

Challenges and Opportunities Management Human Resources in Industry 4.0 Focuses on Digital Skills Syamsudinnoor International Banjarmasin Airport, South Kalimantan

Firdaus¹, Riris Ambarwati²

^{1,2} Management Study Program, Faculty of Economics, University of Islam Kalimantan MAB Banjarmasin, Indonesia

Email: firdausaltabati2@gmail.com¹, riris.ambarwati31@gmail.com²

*Corresponding Author: firdausaltabati2@gmail.com¹

Article history: received March 11, 2024; revised March 16, 2024; accepted April 20, 2024

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ABSTRACT

The Industrial Era 4.0 has brought profound changes in various industrial sectors throughout the world. This research explores the challenges and opportunities of human resource management (HR) in facing these changes, with a focus on Syamsudin Noor International Airport, Banjarmasin, South Kalimantan. The digital era and Industry 4.0 have changed the business landscape, demanding rapid adaptation in managing the workforce. A key challenge is the lack of digital skills required by employees to operate in an increasingly digitalized environment. This research provides an overview of changes at Syamsudin Noor Airport, which has an important role as a regional gateway and logistics center. The airport is facing changes in technology, regulations and increasing customer expectations. HR management must play a strategic role in overcoming this challenge. The conclusion of this research is that HR management must prioritize developing employee digital skills, changing organizational culture, and understanding regulations related to the digital era. This is crucial to ensure the success of Syamsudin Noor Airport and similar organizations in facing Industry 4.0. Opportunities exist in operational efficiency, data analytics and work flexibility. In conclusion, adaptive HR management and a focus on developing digital skills will play a key role in responding to challenges and exploiting opportunities in the Industry 4.0 era.

Keywords: Challenges and Opportunities, HRM, Industry 4.0, Digital Skills

INTRODUCTION

The digital era or industry 4.0 has brought a revolution in almost all industrial sectors throughout the world. Industry 4.0, also known as Industrial Revolution 4.0, is an inevitable upheaval in the world of business and industry that has changed the way companies operate, interact with customers, and manage human resources. This revolution is the result of the rapid development of digital technology, which includes artificial intelligence (AI), Internet of Things (IoT), data analytics, cloud computing, and other technologies that continue to develop. As a result, almost all industrial sectors around the world are experiencing massive transformation. (Brynjolfsson, E., & McAfee, A. 2014)

One key element in this change is the increasing need for digital skills in the world of work. Digital skills include the ability to operate and innovate with digital technology, understand and manage data, and adapt to continuous technological change. This is what makes the difference between companies that successfully adapt to the digital era and those that are left behind. (Schwab, K. 2016)

Some of the significant changes and transformations brought about by this digital era include:

1. **Business Process Transformation:** Businesses are adopting digital technologies to automate and improve the efficiency of their business processes. This includes more efficient supply chain management, automated production, and fast, on-time delivery.
2. **Changes in Customer Interaction:** Companies now have digital tools and platforms to interact with their customers. This includes social media, e-commerce, chatbots, and various applications that enable customers to communicate and transact easily.
3. **Improved Data Analytics:** Data is a valuable asset in the digital era. Companies collect and analyze customer, operations, and market data to make better decisions and forecast trends.

4. **Employee Engagement:** Employees must have relevant digital skills to contribute effectively in an increasingly digitalized work environment. Training and digital skills development are key in ensuring that employees can keep up with technological developments.
5. **Data Security:** The presence of big data also presents challenges regarding data security and privacy. Companies must protect their data from rapidly evolving cyber threats. (Manyika, J., Chui, M., Brown, B., Bughin, J., Dobbs, R., Roxburgh, C., & Byers, A.H. 2016)

These changes are driving a massive transformation in the way businesses run and interact with their environments. One of the core elements in this change is digital skills which are increasingly becoming a basic need in the world of work. This research will review the challenges and opportunities faced by human resource management at Syamsudin Noor International Airport, Banjarmasin, South Kalimantan, which operates in the midst of the developing digital era.

Syamsudin Noor International Airport is one of the main gateways connecting South Kalimantan with the outside world. This airport not only serves passenger travel but is also an important logistics center. In the context of rapid globalization and digitalization, airports such as Syamsudin Noor face significant challenges in maintaining their competitiveness. Changes in technology, regulations and customer expectations require human resource management to play a more strategic role. (Directorate General of Civil Aviation - Ministry of Transportation, Republic of Indonesia. (nd)

Syamsudin Noor International Airport (SAMS) located in Banjarmasin, South Kalimantan, is an important facility that plays a central role in connecting South Kalimantan with the outside world. In recent years, Syamsudin Noor Airport has developed into one of the main gateways in the Kalimantan region and its surroundings. (McFarlin, T. 2019) The following is further development regarding the role and challenges faced by Syamsudin Noor Airport:

1. **Regional and Global Gateway:** Syamsudin Noor Airport not only serves as a gateway for the people of South Kalimantan but also for neighboring regions, including Central Kalimantan, East Kalimantan and West Kalimantan. It plays an important role in connecting people and goods with domestic and foreign destinations. The airport facilitates international passenger and air cargo travel, making it one of the critical infrastructures that supports trade and mobility in the region.
2. **Main Logistics Center:** Apart from its role as a passenger facility, Syamsudin Noor Airport also has an important function as a logistics center. This means the airport becomes a central point for managing the flow of valuable air cargo, including merchandise, raw materials and other shipments. In the era of globalization, the fast and efficient flow of goods via air transportation is an important element in complex supply chains.
3. **Challenges in Facing the Digital Era:** The presence of the digital era and industry 4.0 has brought significant challenges to Syamsudin Noor Airport. First, new technologies such as automated flight management systems, big data processing, and cybersecurity require careful understanding and implementation. Not only does this technology require investment in equipment and training, but also a change in organizational culture to adopt this technology.
4. **Regulatory Changes:** Regulations in the aviation industry can change quickly, especially when it comes to safety. Syamsudin Noor Airport must be at the forefront in understanding and complying with these regulations. In the digital era, regulations regarding the protection of personal data and customer privacy are also getting stricter. This requires careful human resource management to ensure that employees understand and comply with these rules.
5. **Evolving Customer Expectations:** In the digital era, customers have higher expectations for fast, efficient and technology-based services. This includes easy ticket and cargo booking via mobile app, faster check-in process and a more convenient travel experience. Meeting these customer expectations requires a strategic role from human resource management to ensure that employees have the skills and motivation to provide superior service. (Nguyen, NT, & Van den Broeck, L. 2020)
6. **Human Resource Management Challenges:** Manpower management in this digital era has a number of significant challenges. Firstly, digital skills are becoming increasingly crucial. Airports must ensure that their employees have skills relevant to the technology they use, from flight

management systems to cybersecurity. Second, changes in organizational culture may also be necessary to adopt new technologies and respond to market changes. Third, human resource management must consider the need for ongoing training and development.

7. **Human Resource Management Opportunities:** While there are many challenges, the digital era also brings significant opportunities. Wise HR management can utilize technology to increase efficiency and productivity. For example, the use of data analytics can help in planning workforce needs and measuring performance more effectively. In addition, more flexible working models, such as remote work, can also be a solution to attract and retain needed talent.
8. **Research Relevance:** This research has high relevance in the context of Syamsudin Noor International Airport, which wants to remain a key player in the regional aviation industry in this digital era. This research may also provide valuable insights for other organizations facing similar challenges in managing human resources in the digital era.

With a strong introduction like this, readers will clearly understand why this research is relevant and why human resource management issues in the industrial era 4.0 need to be researched further at Syamsudin Noor International Airport, Banjarmasin, South Kalimantan.

RESEARCH METHODS

Research on the challenges and opportunities of human resource management in Industry 4.0 with a focus on digital skills at Syamsudin Noor International Airport, Banjarmasin, South Kalimantan, requires a careful research approach. The research method used by researchers is mixed research, where the first step in this research is to: carry out an in-depth literature study. Researchers collected and analyzed literature related to Industry 4.0, human resource management, and digital skills in the aviation industry. This will help in understanding the challenges and opportunities that have been identified by previous researchers and relevant theoretical frameworks. Then conducting interviews with key stakeholders at Syamsudin Noor International Airport, such as human resources managers, recruitment staff and employees, is an important step in this research. (Creswell, J.W. 2007)

Direct observation at Syamsudin Noor International Airport can also provide valuable insight. Researchers can observe operational processes, interactions between employees, and the application of technology in real situations. This can help in identifying best practices that have been implemented, as well as barriers that may exist in the integration of technology and digital skills. Surveys are used to collect data from employees at large. Surveys can help in measuring the extent to which employees feel comfortable with the changes associated with Industry 4.0. (Merriam, SB 2009)

Data collected from the various methods above was then analyzed quantitatively and qualitatively. Statistical analysis is used to measure digital skills, employee satisfaction levels, and influencing factors. Meanwhile, qualitative analysis is used to gain in-depth views through interviews and observations. The results of data analysis are used to identify challenges and opportunities for human resource management in facing Industry 4.0 at Syamsudin Noor International Airport. (Patton, MQ 2002)

RESEARCH RESULTS AND DISCUSSION

Results

This research discusses various challenges and opportunities faced in human resource management at Syamsudin Noor International Airport in the Industrial 4.0 era. The following are the results of the research:

1. **Digital Skills Challenge**

The digital skills challenge faced by Syamsudin Noor International Airport in the context of Industry 4.0 is one of the key issues that needs to be addressed seriously. Rapid technological changes in the Industry 4.0 era have created high demand for employees who have adequate digital understanding and skills. Supporting understanding of this challenge are studies and reports that examine the issue of digital skills and technological change in the world of work.

Internal Data and Surveys at Airports: Syamsudin Noor Airport management can conduct internal surveys or assessments to assess current digital skills among their employees. This can provide a deeper understanding of existing skill levels and where they are lacking.

Further discussion could involve strategies that Syamsudin Noor Airport can take to overcome this digital skills challenge. This may involve training and development efforts for employees, adding hiring policies that support the search for digital talent, or collaborating with local educational institutions to produce human resources with better digital skills.

In the entire discussion, it is important to point out that in the Industry 4.0 era, digital skills are not only an advantage, but a necessity. By addressing these challenges, Syamsudin Noor Airport can better face a more digital future and ensure its workforce is ready for the technological changes that will continue.

2. Changes in Work Processes

Changes in Work Processes are one of the key aspects that need to be understood in the context of Syamsudin Noor Airport in facing the Industrial 4.0 era. This research found that advanced technological changes, such as the Internet of Things (IoT) and artificial intelligence, have had a significant impact on the roles and responsibilities of workers at these airports. Let's explore it further:

In the Industry 4.0 era, technological developments such as IoT allow objects and devices to be connected to the internet, so they can communicate and share data in real time. At airports, this could mean equipment, vehicles and infrastructure such as baggage, aircraft and airport facilities becoming smart and connected to digital networks. For example, an IoT system might be used to track passengers' baggage in real-time, thereby minimizing the risk of lost baggage.

Apart from IoT, artificial intelligence (AI) also plays an important role in the Industry 4.0 transformation. At Syamsudin Noor Airport, AI systems can be used to carry out smarter security monitoring, analyze passenger data, and even assist in decision making. Airport workers may have to interact with these AI systems, such as overseeing AI operations or using data generated by AI systems to make better decisions.

The impact of these technological changes on worker roles and responsibilities is significant. They need to learn how to operate and interact with this technology. For example, security officers at airports may need to monitor AI-powered security monitoring systems or receive training in operating IoT equipment. This requires adaptations and changes in workers' traditional roles and responsibilities.

Additionally, these changes in work processes also raise questions about ethics and privacy. In collecting and using data generated by IoT and AI technology, Syamsudin Noor Airport must ensure that they comply with applicable ethical and legal standards in maintaining the privacy of their passengers and workers.

3. Policy and Training

One of the key aspects in facing the challenges of the Industry 4.0 era is the development of relevant human resource policies. Syamsudin Noor International Airport in Banjarmasin, South Kalimantan, is no exception. In this context, HR policies need to develop to accommodate the dramatic changes brought by advanced technology, especially in terms of digital skills. The introduction of relevant digital training is an important first step. This discussion will discuss in more depth the challenges and opportunities involved in developing human resources policies and the introduction of digital training. (World Economic Forum 2016)

Challenges of Human Resources Policy Development in the Industrial Era 4.0:

- a. Determining Required Skills: In the Industry 4.0 era, determining the required digital skills can become complicated due to rapid technological developments. Airports must accurately identify which skills are needed now and in the long term.

- b. **Measuring Digital Skills:** Measuring the digital skill levels of current and prospective employees is challenging. They need to develop effective measurement tools to identify strengths and weaknesses in digital skills.
- c. **Career Development:** In the Industry 4.0 era, career development is no longer linear. Employees need to have a more flexible career path and focus on developing their digital skills.

Opportunities in Policy Development and Training:

- a. **Digital Skills Development:** Airports can leverage digital training to improve the digital skills of their employees. This could involve online classes, online resources, or partnerships with educational institutions for specialized training.
- b. **Continuous Learning Model:** Encouraging continuous learning is one of the important aspects of career development in the Industry 4.0 era. Airports can develop continuous learning models that support employees in regularly updating their skills.
- c. **Flexible Career Paths:** Airports can design more flexible career paths that allow employees to create paths that suit their skill development. This may also include opportunities for mobility between departments.

By combining learning and understanding the specific context of Syamsudin Noor International Airport, the development of human resource policies relevant to the Industry 4.0 era can be carried out more effectively. Airports can leverage digital training and continuous learning models to prepare their employees for the challenges and opportunities in a changing world of work. (World Economic Forum 2020)

4. Adaptive Performance Management

Adaptive Performance Management is an important aspect in the context of the Industry 4.0 era which is characterized by rapid technological change and has a significant impact on the way of work and business. Human resource management (HRM) needs to become more flexible and responsive to these changes. A focus on more frequent performance evaluations and data-driven feedback are key elements in this adaptive approach. (Stephen MR Covey 2017)

Importance of Adaptive Performance Management:

- a. **Rapid Response to Change:** The Industry 4.0 era is characterized by rapid technological change, such as automation, the Internet of Things (IoT), and artificial intelligence. Adaptive performance management allows organizations to respond to these changes more quickly.
- b. **Accurate Performance Measurement:** Through more frequent performance evaluations, companies can understand the impact of technological changes on employee productivity. Data-driven feedback provides accurate and in-depth information about individual performance.
- c. **Skills Development:** Adaptability in performance management includes developing new skills and competencies to suit technological changes. This helps employees to keep their skills updated and be relevant in the digital environment.
- d. **Increased Employee Engagement:** More frequent evaluations and constructive feedback can increase employee engagement. They feel more involved in necessary improvements and changes. (McKinsey & Company 2018)

Adaptive performance management is one way to ensure that organizations and employees are ready to face the challenges of Industry 4.0. With more frequent performance evaluations and timely feedback, companies can leverage technological change as an opportunity to increase their productivity and competitiveness. Thus, this approach is key in ensuring long-term success in the digital era.

Discussion

1. Digital Skills

The Industrial Era 4.0 has brought major changes in various industries, including airports. Technologies such as the Internet of Things (IoT), artificial intelligence (AI), data analytics and cloud

computing are increasingly becoming an integral part of operations and human resource management at Syamsudin Noor Airport. These changes encourage improving digital skills as an urgent need.

2. Investment in Training and Development

It is important for Syamsudin Noor Airport to understand that this change requires investment in training and digital skills development. Current employees may not have sufficient knowledge or skills to adapt to new technologies implemented at airports. Therefore, investment in training becomes essential.

Investments in digital skills training can cover several aspects:

- a. Targeted Training: Airports must identify what digital skills are needed across the organization, from technicians to managers, and provide training accordingly.
- b. Continuous Training: The Industry 4.0 era is characterized by rapid technological change. Therefore, training is not just one-time but ongoing to keep employee skills relevant.
- c. Partnerships with Universities or Training Institutions: Syamsudin Noor Airport can establish partnerships with universities or training institutions to ensure that digital skills training is at the forefront of technology.
- d. Employee Involvement: Involving employees in the process of identifying their training needs can provide valuable insight into the type of training required.

a. Benefits of Investing in Digital Skills

This investment brings several important benefits to Syamsudin Noor Airport:

- 1) More Productive Employees: Employees who have sufficient digital skills can work more efficiently with new technologies, which in turn increases productivity.
- 2) Higher Competitiveness: With strong digital skills, airports become more competitive in adopting new technologies and facing challenges in the Industry 4.0 era.
- 3) Better Hiring: Airports can attract more qualified job candidates by offering strong digital skills training and development.
- 4) Facing Change Better: With strong digital skills, employees are better prepared to deal with the rapid technological changes occurring in the airport sector.

Investment in training and digital skills development is a very important step for Syamsudin Noor Airport. This helps ensure that employees are ready to face changes in the Industry 4.0 era, increase productivity and maintain organizational competitiveness. In an increasingly digitalized world, digital skills are becoming a valuable asset that must be managed and updated regularly.

3. Changes in Work Processes

Changes in Work Processes are one of the key aspects faced by Syamsudin Noor International Airport in facing the Industrial 4.0 era. In this context, rapid technological change has significantly changed how workers carry out their tasks and, as a result, affected the role of workers as a whole. In more detail, let's discuss how these changes in work processes affect airports and the actions that need to be taken.

Changes in the Role of Workers in Along with technological developments, the role of workers at Syamsudin Noor Airport has experienced a significant shift. Before the Industry 4.0 era, workers might perform many tasks manually. However, with the introduction of advanced technologies such as the Internet of Things (IoT) and artificial intelligence, many tasks that were previously operated by humans have become automated.

A concrete example is the use of automatic monitoring systems on runways and terminals. This system can detect weather, runway conditions and aircraft movements without human intervention. Previously, airport officials may have needed to report this manually.

The Importance of Collaboration with Employees Management must work together with employees to understand and manage this change. It is important for employees to feel involved in the change process, not just passive players in accepting new technology. In this case, open communication

and intense dialogue between management and employees are important. This includes providing a clear explanation of how new technology will impact their role, providing opportunities for employees to share their concerns and input, and providing the necessary training and education to help them adapt to the changes. Involving employees in planning and implementing change will increase acceptance of new technology and reduce resistance.

Opportunities for Improved Operational Efficiency While these changes may cause initial discomfort and confusion, they also bring opportunities to improve operational efficiency at Syamsudin Noor Airport. The technology used in Industry 4.0 can enable the automation of routine tasks, so workers can focus on work that requires critical thinking, decisions and human interaction.

A clear example is in inventory management and aircraft maintenance. Intelligent systems can monitor spare parts inventory and plan maintenance more efficiently, reducing aircraft downtime and saving costs. In addition, the use of data analytics and predictions supported by artificial intelligence can help airport management make better decisions based on accurate data, including more efficient aircraft traffic planning.

Overall, although changes in work processes may pose initial challenges, they also bring opportunities for growth and increased operational efficiency. It is important for management and employees at Syamsudin Noor Airport to work together to manage these changes wisely, and use technology as a tool to improve better airport operations. With strong collaboration and smart adaptation, airports can successfully adapt to the Industry 4.0 era.

4. Policy and Training

Policies and training are important aspects in facing the challenges and opportunities of Industry 4.0, especially at Syamsudin Noor International Airport in Banjarmasin, South Kalimantan. Developing policies that support adaptation to the Industrial 4.0 era has a major role in preparing human resources to face rapid technological change.

Career Planning Oriented to Digital Skills In the context of Industry 4.0, career planning must focus on developing digital skills. Company policies should promote awareness of the importance of digital skills, and recognize what skills will be needed in the future. Long-term thinking about employee roles and positions within the company must include these digital aspects.

Employees need to be given a clear understanding of what digital skills will be needed, both at an individual and departmental level. This can include identifying specific roles that will rely more heavily on technology, as well as identifying specific skills required, such as data management, analytics or an understanding of the Internet of Things (IoT).

Investments in Training and Further Education with Policies that support adaptation to Industry 4.0 must include investments in training and further education. This could include a variety of initiatives:

- 1) **Internal Training:** Companies need to identify the training required for current employees. This could be training in the use of digital tools or platforms that will be used in daily work. This internal training allows companies to optimize the skills of existing employees.
- 2) **Collaboration with Educational Institutions:** Companies can collaborate with educational institutions, such as universities or training institutions, to ensure that employees have access to continuing education programs. This could include master's or certificate programs in fields relevant to Industry 4.0.
- 3) **Digital Learning Resources:** Investing in digital learning resources, such as e-learning platforms, can be very beneficial. This allows employees to learn anytime and anywhere, which suits their learning style.
- 4) **Understanding of Industry Trends:** Employees need to gain a better understanding of industry trends related to Industry 4.0. This may include relevant conferences, seminars or information resources that help them stay current with changes in the industry.

Policies and investment in training are important steps to ensure that employees have the skills needed to face Industry 4.0 with confidence. Along with digital skills-oriented career planning, this will

help produce a workforce that is ready to face rapid technological changes and take advantage of emerging opportunities in this era.

Additionally, it is important to note that the development of policies that support adaptation to Industry 4.0 must also be inclusive and provide support to all employees, including those who may have varying levels of digital skills. This allows companies to harness the full potential of all their team members in facing these changes and winning the competition in Industry 4.0.

5. Adaptive Performance Management

Adaptive performance management is a key concept in facing the challenges and opportunities of the Industry 4.0 era. This emphasizes the importance of developing performance management systems that are responsive to changes in technology and the rapidly changing business environment. The following are some more detailed explanations regarding adaptive performance management:

- a. **Creating a Structured Feedback System:** Adaptive performance management involves creating a structured feedback system. This includes developing a clear framework for providing feedback to employees on a regular basis. In the context of Industry 4.0, this feedback should not only focus on assessing historical performance, but should also include new elements relevant to technological changes, such as the use of digital tools and analytics. Structured feedback helps employees understand where they stand in achieving their goals and enables continuous development.
- b. **Accurate Performance Measurement:** Adaptive performance management requires accurate performance measurement. This means that companies must adopt measurement methods that are relevant to the digital business environment. Traditional performance measurements may no longer reflect employee productivity in the Industry 4.0 era. Therefore, companies need to develop metrics that suit their business goals and strategies. It can also involve using sophisticated analytical tools to measure the impact of technological changes on productivity.
- c. **Response to Technological Change:** In adaptive performance management, organizations must be ready to respond to rapid technological changes. This means not only evaluating employee performance based on current goals and tasks, but also having the flexibility to modify goals and responsibilities as technology changes or business needs dictate. This allows organizations to maximize the potential of the latest technology and ensure that employees keep up with developments.
- d. **Data-Driven Approach:** Adaptive performance management is often supported by a data-driven approach. In the Industry 4.0 era, data is becoming more abundant. Organizations can leverage this data to measure employee performance and identify trends that may not be obvious. Data analysis allows organizations to make more informed decisions and be responsive to change.
- e. **Employee Empowerment:** Adaptive performance management also involves employee empowerment. Employees need to feel in control of their performance and invited to participate in the performance management process. They must have the ability to set their own goals within the context of the organization's larger goals. This creates greater engagement and increases motivation.

Overall, adaptive performance management is a key element in optimizing productivity and organizational readiness to face the challenges and opportunities offered by Industry 4.0. This involves creating a structured feedback system, accurate performance measurement, response to technological changes, utilization of data, and employee empowerment. With this approach, organizations can ensure that their performance is aligned with changing business needs in the digital era.

So come on, Syamsudin Noor International Airport in Banjarmasin, South Kalimantan, faces various challenges and opportunities in human resource management in the Industry 4.0 era. In the face of rapid technological change, investment in digital skills, adapting work processes, developing appropriate policies, and adaptive performance management will be the keys to success in this era. This research provides important insights that can be used as a basis for facing challenges and exploiting the opportunities offered by Industry 4.0 at Syamsudin Noor Airport.

CONCLUSION

In this research, researchers have investigated a number of challenges and opportunities faced in human resource management at Syamsudin Noor International Airport in the Industry 4.0 era. Therefore, there are several points that can be used as conclusions in this research as follows:

1. **Digital Skills Challenge:** This challenge is one of the most significant. Rapid technological change is driving demand for employees with adequate digital understanding and skills. Airports should evaluate employees' digital skills, offer appropriate training and development, and perhaps seek out new digital talent.
2. **Changes in Work Processes:** Technological changes, such as the Internet of Things (IoT) and artificial intelligence (AI), have changed the roles and responsibilities of workers. Airports need to ensure employees are ready to interact with new technologies and ensure privacy and ethical protection in data use.
3. **Policies and Training:** Development of relevant human resource policies is important. Airports must determine required skills, measure current skills, and provide digital training. Continuous learning models and flexible career paths should be supported.
4. **Adaptive Performance Management:** Adaptive performance management has become essential in dealing with rapid technological change. A structured feedback system, accurate performance measurement, response to technological changes, use of data, and employee empowerment are key elements of this approach.

SUGGESTIONS/RECOMMENDATIONS:

In facing future challenges and opportunities, we recommend several steps that Syamsudin Noor International Airport can take:

1. **Digital Skills Development:** Conduct internal surveys or assessments to assess employees' current digital skills. After that, invest in training and development to fill those skills gaps.
2. **Human Resources Policy Development:** Accurately identify required digital skills and develop policies that support the adaptation and development of digital skills.
3. **Focused Digital Training:** Leverage digital training to improve employee skills. This could involve partnerships with local educational institutions or the creation of relevant online resources.
4. **Responsive Performance Management:** Update performance management systems to reflect changes in duties and responsibilities triggered by Industry 4.0. Prioritize the use of data-driven feedback and rapid response to technology changes.
5. **Employee Empowerment:** Involve employees in the change process. Give them control over their goals and give them the opportunity to participate in their career planning.
6. **Continuously Monitor and Adapt:** Challenges and technology will continue to change. Therefore, Airports must adopt a sustainable approach to monitor, evaluate and adapt to ongoing changes.

ACKNOWLEDGEMENT

We would like to thank everyone who was involved in this research. We appreciate the valuable contributions of Syamsudin Noor International Airport employees and all parties who have provided insight and assistance during this research. All stakeholders at the Airport, from management to employees, play a role in ensuring future success in the Industry 4.0 era. Thank you for your cooperation and participation in this research.

REFERENCE

- Brynjolfsson, E., & McAfee, A. (2014). *The Second Machine Age: Work, Progress, and Prosperity in a Time of Brilliant Technologies*. W.W. Norton & Company.
- Covey, S. M. R. (2017). *Agile Performance Management: A New Approach*.

- Creswell, J. W. (2007). *Qualitative Inquiry and Research Design: Choosing Among Five Approaches*. Sage Publications.
- Directorate General of Civil Aviation - Ministry of Transportation, Republic of Indonesia. (n.d.). Syamsudin Noor International Airport. [Website](#).
- Manyika, J., Chui, M., Brown, B., Bughin, J., Dobbs, R., Roxburgh, C., & Byers, A. H. (2016). *Where machines could replace humans—and where they can't (yet)*. McKinsey Global Institute.
- McFarlin, T. (2019). *The Impact of Digital Transformation on Human Resources in the Aviation Industry*. In *Handbook of Research on Human Resources Strategies for the New Millennial Workforce* (pp. 1-27). IGI Global.
- McKinsey & Company. (2018). *Performance Management in the Digital Age*.
- Merriam, S. B. (2009). *Qualitative Research: A Guide to Design and Implementation*. Jossey-Bass.
- Miles, M. B., & Huberman, A. M. (1994). *Qualitative Data Analysis: An Expanded Sourcebook*. Sage Publications.
- Nguyen, N. T., & Van den Broeck, L. (2020). *Antecedents and Outcomes of Digital HR Transformation: A Literature Review*. In *Proceedings of the 14th International Conference on Theory and Practice of Electronic Governance* (pp. 1-10). ACM.
- Patton, M. Q. (2002). *Qualitative Research and Evaluation Methods*. Sage Publications.
- Schwab, K. (2016). *The Fourth Industrial Revolution*. World Economic Forum.
- World Economic Forum. (2016). *The Fourth Industrial Revolution: What It Means, How to Respond*.
- World Economic Forum. (2020). *The Future of Jobs Report*.