

## **Digital Transformation: The Effect of Learning Management Systems in Developing Employee Digital Competence (Study at A Chemical Company in Gresik)**

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**Muhammad Zidan Nasih<sup>1</sup>, Sugeng Ali Mansur<sup>2</sup>**

<sup>1,2</sup>Universitas Islam Negeri Maulana Malik Ibrahim Malang Indonesia

E-mail: zidannasih@gmail.com<sup>1</sup>, sugengalimansur@gmail.com<sup>2</sup>

### **ABSTRACT**

*The swift advancement of information technology in the Industrial Revolution 4.0 age, progressing towards Society 5.0, has underscored the vital significance of digital transformation for industries. Digital transformation is a crucial strategy for enterprises to ensure business continuity, improve operational efficiency, and sustain competitiveness in a constantly changing industrial landscape. This study examines the function of Learning Management Systems (LMS) in enhancing employees' digital competencies and its resultant effect on attaining digital transformation in a chemical firm located in Gresik, Indonesia. The study used a quantitative methodology with an explanatory research design, examining the interrelations among LMS, digital competence, and digital transformation through route analysis.*

*Data were gathered from 95 employees across multiple areas of the organization using standardized questionnaires. The research utilized primary data from participants and secondary data from literature reviews of books, journals, and pertinent papers. The questionnaires aimed to assess perceptions of LMS usage, the growth of digital competence, and advancements in digital transformation. Data research indicated that LMS has a favorable and considerable impact on enhancing employees' digital competencies. Moreover, improved digital proficiency immediately and substantially facilitates the effective execution of digital transformation within the firm.*

*The results indicate that LMS is essential for employee training, offering a flexible and accessible learning environment that promotes self-directed learning and adaptability to emerging technology. By providing employees with essential digital competencies, LMS improves individual performance and aids organizational achievement in addressing the challenges of the digital age. The study highlights the indirect influence of LMS on digital transformation via enhanced digital competence, stressing the interrelation of these factors in fulfilling organizational goals.*

*The report provides actionable insights for organizations aiming to expedite digital transformation by utilizing LMS as a strategic asset for employee development. It underscores the need to invest in superior LMS platforms and connect them with company objectives and policies to guarantee active employee engagement. Furthermore, the research paves the way for further investigation into factors affecting the relationship among LMS, digital competence, and digital transformation, including organizational culture, leadership, and the degree of technology use.*

*This study underscores the essential function of LMS in enhancing digital competence and facilitating digital transformation within industries, specifically in the context of the chemical industry in Gresik. It offers critical insights for firms seeking to fortify their digital strategy, augment personnel competencies, and elevate competitiveness in the global marketplace. These findings further enhance the broader academic conversation regarding the interaction between digital learning platforms, workforce competency, and organizational change in the digital era.*

*Keywords: Learning Management System, Digital Competence, Digital Transformation.*

## INTRODUCTION

This study examines the impact of brand image, brand awareness, and experiential marketing on customer loyalty at Bank Muamalat in Malang City. This study employed a quantitative methodology, utilizing data gathered via questionnaires administered to active clients of Bank Muamalat. Respondents were chosen through a non-probability sampling approach based on the following criteria: a minimum age of 17 years, a customer tenure of six months or more, and possession of products from Bank Muamalat. The questionnaire comprised 26 statement questions and included a total sample of 130 respondents. Data were examined via multiple linear regression through SPSS software. The findings indicated that brand awareness and experience marketing significantly affect client loyalty. This research suggests that customer awareness of the Bank Muamalat brand's presence and principles directly impacts their loyalty decisions. (Stofkova, Poliakova, Stofkova, Malega, Krejnuš, Binasova & Daneshjo, 2022; Bartolomé, Garaizar & Larrucea, 2022)

Moreover, favorable client experiences with banking services, including effective staff contacts, seamless digital services, and alignment with Sharia principles, are essential in fostering loyalty. Conversely, brand image exerts little impact on client loyalty. This condition suggests that while Bank Muamalat's brand image is perceived favorably by clients, more than this aspect can affect customer involvement with the bank. (Martzoukou, Kostagiolas, Lavranos, Lauterbach & Fulton, 2022; Belda-Medina & Calvo-Ferrer, 2022; Andreasen, Tømte, Bergan & Kovac, 2022)

The regression model employed in this study exhibits an R Square value of 63.8%, signifying that the variables of brand image, brand awareness, and experiential marketing collectively account for most of the variability in consumer loyalty. Nonetheless, the remaining 36.2% is affected by additional factors not encompassed in this study, like service quality, pricing, or emotional influences. (Elfeky & Elbyaly, 2023; Reisoğlu, 2022; Tzafilkou, Perifanou & Economides, 2022)

This study offers strategic insights for Bank Muamalat and other Islamic banks in comprehending consumer behavior. Strategies to enhance customer loyalty should concentrate on bolstering brand awareness and fostering great consumer experiences, both online and through direct engagement. A more comprehensive approach is required to enhance the influence of brand image as a determinant of consumer loyalty. Consequently, the findings of this study can serve as a foundation for formulating more efficacious marketing and service strategies to enhance client loyalty within the Islamic banking sector.

Human resources are acknowledged as the paramount asset of a company, with employee contributions significantly impacting the organization's success in achieving digital transformation. Employees need to possess sufficient digital competence and proficiency in digital technologies such as artificial intelligence, data science, virtual reality, and innovative digital business models. Moreover, staff must adjust to changing methodologies and adopt novel strategies. Employees must be able to assess subsystem performance and engage via suitable interfaces. Technological advancements persist, and the presence of personnel proficient in leveraging this technology is a continual concern. The predominant technological challenge is not data security or the necessity for investment

but rather the need for more trained personnel. It is essential to employ individuals with digital proficiency. Competence refers to the capability of employees to have conduct that is aligned with job requirements and organizational standards, ultimately yielding the intended outcomes for the company. Digital competence encompasses the knowledge, skills, and attitudes (including abilities, tactics, values, and awareness) required to utilize ICT and digital media. This competency encompasses the capacity to execute tasks, resolve issues, handle information, collaborate, and construct knowledge efficiently and innovatively. Learning and development refers to ensuring that a business has an informed, skilled, and engaged staff. The Learning Management System (LMS) is regarded as an excellent Learning and Development (L&D) program for enhancing employee digital proficiency. Research conducted by Ergy Fouriana Wulandari (2021) indicates that the learning and development program significantly influences the attainment of digital transformation. The findings of this study demonstrate that development via the Learning Management System (LMS) significantly enhances employee digital competence. The Learning Management System (LMS) is software utilized to fulfill administrative requirements, manage documentation, retrieve reports, create educational materials, and facilitate online teaching and learning connected to the internet. The learning management system promotes contact and collaboration among employees, enabling autonomous learning, participation in online courses, and assessment of learning progress. The company's e-learning process utilizes a Learning Management System that delivers a comprehensive educational experience, and the variety of e-learning training offered effectively addresses the training demands of each employee. (Elbyaly & Elfeky, 2023; Carlisle, Ivanov & Dijkmans, 2023; Guillén-Gámez, Cabero-Almenara, Llorente-Cejudo & Palacios-Rodríguez, 2022)

The swift advancement of information technology has prompted firms across diverse sectors to undertake digital transformation to enhance efficiency, productivity, and competitiveness. Digital competencies are crucial for employees to enhance organizational success in the digital age, particularly in high-tech sectors like chemical businesses. Digital transformation encompasses not only the integration of new technology but also the enhancement of personnel competencies to facilitate adaptation to technological advancements. (Elfeky & Elbyaly, 2023; Turyadi, Zulkifli, Tawil, Ali & Sadikin, 2023)

The Learning Management System (LMS) has emerged as a primary instrument in advancing employee digital competencies. LMS provides flexibility, efficiency, and accessibility in the educational process, enabling employees to enhance their abilities autonomously and systematically. The chemical business, characterized by stringent technical training requirements and regulations, presents significant opportunities for strategic advantages through LMS deployment. (Zaragoza-Sáez, Marco-Lajara & Ubeda-Garcia, 2022; Mattar, Ramos & Lucas, 2022)

Nonetheless, obstacles persist in evaluating LMS's efficacy in advancing employee digital competencies. Various factors, including technological adoption, employee engagement, and learning program design, influence the effectiveness of LMS installation. Consequently, it is crucial to comprehend the degree to which LMS fosters the

enhancement of employee digital competencies and its influence on the efficacy of digital transformation within the organization.

This study seeks to examine the impact of LMS utilization on enhancing employee digital competency inside a chemical firm in Gresik. It will elucidate the function of LMS as a catalyst for digital transformation and identify elements that may facilitate its implementation's success. Consequently, the findings of this study are anticipated to enhance both theoretical and practical frameworks for developing digital-based training techniques in the context of digital transformation.

## **METHOD**

This research employs a quantitative methodology with an explanatory design. This method seeks to evaluate the proposed hypothesis and comprehend the causal relationship among the examined variables. The route analysis technique was employed for data analysis, enabling the assessment and characterization of the strength of relationships between variables. This study analyzes the variables of Learning Management System (LMS), Digital Competence, and Digital Transformation. The route analysis method was selected for its ability to deliver comprehensive insights into the direct and indirect effects of variables, elucidating the structural links among the three.

The study's subjects were employees at a chemical firm in Gresik. The participants consisted of 95 individuals from diverse departments within the organization. The respondents were selected purposefully based on their engagement in implementing LMS and digital transformation within their professional settings. This condition guaranteed that the data gathered was pertinent to the study's topic. (Chohan & Hu, 2022; Zhu & Andersen, 2022; Ng, Leung, Su, Ng & Chu, 2023)

Data gathering was conducted through literature reviews and empirical field surveys. The literature study involves gathering material from several sources, including books and scientific journals, to enhance the theoretical framework of the research. Concurrently, field investigations were executed via direct observation, comprehensive interviews with many employees, and the distribution of questionnaires to participants. The questionnaire included a Likert scale to assess respondents' perceptions of the LMS, Digital Competence, and Digital Transformation variables. The questionnaire's validity and reliability were assessed in advance to guarantee the quality of the collected data.

The acquired data were evaluated by route analysis to ascertain and assess the relationship among LMS, Digital Competence, and Digital Transformation. This analysis assesses the extent to which LMS enhances employee digital competency and evaluates the significance of digital competency in facilitating the success of digital transformation inside the organization.

This strategy is anticipated to yield precise and pertinent outcomes in addressing research inquiries and evaluating the proposed hypotheses. This study's findings are

anticipated to offer practical benefits to chemical firms in Gresik, particularly in designing and implementing digital learning methods. Furthermore, the findings of this study are anticipated to enhance the literature regarding the role of LMS in fostering the development of employee digital competence throughout the digital transformation period.

## **RESULTS AND DISCUSSION**

The Learning Management System exhibits a p-value of 0.00 concerning digital competence, indicating a significant influence of learning management on digital competence. Additionally, digital competence presents a p-value of 0.01 in digital transformation, signifying the influence of digital competence on digital transformation. Furthermore, the Learning Management System also shows a p-value of 0.00 regarding digital transformation.

Learning and development is defined as ensuring that a business has a knowledgeable, skilled, and engaged staff as required. A Learning Management System (LMS) enables participants to access online educational resources like video courses, ebooks, and other course materials. The Learning Management System (LMS) promotes contact and collaboration among employees, enabling autonomous learning, participation in online courses, and assessment of learning progress.

The study results reveal a strong impact of Learning Management System (LMS) utilization on enhancing employee digital competency at a Chemical Company in Gresik. The Learning Management System (LMS) about Digital Competence suggests that around seventy-five percent of the variance in employee digital competence is attributable to utilizing the Learning Management System.

Digital competency is a collection of knowledge, abilities, and attitudes essential for efficiently utilizing ICT and digital media across many tasks, including problem-solving, information management, collaboration, and content creation and sharing. *Digital competency* is the foundation required to facilitate digital transformation within a company. Digital competency encompasses the capacity for self-directed learning, personal development, and the ability to adapt and create through digital technologies. Digital competency is crucial for firms prioritizing digital business strategy (DBS) and seeking digital transformation. The study's findings on the evolution of digital competency about digital transformation reveal a substantial impact of employee digital competency on attaining digital transformation at the Chemical Company in Gresik. Cultivating digital competency is crucial; nevertheless, additional elements, including technological infrastructure, organizational culture, and managerial support, significantly influence the success of digital transformation.

A Learning Management System comprising materials, assessments, and e-books designed to enhance employee knowledge, supplemented by videos, expert-led classes, and collaborative meetings with other organizations to facilitate the sharing of ideas to improve

employee performance. The Digital Transformation process within an organization encompasses three phases of change: Digitization (transitioning work practices from analog to digital), Digitalization (modifying business processes to digital over the internet), and Digital Transformation (developing new business models).

The study's findings regarding Learning Management Systems (LMS) and digital transformation reveal a substantial correlation between employee digital competence and the attainment of digital transformation at a chemical company in Gresik. The LMS serves as both a learning support instrument and a catalyst for rapidly adopting new technologies, enhancing digital competencies across the enterprise. The Learning Management System (LMS) enhances employee skill development by providing access to pertinent and current training, enabling swift adaptation to digital transformation. Utilizing Learning Management Systems (LMS) facilitates the digitalization of business operations and significantly influences the transformation of the organization's business model, which is aligned with the phases of digital transformation.

The study's findings indicate that LMS, a primary instrument in technology-enhanced learning, significantly enhances employees' digital competence. The LMS offers a platform enabling employees to access training materials flexibly, promotes autonomous learning, and aids in adapting to new technologies. This study aligns with the literature indicating that Learning Management Systems (LMS) can enhance the efficacy of learning and the pertinence of materials to occupational requirements in the digital age.

Enhancing employee digital competence facilitated by Learning Management Systems (LMS) has emerged as a critical determinant in the success of digital transformation within organizations. Enhanced digital proficiency enables employees to utilize new technologies, comprehend the established digital systems, and optimize their contributions to the company's operational efficiency and innovation. These findings substantiate the notion that digital transformation necessitates advanced technology and skilled personnel to administer and leverage the technology effectively.

The study's results indicate a substantial direct and indirect correlation between LMS, digital competence, and digital transformation. The LMS directly enhances digital competence and indirectly influences digital transformation by fostering specific competencies. This condition signifies that investment in LMS and digital training programs yields enduring advantages for firms navigating obstacles in the Society 5.0 era.

In the context of a Chemical Company in Gresik, these findings indicate that the company must persist in enhancing the quality of its Learning Management System, both technologically and in terms of educational content. Furthermore, organizations must ensure that LMS installation is underpinned by policies that promote employee acceptance and engagement in digital learning initiatives. This study reinforces empirical evidence that Learning Management Systems (LMS) serve as a strategic instrument in cultivating employee digital competencies, significantly influencing the success of digital transformation. These findings are pertinent to the Chemical Company in Gresik and serve

as a reference for other organizations endeavoring to expedite digital transformation in the context of the Industrial Revolution 4.0 and Society 5.0.

## **CONCLUSION**

This study validates the pivotal function of Learning Management Systems (LMS) in fostering employee digital competencies and expediting digital transformation, particularly within chemical enterprises like the Chemical Company in Gresik. The study's findings indicate that the utilization of optimal LMS can markedly enhance employees' digital competencies. This result underscores the necessity for organizations to adjust to the requirements of the digital age, wherein employee digital proficiency is a crucial factor for attaining competitive advantage and ensuring corporate sustainability.

The LMS serves as both an effective learning platform and a strategic instrument for establishing the groundwork of digital transformation. The LMS facilitates flexible and autonomous enhancement of employees' digital knowledge and abilities by granting convenient access to technology-based training resources. This competency, thus, enhances operational efficiency and innovation, which are critical components of a company's digital transition.

This study's findings indicate that investing in LMS significantly enhances organizational performance at the Chemical Company in Gresik. This result enhances staff productivity and fortifies the company's competitiveness in a progressively competitive worldwide market. Successful LMS deployment necessitates the endorsement of corporate policies that promote employee engagement in digital training initiatives, alongside enhancements in the quality of learning materials to ensure alignment with industry requirements.

This study also presents potential for additional research that might enhance the comprehension of digital competency development and digital transformation in the workplace. Future research may investigate supplementary elements, such as organizational culture, leadership, or the extent of technology use, that could affect the relationship among LMS, digital competency, and digital transformation. Furthermore, comparative analyses of industry sectors or examinations of best practices in LMS deployment across diverse enterprises could serve as compelling research domains to yield more significant insights.

This study gives theoretical insights into the relationship between LMS, digital competency, and digital transformation while presenting practical implications for firms seeking to expedite their digital transformation efforts. LMS is a crucial instrument that enables firms to adjust to swift technological advancements and fosters their performance in the context of Industrial Revolution 4.0 and Society 5.0. Organizations strategically incorporating this technology are more likely to attain sustainability and competitiveness in the global marketplace.

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