Integrating Technology: A Catalyst for The Advancement of Business Education Insights A Study Systematic Literature Review

Luthfi Nur Alifah[1,*], Sari Ayu Imaniyah[1], Ludi Wishnu Wardana[1]

[1]*Universitas Negeri Malang, Indonesia*
[*]*Corresponding author. Email: luthfi.nur.2404158@students.um.ac.id*

ABSTRACT
The goal of the systematic literature review (SLR) article on technology integration in enhancing business education insight is to discuss how technology shapes personal business insights and how new technology is used in business education and economic development. The Elsevier and Emerald Publishing databases are the sources of the library research technique used to write a systematic literature review (SLR) paper. SLR analysis uses the PRISMA method to find relevant articles according to the research objectives. The results of this study found that new technology helps individuals develop data analysis skills, business decision making, and the ability to adapt to today's business world. The implications of this study for business education curriculum to adapt to the demands of an increasingly digital business world.

Keywords: *Technology integration, business education insights, new technologies*

1. INTRODUCTION

Technological developments have become a catalyst for global business transformation in the current century (Slavhorodska, 2024). Technology is not only a determinant of business success, but also a driver for sustainability and acceleration of business growth (Ray et al., 2024). Many business actors and companies utilize technology to improve business efficiency and productivity (Sutrisno et al., 2023). Technology helps create business interaction models, increase business satisfaction for customers, and customer loyalty (Knox, 2022). Some innovative technologies to support business development, like big data, blockchain, artificial intelligence, and the Internet of Things (IoT) (Mariani & Dwivedi, 2024). This new technology is able to open up new thinking in finding and creating business opportunities.

The rapid growth of technology brings new challenges to the sustainability of the business world (Astuti et al., 2021). The acceleration of the rate of technological change often has an impact on the displacement of traditional industries and the potential to worsen socio-economic imbalances in society (Datta Khan et al., 2024). In addition, the nature of technology that continues to develop requires every individual with their skills to quickly adapt to new, innovative technologies (Setyowati et al., 2021). This is a major problem especially in Indonesia because most business actors who practice entrepreneurship are based on needs, not opportunity-based motivations. The rapid integration of technology is a difficulty for entrepreneurs around 3% of the population in Indonesia (Amalia & von Korflesch, 2021). With that, the business education system must also balance and equip each individual with technological competencies that are in accordance with current industry needs.

Several previous studies have tried to solve this problem by examining the role of technology in the teaching of commerce. The research "A Utilisation of Information Technology on Education in Indonesia (2017-2020)" by Wahyu Widodo et al. (2021) focuses on the policy evaluation sector, learning evaluation, and quality assurance in business education according to technological changes. The paper "Using Technology Acceptance Model to Investigate Digital Business Intention among Indonesian Students" was written by Wibowo et al. in 2024. According to this article, technology can help Indonesian students' self-efficacy and goals for digital entrepreneurship. Likewise, research from Hidayat & Yunus, (2019) on "The Entrepreneurship Learning in Industrial 4.0 Era (Case Study in Indonesian College)" with a focus on the study of digital literacy of business students in Indonesia.

Previous studies have focused more on changes in business education policies such as learning aids, awareness and behavior towards technological changes, use of technology in teaching, and focus on basic technologies such as e-learning and learning videos (Aldianto et al., 2018; Astuti et al., 2021). With that, the novelty offered in this study examines the role of technology as a catalyst for insight, not just a learning medium. This study also focuses on how technology can foster strategic insight, analytical thinking, and real-world understanding in business. Researchers also examine various current technologies as important variables that need to be studied to improve each individual's business competence.

Quality business education is one of the key factors in shaping a country's economic competitiveness at the global level. Business education must provide a solid foundation for each individual for the advancement and improvement of technological competence. Thus, the objectives of this study; (a) Identifying literature related to the integration of technology and business education insight; (b) how technology shapes business understanding; and (c) how emerging technologies like artificial intelligence (AI), blockchain, big data, and the Internet of Things (IoT) are used in developing nations like Indonesia. The results of this study can provide practical implications for the curriculum and teachers in the field of business education to design more innovative and applicable learning strategies, by utilizing new technologies.

2. RESEARCH METHODS

2.1. Research Design

In order to comprehend how technological integration contributes to a greater understanding of business education, this study used a systematic literature review (SLR). Findings from several studies that are pertinent to the study issue can be integrated with the use of a systematic literature review (SLR) (Madushanki et al., 2020). In a systematic literature review (SLR), the PRISMA approach is used to integrate pertinent findings. To fully comprehend the findings of recent research, the PRISMA technique will offer a systematic framework for finding, evaluating, and synthesising pertinent literature (Galletta et al., 2024). Furthermore, this research will establish the goals, make sure that the literature is always pertinent, use relevant material, synthesise and analyse the findings, and offer the discussion (Darman et al., 2024).

2.2. Data and Literature Search

Depending on the study subject, the first step that researchers do is to decide which features will be observed or examined. After that, the researcher will carry out an independent, pertinent literature evaluation on the study's features that will be observed or examined (Streimikiene et al., 2021). The most reliable and extensive databases, including Elsevier and Emerald Publishing, are used to gather pertinent material. The pertinent material listed below was gathered from extensive databases and includes the terms "technology integration," "catalyst for progress," and "business education insights." Relevant literature collected in English in the fields of digital technology, economics, business education, and management.

Table 1. Search strings in Elsevier and Emerald Publishing

Databeses	Keywords
Elsevier	TITLE-ABS-KEY “integrating technology” OR “catalyst for the advancement” AND “business education insights”
Emerald Publishing	((“integrating technology” OR “catalyst fot the advancement” AND “business education insights”))

2.3. Literature Screening Criteria

Researchers use inclusion and exclusion criteria in selecting literature that will be the source of the writing. Literature that meets the inclusion criteria is as follows, (1) literature related to digital technology, (2) literature related to the catalyst for the advancement of insight, (3) business education-related literature, and (4) English-language literature. Literature that does not fit the study topic is excluded, as is literature that is (1) from books, (2) not written

in English, (3) not accessible, and (4) not related to the research topic. Researchers will examine every piece of literature, beginning with the title, abstract, substance, and conclusion.

3. RESEARCH RESULT

3.1. Identifying Relevant Literature

Articles published between 2020 and April 2025 were gathered by researchers as pertinent material for the investigation. Twenty-three publications were found in the Emerald database and 97 in the Elsevier database. After identification, there were 82 journals that matched the research papers out of the 120 total that were searched throughout the two databases. In the inclusion procedure, the 82 papers were filtered according to four criteria, yielding 43 research articles. Only 24 of the 43 research articles will be left once they are reselected based on their titles and abstracts. In the last phase, 24 research papers will be chosen based on the title's pertinent research goals. There were twelve research papers in the selection results that were very pertinent to the goals of the researcher.

Table 2. Literature Identification through Elsevier and Emerald Publishing Databases

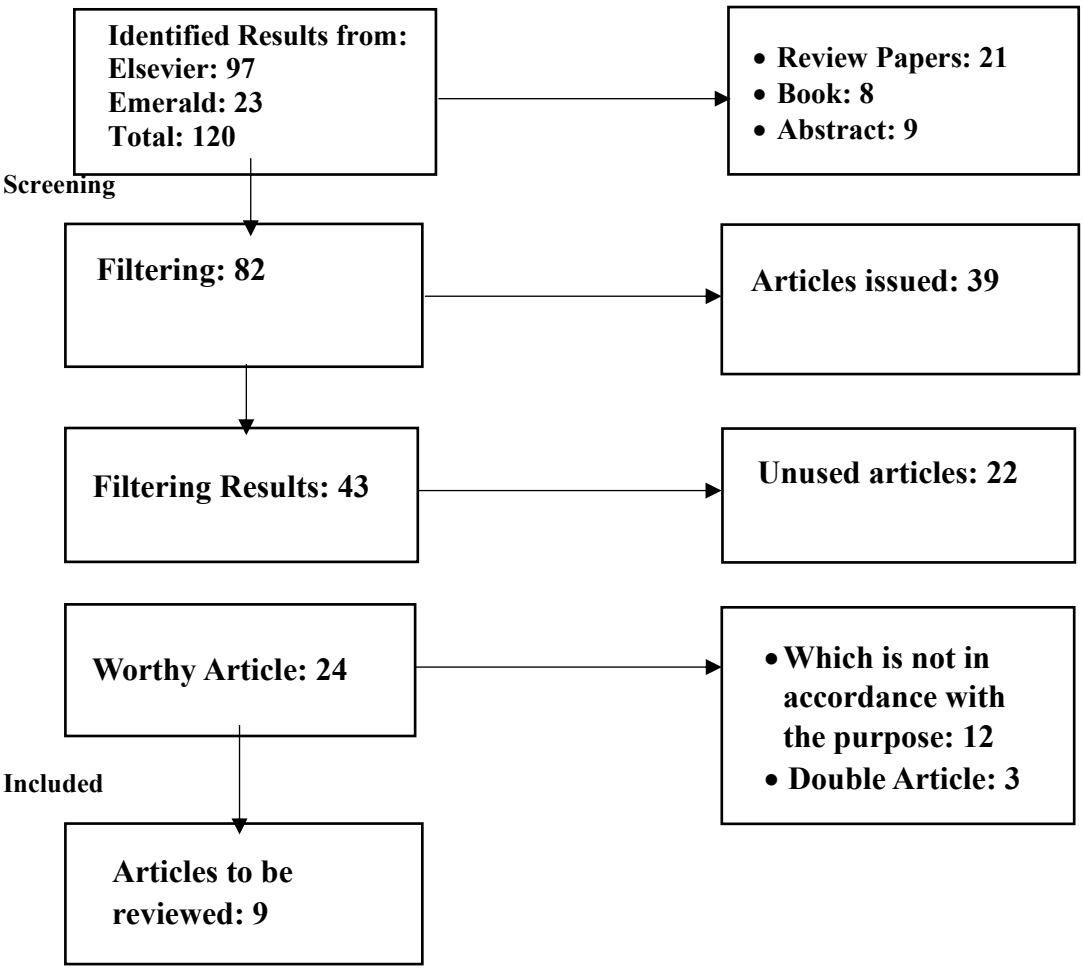

Table 3. Research Article Resume That Matches This Research

No.	Research	Findings
1	(Deepa et al., 2024)	AI technology is replacing many administrative tasks, such as automated recruitment, performance analysis, and data-driven employee training. With that, the required competencies must understand technologies such as machine learning, HR analytics, and automation systems.
2	(Miah et al., 2025)	Integration of AI and digital technologies (e.g., blockchain, big data analytics) into digital business curriculum. This integration can improve market analysis skills, business automation, transparency of business transactions and ease of data-driven decision making.
3	(Hanafizadeh & Alipour, 2024)	The findings show that current blockchain applications are more oriented towards improving operational (in particular, transparency, traceability, and process visibility) and behavioral (in particular, trust and commitment) improvements in business and management.
4	(Madushanki et al., 2020)	Internet of Things (IoT) in the business world includes smart stores, supply chains, and smart inventory. IoT is very useful for making business decisions. IoT is able to access, assess, and utilize digital information for business purposes.
5	(Visvizi et al., 2021)	Big data can encourage the development of various innovation results, can produce new value, and the emergence of new innovations.
6	(Lu, 2022)	Data as a key strategic asset because it can gather better market and customer information to improve decision making; gain efficiencies; provide an opportunity for all businesses to build big data into their product/service offerings, by giving real value to the data itself.
7	(Kaartemo & Nyström, 2021)	Utilization of technological developments, namely remote services, increased monitoring, sensor-based services, flexible work, increased sources of information, innovation opportunities, and easier business access.
8	(Al-Emran & Griffy-Brown, 2023)	The role of technology in improving business insight can be done through business experiments and simulations.
9	(Wigati, 2023)	Business education schools are significantly impacted by the fusion of information technology and business concepts. It facilitates individualised learning experiences, promotes data-driven decision-making, and increases administrative efficiency. Furthermore, it broadens the worldwide audience, encourages creative teaching methods, and makes industry collaborations easier, all of which help students succeed in a world that is becoming more digital and cutthroat.

3.2. Technology Integration and Insight Enhancement in Business Education

Nine articles that have been identified that are eligible and relevant to the study, two articles that explain the integration of technology and increasing insight into business education, namely (Miah et al., 2025) and (Wigati, 2023). Miah, et al. (2025) discuss the integration of AI and digital technologies such as blockchain and big data analysis in the digital business curriculum. The purpose of this integration is to improve market analysis skills, encourage business automation, transparency of business transactions, and data-based decision making. Meanwhile, Wigati (2023) said that the integration of technology and business principles has a major impact on business education,

namely data-based decision making, personalized lessons, innovative learning methods, and as an illustration for individuals to understand the world of business work today.

3.3. Technology in Forming Business Insights

Three articles out of nine that discuss the role of technology in improving business insight, namely (Al-Emran & Griffy-Brown, 2023), (Lu, 2022), (Kaartemo & Nyström, 2021). Al-Emran & Griffy-Brown, (2023) explain that technology can improve business insight through business experiments and simulations. Digital business experiments and simulations allow individuals to learn from experience without real risk, strengthen business insights that are in line with current developments, and are increasingly adaptive to the current business environment. Lu, (2022) explains that technologies such as big data greatly shape business insights for decision making, business efficiency, creating opportunities for businesses and building new value for businesses. Meanwhile, Kaartemo & Nyström, (2021) explain that digital technology can accelerate and facilitate business processes, and make business services more responsive to customer needs.

3.4. AI, Blockchain, Big Data, and Internet of Things (IoT) as Drivers of Business Education Progress

Of the 9 articles analyzed, 4 articles explain the use of AI, Blockchain, Big Data, and the Internet of Things (IoT) in business education, namely (Deepa et al., 2024), (Hanafizadeh & Alipour, 2024), (Madushanki et al., 2020), and (Visvizi et al., 2021). Deepa, et al. (2024) found that AI will replace administrative tasks such as automated recruitment, job analysis, and data-based employee training. This requires new competencies in technologies such as machine learning and HR analytics. With that, the business education curriculum needs to encourage students to master the AI skills needed in today's modern business world. Hanafizadeh & Alipour, (2024) explain the role of Blockchain in increasing transparency, traceability, and trust in business management processes. Blockchain knowledge is essential in business education for the security and transparency of digital transactions. Madushanki, et al (2020) found that Internet of Things (IoT) technology can help data-based decision making in supply chains and inventory. IoT competency is very important in business education about digital technology-based operational management. Meanwhile, Visvizi, et al (2021) explained that big data is a driver of innovation and added value for businesses through large-scale information analysis. Business education needs to equip individuals with data analysis skills as part of strategic and innovative learning.

4. DISCUSSION

The integration of technology in business education not only strengthens the learning process but also forms individual competencies that are in accordance with today's world of work (Ummah, 2019). The integration of technologies such as AI, blockchain, big data, and the Internet of Things (IoT) has been proven to improve analytical skills, transparency, and data-based decision making (Miah et al., 2025). The integration of technology in business education brings about a transformation in learning methods and equips students with skills that are relevant to business in today's digital era (Zhao et al., 2023). The results of this study can strengthen the urgency of implementing technology-based business education to form individuals who are ready to compete in the ever-changing and evolving business world (Boubker et al., 2021).

First, Technology integration in business education encourages more personalized and adaptive learning. This is in line with research from (Miah et al., 2025) and (Wigati, 2023) which emphasizes the importance of implementing technology to form relevant and actual business insights. Market analysis capabilities, business process automation, and data-based decision making are important points in the development of technology-based business education.

Second, Technology has been shown to play a significant role in shaping business insights. Digital experiments and simulations described by (Al-Emran & Griffy-Brown, 2023) and (Lu, 2022) provide a learning experience without real risks, increasing individual adaptability to dynamic business changes. In addition, the acceleration of business processes and operational efficiency described by (Kaartemo & Nyström, 2021) also show the direct impact of technology on increasing business competitiveness.

Third, the use of AI, blockchain, big data, and the Internet of Things (IoT) in business education is key to driving progress. As explained by (Deepa et al., 2024), AI has replaced various administrative tasks and strengthened data-based job training. This is supported by other studies that mention the importance of new skills such as machine learning and HR analytics in business education. Blockchain and IoT have also been shown to help in decision-making, supply chain management, and data transparency.

5. CONCLUTION

Technology integration in business education plays a significant role in improving the quality of learning and individual readiness to face the business world. Technologies such as AI, blockchain, big data, and the internet of things (IoT) not only enrich learning methods, but are able to form core competencies needed in today's digital era. Data analysis skills, data-based decision making, and adaptation to developments in business technology. The business education curriculum needs to be continuously adjusted to be relevant to the dynamics of the increasingly digital business world.

6. IMPLICATION

Educational institutions, especially in the business sector, need to design a curriculum that integrates digital technology comprehensively. Simulation-based learning, the use of real data, and exploration of the latest technologies such as AI and IoT are part of the classroom learning process. This learning is important for individuals to have relevant skills, such as data analytics, machine learning, and understanding blockchain systems. These skills help individuals to enter the business world that increasingly demands mastery of technology.

REFFERENCE

Al-Emran, M., & Griffy-Brown, C. (2023). The role of technology adoption in sustainable development: Overview, opportunities, challenges, and future research agendas. *Technology in Society*, *73*(December 2022), 102240. https://doi.org/10.1016/j.techsoc.2023.102240

Aldianto, L., Anggadwita, G., & Umbara, A. N. (2018). Entrepreneurship education program as value creation: Empirical findings of universities in Bandung, Indonesia. *Journal of Science and Technology Policy Management*, *9*(3), 296–309. https://doi.org/10.1108/JSTPM-03-2018-0024

Amalia, R. T., & von Korflesch, H. F. O. (2021). Entrepreneurship education in Indonesian higher education: mapping literature from the Country's perspective. In *Entrepreneurship Education* (Vol. 4, Issue 3). Springer Singapore. https://doi.org/10.1007/s41959-021-00053-9

Astuti, M., Arifin, Z., Mutohhari, F., & Nurtanto, M. (2021). Competency of Digital Technology: The Maturity Levels of Teachers and Students in Vocational Education in Indonesia. *Journal of Education Technology*, *5*(2), 254–262. https://doi.org/10.23887/jet.v5i3.35108

Boubker, O., Arroud, M., & Ouajdouni, A. (2021). Entrepreneurship education versus management students' entrepreneurial intentions. A PLS-SEM approach. *International Journal of Management Education*, *19*(1). https://doi.org/10.1016/j.ijme.2020.100450

Darman, A., Suprianto, A., Wati, A. P., Murwani, F. D., & Wardana, L. W. (2024). Digital Innovation in E-Commerce Education Towards Industry 5.0: Improving Student Competencies and Insights A Systematic Literature Review. *Journal of Applied Business, Taxation and Economics Research*, *3*(6), 652–662. https://doi.org/10.54408/jabter.v3i6.313

Datta Khan, S., Kumar Tp, K., Anjutha, M. S., Santhanalaxmi, K., Sasirekha, K., & Srihari, T. (2024). *Entrepreneurship, Innovation, And Technological Change: Catalysts Of Economic Evolution; A Descriptive Study*. *21*(S1), 962–971.

Deepa, R., Sekar, S., Malik, A., Kumar, J., & Attri, R. (2024). Impact of AI-focussed technologies on social and technical competencies for HR managers – A systematic review and research agenda. *Technological Forecasting and Social Change*, *202*(February), 123301. https://doi.org/10.1016/j.techfore.2024.123301

Galletta, S., Mazzù, S., Naciti, V., & Paltrinieri, A. (2024). A PRISMA systematic review of greenwashing in the banking industry: A call for action. *Research in International Business and Finance*, *69*(August 2023), 102262. https://doi.org/10.1016/j.ribaf.2024.102262

Hanafizadeh, P., & Alipour, M. (2024). Taxonomy of theories for blockchain applications in business and management. *Digital Business*, *4*(2), 100080. https://doi.org/10.1016/j.digbus.2024.100080

Hidayat, M., & Yunus, U. (2019). The entrepreneurship learning in industrial 4.0 era (case study in indonesian college). *Journal of Entrepreneurship Education*, *22*(5), 0–15.

Kaartemo, V., & Nyström, A. G. (2021). Emerging technology as a platform for market shaping and innovation. *Journal of Business Research*, *124*(October 2019), 458–468. https://doi.org/10.1016/j.jbusres.2020.10.062

Knox, S. (2022). Fostering student engagement in virtual entrepreneurship education environments. *International Journal of Management Education*, *20*(3). https://doi.org/10.1016/j.ijme.2022.100705

Lu, J. (2022). Data science in the business environment: Insight management for an Executive MBA. *International Journal of Management Education*, *20*(1), 100588. https://doi.org/10.1016/j.ijme.2021.100588

Madushanki, A. A. R., Halgamuge, M. N., Wirasagoda, W. A. H. S., Syed, A., Iorliam, A., Bum, S., Farooq, M. S., Riaz, S., Abid, A., Umer, T., Zikria, Y. Bin, Antony, A. P., Leith, K., Jolley, C., Lu, J., & Sweeney, D. J. (2020). Internet of Things for Smart Agriculture in Nigeria and Africa: A Review. *Sustainability (Switzerland)*, *12*(9), 1–19.

Mariani, M., & Dwivedi, Y. K. (2024). Generative artificial intelligence in innovation management: A preview of future research developments. *Journal of Business Research*, *175*(May 2023), 114542. https://doi.org/10.1016/j.jbusres.2024.114542

Miah, M. T., Aiupova, N., Erdei-Gally, S., & Fekete-Farkas, M. (2025). Digital entrepreneurship ecosystems: Then vs. now-a future perspectives. *Digital Business*, *5*(1). https://doi.org/10.1016/j.digbus.2025.100110

Ray, S., Das, J., Pande, R., & Nithya, A. (2024). *Swati Ray 1 , Joyati Das 2* , Ranjana Pande 3 , and A. Nithya 2*. *1*(1), 195–222. https://doi.org/10.1201/9781032622408-13

Setyowati, W., Widayanti, R., & Supriyanti, D. (2021). Implementation of E-Business Information System in Indonesia : Prospects and Challenges. *International Journal of Cyber and IT Service Management*, *1*(2), 180–188. https://doi.org/10.34306/ijcitsm.v1i2.49

Streimikiene, D., Svagzdiene, B., Jasinskas, E., & Simanavicius, A. (2021). Sustainable tourism development and competitiveness: The systematic literature review. *Sustainable Development*, *29*(1), 259–271. https://doi.org/10.1002/sd.2133

Sustainability, E., & Practices, B. (2024). *Economic Sustainability and Business Practices , 1(1), 2024*. *1*(1), 64–73.

Sutrisno, S., Kuraesin, A. D., Siminto, S., Irawansyah, I., & Almaududi Ausat, A. M. (2023). The Role of Information Technology in Driving Innovation and Entrepreneurial Business Growth. *Jurnal Minfo Polgan*, *12*(1), 586–597. https://doi.org/10.33395/jmp.v12i1.12463

Ummah, M. S. (2019). No 主観的健康感を中心とした在宅高齢者における 健康関連指標に関する共分散構造分析Title. *Sustainability (Switzerland)*, *11*(1), 1–14.

Visvizi, A., Troisi, O., Grimaldi, M., & Loia, F. (2021). Think human, act digital: activating data-driven orientation in innovative start-ups. *European Journal of Innovation Management*, *25*(6), 452–478. https://doi.org/10.1108/EJIM-04-2021-0206

Wahyu Widodo, A., Solikhatun, I., Raharja, S., Abdun Salam, A., & Sri Wartini, F. (2021). A Utilization of Information Technology on Education in Indonesia (2017-2020): A Systematic Literature Review. *Journal of Physics: Conference Series*, *1779*(1). https://doi.org/10.1088/1742-6596/1779/1/012024

Wibowo, A., Saptono, A., Narmaditya, B. S., Effendi, M. S., Mukhtar, S., Suparno, & Shafiai, M. H. M. (2024). Using technology acceptance model to investigate digital business intention among Indonesian students. *Cogent Business and Management*, *11*(1). https://doi.org/10.1080/23311975.2024.2314253

Zhao, Y., Zhao, M., & Shi, F. (2023). Integrating Moral Education and Educational Information Technology: A Strategic Approach to Enhance Rural Teacher Training in Universities. In *Journal of the Knowledge Economy*. Springer US. https://doi.org/10.1007/s13132-023-01693-z