

Implementing IT Solutions for Human Resource Management in the Transportation Sector: Enhancing Efficiency and Employee Satisfaction

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Abstract

The implementation of information technology (IT) solutions in the transportation sector brings significant changes in human resource management (HR). This technology provides various benefits ranging from increasing operational efficiency to increasing employee satisfaction. However, IT implementation also faces challenges such as the need for large investments, resistance to change, and data security. This study aims to explore how IT solutions can improve employee efficiency and satisfaction in the transportation sector. This study uses a qualitative approach by collecting data from previous studies. The collected data is then processed to gain an in-depth understanding of this topic. The results show that IT-based administrative process automation and performance appraisal systems improve operational efficiency. IT-based recruitment platforms and flexible training programs improve employee engagement and development. IT solutions also strengthen communication and collaboration, as well as employee welfare programs that support work-life balance. However, IT implementation requires large investments and faces resistance from employees that can be overcome through effective training and communication. Data security is also a challenge that requires strict security policies and cyber awareness training.

Keywords: Information Technology (IT), Human Resource Management, Transportation Sector, Efficiency, Satisfaction, Employees.

INTRODUCTION

In the era of ever-growing globalization, the transportation sector plays a vital role in supporting mobility and economic growth in various countries, including Indonesia. Along with the increasing need for efficient and reliable transportation services, companies in this sector face significant challenges in managing their human resources (HR) (Ramadhani et al., 2024). Operational efficiency and employee satisfaction are two key factors that affect the overall performance of a company. However, problems such as high turnover, low productivity,

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and lack of employee motivation are often the main obstacles to achieving these goals (Dorta-Afonso et al., 2021).

Digital transformation has penetrated almost all industrial sectors, including transportation. The development of information technology (IT) offers various solutions that can be implemented to overcome problems in HR management. The use of IT in HR management covers multiple aspects, from recruitment, training and development, and performance management, to employee welfare (Dong et al., 2021). Implementing the right IT solutions can help transportation companies optimize their HR management processes, which ultimately contribute to increasing operational efficiency and employee satisfaction (Argiyantari et al., 2022).

Indonesia as an archipelagic country with a large population, has complex and diverse transportation needs. The transportation sector in Indonesia consists of various modes of transportation, such as land, sea, and air, each of which has its characteristics and challenges (Hayakawa et al., 2020). The success of transportation companies in managing their human resources is key to ensuring smooth operations and improving services to the community. However, many transportation companies in Indonesia still face difficulties in integrating information technology into their HR management systems (Al-Minhas et al., 2020).

Another challenge faced by transportation companies in Indonesia is changes in government regulations and policies that often affect company operations. These regulatory changes require companies to be more adaptive and flexible in managing their human resources (Hernita et al., 2021). On the other hand, the increasingly tight competition in the transportation industry also encourages companies to seek innovative ways to improve employee efficiency and satisfaction. In this context, the application of IT solutions in HR management is becoming increasingly relevant and urgent (Winkelhaus et al., 2022).

The application of IT solutions in HR management in the transportation sector is not only aimed at improving operational efficiency but also at creating a better working environment for employees. IT solutions can help monitor employee performance in real-time, provide training tailored to individual needs, and provide an effective communication platform between management and employees. In addition, the use of IT can also simplify the administration and management of employee data, so that management can focus more on strategic decision-making (Stawiarska et al., 2021).

One example of the successful application of IT solutions is the use of a cloud-based HR management system. This system allows companies to centrally manage employee data, facilitating easier and faster access to the information needed (Tongkachok et al., 2023). In addition, cloud-based systems also offer greater flexibility in customization and development according to company needs. Thus, companies can be more responsive to changes in the business environment and market demands (Gammelgaard & Nowicka, 2024).

On the other hand, implementing IT solutions can also present challenges, such as the need for significant investment, employee resistance to change, and data security risks. Therefore, companies need to plan the implementation of IT solutions carefully, including in terms of change management and employee training. Management must ensure that all levels of the organization understand the benefits of the IT solutions implemented and are willing to participate in the change process (Glyptis et al., 2020).

To overcome these challenges, transportation companies in Indonesia need to learn from best practices that have been implemented in other countries or other industrial sectors. Learning from this experience can help companies formulate more effective and efficient IT solution implementation strategies. In addition, cooperation with experienced IT solution providers can also be the right step to ensure the success of technology implementation in HR management. The implementation of the right IT solutions is expected to have a significant positive impact on transportation companies in Indonesia, both in the short and long term. Thus, this study is expected to provide a significant contribution to the development of HR management in the transportation sector, as well as encourage innovation and improve the quality of transportation services in Indonesia.

LITERATURE REVIEW

Information Technology

Technology is the development and application of tools, machines, materials, and processes that help humans solve their problems. Information is the result of processing, manipulating, and organizing/arranging a group of data that has knowledge value for its users (Ahmed et al., 2022).

Information Technology (IT) is a general term that describes any technology that helps humans create, change, store, communicate, and/or disseminate information. IT combines computing and high-speed communications for data, voice, and video. Examples of Information Technology are not only personal computers, but also telephones, TVs, electronic household appliances, and modern handheld devices (eg mobile phones) (Kuklin et al., 2023).

The processing, storage, and distribution of vocal, pictorial, textual, and numeric information by microelectronics based on a combination of computerization and telecommunications. The term in its modern sense first appeared in a 1958 article published in the Harvard Business Review (McGovern, 2021), in which authors Leavitt and Whister commented that "the new technology does not yet have a single established name. We shall call it information technology (IT)". Some of the modern and emerging fields of information technology are next-generation web technologies, bioinformatics, "cold computing", global information systems, large-scale knowledge bases, etc (Mitra et al., 2022).

Haag & Keen argue that Information Technology is a set of tools that help you work with information and perform tasks related to information processing. Then Martin explained that Information Technology is not only limited to computer technology (software & hardware) used to process or store information but also includes communication technology to send information (Faisal & Kisman, 2020).

Implicitly and explicitly, IT is not just computer technology but also includes communication technology. Information Technology is a technology used to process data, including processing, obtaining, compiling, storing, and manipulating data in various ways to produce quality information, namely relevant, accurate, and timely information, which is used for personal, business, and government purposes and is strategic information for decision making (Siripurapu et al., 2023).

The role of Information Technology in this era is very much embedded in human life. How could it not be, Information Technology has an important role in meeting the increasing needs of humans. Starting from interacting, learning, reading news, transactions, and others, all use Information Technology products (Szymkowiak et al., 2021).

In the world of education, the spread of Information Technology will transform learning science easier and faster. Information technology can change the village economy to be better in quality in the Agriculture, Livestock, and Plantation sectors by finding very important information related to these sectors (Zhou et al., 2021).

It is undeniable that the presence of technology has had a significant influence on human life in various fields, such as Politics, Economics, Social, Culture, Defense, Security, and so on. So, the presence of information technology in human life makes information technology a reliable source to meet most human needs (Fabrègue & Bogoni, 2023).

The development of information technology is very rapid, even in remote areas that previously did not experience technology can now enjoy online information technology services. Information technology emerged as a result of the increasing spread of globalization in organizational life, increasingly fierce business competition, the increasingly short life cycle of goods and services offered, and the increasing demands of consumer tastes for the products and services offered (O'Leary, 2020). To anticipate all of this, companies are looking for breakthroughs by utilizing technology. Technology is expected to be a facilitator and interpreter. Initially, information technology was used only limited to data processing. With the increasing development of information technology, almost all organizational activities today have been entered by information technology applications and automation (Jafari-Sadeghi et al., 2021). Information technology can be defined as a combination of computer and telecommunications technology with other technologies such as hardware, software, databases, network technology, and other telecommunications equipment. Furthermore,

information technology is used in organizational information systems to provide information for users to make decisions (Palvia et al., 2021).

Human Resource Management

Human resource management is a procedure for managing people in an organization so that they can play an effective and efficient role. Management consists of six (6M) elements, namely: Men, Money, Method, Material, Machine, and Market (Anwar & Abdullah, 2021). The human element (Men) has developed into a field of management science called human resource management. The following are the opinions of experts on the definition of human resource development (Piwowar-Sulej, 2021).

Hasibuan argues that human resource management is the science and art of managing the relationship and role of the workforce to effectively and efficiently help realize the goals of the company, employees, and society (Karman, 2020). Meanwhile, Armstrong states that human resource management is related to all aspects of how people work and are managed in an organization, including human resource planning, performance management, learning, and human resource development (Garg et al., 2022).

The views of Rivai and Sagala state that human resource management is one of the general management fields that includes aspects of planning, organizing, implementing, and controlling human resources in an organization.

Human resource management functions according to Hamali are:

1. Planning
Planning is an activity to estimate the condition of the workforce so that it is following the needs of the organization effectively and efficiently, in helping to realize goals. Planning determines this employee program including organizing, directing, controlling, procuring, developing, compensating, integrating, maintaining, disciplining, and terminating employees (Chakraborty & Biswas, 2020).
2. Organizing
Organizing is an activity to regulates employees by determining the division of labor, work relationships, delegation of authority, integration, and coordination in the form of an organizational chart. The organization is only a tool to achieve goals. A good organization will help realize goals effectively (Trondal, 2023).
3. Direction and procurement
Direction is an activity to provide instructions to employees so that they are willing to cooperate and work effectively and efficiently in helping to achieve organizational goals. Direction is carried out by a leader who with his leadership will provide direction to employees to do all their tasks well (Sonmez Cakir & Adiguzel, 2020). Procurement is the process of recruitment, selection, placement, orientation, and induction to get employees

who are following the needs of the organization. Good procurement will help realize goals (Kuchina-Musina et al., 2020).

4. Control

Control is an activity to control employees to obey organizational regulations and work according to plan. If there is any storage, corrective and/or improvement actions are taken. Employee control includes attendance, discipline, cooperative behavior, and maintaining the work environment (Berg & Madsen, 2020).

5. Development

Development is the process of improving the technical, theoretical, conceptual, and moral skills of employees through education and training. The education and training provided should be following current and future job needs (Beer & Mulder, 2020).

6. Compensation

Compensation is the provision of direct compensation in the form of money or goods to employees as compensation for services provided to the organization. The principle of compensation is fair and appropriate, fair is interpreted as being following work performance, while appropriate is interpreted as being able to meet primary needs (Prasetyo et al., 2021).

7. Integration

Integration is an activity to unite the interests of the organization and the needs of employees, to create harmonious and mutually beneficial cooperation. On the one hand, the organization gains success/profit, while on the other hand, employees can meet their needs from the results of their work. Integration is important and quite difficult in human resource management because it unites two different interests (Tolstykh et al., 2023).

8. Maintenance

Maintenance is an activity to maintain or improve physical, mental, and loyalty conditions so that they continue to work together until retirement. Good maintenance is carried out with welfare programs based on the needs of most employees and is guided by internal and external consistency (Chaulagain et al., 2022).

9. Discipline

Discipline is one of the important functions of human resource management and is the key to realizing organizational goals because, without discipline, it is difficult to achieve maximum goals. Discipline is the desire and awareness to obey organizational regulations and social norms (Trullen et al., 2020).

10. Termination

Termination is the termination of an employee's employment relationship with an organization. This termination is caused by the employee's desire, the organization's desire, the end of the employment contract, retirement, or other reasons. Implementing the management function as well as possible in managing

employees will make it easier to realize the goals and success of the organization (Klotz et al., 2021).

METHOD

This research will be conducted using a qualitative approach. Through this approach, research data will be obtained from various good sources such as research results and previous studies that are still relevant to the content of the research. When the research data has been successfully collected, then the research data will be processed immediately so that the results of this research can be found. The qualitative approach allows researchers to gain an in-depth understanding of the implementation of information technology (IT) solutions in human resource management (HR) in the transportation sector, including the challenges and strategies implemented to overcome existing obstacles. After the data is collected, data analysis will be carried out systematically to identify key themes and produce valid and reliable conclusions. Through this approach, it is hoped that this research can provide a significant contribution to understanding the role and challenges of IT in improving employee efficiency and satisfaction in the transportation sector (Roosinda et al., 2021).

RESULT AND DISCUSSION

Human Resource Management Challenges in the Transportation Sector

The transportation sector plays a crucial role in supporting community mobility and the economy, but human resource (HR) management in this sector faces a variety of complex challenges. One of the main challenges faced is the high level of employee turnover. Factors that cause high turnover in the transportation sector include tough working conditions, long working hours, and high levels of stress. Many employees in this sector work in physically and mentally demanding environments, such as truck drivers who have to travel long distances with little rest time or airport workers who have to work in busy and sometimes dangerous conditions. These conditions often lead to fatigue and a desire to find work with better working conditions, making employee turnover a significant problem.

In addition to high turnover, employee productivity in the transportation sector is also a major concern. Low productivity is often caused by a lack of adequate training and development. Many transportation companies do not have structured and ongoing training programs, so employees do not get the opportunity to improve their skills and knowledge. This has an impact on employees' ability to carry out their duties efficiently and effectively. In addition, limited resources, both in the form of technology and supporting infrastructure, also affect productivity. When employees are not supported with adequate tools and facilities, work becomes more difficult and takes longer to complete, which ultimately lowers overall productivity.

Employee motivation is also a major challenge in HR management in the transportation sector. Lack of attractive incentives, recognition for good performance, and opportunities for career growth are often the main factors causing low employee motivation. Without adequate incentives, employees feel underappreciated and lack the drive to perform optimally. Recognition for work achievements is also very important to build employee morale and loyalty. However, many transportation companies fail to provide proper rewards to their employees, both financially and non-financially. In addition, unclear career paths and limited opportunities for promotion make employees feel trapped in their current positions without any prospects for self-development and career advancement. This situation not only reduces motivation but can also encourage employees to look for better opportunities elsewhere.

Changes in government regulations and policies also add to the complexity of HR management in the transportation sector. Frequently changing regulations force companies to continuously adapt to new provisions, which can include safety requirements, work standards, and environmental rules. These changes require quick and precise adjustments in company operations, including in HR management. For example, new regulations that regulate working hours and rest periods for truck drivers can affect work schedules and workload distribution. In addition, changes in policies related to occupational safety and health require companies to implement additional procedures and training to ensure compliance. All of this requires a significant investment of time and resources, as well as careful management to ensure a smooth transition without disrupting operations.

All these challenges show the importance of effective HR management in the transportation sector. To overcome high turnover, low productivity, low employee motivation, and the impact of regulatory changes, companies need to develop a comprehensive and sustainable strategy. Improved working conditions, structured training programs, attractive incentives, clear career paths, and quick adaptation to regulatory changes are some of the steps that can be taken. In doing so, transportation companies can create a better working environment, improve operational efficiency, and ultimately provide better service to customers. These efforts will not only improve company performance but also employee satisfaction and well-being, which in turn can reduce turnover and increase overall productivity.

The Role of Information Technology in Improving HR Management Efficiency

Information technology (IT) has become a key pillar in the transformation of human resource management (HRM), providing innovative solutions to improve efficiency and effectiveness. One key area where IT plays a significant role is in the automation of administrative processes. The use of IT to automate administrative tasks, such as payroll, leave management, and attendance

management, has reduced manual workload and the risk of human error. An IT-based payroll system, for example, enables accurate and timely salary calculations, reducing the calculation errors that are common in manual processes. Leave management has also become more efficient with applications that allow employees to request and managers to approve leave online, speeding up the process and ensuring accurate records. Additionally, automated attendance management systems can monitor employee attendance in real-time, providing data that can be easily accessed by HR departments for further analysis.

An IT-based performance appraisal system has also revolutionized the way companies monitor and assess employee performance. With the implementation of these systems, managers can conduct real-time performance appraisals, using a variety of pre-defined metrics. These systems enable continuous monitoring of employee performance, provide timely feedback, and identify areas for improvement. In addition, the collected performance data can be used to develop individual development plans and set realistic goals. An IT-based performance appraisal process not only increases transparency and accuracy of assessments, but also helps in better decision-making regarding employee promotions, rewards, and development.

The recruitment and selection process of employees has also improved significantly with the presence of IT platforms. The use of online job portals and applicant tracking systems allows companies to reach prospective employees more widely and efficiently. Through job portals, companies can publish job vacancies and receive applications from prospective employees from various locations quickly. Applicant tracking applications make it easier for HR to manage and sort incoming applications, store applicant data, and track recruitment status. In addition, virtual interviews facilitated by video conferencing technology have reduced the need for physical meetings, accelerated the selection process, and reduced travel costs. All of this leads to a faster, more efficient, and more effective recruitment process in finding the right candidates for the required positions.

Employee training and development also benefit greatly from information technology. The provision of IT-based training programs, such as e-learning and online training platforms, allows employees to access training materials anytime and anywhere. This flexibility is essential in ensuring that employees can develop their skills according to their needs without having to leave their daily tasks. E-learning programs can include a variety of formats, including videos, interactive modules, and simulations, which are designed to increase engagement and learning effectiveness. In addition, a learning management system can track employee progress in training programs, provide reports to managers, and identify further training needs. Thus, information technology not only speeds up the training process but also ensures that the training is targeted and has a positive impact on employee performance.

The application of information technology in HR management has brought about significant changes in the way companies manage their human resources. Automation of administrative processes reduces manual workload and increases accuracy, while IT-based performance appraisal systems increase transparency and effectiveness of performance appraisals. IT-based recruitment platforms speed up and simplify employee selection processes, and IT-based training programs provide flexibility and effectiveness in employee skill development. All of these contribute to increased operational efficiency and employee satisfaction, which in turn can improve the productivity and overall performance of the company. With the continued development of information technology, the opportunity to further optimize HR management through technological innovation is still wide open, offering promising prospects for the future of human resource management in various industrial sectors.

Improving Employee Satisfaction through IT Solutions

In today's digital era, information technology (IT) plays an increasingly crucial role in improving employee satisfaction. One important aspect is communication and collaboration. IT-based communication and collaboration platforms, such as Slack, Microsoft Teams, and Zoom, have changed the way employees interact with management and coworkers. With these platforms, employees can communicate in real-time, share documents, and work together on projects without having to be in the same location. This not only improves work efficiency but also builds closer relationships between employees and management. The transparency of communication generated by these platforms allows employees to feel more involved and valued in the decision-making process, which ultimately increases their job satisfaction.

In addition, IT-based employee wellness programs offer a variety of services designed to improve employees' physical and mental well-being. These programs often include access to health services, counseling, and tools to help balance work and life. For example, health apps that offer features such as health tracking, nutritional advice, and fitness routines allow employees to better maintain their health. In addition, online counseling services can help employees cope with stress and personal issues that may be affecting their performance. This comprehensive wellness program shows that the company cares about the well-being of its employees, which not only increases employee satisfaction but also their loyalty to the company.

Recognition and rewards are also key factors in improving employee satisfaction, and information technology plays a significant role in this. IT-based reward and recognition systems allow management to provide employee performance appreciation in a more structured and transparent manner. Applications such as Bonusly and Kudos provide a platform where employees can receive recognition and rewards for their contributions, both from management and from fellow

employees. These rewards can be in the form of points that can be exchanged for prizes or simply a publicized thank you. Frequent and consistent recognition can boost employee morale and motivation, making them feel valued and motivated to continue to give their best in their work.

The use of feedback applications is also an important element in improving employee satisfaction through IT solutions. Feedback applications allow employees to provide their input continuously on various aspects of their work and work environment. By getting regular feedback, management can more quickly identify and address issues faced by employees. In addition, the feedback obtained can be used to conduct more accurate and objective performance evaluations. A transparent and fair evaluation process makes employees feel that their contributions are recognized and appreciated and provides them with opportunities to grow and improve their performance. Apps like 15Five and Officevibe provide easy-to-use platforms for giving and receiving feedback, ensuring that employee voices are heard and taken into account by management.

IT solutions have great potential to improve employee satisfaction in a variety of ways. Communication and collaboration platforms increase work engagement and efficiency, wellness programs ensure employee health and life balance, reward and recognition systems motivate and reward employee contributions, and feedback applications provide channels for constructive feedback and fair performance evaluations. By integrating these IT solutions into HR management strategies, companies can create a better and more productive work environment, where employees feel valued, motivated, and supported in every aspect of their work. Digital transformation in HR management not only contributes to increased employee satisfaction but also to improved performance and long-term success of the company.

Implementation and Challenges of Applying IT Solutions in the Transportation Sector

Implementing information technology (IT) solutions in the transportation sector brings significant benefits, from increasing operational efficiency to increasing customer satisfaction. However, implementing IT solutions also faces several challenges that need to be overcome to run successfully. One of the main challenges is the need for significant investment. Consideration of the costs and resources required to implement IT solutions must be carefully calculated. This investment includes not only the purchase of hardware and software, but also the costs of employee training, system maintenance, and integration costs with existing systems. Transportation companies must ensure that they have an adequate budget and a structured long-term investment plan so that the implementation of IT solutions can be carried out without disrupting daily operations.

In addition to the need for investment, resistance to change is another challenge often faced in implementing IT solutions. Employees and management may be reluctant or afraid of the changes brought about by new technologies, especially if they feel they do not have enough understanding or skills to use them. To overcome this resistance, companies need to adopt effective strategies, such as providing comprehensive and ongoing training for all levels of employees. In addition, clear communication about the benefits and objectives of IT implementation is also very important. Management must play an active role in supporting this change and setting a positive example for employees. In this way, resistance can be minimized and the implementation of IT solutions can run more smoothly.

Data security is another critical aspect of implementing IT solutions in the transportation sector. With the increasing amount of employee data and sensitive company information being stored digitally, the challenge of keeping data secure becomes greater. Transportation companies must ensure that they have a robust security system in place to protect data from cyber threats, such as hacking and malware. This includes implementing data encryption, firewalls, and intrusion detection systems. In addition, companies also need to develop strict data security policies and ensure that all employees understand and comply with these policies. Regular cybersecurity training is also important to keep employees aware of potential threats and the precautions that need to be taken.

Change management is a key element in the successful implementation of IT solutions. A planned and structured approach is essential to managing organizational changes resulting from IT implementation. This process involves several stages, from planning, and implementation, to evaluation. In the planning stage, companies must identify the needs and objectives of the IT implementation, and develop a clear action plan. During implementation, it is important to ensure that all parties involved understand their roles and responsibilities. Effective communication is key at this stage, where management must keep employees updated on the progress of the implementation and receive input from employees. Continuous evaluation is also necessary to identify areas that need improvement and ensure that IT solutions are delivering the expected results.

Implementing IT solutions in the transportation sector offers significant benefits, but the challenges that come with it should not be overlooked. The need for large investments, resistance to change, data security challenges, and change management are some of the factors that need to be taken seriously. With the right approach, transportation companies can overcome these challenges and leverage IT solutions to improve efficiency, productivity, and employee and customer satisfaction. Investing in information technology is not just about financial outlay, but also about changing the organizational culture towards innovation and continuous improvement. With commitment

and a solid strategy, the transportation sector can successfully integrate IT solutions and achieve true digital transformation.

CONCLUSION

The implementation of information technology (IT) solutions in the transportation sector has brought about significant changes in human resource (HR) management. Through automation of administrative processes, real-time performance appraisal systems, IT-based recruitment platforms, and flexible training programs, companies can improve operational efficiency and employee satisfaction. IT solutions also play a vital role in enhancing communication and collaboration, employee well-being, recognition and rewards, and continuous feedback systems. All of these contribute to increased employee productivity, engagement, and loyalty. However, implementing IT solutions in the transportation sector is not without its challenges. The need for large investments, resistance to change, data security, and change management are some of the obstacles that must be overcome. To overcome these challenges, companies must adopt a comprehensive strategy, including continuous training, effective communication, and the development of strict security policies. With a planned and structured approach, the transportation sector can leverage information technology to create a more efficient and productive work environment, improve employee satisfaction, and achieve long-term success.

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