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Government Policy in Improving Human Resource Competencies Based on Digital Technology

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ABSTRACT – This study analyzes the effectiveness of government policies to improve digital technology-based human resource competencies in Indonesia and identifies barriers to their implementation. Based on a literature review and normative juridical analysis, it was found that while policies such as Presidential Regulation Number 95 Year 2018 have provided a relevant framework, their implementation is still impeded by a lack of innovation in training design, the digital divide in remote areas, and weak coordination between stakeholders. Lack of supportive regulations and low digital literacy among teachers and government employees are also significant obstacles. This research recommends the reinforcement of regulations, improvement of infrastructure, innovation of training programs, and development of a monitoring and evaluation system to support the success of the policy. This study contributes to the strategic evaluation of digital competency policies as a foundational step toward workforce readiness in the industrial era 4.0.

Keywords: Government policy, HR competency, digital technology, training, regulation.

A. INTRODUCTION

The development of digital technology has brought significant changes to various aspects of life, including in the labor sector. To confront the industrial era 4.0, the government is required to improve the competence of Human Resources (HR) in order to compete in a digital-based economy. However, the implementation of policies to support these efforts is challenging. One of the main challenges is the lack of equitable access to digital training in all regions of Indonesia, especially in remote areas. According to Gusman (2024), digitalization is often concentrated in urban areas, leaving competency gaps in rural areas.

In fact, regulations related to digital competency development are still unsupportive. Despite the existence of Presidential Regulation Number 95 Year 2018 on Electronic-Based Government Systems (EBS), implementation in the education and workforce training sector has not been fully optimized. As described by Suwandaru et al. (2023), this policy has focused on providing technological infrastructure rather than human resource development.

Regulatory gaps also come up in the alignment between labor market needs and educational curriculum. Spante et al. (2018) showed that formal education programs in Indonesia still lack the ability to integrate digital literacy as a basic competency. This is exacerbated by limited resources to provide teachers who are competent in digital technology.

The training efforts for government employees also encounter obstacles. Kitthiwichayakul et al. (2023) emphasized that digital transformation in government requires in-depth digital skills development, but training budgets are often a serious obstacle. This condition makes employees at the local level to miss out on competencies compared to their national counterpart.

Aliyah and Evendi (2023) noted that another obstacle is the difference in organizational culture to adopt new technology. The government is challenged to change from a manual-based work culture to digital automation. This constraint causes resistance among employees to technology-based training.

Another problem is the weak monitoring and evaluation system for digital training policies. Jannah and Mardikaningsih (2023) note that human resource development policies in Indonesia lack clear indicators to measure the effectiveness of training programs. As a result, many programs have been running without any real impact on improving labor productivity.

Oladimeji et al. (2024) stated that digital literacy is key to productivity in the public sector. However, in Indonesia, most of the public sector workforce still has gaps in technology mastery. This is due to limited access to training that focuses on the specific needs of each sector.

Another issue identified was the lack of synergy between the private sector and the government to support digital technology training. Hardyansah (2023) noted that government initiatives often proceed on their own without involving the private sector that has expertise in this field. As a result, training outcomes are likely to be irrelevant to market needs.

Basilotta-Gómez-Pablos et al. (2022) state that teachers have a central role in transferring digital competencies, but in Indonesia, the most teachers still lack digital literacy. This results in a limited ability to integrate technology in the learning process.

Another problem is the lack of policy support for the development of training modules that meet local needs. Mustofa and Tamaela (2024) emphasized the importance of customizing training based on local conditions, but such an approach is rarely implemented in Indonesia.

It is also important to note that existing regulations, such as Law Number 13 Year 2003 on Labour, have not explicitly accommodated digital technology-based training. As a consequence, digital training initiatives often lack adequate legal support.

Suwandaru et al. (2023) point out that another challenge is the lack of strategic planning to formulate training policies. Most training is conducted sporadically without a well-coordinated framework.

Mardikaningsih and Halizah (2022) identified a lack of involvement of academics in formulating training policies. Many policies are developed without input from data-based research, resulting in less effective implementation.

Finally, Gusman (2024) notes that digitization in Indonesia often focuses more on developing technological infrastructure, rather than on developing human skills. This creates an imbalance between the availability of technology and the ability to use it.

Policies to improve HR competencies based on digital technology have been extensively discussed, but there are still gaps in terms of mapping training needs by sector and region. Previous research has focused on technological infrastructure or partial approaches without a comprehensive analysis of inter-stakeholder synergies.

This research offers a comprehensive analysis of digital technology-based HR competency improvement policies with a focus on evaluating relevant regulations and the implementation of training programs at the national and local levels. The research also states strategies for optimizing synergies between the government, private sector, and educational institutions.

This study aims to analyze the effectiveness of government policies in improving digital technology-based HR competencies and identify factors that impede their implementation in order to provide better policy recommendations.

B. METHOD

This research uses a normative juridical approach with a focus on analyzing literature related to relevant regulations, policies and legal theories. This approach was chosen to understand government policies to improve the competence of digital technology-based human resources in Indonesia. This literature review refers to the latest legislation and supporting scientific literature.

The method used in this research refers to the principles of legal research that have been developed by Ali (2021) and Ashshofa (2013). The normative approach in this research relies on the review of legal documents, public policies, and relevant legal theories. In addition, the use of research methods initiated by Zed (2008) is the basis for conducting a comprehensive literature review.

The data sources used consist of secondary data, namely legal documents such as laws, presidential regulations, ministry policies, scientific journals, and reference books. Data collection was conducted through document studies, to emphasize the importance of systematic review of documents to ensure the validity of information used in juridical research.

Data analysis was conducted using a qualitative descriptive approach, by describing and interpreting the findings based on the documents reviewed. The analysis process included three main steps: data collection, classification based on the main themes, and interpretation of the results to answer the research problems. This approach follows the model outlined by Patilima (2011), which suggests structured steps in literature analysis to produce valid and relevant conclusions.

The main regulations referenced in this research include Presidential Regulation Number 95 Year 2018 on Electronic-Based Government System (EBS) and Law Number 13 Year 2003 on Labour, which are interpreted through theoretical analysis and supported by literature.

C. RESULTS AND DISCUSSION

Effectiveness of Government Policies to Improve HR Competencies Based on Digital Technology

The effectiveness of government policies to improve digital technology-based HR competencies can be analyzed from many aspects, including regulations, program implementation, and their impact on HR development. The Indonesian government has issued several policies such as Presidential Regulation Number 95 Year 2018 on Electronic-Based Government System (EBP), which aims to accelerate digitalization in the public sector. However, the effectiveness of this regulation is often questioned. Gusman (2024) states that the infrastructure provided has not been matched by the development of employee's digital skills. This has created a competency disparity between central and regional employees.

According to Kitthiwichayakul et al. (2023), developing employees' digital competencies requires continuous training support. However, in Indonesia, the budget for training is often limited. Jamaluddin et al. (2013) stated that the implementation of technology-based policies must be accompanied by good change management. In Indonesia, the lack of understanding of the importance of change management is a main obstacle in the implementation of this policy.

Haryanto and Nurhayati (2019) identified that one of the main challenges in policy implementation is the lack of coordination between government and private institutions. This causes fragmentation in the implementation of digital training, which impacts the effectiveness of the training program. In addition, Ahmad et al. (2014) emphasized the importance of flexible strategic planning to adapt training programs to the needs of a dynamic labor market. However, many policies in Indonesia are generic and not specific to the needs of a particular sector, and therefore cannot fulfill the demands of the field. Therefore, a more integrated and responsive approach is needed to ensure that the training provided matches the needs of the industry.

Oladimeji et al. (2024) pointed out that digital literacy has an important role to improve productivity in the public sector, which confirms that relevant digital skills should be part of training programs. In addition, Spante et al. (2018) conducted a systematic review of the use of the concepts of digital competence and digital literacy in higher education research, indicating the importance of a deep understanding of these concepts to develop effective curriculum. Therefore, to resolve the challenges in implementing digital training policies, there is a need for better collaboration between the public and private sectors, as well as more specific and responsive planning to labor market needs.

Infante and Darmawan (2022) noted the role of gender in training policy implementation. They found that women's participation in digital training remains low, due to entrenched gender stereotypes and lack of access to training in remote areas. This is a significant obstacle to achieving effective policies that aim to improve human resource competencies in an inclusive manner. These inequalities not only hinder women from opportunities to develop digital skills, but also reduce their potential contribution to economic and social development. Therefore, to improve the effectiveness of training policies, it is important for policymakers to identify and address factors that hinder women's participation, including by creating more inclusive and accessible programs. An approach that considers a gender perspective can help ensure that all individuals, regardless of gender, have equal opportunities to participate in training and develop the skills necessary to compete in the labor market.

Kiley et al. (2015) state that strategic innovation is a crucial element in improving policy effectiveness, especially when it comes to digital technology-based training that demands flexibility and creativity. In Indonesia, digital training programs are still dominated by traditional approaches that are less responsive to participants' needs and technological dynamics, often failing to create engaging or relevant learning experiences. This approach also is focused on one-way delivery of material without involving interaction or the latest technology-based learning methods, such as virtual simulation or project-based training. Jannah and Mardikaningsih (2023) further state that another weakness is the unavailability of clear success indicators to design and evaluate these programs. Without measurable parameters, such as specific skill improvements or actual impacts on participants' productivity, the evaluation process is only administrative and does not provide a real condition of the effectiveness of the training. This creates an irrelevant program that potentially squander resources without delivering significant results in the development of digital technology-based HR competencies in Indonesia.

According to Darmawan et al. (2020), employee loyalty to the organization can be increased by training that is relevant to their needs. In Indonesia, many training programs do not relate to employees' specific needs, leading to low enthusiasm and commitment to the program. This indicates the need for a more adaptive approach to training design.

Mardikaningsih and Halizah (2022) assert that the involvement of academics in developing training policies can improve program effectiveness. However, in Indonesia, policies are often made without input from data-based research. This has created a situation where many programs proceed without a strong academic foundation, resulting in suboptimal outcomes. Suboptimal training program outcomes in Indonesia are often caused by a lack of integration between policy and data-based research, which should inform policy formulation. Without input from academia and relevant research, policies are generalized and do not take into account the specific needs of the target participants, the local context, and the latest developments in the field. This results in training programs that are not effective in achieving the desired objectives, do not match the real conditions in the field, and are unable to accommodate the changes and challenges faced by participants. As a result, the investment of time and resources in the training program is wasted, and the expected results are not achieved.

Suwandaru et al. (2023) noted that the lack of synergy between the government and the private sector is a main obstacle to the implementation of digital training policies. Most government initiatives have been run independently without involving the private sector, which has expertise in digital technology. More collaboration is needed to improve the relevance and effectiveness of training programs. Collaboration between the government and the private sector is crucial in implementing digital training policies as each party has complementary strengths. The government has the capacity to formulate policies and provide infrastructure support, while the private sector brings practical expertise, innovation and a deep understanding of the changing market needs. By forging synergies, training programs can be designed to be more relevant to industry demands, so that trainees can acquire appropriate and applicable skills. This collaboration also allows for a more efficient sharing of information and resources, enhancing the effectiveness and sustainability of training programs and ensuring that outcomes are in line with technological developments and workforce needs in the digital era.

Basilotta-Gómez-Pablos et al. (2022) also noted that digital competency development in the education sector has not received enough attention. The average teacher in Indonesia still lacks adequate digital literacy, so training programs cannot be delivered effectively. This hampers efforts to improve HR competencies from the formal education stage. Digital literacy is very important because it is the foundation for individuals to be able to adapt and function effectively in a world that is increasingly dominated by information and communication technology. In the education process, teachers who have adequate digital literacy can integrate technology to the learning process, creating an interactive and engaging learning environment for students. In addition, digital literacy enables teachers to access, evaluate and utilize information critically, and teach students relevant skills to confront challenges in the digital era. Without sufficient digital literacy, teachers will not only find it difficult to effectively deliver training materials, but will also hinder the development of HR competencies that are ready to confront the evolving demands of the job market. Therefore, improving digital literacy among teachers is crucial to ensuring the quality of education and preparing the younger generation to compete on a global level.

The effectiveness of government policies to improve the competence of digital technology-based human resources in Indonesia still challenges. Existing regulations need to be optimized by more adaptive strategic planning, better coordination between institutions, and innovation in training methods.

Factors Hindering the Implementation of Policies to Improve HR Competencies Based on Digital Technology

The implementation of policies to improve HR competencies based on digital technology in Indonesia is challenging, stemming from regulations, infrastructure, and social and cultural aspects. One of the main challenges is the limited access to technology in remote areas. Spante et al. (2018) noted that the digital divide in Indonesia is still a big problem, especially in areas that have limited

technological infrastructure. This condition makes digital training difficult to reach for people in remote areas.

Hardyansah (2023) identified that weaknesses in regulations are one of the most significant obstacles in efforts to improve the competence of digital technology-based human resources. Law Number 13 Year 2003 on Labour, as one of the main regulations governing workforce management in Indonesia, does not explicitly cover the increasingly urgent need for digital technology-based training in the industrial era 4.0. The absence of a clause that specifically regulates the digitalization of training means that many government and private sector initiatives in this field lack a solid legal basis, so they are often not prioritized in budget allocations.

This regulatory weakness also results in a lack of encouragement for the private sector to actively participate in training programs. Without legal incentives, such as subsidies or tax breaks for companies investing in digital training, collaboration between the government and the private sector is limited. This results in the limited reach of training programs that could have been expanded through such synergies. In addition, the lack of specific regulations means that the implementation of digital training often happens without clear guidelines, both in terms of program design, provision of supporting infrastructure, and mechanisms for evaluating success.

The impact is even more visible from a budgeting perspective. Without a legal base that regulates digital training as part of a strategic employment policy, the government struggles to prioritize funding for these initiatives in the annual budget plan. Hardyansah (2023) also states that many digital training programs end up as ad hoc initiatives or short-term projects without sustainability, due to the absence of binding regulatory support to ensure sustainable implementation. This weakness confirms the need for a revision of labour regulations to include elements of training digitalization as a strategic national agenda. Therefore, a more adaptive and comprehensive regulation will be an important first step to create a strong base to support the development of digital technology-based HR competencies in Indonesia.

Jannah and Mardikaningsih (2023) showed that the weak monitoring and evaluation system of the policy made it difficult to measure the effectiveness of the program implementation. This results in many programs that continue without any real impact on improving HR competencies. A good monitoring and evaluation (M&E) system must have several key components to ensure program effectiveness and its impact on improving human resource competencies. First, the system should be designed with clear and measurable indicators, which include both short-term and long-term goals of the program. These indicators should be relevant to the context and specific needs of the trainees. Secondly, data collection should be conducted systematically and regularly, using appropriate methods such as surveys, interviews and observations, to obtain accurate and comprehensive information. Thirdly, data analysis should be conducted to assess whether the program is achieving the goals set and to identify areas for improvement. Fourth, the results of M&E should be transparently shared with all stakeholders, including the government, training organizers and participants, to increase accountability and participation. And lastly, the M&E system should be adaptive, allowing for program adjustments based on evaluation findings to sustainably improve program effectiveness and impact. With this approach, the M&E system can provide valuable insights for future decision-making and program improvement.

Kiley et al. (2015) added that the lack of innovation in training program design is also a challenge. In Indonesia, training programs often use traditional approaches that do not attract the younger generation. This has led to low participation in training programs, especially among young workers.

Ahmad et al. (2014) noted that inflexible strategic planning makes training programs unresponsive to changing labour market needs. This condition causes many trainings to become irrelevant to the dynamics of the industry. Inflexible strategic planning in training programs can be a serious obstacle to ensuring that the training provided remains relevant to the changing needs of the labour market. Flexibility refers to the ability to adjust the curriculum, teaching methods and training content based on the latest industry trends, technological advances and changes in skills demand. Inflexibility in planning can be caused by various factors, such as the lack of involvement of industry stakeholders in the planning process, the inability to effectively collect and analyze market data, or bureaucracy that impedes innovation.

The result of this unresponsive planning is a gap between the skills taught in training programs and the skills actually required by industry. For example, if a training program does not update its curriculum to incorporate new technologies or trending work methods, the programs may find it difficult to compete in the job market. This not only hurts the trainees, but also hinders overall economic growth, as companies are unable to find a workforce that meets the necessary qualifications.

To address this issue, it is important for training institutions to adopt a more dynamic and responsive planning approach. This includes conducting regular market analysis, forging strong partnerships with industry, and integrating feedback from trainees and companies in the curriculum development process. As such, training programs can be customized to actual needs and not only focus on skills that are relevant today, but also prepare participants for future challenges. Flexibility in strategic planning will ensure that training programs can adapt quickly to changes, while still providing added value to individuals and society for the most part.

Infante and Darmawan (2022) also stated social obstacles, such as gender stereotypes that limit women's participation in digital training. Differences in organizational culture to adopting new technologies has often led to resistance among employees to training programs.

According to Haryanto and Nurhayati (2019), the weakness of coordination between the government, private sector and academia is also a main obstacle. This ineffective collaboration has resulted in the training program running in a fragmented manner without a clear direction.

Darmawan et al. (2020) noted that another factor that hindered policy implementation was the lack of financial support for digital competency development. The limited training budget means that many programs cannot be implemented optimally.

Basilotta-Gómez-Pablos et al. (2022) identified the low quality of teachers as another challenge. Many teachers do not have adequate digital literacy, which prevents them from teaching the training material effectively. This hampered the transfer of knowledge to trainees. The low quality of teachers, especially in terms of digital literacy, is a serious problem that has a direct impact on the effectiveness of training programs. Digital literacy encompasses the ability to use information and communication technologies effectively, including mastery of software, understanding of digital resources and the ability to adapt to new tools. When teachers lack these skills, they may struggle to teach training materials that utilize technology, further hindering the transfer of knowledge to trainees.

The negative impact of lower quality teachers is far-reaching. First, teachers who are not digitally literate may rely on traditional teaching methods, such as lectures, which are less interactive and engaging for participants. This can leave participants feeling disengaged and unmotivated to learn. In addition, without adequate digital literacy, teachers may not be able to access or utilize educational resources available online, such as videos, articles and digital learning platforms. As a result, the quality of material taught is limited, and participants miss out on the opportunity to learn from more varied and up-to-date sources.

Teachers' inability to adapt new technologies is also a problem. In an era of constant change, teachers need to be able to integrate the latest technology in their teaching. The inability to do this can leave them behind and irrelevant for teaching the skills needed by trainees. As a result, trainees may not have the knowledge and skills necessary to compete in the job market, which could result in a larger skills gap between graduates and industry needs.

To resolve this issue, educational institutions need to make steps to improve the quality of their teachers. One effective way is to provide continuous training programs for teachers to improve their digital literacy. This training should include the use of the latest tools and technologies, as well as more interactive teaching methods. In addition, establishing mentoring programs where teachers who are more experienced in digital literacy can advise their trainees can create a collaborative environment where teachers can learn from each other and share best practices.

Encouraging teachers to use existing digital learning platforms is also an important step. By accessing training materials, sharing resources and collaborating with other teachers, they will better understand how technology can improve teaching and learning. In addition, developing partnerships with industry to understand the skills needed in the job market will help teachers customize their curriculum and teaching methods to be more relevant to industry needs.

Periodic evaluation of teaching effectiveness and providing constructive feedback to teachers is also very important. This can help them understand areas for improvement and encourage them to keep improving. Finally, creating a culture of sustainable learning among teachers will encourage them to keep learning and adapting to changes in technology and pedagogy. Educational institutions can improve the quality of teachers, which in turn will increase the effectiveness of training programs and ensure better knowledge transfer to trainees.

The implementation of policies to improve HR competencies based on digital technology in Indonesia requires comprehensive reforms, including improving regulations, strengthening infrastructure, and removing social obstacles.

D. CONCLUSIONS

This study concludes that the government's policy to improve human resource competencies based on digital technology has a promising framework, as reflected in Presidential Regulation Number 95 Year 2018 on Electronic-Based Government System (EBS). The effectiveness of the policy still faces various obstacles, including a lack of adaptive strategic planning, weak inter-stakeholder coordination, and a lack of innovation in training program design. Digital infrastructure gaps in remote areas add to the challenges encountered in policy implementation.

Factors inhibiting policy implementation include limited relevant regulations, lack of budget support, organizational culture resistance to technology adoption, and limited digital literacy among teachers and government employees. These obstacles emphasize the need for a more inclusive and strategic approach to ensure that the policy is able to generate real impact to improve HR competencies based on digital technology.

To overcome these obstacles, the government is advised to strengthen regulations related to digital technology-based training by revising relevant laws and ensuring sufficient budget support. Innovation in training program design is also needed to make it more relevant to labor market needs. In addition, technology infrastructure development should be prioritized to reach remote areas and reduce the digital divide. Improving digital literacy among teachers and government employees through intensive training is also an important move to strengthen policy implementation. Finally, strengthening the monitoring and evaluation system based on measurable indicators will ensure the success of the training program in the long-term.

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