Although the adoption of cloud-based accounting information systems shows an increasing trend, its implementation in various sectors, especially MSMEs and Islamic educational institutions, still faces various obstacles. These obstacles include the limitations of technology infrastructure, the lack of digital-based institutional policies, and the lack of trust in cloud data security. On the other hand, human resource competence in the field of

digital accounting is also still low. Many accounting workforces do not yet have an adequate understanding of the cloud software, data analytics, and digital literacy required to run a modern accounting system optimally.

Lack of training, resistance to change, and organizational culture that has not supported innovation are the main inhibiting factors. However, various strategies can be implemented to bridge the gap. Among them are a phased transformation approach, digital mentoring, practice-based training, and the formation of a collaborative ecosystem between the government, technology providers, educational institutions, and business actors. With a structured approach and the right policy support, digital transformation in the accounting system can be achieved effectively and sustainably, thereby strengthening the competitiveness of organizations in the digital economy era.

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