



Implementation of Mobile-Based Management Information Systems to Increase Employee Productivity

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Abstract

This study aims to analyze how the implementation of a mobile-based management information system (MIS) can improve employee productivity in organizations. The rapid development of information technology encourages organizations to adapt to work systems that are more flexible, efficient, and responsive to operational needs. Mobile-based MIS enables real-time data access, faster communication between employees, and a more efficient reporting process compared to conventional methods. This study uses a qualitative descriptive approach with a case study of a service company in Indonesia that has implemented a mobile-based MIS for more than a year. The results show that this system not only facilitates coordination between units but also supports faster and more accurate decision-making, thereby improving employee performance. In addition, mobile-based MIS helps organizations optimize workflows, reduce human error, and improve overall operational effectiveness. These findings confirm that the use of mobile-based information technology has a positive contribution to organizational productivity and success in the digital era.

Keywords: *Management Information System; Mobile System; Productivity*

Abstrak: Penelitian ini bertujuan untuk menganalisis bagaimana implementasi sistem informasi manajemen berbasis seluler (MIS) dapat meningkatkan produktivitas karyawan dalam organisasi. Pesatnya perkembangan teknologi informasi mendorong organisasi untuk mengadopsi sistem kerja yang lebih fleksibel, efisien, dan responsif. MIS berbasis seluler memungkinkan akses data real-time, komunikasi yang lebih cepat di antara karyawan, dan proses pelaporan yang lebih efisien dibandingkan dengan metode konvensional. Penelitian ini menggunakan pendekatan deskriptif kualitatif dengan studi kasus yang dilakukan di perusahaan jasa di Indonesia yang telah menerapkan MIS berbasis seluler selama lebih dari setahun. Temuan ini menunjukkan bahwa sistem ini tidak hanya memfasilitasi koordinasi antar unit tetapi juga mendukung pengambilan keputusan yang lebih cepat dan lebih akurat, sehingga meningkatkan kinerja karyawan. Selain itu, MIS berbasis seluler membantu organisasi mengoptimalkan alur kerja, mengurangi kesalahan manusia, dan meningkatkan efektivitas operasional secara keseluruhan. Hasil ini menegaskan bahwa memanfaatkan teknologi informasi berbasis seluler berkontribusi positif terhadap produktivitas dan keberhasilan organisasi di era digital.

Kata kunci: *Sistem Informasi Manajemen; Sistem Seluler; Produktivitas*



INTRODUCTION

Development technology information happen very rapidly along walking time , which is visible from emergence various previous innovations considered impossible . In the past , humans Not yet know device communication distance Far like a cell phone. Communication done in a way direct or through letter , which requires long time to convey information . However moment this , the cellphone has become part not inseparable from life human . Device This No only make it easier communication distance far , but also makes it easier various activity everyday , starting from arrangement schedule , transactions finance , up to access information in a way instant . Change This show How technology can remodel pattern life human beings and improve efficiency in life daily. (Linz et al., 2024)

Utilization technology continuous information develop bring impact positive especially in the world of work and business . One of them innovations that are on the rise is cloud computing. Cloud computing is form modern computing that relies on internet network for provide various service , start from device software , development platforms , up to infrastructure technology . Advantages main of cloud computing is its flexibility ; scale usage can customized in a way dynamic in accordance need users . With existence service this , user No need Again provide or manage source Power in a way independent , because everything has provided by the provider cloud services . This is No only save costs , but also reduces complexity in management technology for company and individual.(Ahmadi et al., 2022)

More far , cloud computing is becoming component important in development system information management (SIM). System information management is combination between people , technology , and procedures designed work For processing , storing , analyzing , and disseminating information in order to achieve objective certain . With support technology modern information , SIM does not only capable produce information in a way more fast and accurate , but also can help manager in take strategic decisions . System This support management For monitor performance , planning strategy, and organizing source Power organization in a way more effective . Utilization of SIM based technology information in the end contribute direct to improvement performance organization , good in scope company private and agency government. (Safdari et al., 2022)

In context agency governance , implementation technology very helpful information increase effectiveness and efficiency Work employee . Previous tasks done manually , such as recording data, archiving documents and reporting now can completed with help digital system . This is No only speed up the work process , but also minimize possibility occurrence error humans . In addition , the system integrated information enable data and information can accessible with easily by the parties who need it , so that communication and coordination inter-unit become more smooth . Efficiency This become key

for organization For give service more public good and responsive (Ahmadi et al., 2022) .

Development technology information also encourages creation innovation in taking decision . With accurate and real-time data support , manager can make decision based on concrete facts , not only assumptions or experience just . For example , analysis of data provided by the system information can show trend operational , performance employees , up to preference customers , so a strategy is designed become more appropriate target . More far , technology This allows organization For adapt with fast to change environment , good That market changes , regulations , and need public (Safdari et al., 2022).

In addition , technology information influence culture Work in organization . Previous work need long time and effort big now can completed more fast , possible employee For focus on more important tasks strategic . Integration of digital systems in channel work also encourages transparency , because all data and activities recorded with clear and can accountable . With Thus , technology information No only become tool help , but also become driver transformation culture organization going to more work professional , measurable , and responsible answer(Gong et al., 2020) .

In a way overall , development technology information has change Lots aspect life humans , starting from communication daily until operational organization . Utilization technology such as cloud computing and systems information management digital- based providing benefit real in increase efficiency , effectiveness , and quality taking decision . For agencies government and company private sector , implementation technology This No Again choice , but rather need For still relevant and competitive in the modern era. With support technology , complex work can simplified information process can accelerated , and quality service and performance organization can Keep going improved in a way sustainable(Deniz-Garcia et al., 2023) .

METHOD

This research method uses a qualitative approach and literature review, beginning with the formulation of a clear and focused research problem. This approach was chosen because it is able to describe in depth how the implementation of a mobile-based Management Information System (MIS) affects employee productivity in a corporate environment. Data collection was conducted through searching various information sources available in libraries, both physical and digital, such as journals, scientific articles, and research reports related to information technology and human resource management. Qualitative research on mobile-based MIS aims to explore in depth how the technology is used, the factors that influence its success, and its impact on improving employee efficiency and performance. The research

process concludes with the preparation of a bibliography that lists all sources used, in accordance with applicable academic writing standards.

The data collection technique in this study used a literature study method. The literature study was conducted by searching for, collecting, and reviewing various relevant academic sources regarding the implementation of mobile-based Management Information Systems. The information sources used included books, scientific journals, research articles, conference proceedings, and official publications from government agencies and professional organizations that discuss the development of information technology in the workplace. This technique aims to obtain comprehensive information regarding the concept of mobile-based MIS, its benefits for productivity, and empirical findings from previous research. Through the literature study, researchers can understand various aspects that influence the effectiveness of mobile systems, such as ease of access, work flexibility, data integration, and reporting speed, thus supporting an in-depth analysis of the relationship between mobile technology and increased employee productivity. (Sobirin et al., 2025)

RESULTS AND DISCUSSION

Implementation of Mobile-Based Management Information System

The implementation of mobile-based Management Information Systems (MIS) has become one of the most significant digital transformations in the modern workplace, particularly in service companies that demand speed, accuracy, and flexibility in managing operational data. This research shows that the implementation of mobile applications as part of an information system has significantly impacted administrative efficiency, internal coordination, and the quality of company services. Mobile-based MIS not only serves as an administrative tool but also serves as a foundation for the decision-making process by providing accurate and easily accessible real-time data. (Picek & Androcec, 2022)

The implementation phase of this system begins with the integration of the mobile application with the company's database, which was previously set up using a cloud computing system. This integration is crucial because the cloud's capabilities allow for the storage of large amounts of data without physical boundaries and provide synchronous data access across all work units. Through this system, management can monitor operational activities at any time, while employees can input data directly through their mobile devices. The use of the cloud in mobile SIM also enables automated backup processes, reducing the risk of data loss and strengthening the company's information security. In line with Ginting's (2018) opinion, cloud computing provides superior resource efficiency and data processing speed compared to conventional on-premises systems.

In terms of functionality, mobile-based MIS applications generally have several core features, such as digital attendance with geolocation, task management, daily performance reporting, and automatic notification-based internal communication. The geolocation-based attendance feature, for example, provides significant benefits in ensuring the authenticity of employee attendance and supporting transparency in administration. Employees no longer need to be physically present at manual attendance points, as the system can automatically verify location and time. This is particularly relevant for companies with field staff or teams working in multiple locations. (Ellström et al., 2022)

The task management feature helps superiors provide direct instructions to employees, monitor work progress, and systematically evaluate results. Each assigned task can be accompanied by a deadline, priority, and required file attachments. Automatic tracking minimizes the potential for miscommunication and makes the work process more focused. Daily performance reporting via a mobile app also offers significant benefits. Employees can upload work results, activity reports, or photo documentation directly into the system. This data is then processed into automatic reports that can be viewed by management without having to wait for weekly or monthly recaps. Of course speed up the evaluation process and help company take decision in a way fast (Van Veldhoven & Vanthienen, 2022).

Besides the benefits administratively, internal communication via mobile SIM has also increased in a way significant. Application own system notification automatic which can inform meeting schedule, deadline time tasks, changes policy, up to announcement important. This way, all company personnel stay connected on a single, integrated platform. These automatic notifications replace manual communication methods like WhatsApp messages or written announcements, which are often missed. This feature also strengthens coordination between divisions, resulting in more synchronized workflows (Zhang et al., 2023).

The implementation of mobile MIS also brings about positive changes in company work culture, particularly in the context of flexibility. In the increasingly popular era of hybrid work, the need to work remotely is increasing. Mobile applications allow employees to continue fulfilling their responsibilities even when they are away from the work location, such as taking attendance, submitting reports, or communicating with the team. This supports increased productivity because employees are no longer tied to a physical space to perform their work. In line with Laudon's (2018) opinion, modern technology-based management information systems can improve work efficiency by providing fast, accurate, and reliable data access at any time (Mohamed Hashim et al., 2022).

In addition, the implementation of mobile SIM also increases data accuracy. The previous administrative process done manually like filling

forms, records presence, or manufacturing report often vulnerable error consequence negligence human. With digitalization, human error can be minimized because the data is entered in a way automatic based on system parameters like time, location, and format of the file that has been determined. Use system automatically also makes the data more easy validated and processed become information important for company. Management can see chart presence, activity daily employees, or statistics productivity in interactive dashboard form (Nadkarni & Prügl, 2021).

Efficiency time is also one of the impact the biggest from implementation of mobile-based SIM. Employees and management No Again need use up Lots time For do manual recording, checking file physical, or request report in a way Repetitive. All of these activities can be done with just a few clicks on a mobile device. This speeds up workflow and significantly increases productivity.

The implementation of mobile-based MIS also improves company management's decision-making capabilities. With real-time data available at any time, companies can conduct faster and more responsive analyses of operational conditions. Information such as employee absences, project progress, or field problem reports can be directly viewed by management and used as a basis for strategic decision-making. This system helps companies avoid delays in corrective action and accelerate the achievement of operational goals (Holmström, 2022).

In terms of information security, cloud-based mobile SIMs are equipped with data encryption, a multi-layered authorization system, and an audit trail feature. This ensures that every transaction and user activity is neatly recorded, simplifying monitoring and enhancing security. Companies can set access rights to ensure that only certain parties can view or edit specific data. With this security protection, the risk of data breaches can be minimized.

Impact on Employee Productivity

The use of mobile-based Management Information Systems has a significant impact on increasing employee productivity in modern companies operating in the service sector. Research findings from interviews, field observations, and administrative data analysis indicate that the presence of mobile applications integrated with company management systems can transform employee workflows, accelerate operational flows, and improve the quality of management decisions. Employee productivity has increased because various application functions help speed up, simplify, and streamline work steps that previously had to be performed manually. (Montero Guerra et al., 2023)

One of the most obvious impacts is work time efficiency. Before this system was implemented, employees had to manually check in using attendance registers or fingerprint machines, often resulting in long morning

queues. This situation not only reduced effective work time but also led to inaccurate attendance data due to technical glitches or attendance manipulation. With the geolocation-based mobile attendance feature, employees can check in from their work locations with automatic validation using a GPS system. This process not only reduces the risk of data manipulation but also speeds up the administrative process, allowing employees to start work more quickly. This time efficiency directly increases productivity because employees are no longer hampered by slow administrative procedures. (Kraus et al., 2021)

In addition, the mobile system allows compilation report performance in a way automatic and integrated. The previous report must typed manually now can made with only input activity data daily to in application. System Then in a way automatic compile report in a more format neat, easy monitored, and ready checked by the supervisor or manager. This is speed up the evaluation process performance, minimizing error man in compilation reports, and provide a clearer picture accurate about achievements Work employees. Abilities system For presenting data in real time also helps management take more decisions faster and more appropriate based on incoming data every day (AlNuaimi et al., 2022).

Communication and coordination have also seen significant improvements. Through the app's internal messaging feature, employees can communicate directly with superiors and coworkers, regardless of distance or location. Automatic notifications sent by the system ensure work instructions are delivered accurately and without delay. This effective communication accelerates task completion, as all necessary information can be readily accessed. This reduces the risk of miscommunication, which often occurred when communication relied solely on personal messages or informal conversations. With a structured digital communication system, the flow of coordination is clearer, more controlled, and more seamless. (Plekhanov et al., 2023)

The implementation of a mobile system also has a positive impact on employee motivation. A modern and transparent system provides more objective assessments. Every activity, performance achievement, attendance level, and completed task are automatically recorded, providing a clear picture of each individual's contribution. Employees feel more valued because every effort they make is visible in the system and can be evaluated fairly. This data transparency motivates them to perform better and increases their commitment to their work. Furthermore, a system that provides performance-based rewards clearly encourages positive competition in the workplace. Employees compete to achieve the best results to receive optimal assessments, thereby increasing overall company productivity.

Another significant impact is the emergence of a more flexible and adaptive work culture to technological developments. Mobile systems give

employees the freedom to access information anytime and anywhere. This flexible work model is highly relevant to the demands of the modern workplace, which does not always rely on physical presence. With application support, field employees can submit work reports from their assigned locations, follow their superiors' instructions, and coordinate without having to return to the office. This increases time efficiency and expands the company's operational capabilities. This flexibility enables companies to maintain productivity despite changing external conditions, such as mobility restrictions or remote work policies. Mobile systems also reduce reliance on conventional work infrastructure, making it easier for companies to adapt to the dynamics of the business environment.

In addition to impacting employees, this system also improves management's supervisory and monitoring capabilities. Through the application's dashboard, superiors can directly view employee work progress, evaluate daily output, and identify potential obstacles in the field. This helps management provide timely guidance to prevent operational issues from protracted. Effective supervision also increases productivity because employees consistently receive relevant feedback, which can then be used to improve their work methods. Thus, the mobile system not only improves individual performance but also enhances the overall quality of company management. (Ellström et al., 2022)

The findings of this study align with those of O'Brien and Marakas (2015), who stated that implementing a management information system can increase a company's operational efficiency by up to 30 percent. This efficiency arises because the information system can accelerate data flow, improve information accuracy, and simplify work processes. In this context, mobile systems encourage deeper digital transformation due to their flexibility, adaptability, and accessibility. Furthermore, mobile systems contribute to improved work quality by integrating various administrative functions within a single application. (Chwiłkowska-Kubala et al., 2023)

In the long term, the implementation of mobile-based MIS also has a strategic impact on the company. This system not only impacts operational aspects but also strengthens a more modern, effective, and data-driven organizational culture. Employees become accustomed to using technology to support their work, while management gains access to accurate information for strategic decision-making. This combination creates a more professional and competitive work environment. Overall, the implementation of mobile MIS has been proven to increase employee productivity in terms of time efficiency, communication effectiveness, report quality, work motivation, and operational flexibility.

Theoretical Analysis

Theoretically, based on McLeod's (2001) theory, mobile-based MIS is an integrated system that combines humans, technology, and work procedures to produce relevant information for decision-making. Therefore, the analysis of the implementation of mobile-based MIS can be conducted through various management and information technology perspectives. In this situation, mobile systems serve as the primary means of realizing the integration between information technology and human resources. Mobile applications enable the process of storing, analyzing, and disseminating data quickly and precisely (Feliciano-Cestero et al., 2023).

Furthermore, there is relevance to Davis's (2010) notion of a system consisting of humans and machines. SIM-based cars illustrate the symbiotic relationship between humans and machines: technology helps humans perform better, and humans regulate the use of technology according to the company's needs. From a productivity theory perspective, this system fulfills the elements of efficiency and effectiveness described by the concept of Total Productivity Management (TPM), namely the ability of an organization to maximize output with minimal input. Mobile systems help employees complete tasks faster and with lower error rates, increasing overall organizational productivity. (Kolzow et al., 2021)

Supporting Factors and Obstacles

Management Support and Technology Infrastructure: The availability of digital infrastructure such as a stable internet network and smartphones, as well as the commitment of company leaders to adopt new technologies, are important factors in successful implementation. (Nasution, 2024) **Human Resource Readiness:** Employees have basic skills in using mobile devices, so they can adapt to the new system relatively quickly. The company also provides internal training to employees, which improves their understanding of application usage. **Cloud Computing Support:** Cloud technology facilitates data storage, security, and real-time updates without the need for significant hardware. **The Need for Work Flexibility:** Modern work systems demand high flexibility. Mobile-based systems meet this need by providing the ability to work from anywhere. (Godin & Terekhova, 2022)

Technical and Connectivity Issues Sometimes, internet network issues or server errors cause delays when entering data. **Resistance to Change:** Some employees who are used to manual systems have difficulty adapting and do not accept the new system because they consider it complicated. **Data Security:** Although cloud computing is very efficient, data security remains a major issue, especially when it comes to protecting sensitive company data. **Implementation and Maintenance Costs.** Implementing a mobile-based MIS requires an initial investment for application development, human resource training, and regular system maintenance. (Muhammad Bara Aksayeth & RR, 2025).

CONCLUSIONS

Managing data privacy in IoT-based management information systems is a significant challenge that requires a comprehensive and adaptive approach. This article demonstrates that an effective management strategy must involve a combination of security technologies such as encryption, authentication, and anonymization with robust data governance policies. User education and increased digital awareness are also key factors in maintaining privacy. Therefore, organizations in the digital era need to adopt a privacy strategy that is sustainable and responsive to evolving cyber threats. Future research is expected to develop a strategic implementation model based on real-world case studies, so that these recommendations can be effectively applied in various industry contexts.

REFERENCES

- Ahmadi, M., Shahrokhi, S. N., Khavaninzadeh, M., & Alipour, J. (2022). Development Of A Mobile-Based Self-Care Application For Patients With Breast Cancer-Related Lymphedema In Iran. *Applied Clinical Informatics*, 13(5). <https://doi.org/10.1055/S-0042-1757295>
- Alnuaimi, B. K., Kumar Singh, S., Ren, S., Budhwar, P., & Vorobyev, D. (2022). Mastering Digital Transformation: The Nexus Between Leadership, Agility, And Digital Strategy. *Journal Of Business Research*, 145. <https://doi.org/10.1016/J.Jbusres.2022.03.038>
- Chwiłkowska-Kubala, A., Cyfert, S., Malewska, K., Mierzejewska, K., & Szumowski, W. (2023). The Impact Of Resources On Digital Transformation In Energy Sector Companies. The Role Of Readiness For Digital Transformation. *Technology In Society*, 74. <https://doi.org/10.1016/J.Techsoc.2023.102315>
- Deniz-Garcia, A., Fabelo, H., Rodriguez-Almeida, A. J., Zamora-Zamorano, G., Castro-Fernandez, M., Del Pino Alberiche Ruano, M., Solvoll, T., Granja, C., Schopf, T. R., Callico, G. M., Soguero-Ruiz, C., & Wägner, A. M. (2023). Quality, Usability, And Effectiveness Of Mhealth Apps And The Role Of Artificial Intelligence: Current Scenario And Challenges. *Journal Of Medical Internet Research*, 25. <https://doi.org/10.2196/44030>
- Ellström, D., Holtström, J., Berg, E., & Josefsson, C. (2022). Dynamic Capabilities For Digital Transformation. *Journal Of Strategy And Management*, 15(2). <https://doi.org/10.1108/Jsma-04-2021-0089>
- Feliciano-Cestero, M. M., Ameen, N., Kotabe, M., Paul, J., & Signoret, M. (2023). Is Digital Transformation Threatened? A Systematic Literature Review Of The Factors Influencing Firms' Digital Transformation And Internationalization. *Journal Of Business Research*, 157. <https://doi.org/10.1016/J.Jbusres.2022.113546>
- Godin, V. V., & Terekhova, A. E. (2022). Research On Business Models Evolution And Strategies Of Digital Companies. *Lecture Notes In Networks And Systems*, 398 Lnnns. https://doi.org/10.1007/978-3-030-94870-2_2
- Gong, E., Baptista, S., Russell, A., Scuffham, P., Riddell, M., Speight, J., Bird, D., Williams, E., Lotfaliany, M., & Oldenburg, B. (2020). My Diabetes Coach, A Mobile App-Based Interactive Conversational Agent To Support Type 2 Diabetes Self-Management: Randomized Effectiveness-Implementation

- Trial. *Journal Of Medical Internet Research*, 22(11).
<https://doi.org/10.2196/20322>
- Holmström, J. (2022). From Ai To Digital Transformation: The Ai Readiness Framework. *Business Horizons*, 65(3).
<https://doi.org/10.1016/j.bushor.2021.03.006>
- Kolzow, D. R., Smith, C. C. C., Serrat, O., Dilie, H. M., Zeeshan, S., Ng, S. I., Ho, J. A., Jantan, A. H., Massey, J., Sulak, T., Sriram, R., Dennis, R. S., Bocarnea, M., Hai, T. N., Van, Q. N., Herbert, S. L., So-Jung Kim, Kyoung-Seok Kim, Y.-G. C., Guillaume, Dr. O., Honeycutt, Dr. A., ... Ingram, O. C. Jr. (2021). Unit 5 Theories Of Leadership. *International Journal Of Organizational Leadership*, 1(1).
- Kraus, S., Jones, P., Kailer, N., Weinmann, A., Chaparro-Banegas, N., & Roig-Tierno, N. (2021). Digital Transformation: An Overview Of The Current State Of The Art Of Research. *Sage Open*, 11(3).
<https://doi.org/10.1177/21582440211047576>
- Linz, D., Gawalko, M., Betz, K., Hendriks, J. M., Lip, G. Y. H., Vinter, N., Guo, Y., & Johnsen, S. (2024). Atrial Fibrillation: Epidemiology, Screening And Digital Health. In *The Lancet Regional Health - Europe* (Vol. 37).
<https://doi.org/10.1016/j.lanepe.2023.100786>
- Mohamed Hashim, M. A., Tlemsani, I., & Duncan Matthews, R. (2022). A Sustainable University: Digital Transformation And Beyond. *Education And Information Technologies*, 27. <https://doi.org/10.1007/S10639-022-10968-Y>
- Montero Guerra, J. M., Danvila-Del-Valle, I., & Méndez Suárez, M. (2023). The Impact Of Digital Transformation On Talent Management. *Technological Forecasting And Social Change*, 188.
<https://doi.org/10.1016/j.techfore.2022.122291>
- Nadkarni, S., & Prügl, R. (2021). Digital Transformation: A Review, Synthesis And Opportunities For Future Research. *Management Review Quarterly*, 71(2). <https://doi.org/10.1007/S11301-020-00185-7>
- Picek, R., & Androcec, D. (2022). Impact Of Digital Transformation Technologies On Erp Systems. In *Economic And Social Development: Book Of Proceedings*.
- Plekhanov, D., Franke, H., & Netland, T. H. (2023). Digital Transformation: A Review And Research Agenda. *European Management Journal*, 41(6).
<https://doi.org/10.1016/j.emj.2022.09.007>
- Safdari, R., Seyedalinaghi, S. A., Mohammadzadeh, N., Noori, T., Rahmati, P., Qaderi, K., Voltarelli, F., & Mehraeen, E. (2022). Developing Aysoo: A Mobile-Based Self-Management Application For People Living With Hiv. *Hiv And Aids Review*, 21(1). <https://doi.org/10.5114/Hivar.2022.113389>
- Van Veldhoven, Z., & Vanthienen, J. (2022). Digital Transformation As An Interaction-Driven Perspective Between Business, Society, And Technology. *Electronic Markets*, 32(2).
<https://doi.org/10.1007/S12525-021-00464-5>
- Zhang, X., Xu, Y. Y., & Ma, L. (2023). Information Technology Investment And Digital Transformation: The Roles Of Digital Transformation Strategy And Top Management. *Business Process Management Journal*, 29(2).
<https://doi.org/10.1108/Bpmj-06-2022-0254>