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Research Article

Strategies for Employee Competency Development in the Era of Digital Transformation: An Innovative Human Resource Management Approach

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ABSTRACT

Introduction: Digital transformation has changed the way companies manage human resources, especially in the development of employee competencies. Companies in the digital era must ensure that their employees have relevant skills to adapt to rapid technological changes. However, many organizations still face challenges in implementing effective competency development strategies.

Objectives: This research aims to explore innovative approaches in human resource management to improve employee digital competence. This study uses a qualitative method with a case study approach at PT Telkom Indonesia Witel Medan.

Methods: Data were collected through in-depth interviews, observations, and document analysis, which were then analyzed using thematic analysis.

Results: The results of the study show that competency development strategies based on AI-based Learning Management System (LMS), microlearning, reverse mentoring, and gamification are able to increase employee readiness to face digital challenges. As many as 85% of employees feel more prepared, while the adoption rate of technology increased by 70% after attending digital training. However, the study also found that resistance to technology and limited training time are still major obstacles.

Conclusions: Therefore, a learning culture-based strategy that is more flexible and integrated with industry needs is needed. This research contributes to the development of a more inclusive and adaptive digital-based MSDM strategy in the era of digital transformation.

Keywords: Employee Competencies, Digital Transformation, Human Resource Management.

INTRODUCTION

Digital transformation has changed various aspects of the business world, including in the management of human resources (HR) [1] Companies in the digital era face new challenges in developing employee competencies to remain relevant to rapid technological changes [2], [3], [4] Employee competencies not only include technical skills, but also involve soft skills such as adaptation, creativity, and collaboration in a technology-based work environment [5], [6], [7] Therefore, an innovative employee competency development strategy is a must for organizations that want to survive and thrive in global competition.

Employee competence is a crucial factor in determining the effectiveness and efficiency of work in an organization [8] Competence includes the skills, knowledge, and attitudes possessed by an employee in carrying out his or her duties [9] According to research conducted by Faizal, Sulaeman, and Yulizar (2019), good competence can significantly improve employee performance. Competence is also related to work culture and motivation, which collectively contribute to a company's productivity [10]

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In addition, employee competencies also affect career development and organizational sustainability. Pangestuti (2019) stated that work experience, education, and training have an important role in improving employee competencies so that they are better prepared to face increasingly complex challenges in the world of work. This indicates that organizations need to develop competency improvement strategies, such as training programs based on industry needs, to ensure that employees have relevant and up-to-date skills [11] Therefore, investing in improving employee competencies is an important strategy for the growth and sustainability of the organization [12], [13]

In the digital era, employee competence is a key factor in the success of organizational transformation [14] Employees are required to master new skills such as digital literacy, data analytics, and the ability to adapt to new technologies [15] However, many organizations face significant skills gaps, where the existing workforce is not fully prepared for these changes [16] Therefore, employee competency development is a top priority for organizations to be able to take advantage of the opportunities offered by digital transformation [17]

Human Resource Management (HRM) has a strategic role in developing employee competencies to remain relevant to the demands of the modern world of work [18] Innovative MSDM approaches, such as digital-based learning, reskilling and upskilling programs, and technology-based coaching and mentoring, are solutions that can be applied in upskilling employees [19] In addition, the application of data analytics in MSDM allows organizations to identify training needs more accurately and evidence-based [20]

Along with the wider adoption of digital technology, many companies are beginning to implement systems based on artificial intelligence, big data, and the Internet of Things (IoT) in their operational processes [21] This requires companies to ensure that their employees have the appropriate ability to adapt to the changes. Companies that invest in the development of employees' digital competencies tend to have a greater competitive advantage compared to those who do not [22]

In addition, the development of the Society 5.0 era that integrates the physical and digital worlds in various aspects of life and business is accelerating the need for digital skills among the workforce [23] In this context, innovative approaches in human resource management (HRM) are urgently needed to create a flexible and responsive work ecosystem to technological changes [24] Therefore, this study will examine relevant and adaptive employee competency development strategies for the digital transformation era.

The right competency development strategy not only has an impact on individual performance, but also contributes to the sustainability of the business in the long term [25], [26] Companies that adopt digital-based strategies in employee training and development can improve their efficiency, effectiveness, and competitiveness in the global market [27], [28] Thus, this study aims to explore innovative approaches in MSDM that can be used to develop employee competencies in the era of digital transformation.

Digital transformation is not only a trend, but also an urgent need for organizations to survive in the era of global competition [29] Without an effective competency development strategy, companies will face the risk of decreased productivity, difficulties in managing change, and loss of competitiveness in the market [30] Therefore, this research is important because there are still many companies that are not fully aware of the importance of digital competency development for their employees [31], [32] Most training programs are still conventional and less adaptive to rapid technological developments [33], [34] In addition, with changes in work patterns, such as the increase in hybrid and remote working models, more innovative competency development strategies must be implemented to ensure the effectiveness and productivity of employees [35]

Several previous studies have discussed the importance of digital transformation in HR management and employee competencies. For example, a study by Wahjono (2024) examines how telecommunications companies such as PT Indosat Ooredoo face challenges in developing the competencies of their employees through technology-based training programs. In addition, research by Ramadhan (2023) on PT Gojek Indonesia shows that the implementation of technology in MSDM can improve the efficiency of the employee training and development process. However, there are still gaps in research related to strategies that can be applied effectively for different types of industries. Noe et al. (2014) examined the effectiveness of various training and learning methods in the workplace [36]

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This research fills the gap regarding employee competency development in the era of digital transformation with a literature on a more innovative and human-based approach. Most previous studies have placed more emphasis on technology implementation without considering organizational culture factors and individual readiness to face digital change. In addition, there is still a lack of research that evaluates the effectiveness of technology-based learning such as AI-based Learning Management System (LMS) and microlearning, especially in the telecommunications industry in Indonesia. This study provides a new perspective by examining how reverse mentoring and gamification strategies can help address the generation gap in technology adoption and reduce employee resistance to digitalization.

As a new contribution, this study highlights the role of data-driven evaluation using Key Performance Indicators (KPIs) and Objectives and Key Results (OKRs) to measure the success of digital competency development more objectively. The study also provides insights into incentive strategies and technology-based learning cultures that can increase employee engagement in the training process. With a focus on PT Telkom Indonesia Witel Medan, this research offers a competency development model that not only focuses on improving technical skills, but also builds a work ecosystem that is more adaptive, inclusive, and ready to face industry 4.0 challenges.

This research aims to analyze and formulate employee competency development strategies that are innovative and in accordance with the demands of the digital transformation era. Specifically, this study will: (1) identify key challenges in employee competency development in the digital era, (2) explore innovative MSDM approaches to improve employees' digital skills, and (3) examine the effectiveness of strategies that have been implemented by companies that have successfully adapted to digital transformation.

METHODS

This study uses a qualitative approach with a case study method to explore employee competency development strategies in the era of digital transformation. This approach was chosen because it allows researchers to gain a deep understanding of the phenomenon being studied, namely how organizations adopt innovative approaches in human resource management to improve employee competencies in the midst of rapid technological changes [37]. In addition, this research is exploratory, which aims to explore concepts, practices, and challenges in employee competency management in the context of digitalization [38].

The data sources in this study consist of primary data and secondary data. Primary data was obtained through in-depth interviews with key informants, such as human resource managers, trainers or employee training facilitators, as well as employees who have participated in digital-based competency development programs in the company that is the object of study. The interviews were conducted in a semi-structured manner to allow further exploration of the respondents' perspectives and experiences regarding the effectiveness of the strategies applied [39]. Meanwhile, secondary data is collected from company documents, annual reports, training policies, as well as scientific publications and industry reports related to competency management in the digital era [40].

In this study, the population that is the focus is companies that operate in the city of Medan and have implemented digital transformation in employee competency development strategies. One of the companies chosen as the object of the case study is PT Telkom Indonesia Tbk, Sumatra Region (Medan Region), which is engaged in the telecommunications and information technology sectors. The population in this study includes all employees involved in competency development programs at both companies, which is estimated to number more than 1,000 employees. From the population, samples were taken by purposive sampling, taking into account the role and involvement of individuals in competency development strategies. The sample consisted of 20 informants including HR managers, internal trainers or mentors, as well as employees who had participated in digital training programs. This sample was selected by considering the diversity of perspectives and depth of information that can be obtained to understand competency development strategies in the digital transformation era more comprehensively.

The data collection technique in this study uses non-participant observation, in-depth interviews, and document analysis. Observation was carried out to understand how to implement competency development strategies in the work environment directly. In-depth interviews are used to explore the experiences and perspectives of the informants related to the challenges and opportunities in the implementation of digital-based MSDM strategies. Document analysis was carried out on various written sources to strengthen the research findings and provide validation of the data obtained from interviews and observations [41].

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The data analysis method used in this study is thematic analysis, which is carried out through several stages, namely data reduction, categorization, data presentation, and conclusion drawing [42]. Data reduction is carried out by selecting and filtering information relevant to the focus of the research. Furthermore, the data is categorized into key themes that reflect patterns and trends in employee competency development strategies. The presentation of data is carried out in the form of narrative descriptions that provide a deeper understanding of the practices and challenges faced by the company. Finally, conclusions are drawn by interpreting the findings holistically to answer the research questions that have been formulated [43].

RESULTS

Respondent Description

The respondents in this study consisted of 20 informants who were selected through purposive sampling based on their involvement in employee competency development strategies in the digital transformation era at PT Telkom Indonesia Tbk, Sumatra Region (Medan Region). The respondents were divided into 2 HR managers, 3 internal trainers or mentors, and 15 employees participating in the digital training. HR managers are responsible for planning competency development strategies, while internal trainers have a role in providing technology-based training such as e-learning and digital coaching. Meanwhile, trainee employees are those who have participated in a digital-based development program and provided perspectives on the effectiveness of the strategy.

Figure 1. Respondent Description

The respondents consisted of 13 men and 7 women, with an age range of 25 to 51 years and above. In terms of education, the majority of respondents had a Bachelor (S1) education as many as 12 people, followed by 4 people with a Master's degree (S2) and 4 diploma graduates. Their work experience also varies, with 5 people having less than 5 years of work experience, 8 people between 5 and 10 years, 4 people between 10 and 15 years, and 3 people with more than 15 years of work experience.

In the context of digital transformation, respondents have different roles. HR managers are in charge of designing digital-based training policies, internal trainers apply technology learning methods, while trainee employees share their experiences regarding the effectiveness of the strategies implemented. Respondents are selected until they reach data saturation, that is, when no new information appears. With a diverse composition of respondents, this study is expected to be able to provide a comprehensive overview of employee competency development strategies in facing the challenges of digital transformation.

Building Employee Digital Competence: Innovation and Strategy of PT Telkom Indonesia Witel Medan

In the face of the ever-evolving digital era, PT Telkom Indonesia Tbk, Sumatra Region (Medan Region) realizes that digital transformation is not just about adopting technology, but also overhauling the mindset and work culture of employees. HR Manager A explains that, "Digital transformation for us means not only the adoption of technology,

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but also a change in the mindset, work culture, and learning methods of employees." With this approach, companies place digital competencies as a fundamental aspect that must be possessed by every individual to remain relevant in the dynamic world of work.

The importance of digital literacy does not only apply to employees in the field of technology, but to all lines of work in the company. HR Manager B added, "In the context of competency development, digital transformation is about how employees can adapt to rapid technological changes. This includes the use of new technologies, digital upskilling, and a more agile and data-driven way of working." With this understanding, companies have built a digital competency-based approach to create a workforce that is more flexible and ready to face new challenges.

To ensure that every employee has skills relevant to the digital era, PT Telkom Indonesia Witel Medan implements a competency development strategy that emphasizes continuous and experiential learning. The company adopts continuous learning methods through the Learning Management System (LMS), e-learning, as well as project-based training and mentoring. One of the innovations implemented is reverse mentoring, where young employees who are more tech-savvy guide senior employees in the use of digital tools and digitalization strategies. HR Manager B revealed, "We want to ensure that there is no digital divide within the organization. Therefore, we implemented the Reverse Mentoring program, where young employees become mentors for more senior colleagues in adopting new technologies."

In addition, gamification and microlearning methods are used to improve learning effectiveness. HR Manager A explained, "We developed a gamification and microlearning-based training program to make it more attractive to employees." This model allows employees to learn in less time but still be effective and fun.

Technology plays a big role in supporting this strategy. Artificial intelligence (AI)-based LMSs help tailor training materials to individual needs, allowing companies to provide more personalized learning. HR Manager A revealed, "We use an internal LMS equipped with AI to provide training recommendations based on the competency needs of each employee." In addition, companies are also leveraging analytics data to understand skills gaps and measure the effectiveness of training programs. HR Manager B added, "With the data analytics, we can tailor the training curriculum more precisely, so that the investment in human resource development is more efficient."

However, while technology provides many benefits, challenges remain, especially in the form of resistance to change from some employees. HR Manager A stated, "The main challenge is resistance to change. To overcome this, we involve senior management in socialization and provide incentives for employees who are active in digital training." In addition, another obstacle is the limited infrastructure and internet access for some employees, which is overcome by providing offline-based training facilities that remain digital-based.

Continuous evaluation and development is a top priority in ensuring that employee competencies remain in line with business needs. HR Manager A explained that the evaluation is carried out every six months using the KPI (Key Performance Indicators) and OKR (Objectives and Key Results) methods. In addition, the company also collects feedback from employees through post-training surveys and online discussion forums so that training programs can continue to be tailored to their needs. Leadership in organizations also plays a key role in fostering a culture of digital learning. HR Manager B emphasized, "Senior management is required to be role models in digital learning, such as participating in digital training and sharing their insights."

As a form of appreciation for employees who show a significant improvement in digital competence, the company implements an incentive system. HR Manager A explained, "We have a certification-based reward system, where employees with certain digital certifications get additional benefits." In addition, there is also a Career Acceleration program that provides career acceleration opportunities for employees who are active in improving their competencies. HR Manager B added, "Employees who continue to develop their competencies have a greater opportunity to participate in the career acceleration program that we have prepared." With this incentive, the company creates a work environment that supports continuous learning and innovation.

From the analysis carried out, it can be concluded that PT Telkom Indonesia Witel Medan has succeeded in building an innovative and digital-based employee competency development strategy. Digital transformation is not only changing the way we work, but also the way companies develop their human resources. The company has created an

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ecosystem that enables continuous learning through the use of advanced technology, personalized data-driven training, and active leadership in fostering a digital culture.

With a strategy that focuses on experiential learning, the use of technology, and the provision of attractive incentives, PT Telkom Indonesia Witel Medan is able to build a workforce that is more innovative, adaptive, and ready to face challenges in the digital era. This success shows that the development of digital-based competencies is not just a trend, but an essential strategy for companies that want to stay competitive in an ever-evolving industrial world.

Employee Training Transformation in the Digital Era

In the era of digital transformation, employee training is undergoing a significant shift from conventional methods to a more flexible and technology-based approach. At PT Telkom Indonesia Tbk, especially in Medan Region, the training strategy now adopts blended learning, microlearning, and project-based learning. This approach allows participants to learn flexibly and gain hands-on experience through case studies and simulations.

According to Mr. A, a Senior Technical Trainer, this method not only increases learning flexibility, but also ensures that participants get a more in-depth practical experience. "We use a blended learning approach more, which is a combination of online training and live sessions. With this, participants can be flexible in learning, but still get hands-on experience through simulations and case studies," he said. Mr. C, a Senior IT Trainer, also emphasized the importance of a project-based approach to ensure that the skills gained can be applied in the world of work. "The project-based learning approach is our mainstay because it allows participants to directly apply the knowledge they have gained in real projects."

The role of technology in training is becoming increasingly important with the existence of a Learning Management System (LMS) system that allows training materials to be accessed digitally at any time. In addition, exploration of Virtual Reality (VR) and Augmented Reality (AR) technologies has begun to be carried out to provide a more immersive learning experience. Ms. B, an Instructional Designer & Trainer, explained that although it has not been fully implemented, this technology has great potential to improve the quality of training. "Simulation technology has begun to be applied, but it is still in the further development stage," he said. In addition, coaches also realize the importance of constantly updating their skills against technological developments. "I take part in various online certifications and internal training to stay up-to-date with the latest technology," added Mr. A.

However, although technology can increase the effectiveness of training, its implementation is not separated from various challenges. One of the biggest obstacles is employee resistance to new technologies. Not all participants have the same level of digital literacy, so some of them have difficulty using digital learning platforms. Mr. C revealed that the main obstacles are internet connection and device accessibility, especially for those who are not familiar with digital systems. "Some employees are still unfamiliar with digital platforms, so there needs to be a technical guidance session before the main training begins."

The limited time employees have to take part in training is also a significant obstacle. Many participants had difficulty dividing their time between work and training sessions. To overcome this, microlearning methods began to be implemented, where material is presented in a shorter duration and can be accessed at any time. Ms. B emphasized that flexibility in learning time is the key to the success of digital-based training. "The main obstacle is the limited time for participants to take part in the training. Therefore, we are trying to adopt more microlearning methods so that participants can learn in shorter sessions."

In measuring the effectiveness of training, pre-test and post-test methods are used to assess the improvement of participants' understanding. In addition, many coaches emphasized the importance of real-life project-based evaluations, where participants are asked to apply skills they have learned in hands-on case studies. Mr. A explained that the evaluation was carried out through competency tests and direct observation in the workplace. "We evaluate with competency tests and direct observation in the workplace to ensure that participants are truly mastering the material being taught." Feedback from participants is also a very important aspect in improving the training method. Ms. B added that every training session is always followed by a survey to understand the areas that need improvement. "Feedback is very useful for adjusting the material to the needs of the participants. We always conduct surveys after training to find out which areas need improvement."

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Looking at the future trend, employee training is predicted to increasingly rely on artificial intelligence-based technology (AI) and gamification. With AI, the training system can be personalized, so participants can learn with a method that suits their own style and pace. Mr. C said that the future of training will be more based on automation and adaptive technology. "I see that the future of training will be more based on automation and AI-driven learning. With AI, the system can adjust learning materials based on the level of understanding of each participant."

In addition, VR and AR are predicted to be increasingly adopted, allowing employees to have a more realistic and interactive learning experience. Ms. B added that in the next five years, AI-based learning and gamification will be increasingly applied, making training more engaging and effective. "In the next five years, AI-based learning and gamification will be increasingly applied, so that training will be more engaging and effective."

In conclusion, the employee competency development strategy at PT Telkom Indonesia Tbk has undergone major changes due to digitalization. Training is now more technology-based, with a more flexible and adaptive approach. However, challenges such as resistance to technology, time constraints, and digital accessibility are still major obstacles. Therefore, further innovations are needed, such as technical guidance before training, the provision of more flexible schedules, and the application of AI-based technologies and gamification to improve the learning experience. With the development of technology, future employee training will be more integrated with VR/AR-based intelligent systems, automation, and simulation, creating a more adaptive and responsive learning experience in the era of digital transformation.

The Role of Employee Competency Training in the Digital Era

Digital transformation has brought major changes to various industries, including PT Telkom Indonesia Tbk, Sumatra Region (Medan Region). As a company engaged in the telecommunications and information technology industry, PT Telkom Indonesia has developed various training and competency development programs to ensure that employees have the skills that are in line with the times. However, how effective are these programs in improving employee competence? What is their experience in participating in digitalization training? And what are the challenges they face?

To answer this question, interviews were conducted with 15 employees at PT Telkom Indonesia Witel Medan. The results of the interviews were analyzed using a thematic analysis method, by reviewing the employees' experiences, the challenges they faced, and their expectations for future competency development.

Most of the employees have participated in digitalization-related training provided by the company, including Digital Leadership Training, Cloud Computing, and Agile Methodology. However, the relevance of these trainings to their work still varies. A total of nine employees felt that the training was very relevant to their daily duties, especially for those working in the field of information technology and digital services. Meanwhile, six other employees felt that the materials provided were not suitable for their needs, especially for those who work in the field of administration and customer service.

Mr. Andi, a Data Analyst, revealed that the Cloud Computing training he participated in was very helpful in his work, especially in managing big data. However, he also said that the material provided was still too theoretical and lacked direct practice that could be applied in daily work.

"The material is good, especially for understanding the concept of Cloud Computing. However, I hope there will be more simulations and case studies that are directly related to the data we manage on a daily basis at Telkom. So, it's not just a theory but also a real application." – Andi, Data Analyst

On the other hand, Ms. Rina, who works as a Customer Service Representative, revealed that the training she attended focused more on network technology, even though her job was to interact more with customers.

"I took part in several digitalization trainings, but unfortunately many discussed technology that was not very relevant to my job. It might be more beneficial to have more specific training for customer service, such as on the use of AI or chatbots to improve customer satisfaction." – Rina, Customer Service Representative

The main challenge faced by employees in participating in digital-based training is time constraints. Eight out of fifteen employees admitted that they had difficulty dividing their focus between job duties and training. They feel

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that even though training is important, they still have to complete daily tasks, making it difficult to really delve into the material provided.

Mr. Agus, a Network Supervisor, said that he often has to take part in training while still completing work, so he cannot really focus.

"The digital training is good, but sometimes it's hard to really absorb the material because I still have to complete my daily work. If possible, the company provides dedicated time for training without interrupting the main task." – Agus, Network Supervisor

Another difficulty is understanding the material online. Four employees mentioned that they are easier to understand the material if it is given in the form of face-to-face training. Mr. Sandi, a Field Technician, said that he prefers hands-on training because he can discuss with instructors and colleagues.

"Online training often makes it difficult for me to understand complex concepts. If it is face-to-face training, I can immediately ask questions and see examples of its implementation. It's more effective than just watching videos or reading material on your own." – Sandi, Field Technician

In addition, three employees also mentioned that unstable internet access is often an obstacle in participating in online training, especially when they take training from home or outside the office.

Despite facing various challenges, the majority of employees feel comfortable with the use of technology in the learning process. Thirteen out of fifteen employees stated that they had no problems accessing the digital learning platform provided by the company. However, only four employees routinely access the platform weekly, while six employees access it once a month, and five employees only access it when required. This shows that although the company has provided digital learning facilities, not all employees have actively used them.

When asked about the areas of technology they would like to learn more about, ten employees felt that they still needed additional training. Data analytics and artificial intelligence are the most in-demand fields, with six employees expressing interest. In addition, four employees wanted to deepen cybersecurity, while the other three employees were interested in learning more about cloud computing. Some employees also stated that they often look for additional learning resources outside of the company's programs, such as taking online courses on platforms like Coursera or Udemy, reading articles, and joining professional communities.

Employees also have great expectations for future competency development. They want more practical and real project-based training, so they not only get theory but also hands-on experience in applying the skills learned.

"I hope the training is more based on real projects, not just theory. Real case studies will really help us understand the application of technology in our daily work." – Joko, IT Specialist

Some employees also hope for mentoring programs and study abroad opportunities to deepen their skills.

"If there is an opportunity to learn from an overseas technology company or take part in a mentoring program with experts in the field of technology, it will certainly be very beneficial for our skill development." – Sari, Operations Manager.

To increase the effectiveness of digital learning, some employees suggested that the learning system be more interactive, for example by implementing gamification methods, adding more practice sessions, and including real case studies that are more relevant to their work.

Based on the results of this interview, it can be concluded that PT Telkom Indonesia has made various efforts in developing employee competencies in the digitalization era. However, there are still several challenges that need to be overcome so that the training program can be more effective and in accordance with the needs of employees. Some of the evaluations that can be carried out include increasing the flexibility of training schedules, developing project-based training and real case studies, providing mentoring programs, and increasing interactivity in digital learning platforms.

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By making improvements and innovations in competency development strategies, PT Telkom Indonesia can ensure that employees have skills that are not only relevant to digital transformation, but also able to contribute more optimally to the company.

DISCUSSION

The results of the study show that the strategy for developing employee competencies in the era of digital transformation at PT Telkom Indonesia Witel Medan has undergone significant changes. The approach applied focuses on technology-based learning, continuous training, and the use of data to personalize learning. One of the key strategies adopted is blended learning, which combines online and in-person training methods, as well as the application of gamification and microlearning to increase participant engagement. In addition, a reverse mentoring approach is applied to overcome the digital divide between generations within the company.

In an effort to improve digital competence, the company adopted an artificial intelligence (AI)-based Learning Management System (LMS) to provide a more personalized learning experience. Evaluations conducted with Key Performance Indicators (KPIs) and Objectives and Key Results (OKRs) show that employees who engage in digital-based training experience better skill improvement than those who do not participate in it. However, the study also found several challenges, including resistance to technology, time constraints, and gaps in understanding of training materials.

The results of this study are in line with the findings of Aziz (2023), which highlights the importance of digitalization in human resource development in telecommunications companies such as PT Indosat Ooredoo. The study shows that the adoption of technology in employee training can improve the efficiency and effectiveness of training, especially in the face of rapid changes in the digital industry. However, the main difference of this study is its focus on innovative experiential strategies such as reverse mentoring and gamification, which have not been widely applied in previous studies [44]

In addition, research by Ramadhan (2023) at PT Gojek Indonesia also found that digital technology can improve the effectiveness of MSDM, but companies still face challenges in adapting training curricula to industry needs. Meanwhile, research by Lestari (2023) emphasizes that companies that successfully implement a digital-based learning culture tend to have higher employee retention rates. In this study, PT Telkom Indonesia Witel Medan has succeeded in building a more inclusive learning culture, although it still faces several challenges in the application of new technology.

Common Challenges in Employee Competency Development in the Digital Era

Although the strategies implemented are quite effective, this study also finds several key challenges, namely:

a. Resistance to Technology
Some employees are still reluctant to use digital-based learning platforms due to a lack of understanding of technology and fear of change. To address this, the company implemented a reverse mentoring approach, where younger employees guide senior employees in adopting new technologies.
b. Digital Competency Gap
Not all employees have the same level of understanding of technology. As found in a study by Pangestuti (2019), companies that do not have an experience-based training program often face difficulties in improving employee competencies equally.
c. Limited Time for Training
Many employees find it difficult to divide their time between work and training. Therefore, the company adopted a microlearning strategy, where training materials are presented in short modules that can be accessed at any time.
d. Accessibility and Digital Infrastructure
Although the company has provided a digital platform, there are still obstacles in internet access for some employees who work in areas with limited infrastructure.

Implemented Strategies

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To overcome the above challenges, PT Telkom Indonesia Witel Medan implements various strategies that have proven to be effective, including:

a. Implementation of AI-Based Learning Management System (LMS)
   The LMS used can adjust training materials to the needs of employees individually, so that learning becomes more personalized and relevant.
b. Reverse Mentoring and Gamification
   By involving young employees as mentors for senior colleagues in mastering technology, the program has succeeded in reducing resistance to digital change. In addition, the gamification approach is used to increase employee learning motivation.
c. The Use of Microlearning for Time Flexibility
   With short, need-based learning modules, this strategy helps employees stay able to learn without interrupting their main tasks.
d. Continuous Evaluation with KPIs and OKRs

Every six months, the company evaluates the effectiveness of its training programs using data-driven performance indicators.

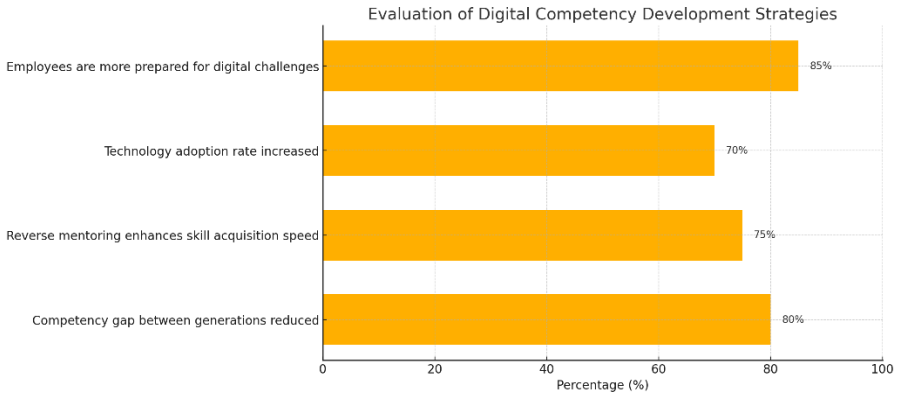

Figure 2. Evaluation of Digital Competency Development Strategies

The digital competency development strategy shows positive results in increasing employee readiness to face the challenges of the digital era. As many as 85% of employees feel better prepared after participating in the training program, demonstrating the effectiveness of the strategies implemented. In addition, the technology adoption rate increased by 70%, reflecting the company's success in encouraging the use of technology in the work environment. Reverse mentoring programs have also proven effective, with 75% of employees reporting an increase in speed in mastering digital skills thanks to guidance from more experienced colleagues. In addition, the competency gap between generations has been reduced by 80%, indicating that cross-generational collaboration-based strategies can help create a more inclusive and adaptive work environment to digital transformation. These results show that innovative approaches in technology-based human resource management not only improve individual skills, but also accelerate digital transformation in organizations.

CONCLUSION

This research shows that employee competency development strategies in the digital transformation era must be innovative, technology-based, and tailored to individual needs. PT Telkom Indonesia Witel Medan has successfully implemented various approaches such as AI-based LMS, reverse mentoring, gamification, and microlearning, which have proven effective in improving employees' digital skills. KPIs and OKR-based evaluations show that the majority of employees feel better prepared to face digital challenges after participating in technology-based training programs. However, several challenges such as resistance to technology, time constraints, and the competency gap between generations are still obstacles that need to be overcome with a more inclusive and adaptive strategy.

This study makes a theoretical contribution to digital-based human resource management by showing how a technology-based approach can increase the effectiveness of employee competency development. In addition, from a

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managerial perspective, the results of this study can be a guide for companies in designing digital training policies that are more personalized and based on industry needs. The findings also confirm that the success of digital transformation in MSDM depends not only on technology, but also on change management strategies and the creation of a sustainable learning culture.

To increase the effectiveness of employee competency development in the digital era, companies need to optimize AI-based Learning Management Systems (LMS) so that training materials are more personalized and relevant. Reverse mentoring must also be formalized with incentives to be more effective in bridging the technology gap between generations. In addition, microlearning can be applied to provide flexibility for employees to access training without disrupting their main work. Providing competency-based incentives such as certification and promotion can also increase learning motivation. To ensure its success, companies must use data-driven evaluations to monitor the effectiveness of their programs on an ongoing basis.

In the future, further research is needed to explore the implementation of AI technology in digital learning to create a more personalized learning experience. Comparative studies between industries are also important to understand the implementation of digital competency development strategies in various sectors. In addition, research on psychological factors in technology adoption as well as the effectiveness of gamification in increasing learning motivation can enrich a more attractive and efficient training model. With innovative and adaptive strategies, companies can create a workforce that is ready to face the challenges of the digital era.

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