

Digital Transformation and Human Resource Development Strategies to Enhance the Global Competitiveness of the Halal Industry

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Abstract— This study examines digital transformation and human resource (HR) development in the halal industry through a systematic approach. The main objective of this study is to understand how digital technology and HR development are implemented in the halal industry sector, as well as the challenges and opportunities that arise in the process. The research method uses qualitative with a literature study approach, including searching for relevant literature in various academic databases, critical analysis of the collected literature, and synthesizing the resulting findings. This study found that although digital transformation provides many opportunities, the success of its implementation is highly dependent on the development of employee digital skills and changes in organizational culture that support innovation. Thus, the results of this study are expected to provide new insights for the development of effective digital transformation strategies in increasing the competitiveness of the halal industry at the global level.

Keywords: Digital transformation, Halal industry, Human Resources.

1. INTRODUCTION

Rapid technological developments have had a significant impact on strategies and operations across sectors around the world. Digital transformation introduces new methods, processes, and mechanisms that impact the way companies manage and run their businesses. This change not only changes the way companies operate, but also creates new opportunities to improve efficiency and innovation. With digital technology, companies can respond to market changes more quickly and flexibly. In addition, this transformation paves the way for new business models that are more data-driven and integrated. In an increasingly connected world, companies that successfully adopt digital transformation will gain a significant competitive advantage. Digital transformation also enables companies to leverage big data analytics for more informed and evidence-based decision-making. Companies can not only improve internal performance but also create better experiences for their customers and business partners [1].

Digital transformation has become an absolute necessity in the context of global industry, including the halal industry sector. With the rapid development of technology, companies around the world, including those in the halal sector, are faced with the demand to adapt quickly to market dynamics. This transformation not only includes the implementation of new technologies, but also involves significant changes in business

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models, organizational culture, and the development of human resources with digital expertise to support the process. This adaptation is key for companies to remain relevant amidst global competition. In addition, mastery of technology allows for operational efficiency and improved quality of halal products. Therefore, cross-sector collaboration between government, industry, and academia is a strategic step to accelerate digital transformation in the halal industry [2].

The halal industry sector is experiencing significant growth, with a global market value estimated to reach USD 2.41 trillion [3]. However, the challenges faced in developing the halal industry, such as in Indonesia as a Muslim majority country, include the lack of coordination between sectors, accurate information regarding halal certification, and a database of companies involved in the halal industry process [4]. In this context, digital transformation can serve as a tool to improve operational efficiency and transparency, which in turn can strengthen the competitiveness of the halal industry [5]. The use of technologies such as blockchain can ensure the authenticity and integrity of halal certification throughout the supply chain. In addition, data digitization allows easier access for business actors and consumers to verify the halal status of a product. Collaboration between the government and private sectors is needed to create a digital ecosystem that supports the development of the halal industry sustainably. With the right strategy, digital transformation can be a catalyst in strengthening global competitiveness.

The development of quality human resources is a key factor in supporting digital transformation in the halal industry sector. Through targeted education and training, the workforce can be equipped with the ability to face the challenges of the digital era [6]. In this context, educational institutions, including Islamic boarding schools and Islamic educational institutions, play a strategic role in preparing the younger generation with important skills such as information technology, business management, and a deep understanding of halal principles [7]. Adaptive and industry-based curriculum needs to be designed to respond to technological developments and market dynamics. In addition, strengthening collaboration between educational institutions, industry, and government is a strategic step to create a competent and innovative workforce. Providing internship programs in the technology-based halal industry sector can also provide practical experience for the younger generation. With this effort, the human resources produced are not only able to compete locally but also globally, encouraging the strengthening of the position of the halal industry in the world market.

The application of digital technologies, such as blockchain and the Internet of Things (IoT), has great potential to increase transparency and efficiency in the halal supply chain process, as stated by Davids and Sabrain [5]. These technologies provide the ability to trace the origin and journey of halal products in more detail and accurately, thereby increasing consumer confidence in the authenticity and compliance of these products with halal standards. With increased consumer confidence, the halal industry can strengthen its position in the increasingly competitive global market. Therefore, it is important for players in the halal industry to actively utilize digital technologies in all aspects of their operations, to ensure they are able to compete effectively at the international level [8].

Digital transformation and the development of quality human resources are two interrelated and very important aspects in increasing the competitiveness of the global halal industry. By utilizing digital technology and equipping human resources with relevant skills, the halal industry can face existing challenges and take advantage of emerging opportunities in an increasingly competitive global market [9]. Therefore, researchers are encouraged to conduct in-depth systematic studies on digital transformation and human resource (HR) development as a strategic effort to increase the global competitiveness of the halal industry. Digital transformation, which includes the

adoption of advanced technology and digital-based innovation, is an important factor in creating efficiency, improving product quality, and expanding the market reach of the halal industry globally. On the other hand, the development of superior, highly competent, and adaptive HR to technological changes is a key element in supporting the success of this transformation.

This study is expected to provide in-depth insights into the strategic steps needed to integrate technological innovation with increasing human resource capacity. This combination is expected to encourage the creation of a competitive, sustainable, and highly competitive halal industry ecosystem in the international arena. In addition, this study also aims to provide a real contribution to realizing the vision of halal industry globalization that is not only able to meet the needs of Muslim communities in various parts of the world, but also plays a role as an important pillar in the global economy. The main objective of this study is to identify concrete strategies in utilizing digital technology and human resource development to support the transformation of the halal industry. This study also aims to provide practical recommendations for industry players in facing the challenges of globalization, while positioning the halal sector as a significant economic force in the world market.

2. THEORITICAL REVIEW

Digital transformation in the halal industry is a very complex process and involves various dimensions, so it requires a deep understanding of human resource (HR) development as one of the important pillars to increase competitiveness. HR development in this case is not only limited to improving technical skills, but also includes the development of managerial and leadership competencies that are very much needed to face challenges in the digital era [10]. Existing research shows that quality HR can make a significant contribution to organizational performance, especially in highly competitive sectors such as the halal industry [11]. Training and education that are integrated with the development of digital technology are essential. This skill improvement will enable the workforce to adapt to new technologies and take advantage of opportunities in the global market. Furthermore, strong managerial competencies are needed to lead the changes that occur due to the adoption of digital technology. Thus, competent HR will be the main key to the sustainability and success of the halal industry in the digital era.

One of the key elements in HR development is training and education that is in accordance with industry demands. For the halal industry, training that emphasizes understanding halal principles and mastery of information and communication technology is essential [12]. Research shows that well-designed training programs can improve employee skills and performance, which will ultimately have a positive impact on the company's competitiveness in the global market [13]. The role of educational institutions, including Islamic educational institutions, is very important in preparing HR who are able to face various challenges in the halal industry sector [14]. Educational institutions need to establish partnerships with the industrial sector to ensure that the curriculum they develop can meet market needs. In addition, the development of learning methods that integrate digital technology will help facilitate access to relevant knowledge and skills. Strengthening HR capacity in the halal and technology sectors will accelerate the transformation process towards a more innovative and sustainable halal industry.

Effective leadership is a major factor in HR development. Leaders who can inspire and encourage their teams to adapt to technological changes and market dynamics will create a more productive and innovative work atmosphere [15]. Research shows that adaptive and collaborative leadership traits are essential in facing the challenges of digital

transformation [16]. Effective leadership development should be an important part of HR development strategies in the halal industry. Good leaders not only direct, but also become facilitators in the change process. Strengthening this leadership capacity will enable leaders to formulate a clear vision and guide the team to achieve common goals. Inclusive and collaboration-based leadership will also accelerate the acceptance of new technologies in the organization. In addition, leaders need to have the ability to manage change wisely, ensuring that every team member feels involved and motivated in the transformation process.

On the other hand, the challenges faced by the halal industry in the digital transformation process must receive serious attention. Several studies have revealed that limited understanding of digital technology and lack of adequate infrastructure are major obstacles in implementing digital transformation [17]. Therefore, companies must expand their focus, not only on technical training, but also on creating deeper awareness and understanding of the importance of digital transformation among all employees [18]. For this, a comprehensive approach is needed, involving all levels of the organization in the process of learning and adapting technology. In addition, companies must work with technology providers to ensure adequate infrastructure can support sustainable digital transformation. Building a culture that supports digital innovation is also important to encourage employees to be more open to change. In this context, visionary leadership has an important role in directing companies to overcome these challenges with a clear and planned strategy.

Overall, human resource development integrated with digital transformation is a strategic step to strengthen the competitiveness of the halal industry at the global level. By utilizing technology and improving HR competencies, the halal industry can overcome various challenges and take advantage of opportunities in the increasingly competitive global market [11]. Close collaboration between the government, private sector, and educational institutions is essential to create an ecosystem that supports HR development and digital transformation in the halal industry. In addition, it is important to create policies that can encourage investment in technology and HR training. Increasing synergy between various parties will accelerate the adoption of digital technology that can improve operational efficiency and product quality in the halal industry. Furthermore, this effort will open up wider market access, both nationally and internationally.

3. METHOD

This study uses a literature review with a systematic approach to collect, analyze, and synthesize literature relevant to the topic of digital transformation and human resources (HR) in the halal industry. This methodology consists of several steps that ensure the review process is carried out thoroughly and structured. The first step is to determine a clear and specific research question, which will guide the literature search and help identify relevant sources. The second step is to conduct a literature search through relevant academic databases and journals using keywords such as "digital transformation", "HR in the halal industry", and "digital skills development". The selected literature will include research articles, literature reviews, and industry reports to provide a comprehensive overview of the topic under study [19].

Once the literature has been collected, the third step is to conduct a critical analysis of the selected studies. This analysis includes an assessment of the methodology used in the existing research, as well as identifying the strengths and weaknesses of each study. This process is important to understand the context and contribution of the research to the broader topic. The analysis will also help identify existing research gaps and provide

recommendations for future research. The final step is to compile the results of the study into a coherent synthesis, combining the findings from the various studies to provide deeper insights into how digital transformation affects HR development in the halal industry. The results of this synthesis will be presented in a structured narrative that captures the key themes that emerged from the literature reviewed.

The use of library research in this study is very important because it allows researchers to gain a deep and comprehensive understanding of the topic being studied. By reviewing relevant literature, library research can identify existing theories, concepts, and important findings in the field of digital transformation and HR development in the halal industry. In addition, library research helps to clarify the theoretical basis used, as well as provide historical context and current developments related to the topic. It also allows researchers to explore gaps in the existing literature, so that they can provide new contributions or recommendations for further research. Through this approach, researchers can gain a better overall picture of the dynamics occurring in the field.

4. RESULT AND DISCUSSION

4.1. Digital Transformation and Human Resource in The Halal Industry

Digital transformation refers to the adoption of digital technologies across all aspects of business operations and strategies, significantly changing the way organizations function and deliver value to consumers [20]. In the halal industry sector, digital transformation is key to improving efficiency, transparency, and competitiveness in an increasingly competitive global market. The human resources (HR) factor plays a vital role in the success of this process, as the ability and skills of employees in integrating cutting-edge technologies greatly influence the outcome of digital transformation. Qualified HR are not only proficient in using technology but can also play a role in innovation and strategic decision-making that drives organizational development [21]. Companies need to ensure that investments in HR training and development are carried out sustainably. Digital skills development is an important aspect in preparing a workforce that is ready to face future challenges. With skilled HR, organizations can not only survive the competition but also create new opportunities that have a major impact on economic growth and increased competitiveness in the international market.

Human resources (HR) play a key role in this digital transformation process, with the quality of existing HR greatly influencing the success of implementing new technologies in the halal industry sector. Research shows that digital skills training and development should be a top priority for organizations so that employees are not only proficient in operating technology, but can also contribute to innovation and strategic decision-making [22]. Vocational education designed to meet specific skills needs in the halal industry can help produce a skilled and ready-to-use workforce. Investment in developing quality HR is an essential strategic step to support the success of digital transformation. In addition, empowering HR with relevant digital skills can accelerate technology adoption and encourage companies to adapt to rapidly changing market dynamics. Improving HR competency will also help organizations stay competitive and innovative in facing global challenges.

While technology adoption offers a number of benefits to businesses, it also presents challenges and risks that need to be addressed carefully. Rapid technological developments, high implementation costs, cybersecurity threats, resistance to change, data privacy issues, compatibility issues, and the digital divide are some of the major barriers that must be overcome. By proactively addressing these challenges, companies can maximize the use of technology, strengthen their competitiveness, and achieve sustainable growth in the digital era [23]. Proper utilization of digital transformation,

coupled with the development of competent human resources, will significantly contribute to the growth of the halal industry in the global market. Companies that are able to overcome these barriers wisely will be better prepared to innovate and adapt to dynamic market changes. Success in facing these challenges will also strengthen the organization's position in the international market.

Digital transformation in the halal industry plays a strategic role in increasing efficiency, transparency, and competitiveness in the global market. However, the success of this transformation is highly dependent on the readiness of human resources (HR) which is the main factor in the adoption and optimization of digital technology. Training and development of digital skills are urgent needs for organizations to ensure that HR is not only able to operate technology, but can also contribute to innovation and strategic decision-making that supports organizational growth. On the other hand, challenges such as high implementation costs, cybersecurity threats, resistance to change, and the digital divide are obstacles that must be overcome strategically. Digital transformation supported by competent HR not only strengthens the competitiveness of the halal industry but also opens up significant growth opportunities at the global level, making it a driving force for the economy based on the values of sustainability and inclusivity.

4.2. Barriers to Digital Transformation and Human Resource Development

Digital transformation is increasingly becoming a phenomenon that dominates various sectors, including business, education, and government. However, this process is not free from various obstacles, both technical, related to human resources (HR), and organizational culture. Therefore, it is important to understand the existing challenges and the steps for HR development needed to realize an effective digital transformation. One of the main obstacles in digital transformation is the low digital literacy among the community and business actors. Research shows that in Indonesia, many Micro, Small, and Medium Enterprises (MSMEs) do not fully understand and utilize digital technology in their operations [24]. An organizational culture that is less adaptive is another obstacle, because many organizations still maintain traditional work patterns that do not support innovation and collaboration [9]. An organizational culture that is less adaptive is another obstacle, because many organizations still maintain traditional work patterns that do not support innovation and collaboration.

In facing these challenges, HR development becomes very crucial. Improving digital competence and skills among HR must be a priority. In addition, effective HR management strategies, including training and development of digital skills, need to be implemented to improve employee performance in the digital era [25]. This is in line with the need to build a work culture that supports innovation and adaptation to technological changes [26]. Furthermore, effective leadership also plays an important role in driving digital transformation. Leaders who are able to utilize technology and lead their teams well will be better able to overcome existing obstacles [27]. In the context of government, commitment from all stakeholders is needed to create an environment that supports digital transformation, including in terms of knowledge and skills development [28].

Digital transformation presents both huge opportunities and significant challenges across sectors, such as business, education, and government. Key barriers include low digital literacy among MSMEs and the general public, as well as an organizational culture that is less adaptive to innovation and collaboration. These factors highlight the importance of human resource (HR) development through increasing digital competency and implementing effective HR management strategies, such as ongoing training. In addition, innovative leadership is key to overcoming barriers, by encouraging technology adaptation and team collaboration. On the government side, cross-stakeholder

commitment is needed to create an ecosystem that supports digital transformation. By integrating skills development, adaptive work culture, and effective leadership, digital transformation challenges can be overcome to create sustainable and inclusive change.

4.3. Halal Industry Development Strategy Through Utilization of Digital Technology and Strengthening Competent Human Resources.

The development of the global halal industry faces significant challenges and opportunities, especially in the context of digital technology and the development of competent human resources (HR). An effective strategy is needed to harness the potential of the halal industry and ensure that the products and services produced meet the halal standards expected by consumers. One of the main strategies in the development of the halal industry is strengthening supportive regulations and policies. Research shows that clear and consistent regulations are essential to creating a conducive environment for the growth of the halal industry [29]. In addition, the development of an efficient logistics system, including the application of blockchain technology, can increase the transparency and integrity of halal products [30]. By utilizing digital technology, the halal industry can ensure that every stage in the supply chain meets the established halal standards [31].

Competent human resource development is also a key factor in the halal industry development strategy. Research shows that business actors in the halal sector need to have adequate competencies to drive innovation and performance [32]. Therefore, training and education programs that focus on digital skills and understanding of halal principles must be strengthened. This is in line with the need to build dynamic capabilities among halal industry players, which will enable them to adapt to existing changes and challenges [4]. Furthermore, collaboration between various stakeholders, including government, industry, and academics, is essential to create an ecosystem that supports the development of the halal industry. By utilizing digital technology, the halal industry can reach a wider market and increase interaction with consumers [33].

The development of the global halal industry presents great opportunities with the support of digital technology and human resource development, but also faces significant challenges that require a comprehensive strategy. Clear and consistent regulations are an important foundation for creating a conducive environment for growth, while the application of technologies such as blockchain can ensure transparency and integrity of the halal supply chain. In addition, strengthening human resource competencies through digital skills-based training programs and a deep understanding of halal principles are key to driving innovation and competitiveness. Collaboration across stakeholders involving government, industry, and academia is essential to building an ecosystem that supports the development of this industry. By optimally utilizing digital technology, the halal industry can expand its market reach while meeting consumer expectations for product halal standards, creating sustainable synergies for its sustainability and growth.

4.4 Critical Review of Technology and Human Resources in The Halal Industry

Digital transformation in the halal industry is a highly relevant topic in the modern era, where technology plays a crucial role in enhancing efficiency and competitiveness. Existing research shows that the integration of digital technology not only changes how organizations operate but also creates added value for customers. While the importance of human resources (HR) in this process is acknowledged, there are several aspects that need further attention. First, although digital skills training and development are recognized as a priority, there is little in-depth explanation of effective training methods and how organizations can practically implement them. Without a clear strategy, HR development efforts can risk being ineffective. Therefore, companies need to design structured training

programs with appropriate methods to ensure maximum results. Additionally, it is essential for organizations to conduct regular evaluations of the training program's effectiveness to adapt to the constantly evolving technological landscape.

Furthermore, the challenges faced in digital transformation, such as low digital literacy and an unadaptive organizational culture, have been well identified. However, the analysis of how organizations can overcome these barriers lacks depth. For example, although the importance of innovative leadership is mentioned, there is no explanation of the specific leadership characteristics needed to drive this change. Additionally, the process of building a work culture that fosters innovation and collaboration requires further elaboration. Without a clear understanding of the concrete steps to be taken, organizations may struggle to implement the necessary changes. To address these challenges, organizations must prioritize leadership development programs that focus on fostering adaptive and forward-thinking leaders. In addition, creating a supportive environment for innovation involves promoting cross-functional collaboration and encouraging continuous learning. It is also crucial for organizations to implement feedback mechanisms that allow them to adjust strategies in real-time, ensuring they remain aligned with digital transformation goals.

The development of the halal industry through the utilization of digital technology and the enhancement of human resources' competencies is key to advancing this sector. However, it is important to emphasize that effective collaboration among the government, industry, and academia must be carried out with careful planning and clear structure. Further research is needed to explore the most efficient collaboration models and identify the best ways for each stakeholder to contribute optimally. This is crucial so that each element of stakeholders can support each other and accelerate the transformation of the halal industry. Additionally, challenges arising from the integration of digital technology, such as data security and privacy protection, must be addressed. Training and capacity development for human resources should be aligned with the evolving demands of the industry. The involvement of the private sector is also vital to ensure that technology adoption is more accessible to halal business players across all levels. In the long term, the integrated implementation of these strategies can elevate the halal industry to a higher level on a global scale.

5. CONCLUSION

Overall, digital transformation and human resource (HR) development are two mutually supportive and crucial factors in enhancing the competitiveness of the halal industry in the global market. Although the journey towards digital transformation faces various challenges, such as a lack of digital skills and resistance to cultural change, with the application of the right strategies and effective leadership, organizations can overcome these obstacles. Adequate investment in HR development and the implementation of relevant technologies will open new opportunities for organizations to grow and innovate. Therefore, the success of digital transformation relies not only on the technology itself but also on the organization's ability to empower employees and foster a culture that supports change. In an increasingly competitive era, organizations that can effectively integrate these two elements will have a significant advantage in achieving long-term success in the global market.

As part of the conclusion, it is recommended that halal stakeholders—including the government, industry sector, and academia—collaborate to facilitate and support sustainable and high-quality halal production. Stakeholders should actively play a role in providing training for industry players and encouraging the adoption of technologies that can enhance efficiency and product quality. Structured collaboration among relevant

parties can create a stronger halal industry ecosystem, which not only supports economic growth but also ensures the sustainability and competitiveness of halal products in the global market. Additionally, policies that promote the development of local innovations to meet the growing demand of the halal market are essential. The government is also encouraged to provide incentives for companies that adopt environmentally friendly technologies and comply with international halal standards. With strong synergy, the halal industry can become one of the key drivers of a global economy rooted in sustainability and fairness.

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