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Literature Review Of The Influence Of Technology On The Organizational Behavior Of Manufacturing Companies In Indonesia

Original Article

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Abstract

This research aims to synthesize publications related to the use of technology in manufacturing companies in Indonesia on organizational behavior. By using the SLR method with PRISMA steps. Articles filtered from the journals of Emerald Insight, Sage Journals, Science Direct, and Taylor & Francis with topics and keywords of organizational behavior, managers, technology use, and manufacturing companies in Indonesia published between 2020 and 2025 totaled 4,262 articles. After elimination according to the criteria, only 20 articles were considered and extracted. The results of this study are that technological advances and the use of technology in manufacturing companies affect organizational behavior. Two things were found from this synthesis, the first is organizational behavior with technology that increases open innovation and sustainability-oriented organizational behavior, especially sustainability in the environment, and the second is that organizations are oriented towards digitalization, namely with digital programs or programs that make their work more effective and efficient. This research can be used by manufacturing as an evaluation related to the use of technology in manufacturing companies and the basis of knowledge to improve employee skills and knowledge, in addition to it can be used as a follow-up research material to further explore the influence of organizational behavior on large-scale manufacturing companies.

Keywords: *Technology, Innovation, Organizational Behavior, Manufacturing Companies.*

1. Introduction

Manufacturing companies face various challenges in the era of technological development. These challenges include increased competition, changing customer demands, and the need to adapt quickly to new technologies. Manufacturing digitalization presents opportunities but also requires companies to address challenges such as digitally enhanced human work and worker-centric knowledge sharing. While some consider manufacturing to be declining in developed countries, manufacturing continues to grow with a high level of sophistication, although cooperation between SMEs is essential for international competitiveness. Digital technology offers advantages in supporting human capacity, improving production time frames, quality, and occupational health and safety (Arana-Landín et al., 2023). However, there are challenges faced in its implementation, especially in small and medium-scale manufacturing companies, namely SMEs and MSMEs. The obstacles faced include high initial investment costs for new technologies, often preventing companies from adopting Industry 4.0 solutions (Arwani, 2024). Furthermore, there is a lack of skills and

knowledge gaps to manage advanced technologies such as AI and IoT, as the integration of new technologies can become complex due to the presence of regulations and standards.

Despite the obstacles or challenges faced in integrating technology in companies, this needs to be done to keep pace with the needs of today's market which is changing so quickly. Manufacturing companies need to pay attention to and utilize technology not only for profit orientation but also for the sustainability of the company, as well as existing regulations, one of which is that manufacturing companies must process their waste and other environmental responsibilities. The use of technology in manufacturing companies provides benefits in the form of convenience and efficiency. The use of technology in manufacturing companies is not only related to production and marketing, but also useful in communicating and regulating corporate governance. The use of technology influences employee behavior, encourages individual learning, increases efficiency, and improves organizational performance (Agboola et al., 2019). As organizations adapt to technological challenges, there has been a paradigm shift towards positive organizational behavior, which is seen as a source of competitive advantage (Bozkus, 2023). Understanding the relationship between technology, organizational culture, and employee behavior is critical for companies to maximize the benefits of technology investments and improve overall organizational effectiveness. So it can be said that the use of this technology can also affect the organizational behavior of the company. In this SLR, it will be synthesized how the use of technology affects manufacturing companies that focus on the Indonesian state, because one of the challenges of using technology in manufacturing companies in Indonesia is that many workers in the manufacturing sector do not have the skills needed to operate digital technology. According to a report from the World Economic Forum, only 30% of the workforce in Indonesia's manufacturing sector has basic digital skills. The influence of the technological revolution in the formation of organizational culture and interaction between employees can realize team collaboration efficiently to be able to keep up with technological developments. From this research with the aim of finding out what are the influences caused by the use of technology on manufacturing companies in Indonesia with the hope that this research can be used for further research.

2. Literature

2.1. Organizational behavior

Organizational behavior is a field of study that investigates the impact that individuals, groups, and structures have on behavior within organizations, with the goal of applying that knowledge to improve organizational effectiveness. Organizational behavior is examining how individual behavior and group interactions affect organizational outcomes, emphasizing the importance of motivation and communication (Robbins & Judge, 2013). Examining organizational behavior requires effective leadership in shaping organizational culture and managing change because a positive workplace culture increases employee satisfaction and productivity with the organization being encouraged to adopt inclusive practices that support the diverse needs of employees (Khan & Teacher, 2024). Organizational behavior has a core topic, namely motivation; the behavior and strength of the leader; interpersonal communication; group structure and processes; Learning; development and perception; attitude; the process of change; conflict; work design; and work stress. The first characteristic of organizational behavior is interdisciplinary, because organizational behavior refers to various disciplines, mainly related to the social sciences.

2.2. Technology in manufacturing companies

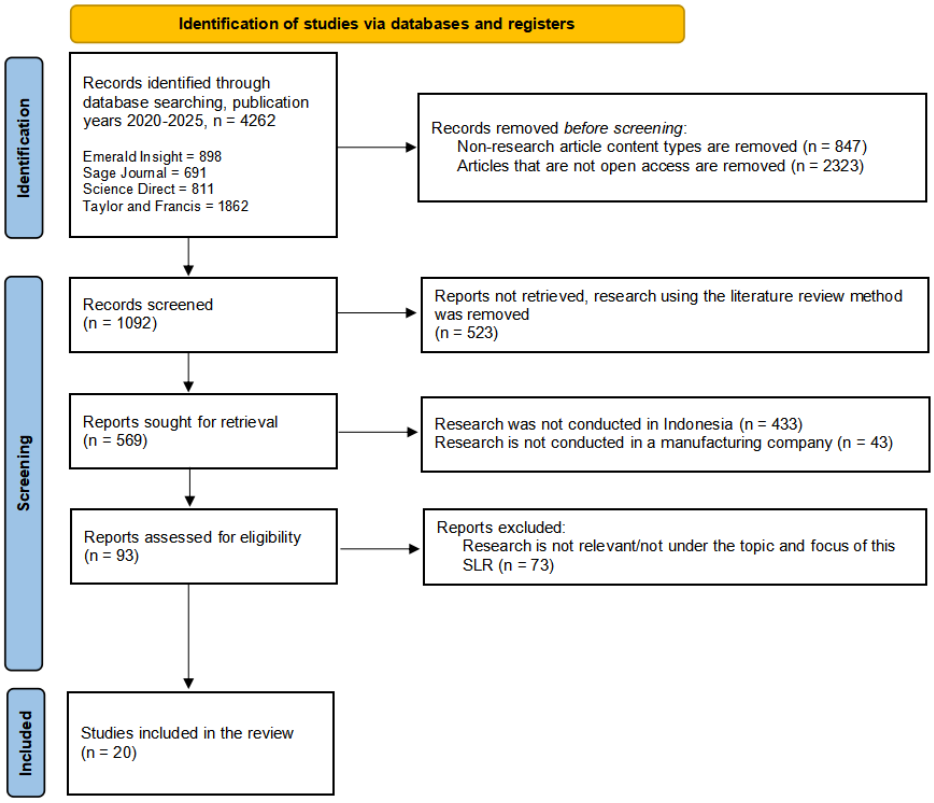
The application of advanced technology in manufacturing is essential for competitiveness in the Industry 4.0 era. Manufacturing companies face challenges in implementing new technologies, which require a structured approach to technology selection (Hamzeh et al., 2018). Virtual manufacturing, based on information technology, simulation, and virtual reality, allows companies to experience product performance and assembly relationships before actual production, aiding decision-making and optimization (Xie & Xie, 2014). The use of technology has the goal of increasing the productivity and efficiency of the company, but it is also necessary to provide more security to the company's technology and machinery. Based on manufacturingsurabaya.com, the adoption of technology in the manufacturing sector has significantly changed Indonesia's industrial landscape. The highest benefits of technology adoption reported by manufacturing companies include productivity by 70%, energy efficiency by 67.5%, improved planning and budgeting by 67%, increased knowledge of customer needs by 65%, and improved product quality by 64% (Innovate Indonesia, 2020). However, the absorption of high technology in Indonesia still tends to be low.

3. Metode Penelitian

Penelitian ini menggunakan jenis penelitian explanatory research dengan metode penelitian kuantitatif deskriptif dan di bantu program SPSS Statistics versi 26 (Azhari, 2023) explanatory (Sutriawan et al., 2024) Systematic Literature Review (SLR). (Sutriawan et al., 2024) menyatakan keunggulan SLR adalah memungkinkan pemahaman yang lebih komprehensif dan objektif tentang topik penelitian dan meminimalkan bias peneliti dalam memilih literatur yang relevan, dengan menggunakan tahapan PRISMA (Preferred Reporting Items for Systematic Review and Meta-Analysis) sebagai berikut.

1. Identification
   Search for articles or journals with sources from Pustaka Emerald Insight, Sage Journals, Science Direct, and Taylor & Francis with search keywords in each journal database being organizational behavior AND (managers) AND (utilization of technology) AND (manufacturing companies) AND (indonesia)
2. Filtering
   At this stage, criteria are determined to classify articles that are appropriate to the topic of discussion. The article that is synthesized must meet the inclusion criteria, namely research related to the use of technology in companies that has an impact on organizational behavior. In this SLR study, the research articles are focused on manufacturing companies in Indonesia, and the year of publication of articles or journals in 2020 – 2025. Furthermore, the criteria for excluded articles are articles that do not meet the inclusion criteria and conceptual articles/literature reviews, as well as articles that cannot be accessed.
3. Included
   Articles that are included are filtered by keywords are manually rechecked because the search results with keywords, there are still articles that do not meet the filtering criteria. The search results with keywords amounted to 4262 articles, but only 20 articles according to the inclusion criteria. The following is the process of PRISMA stages , namely the process of submitting articles according to the topic of discussion (Graph 1):Result and Discussion

Graph 1. Stages of PRISMA article filtering



It is necessary to carry out an article bias risk assessment or called Quality Assessment. (Negarandeh & Beykmirza, 2020) stated that the assessment carried out included assessing the methods used, the completeness of the data results and whether there were other interventions that affected the report. Twenty (20) articles included were published in reputable journals by checking in simago jr and Web of Science (WOS). The following are the details of the article assessment included in this SLR study (table 1):

Table 1. Included articles

No.	Penulis	Metode penelitian	Hasil penelitian	Jurnal
1	(Saeed et al., 2024)	Kuantitatif	Inovasi teknologi secara positif memoderasi struktur kepemilikan dan hubungan environmental accounting disclosure (EaD).	Cogent Business & Management (Q2/ WOS)
2	(Kuswardana et al., 2021)	Kuantitatif	Teknologi asing memasuki perusahaan domestik lebih banyak melalui bahan impor daripada foreign direct investment (FDI). Adanya teknologi diperlukan pengetahuan meningkatkan produktivitas dan efisiensi industri local.	Cogent Economics & Finance (Q2/ WOS)
3	(Nuryanto et al., 2024)	Kuantitatif	Eco-Control secara positif mempengaruhi Investasi Hijau dan Keberlanjutan Perusahaan, maka diperluka pula teknologi eco-friendly.	Environmental Challenges (Q1)

4	(Tseng et al., 2022)	Kuantitatif	Transfer teknologi adalah aspek peringkat teratas untuk akselerasi sustainable development transition (SDT).	Cleaner and Responsible Consumption (Q1/ WOS)
5	(Anjaningrum et al., 2024)	Kuantitatif	Pembelajaran jaringan dan inovasi secara signifikan berdampak pada kinerja UKM	Heliyon (Q1/ WOS)
6	(Nurlaela Arief et al., 2022)	Kualitatif Kuantitatif	Delapan kompetensi inti sangat penting untuk Pharma 4.0. Sebagian besar industri farmasi Indonesia berada pada tingkat 2 implementasi digital.	Heliyon (Q1/ WOS)
7	(Heriqbaldi et al., 2025)	Kuantitatif	Inovasi terbuka dapat meningkatkan kemampuan perusahaan dan strategi pasar.	Journal of Open Innovation: Technology, Market, and Complexity (Q1)
8	(Wijaya et al., 2025)	Kuantitatif	Penggunaan e-commerce dan kapasitas inovasi mempengaruhi kinerja UMKM di sektor pangan. Kesiapan teknologi dan biaya adopsi mempengaruhi pemanfaatan e-commerce.	Journal of Open Innovation: Technology, Market, and Complexity (Q1)
9	(Zuhroh et al., 2025)	Kuantitatif	Platform ekonomi berbagi dan management accounting systems (MAS) secara signifikan mempengaruhi kinerja keuangan UMKM.	Journal of Open Innovation: Technology, Market, and Complexity (Q1)
10	(Bahri & Ramaditya, 2024)	Kuantitatif	Inovasi model bisnis sangat penting untuk beradaptasi dengan perubahan peraturan percetakan. Sumber daya internal harus dikembangkan untuk keunggulan kompetitif yang berkelanjutan	Journal of Open Innovation: Technology, Market, and Complexity (Q1)
11	(Isharyani et al., 2024)	Kualitatif	Adaptasi teknologi meningkatkan kinerja dan kualitas layanan bagi pelanggan dan bertahan pada pasar yang kompetitif	Journal of Open Innovation: Technology, Market, and Complexity (Q1)
12	(Achmad et al., 2023)	Kuantitatif	Regulasi lingkungan dan dukungan pemerintah secara positif mempengaruhi adaptasi inovasi lingkungan di kalangan UKM	Journal of Open Innovation: Technology, Market, and Complexity (Q1)

13	(Rumanti et al., 2023)	Kuantitatif	Kreativitas organisasi secara positif mempengaruhi kinerja UKM. Inovasi terbuka juga berdampak positif pada kinerja organisasi.	Journal of Open Innovation: Technology, Market, and Complexity (Q1)
14	(Priyono et al., 2020)	Kuantitatif	Perusahaan dengan kematangan digital yang tinggi mempercepat transisi mereka ke digitalisasi.	Journal of Open Innovation: Technology, Market, and Complexity (Q1)
15	(Surya et al., 2021)	Kuantitatif Kualitatif	Inovasi teknologi meningkatkan produktivitas perusahaan ekonomi.	Journal of Open Innovation: Technology, Market, and Complexity (Q1)
16	(Suwignjo et al., 2022)	Kuantitatif	Budaya organisasi menumbuhkan pemikiran inovatif di antara karyawan	Journal of Open Innovation: Technology, Market, and Complexity (Q1)
17	(Alamsjah & Yunus, 2022)	Kuantitatif	Mengoperasionalkan penentu kematangan SC4.0 yang menggabungkan inovasi dan teknologi.	Journal of Open Innovation: Technology, Market, and Complexity (Q1)
18	(Masudin et al., 2024)	Kuantitatif	Evaluasi kinerja keselamatan berkelanjutan sangat penting untuk interaksi manusia-teknologi yang efektif.	Journal of Cleaner Production (Q1/ WOS)
19	(Hermawan et al., 2024)	Kuantitatif	Inovasi lingkungan memoderasi hubungan antara manufaktur berkelanjutan dan kinerja lingkungan.	International Journal of Industrial Engineering and Operations Management (Q2)
20	(Prakosa et al., 2024)	Kuantitatif	Sektor farmasi menunjukkan kesiapan Industry 4.0 Index (INDI) tertinggi. Rekomendasi kebijakan untuk meningkatkan kesiapan Industri 4.0.	Digital Transformation and Society (Q2)

From the details of the table above, it can be seen that research on this topic has the highest number of publications in 2024, namely 8 documents, then in 2022 as many as 4 documents, in 2025 as many as 3 documents, in 2023 and 2021 as many as 2 documents each and in 2020 only 2 documents (Graph 1). For the distribution of research methods, 17 documents used quantitative methods, then 1 document used qualitative methods, and 2 documents used mixed methods (quantitative and qualitative). Furthermore, the journal distribution is dominated by the Journal of Open Innovation: Technology, Market, and Complexity, which is as many as 11 documents. The results of the research from the twenty articles on the use of technology are related to digitalization and sustainability innovation in small-scale manufacturing companies (MSMEs), medium enterprises (SMEs) and large ones.

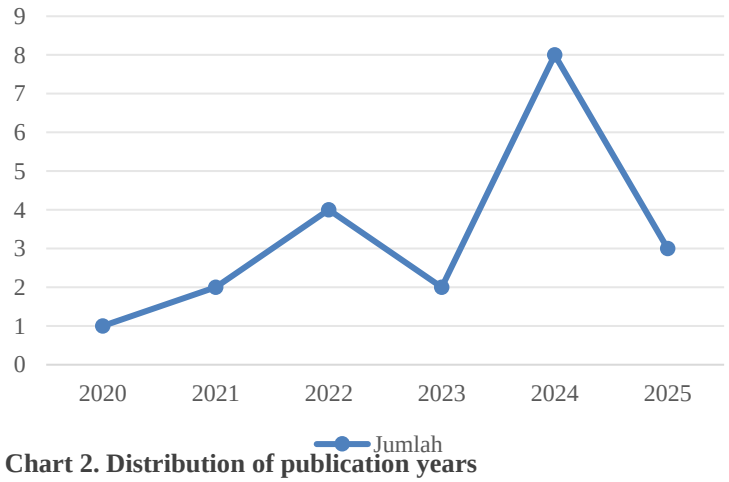


Chart 2. Distribution of publication years

4. Result and Discussion

4.1 Organizational behavior is oriented towards sustainability innovation

The use of technology in manufacturing companies establishes an organizational culture with innovative thinking among employees (Suwignjo et al., 2022). The creativity that exists in the organization positively affects the performance of SMEs and Open innovation also has a positive impact on organizational performance and increases the productivity of economic enterprises (Rumanti et al., 2023; Srya et al., 2021). This is in line with research by Heriqbaldi et al. (2025) that open innovation can improve the company's capabilities and market strategy. With the positive influence of the use of this technology, knowledge is needed to increase the productivity and efficiency of local industries for small and medium-scale manufacturing companies (Kuswardana et al., 2021). One of them is in the research of Saeed et al. (2024) on technological innovations to moderate the ownership structure and relationship of environmental accounting disclosure (EaD).

Management needs to facilitate its employees by providing training and development to their employees so that they can take advantage of technology that not only affects employee performance but also company performance. Network learning and innovation significantly impact the performance of SMEs (Anjaningrum et al., 2024). Internal resources must be developed for sustainable competitive advantage (Bahri & Ramaditya, 2024). Management can conduct studies and evaluations related to the use of technology and its influence on organizational behavior related to technological changes that can affect employee performance. Technology transfer is the top-ranked aspect for accelerating sustainable development transition (SDT) (Tseng et al., 2022).

From the results of the study, it was found that companies in Indonesia with the use of technology increase company awareness to be able to carry out their business by being

oriented towards sustainability innovation, especially related to environmental sustainability affected by the company's production process. Eco-Control positively affects Green Investment and Corporate Sustainability, so eco-friendly technology is also needed (Nuryanto et al., 2024). The role of managers is very important in this case with environmental innovation, manufacturing companies are more concerned about the environment (Hermawan et al., 2024). Moreover, environmental regulations and government support positively affect the adaptation of environmental innovations among SMEs (Achmad et al., 2023).

4.2 Digital-based organizational behavior

Large-scale manufacturing companies with more qualified resources, in other words, are more ready to face the challenges of digitalization, which is greatly helped because the presence of technology makes work more effective and efficient. In this synthesis, it was found that the pharmaceutical sector showed the highest Industry 4.0 Index (INDI) readiness, namely at level 2 of digital implementation (Nurlaela Arief et al., 2022). So it is very necessary to recommend policies to improve Industry 4.0 readiness for each manufacturing company in Indonesia (Prakosa et al., 2024), in addition to policies as well as digital skills training, because it operationalizes the determinants of Supply Chain 4.0 maturity which combines innovation and technology (Alamsjah & Yunus, 2022).

Although digitalization provides convenience, it still requires continuous safety performance evaluation for more effective human-technology interaction (Masudin et al., 2024), so that technology is aligned with organizational behavior in manufacturing companies. Companies with high digital maturity accelerate their transition to digitalization (Priyono et al., 2020). Technological adaptation improves performance and service quality for customers and survives in a competitive market (Isharyani et al., 2024), one of which in one of the synthesized articles is the existence of an economic platform management accounting systems (MAS) significantly affects the financial performance of MSMEs (Zuhroh et al., 2025). Managers in this case need to evaluate conduct training and development to take advantage of this digital development to increase the effectiveness of company performance.

5 Conclusion

The development of technology with digitalization has influenced manufacturing companies in Indonesia. The influence caused is that employees or manufacturing company orientations become concerned about sustainability and utilize technology for more effective and efficient performance. The role of managers is very important to provide training and development related to digitalization. From this research, it can be studied more deeply by conducting further exploration related to the use of technology in employees, for example, specifically related to organizational behavior in the use of technology in communication between employees and so on in larger-scale manufacturing companies, because the results of article filtering are dominated by manufacturing companies on a small and medium scale.

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