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Legal Effectiveness in Data Protection and Artificial Intelligence Regulation in the Digital Era

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Abstract

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Advances in artificial intelligence and data-driven technologies have brought about significant transformations across various sectors, but they have also raised complex legal challenges, particularly regarding the protection of personal data and the accountability of digital systems. This study aims to analyze the effectiveness of legal regulations in governing data protection and to assess the urgency of strengthening regulations in response to these technological developments. The method employed is a systematic normative legal approach, through an analysis of legislation, scientific literature, and relevant legal practices. The research findings indicate that existing regulations have provided an important legal foundation; however, there remain gaps in accommodating the specific characteristics of artificial intelligence, such as algorithmic transparency and automated decision-making. Additionally, limitations in law enforcement and institutional capacity also affect the effectiveness of regulations. The urgency of strengthening regulations is increasing in tandem with the risks of data misuse and legal uncertainty within the digital ecosystem. Therefore, adaptive, integrative, and sustainable regulatory reform is needed, taking into account legal, ethical, and global technological developments, to create an effective data protection system that supports responsible digital innovation.

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1. Introduction

The development of digital technology in recent years has driven major transformations in various aspects of human life, especially through the use of artificial intelligence (AI) and data-based systems. This technology enables the processing of large amounts of data quickly and efficiently, thus making a significant contribution to increased productivity, innovation, and more accurate decision-making. However, behind these benefits, various complex challenges arise, especially related to personal data protection, information security, and potential violations of individual rights in an increasingly integrated digital ecosystem (Aldboush & Ferdous, 2023). The reliance of AI technology on data on a large scale makes the issue of privacy one of the main concerns, given that the data processed is often sensitive and vulnerable to abuse.

From a legal perspective, the dynamics of technological development require regulations that are able to adapt to changes. Regulation is an important instrument in maintaining a balance between technological innovation and the protection of individual rights. In this context, the presence of Law Number 27 of 2022 concerning Personal Data Protection (PDP Law) is a strategic step in providing a legal framework that regulates the collection, processing, and storage of personal data based on the principles of legality, transparency, and accountability. In addition, Law Number 19 of 2016 concerning Electronic Information and Transactions (ITE Law) also serves as a legal basis that regulates digital activities in general, including the management of electronic systems and technology-based transactions. However,

the two regulations still face challenges in responding to the ever-evolving complexity of AI technology (Abdulrahman, 2024).

The main problem that arises is the gap between technological development and the ability of legal regulations to regulate it effectively. AI technology not only serves as a data processing tool, but also as a system capable of automated analysis and decision-making. These characteristics pose serious problems related to transparency and accountability, especially since the decision-making process in AI systems is often not clearly explained (black box). This condition has the potential to create legal uncertainty, especially when decisions generated by AI systems negatively impact certain individuals or groups (Sebastian et al., 2023). In addition, the use of large amounts of data without adequate monitoring mechanisms also increases the risk of privacy violations.

Furthermore, challenges in legal regulation are increasingly complex with the cross-border and dynamic nature of digital technology. The flow of data that can move globally causes the application of national laws to be limited in regulating digital activities involving various jurisdictions. This demands a more flexible and responsive legal approach to technological developments. Regulations can no longer be static, but must be able to adapt to rapid changes in the digital ecosystem. In this case, the law is expected to function not only as a control tool, but also as a mechanism that supports innovation while protecting the public interest (Nuseir et al., 2024).

In addition to the regulatory aspect, the ethical dimension is also an important part of the discussion about AI and data protection. The use of AI that does not pay

attention to ethical principles can result in algorithmic bias, discrimination, and injustice in decision-making. Therefore, the integration between legal norms and ethical principles is very important in ensuring that technology is used responsibly and does not harm certain parties (Kumar et al., 2023). This approach emphasizes that legal regulation should not only focus on formal aspects, but should also take into account the values of justice and the protection of human rights.

On the other hand, the development of the digital economy also strengthens the urgency of updating legal regulations. Economic transformation driven by digital technology has created a variety of new opportunities, but it also poses legal risks that cannot be ignored. In this context, policies such as Law Number 6 of 2023 concerning Job Creation show that there are efforts to support innovation and technology-based economic growth. However, without adequate regulation in terms of data protection and technological supervision, these developments have the potential to cause legal uncertainty and the risk of violating individual rights (Dhewanto et al., 2023).

Furthermore, the challenges in data protection are not only related to technical aspects, but also include institutional and law enforcement aspects. The effectiveness of regulation is highly dependent on the ability of institutions to consistently supervise and enforce the law. Without a strong supervisory mechanism, existing regulations have the potential to become ineffective in the face of rapid technological developments. Therefore, a comprehensive evaluation of existing regulations is needed, including the identification of weaknesses and gaps that can hinder optimal data protection (Jamal et al., 2024a).

By considering these various dynamics, it can be concluded that the current legal regulations still face various challenges in effectively regulating the development of data-based technology and AI. The gap between legal norms and technological realities shows the need to strengthen and update regulations that are more adaptive and responsive to change. Therefore, this research is focused on two main questions, namely: (RQ1) how effective is existing regulations in regulating data protection and the use of artificial intelligence-based technology in the context of digital law; and (RQ2) why the discussion and development of these regulations is important and urgent in dealing with the dynamics of current technological developments.

2. Methods

This study uses a normative juridical approach with a systematic method to analyze the effectiveness of legal regulations in regulating personal data protection and the use of artificial intelligence-based technology in the context of digital law. This approach was chosen because the research focuses on legal norms contained in laws and regulations, especially those related to data protection and electronic system activities. A systematic method is used to compile and review legal materials in a structured manner, thus allowing the identification of the conformity between the applicable legal norms and dynamic technological developments. With this approach, the research not only examines legal texts descriptively, but also conducts a critical analysis of the substance of the regulation and its implications in practice.

The data sources in this study consist of primary, secondary, and tertiary legal materials. Primary legal materials include relevant laws and regulations, such as Law

Number 27 of 2022 concerning Personal Data Protection, Law Number 19 of 2016 concerning Information and Electronic Transactions, and Law Number 6 of 2023 concerning Job Creation. Secondary legal materials include scientific journals, books, and academic publications relevant to the research theme, especially those published in the range of 2020 to 2024. Meanwhile, tertiary legal materials are used as a complement to understand the legal concepts and terminology used in this study. The use of these various types of legal materials aims to provide a comprehensive and in-depth analysis foundation.

The data collection technique is carried out through literature studies by browsing various academic sources available digitally, including indexed database of journals and scientific publications. This process is carried out systematically by grouping literature based on the relevance of the topic, thus facilitating the analysis process. Furthermore, the data analysis method is carried out through three main stages, namely normative analysis, comparative analysis, and prescriptive analysis. Normative analysis is used to examine the content and substance of laws and regulations related to data protection and digital technology. Comparative analysis is carried out by comparing existing regulations with concepts or best practices that develop in the scientific literature. Meanwhile, prescriptive analysis is used to formulate legal recommendations that can improve existing regulatory weaknesses.

Through this systematic approach, the research is expected to be able to provide a clear picture of the effectiveness of applicable regulations and identify the need for legal development that is more adaptive to technological developments. This approach also allows researchers to make connections between legal norms and

practical realities, resulting in analyses that are not only theoretical but also practically relevant in answering legal challenges in the digital age (Jamal et al., 2024b).

3. Results

3.1. Regulatory Effectiveness in Data Protection and AI Technology

The effectiveness of legal regulations in regulating the protection of personal data and the use of artificial intelligence-based technology is becoming an increasingly important issue in the digital era. Existing regulations, such as Law Number 27 of 2022 concerning Personal Data Protection (PDP Law) and Law Number 19 of 2016 concerning Electronic Information and Transactions (ITE Law), have basically provided a fairly comprehensive legal framework in regulating data management and electronic system activities. The PDP Law, for example, regulates key principles such as consent, transparency, accountability, and the rights of data subjects in controlling their personal information. Meanwhile, the ITE Law provides a legal basis related to the implementation of electronic systems and the responsibilities of those who manage digital information. However, the effectiveness of the two regulations still faces various challenges in practice, especially in the face of the development of highly dynamic AI technology (Abdulrahman, 2024).

One indicator of the effectiveness of regulation can be seen from its ability to anticipate and regulate risks that arise due to the use of technology. In the context of AI, such risks are not only related to data leaks, but also include automated decision-making that could potentially harm individuals. AI systems that work on complex algorithms are often not transparent, making it difficult to determine how

a decision is made. This condition raises problems related to legal accountability, especially when there are errors or biases in the system (Sebastian et al., 2023). Although the PDP Law has regulated the principle of transparency, the implementation of these principles in the context of AI still faces limitations due to the absence of provisions that specifically govern automated algorithms and decision-making processes.

In addition, the effectiveness of regulations is also influenced by the ability of the law to accommodate rapid technological developments. AI as a technology that continues to evolve presents challenges for regulations that tend to be static. When regulations are unable to keep up with technological developments, there will be a gap between legal norms and practices in the field. This can cause legal uncertainty and open up opportunities for violations of individual rights. In this regard, adaptive and flexible regulations are essential to ensure that laws remain relevant in regulating evolving technologies (Nuseir et al., 2024).

On the other hand, the effectiveness of regulations also depends heavily on law enforcement mechanisms. Good regulation will not have a significant impact if it is not supported by strong and consistent law enforcement. In the context of data protection, law enforcement includes supervision of data management, handling violations, and providing strict sanctions for violators. However, in practice, law enforcement in this field still faces various obstacles, such as limited resources, lack of technical expertise, and the complexity of the technology used. This condition can reduce the effectiveness of regulations in providing optimal protection for personal data (Jamal et al., 2024a).

In addition to the law enforcement aspect, public awareness and understanding are also important factors in determining the effectiveness of regulations. The public as a subject of law needs to understand their rights and obligations in the use of digital technology, including in terms of personal data protection. Lack of digital literacy can cause individuals to be unaware of the risks faced and unable to take advantage of available legal protection mechanisms. Therefore, increasing public awareness is an important part of supporting the effectiveness of existing regulations (Peres et al., 2020).

Furthermore, the effectiveness of regulations can also be seen from the extent to which they are able to create a balance between innovation and legal protection. In the context of the digital economy, regulations not only serve to limit, but also to encourage responsible technological development. Law Number 6 of 2023 concerning Job Creation, for example, shows that there are efforts to support technology-based economic growth. However, without adequate arrangements in terms of data protection, such innovations have the potential to pose significant legal risks (Dhewanto et al., 2023). Therefore, the integration between economic policy and legal protection is very important in creating a healthy digital ecosystem.

In addition, ethical issues in the use of AI also affect the effectiveness of regulations. Regulations that only focus on legal aspects without considering the ethical dimension have the potential to be unable to overcome problems that arise in practice. AI that is not designed with ethical principles can result in bias, discrimination, and injustice in decision-making. Therefore, the integration between legal regulation and ethical principles is important in ensuring the responsible use of

technology (Kumar et al., 2023). This shows that the effectiveness of regulation depends not only on legal norms, but also on the underlying values.

In the global context, the effectiveness of regulations is also influenced by the ability of a legal system to adapt to international developments. Digital technology that is cross-border requires regulatory harmonization between various jurisdictions. Without such alignment, it will be difficult to effectively manage the flow of data and digital activities. Therefore, learning from international practices is important in improving the quality of existing regulations (Elahi et al., 2023). This approach allows for the development of regulations that are more comprehensive and compliant with global standards.

Thus, it can be concluded that the effectiveness of regulations in regulating data protection and AI technology still faces various complex challenges. Although there is a fairly adequate legal framework, such as the PDP Law and the ITE Law, its implementation still needs strengthening, both in terms of legal substance and enforcement mechanisms. The gap between regulation and technological developments shows the need for more adaptive legal reform, as well as the integration between legal, ethical, and public policy aspects to create an effective and sustainable regulatory system (Stavropoulos et al., 2024).

3.2. The Urgency of Regulation and Legal Gaps in AI Technology and Data Protection

The urgency of legal regulation of artificial intelligence-based technology and personal data protection is increasing along with the rapid development of the digital ecosystem. Ever-evolving AI technologies are not only changing the way data is

processed, but also creating new forms of interaction that were previously not anticipated by existing regulations. In this condition, the law is required to be able to adapt to these changes in order to remain relevant and effective in providing protection to individuals. Without adequate regulation, technological developments have the potential to pose significant risks, both in the form of privacy violations, data misuse, and legal uncertainty in automated system-based decision-making (Aldboush & Ferdous, 2023).

One form of urgency can be seen from the increasing dependence on data as the main source in the development of AI technology. Data no longer only functions as passive information, but becomes a strategic asset that has high economic value. In this context, the protection of personal data is very important to prevent irresponsible exploitation. Although there have been regulations such as Law Number 27 of 2022 concerning Personal Data Protection (PDP Law), very rapid technological developments often exceed the scope of existing regulations. This shows that general regulations are not enough to accommodate the ever-evolving complexity of AI technology (Antoniewska, 2023).

The legal gap is one of the main problems in the regulation of digital technology. This gap arises when existing legal norms are unable to reach or regulate new phenomena that arise due to technological developments. In the context of AI, the legal gap can be seen in the absence of regulations that specifically regulate aspects such as algorithmic accountability, system transparency, and legal responsibility for automated decisions. This condition creates a gray space in the law, which can be exploited by certain parties to avoid legal liability. In addition, the

unclarity of norms can also lead to difficulties in law enforcement, due to the absence of clear standards for determining violations (Sebastian et al., 2023).

The urgency of regulation is also further strengthened by the increasing complexity of risks posed by AI technology. These risks are not only technical, such as data leaks, but also include social and ethical aspects, such as discrimination and bias in decision-making. AI systems trained using unrepresentative data can result in unfair decisions, potentially harming certain groups. In this condition, legal regulations need to be able to anticipate and regulate these risks comprehensively, not only from a technical perspective, but also from an ethical and fair perspective (Kumar et al., 2023).

In addition, the urgency of legal regulation is also related to the need for legal certainty in the use of digital technology. Legal certainty is important to provide protection to individuals as well as provide guidance for business actors in developing technology. Without legal certainty, there will be uncertainty about the rights and obligations of the parties, which can ultimately hinder innovation and growth of the digital economy. In this case, regulations such as Law Number 19 of 2016 concerning Information and Electronic Transactions (UU ITE) have indeed provided a legal basis, but they still need to be strengthened in facing the challenges of AI technology that are more complex (Abdulrahman, 2024).

Legal gaps are also seen in the aspects of law enforcement and institutions. Although regulations are available, their implementation is often suboptimal due to the limited capacity of responsible institutions in oversight and enforcement. The lack of human resources who have technical expertise in the field of digital

technology is one of the main obstacles. In addition, coordination between institutions is also a challenge in ensuring the effectiveness of supervision of the use of data and AI technology. This condition shows that strengthening regulations needs to be followed by strengthening institutional capacity in order to run effectively (Jamal et al., 2024a).

On the other hand, the urgency of regulation is also influenced by the increasingly rapid development of the digital economy. AI technology has become an integral part of various sectors, including business, industry, and public services. Policies such as Law Number 6 of 2023 concerning Job Creation show that there are efforts to encourage technology-based economic growth. However, without adequate regulation in terms of data protection, such developments have the potential to pose significant legal risks. Therefore, a balance is needed between policies that encourage innovation and regulations that provide legal protection (Dhewanto et al., 2023).

Furthermore, the urgency of legal regulation also cannot be separated from the global nature of digital technology. The flow of data that crosses national borders poses challenges in the application of national laws, especially in terms of jurisdiction and law enforcement. In this context, it is necessary to harmonize regulations with international standards so that legal arrangements can run effectively. Without this alignment, it will be difficult to regulate digital activities involving various parties from various jurisdictions (Elahi et al., 2023).

In addition, public awareness of the importance of data protection is also a factor that affects the urgency of legal regulation. People who are increasingly active

in using digital technology need to be given adequate protection for their personal data. However, low digital literacy can cause individuals to not understand the risks faced and the rights they have. Therefore, legal regulations need to be supported by educational efforts and public awareness to run effectively (Peres et al., 2020).

Thus, it can be concluded that the urgency of legal regulation in AI technology and data protection is driven by a variety of factors, including rapid technological developments, the complexity of risks, and the need for legal certainty. The existing legal gap points to the need for more specific regulatory updates that are adaptive to technological developments. Therefore, strengthening regulations is not only needed in terms of legal substance, but also in terms of implementation and institutions, so that it can provide optimal protection while supporting technological innovation in a sustainable manner (Nuseir et al., 2024).

3.3. Regulatory Reform and Law Enforcement Strategies in the Face of AI Technology

The need for regulatory reform in the face of the development of artificial intelligence-based technology and personal data protection is a logical consequence of the gap between the prevailing legal norms and the ever-evolving technological reality. Current regulations, such as Law Number 27 of 2022 concerning Personal Data Protection (PDP Law) and Law Number 19 of 2016 concerning Information and Electronic Transactions (ITE Law), have provided an important legal basis, but still need to be strengthened to be able to answer more complex challenges. Regulatory reform is not only concerned with updating legal norms, but also includes

the development of a more adaptive, flexible, and risk-based approach to regulating digital technologies (Nuseir et al., 2024).

One of the key steps in regulatory reform is to incorporate provisions that specifically regulate AI technologies into the existing legal framework. Today, most regulations are still general and have not accommodated the unique characteristics of AI, such as automated decision-making, machine learning, and the use of complex algorithms. The absence of this specific regulation leads to ambiguity in determining legal liability, especially when there are errors or losses resulting from AI systems. Therefore, regulations are needed that are able to clearly regulate these aspects, including algorithmic transparency, accountability, and the right of individuals to get an explanation for decisions made by automated systems (Sebastian et al., 2023).

In addition, regulatory reform also needs to pay attention to the integration between legal and ethical aspects in the use of AI technology. Regulations that focus only on formal legal aspects will not be enough to address the problems that arise in practice, especially those related to bias and discrimination in AI systems. Therefore, ethical principles such as fairness, transparency, and non-discrimination need to be integrated into the existing legal framework. This approach aims to ensure that technology is not only used legally, but also responsibly and fairly for all parties (Kumar et al., 2023).

Furthermore, strengthening law enforcement mechanisms is an important part of regulatory reform. The effectiveness of a regulation is highly dependent on the ability of institutions to supervise and enforce the law consistently. In the context of data protection and AI technology, law enforcement faces considerable

challenges, especially related to the complexity of technology and the limitations of human resources with technical expertise. Therefore, efforts are needed to increase institutional capacity, both through training, human resource development, and cooperation with other parties who have competence in the field of technology (Jamal et al., 2024b).

On the other hand, regulatory reform also needs to consider aspects of the digital economy that continue to develop. AI technology has become one of the main drivers in economic transformation, so regulations should not hinder innovation that can provide economic benefits. In this case, policies such as Law Number 6 of 2023 concerning Job Creation show that there are efforts to create a conducive climate for technology development and investment. However, in order for these policies to run optimally, there needs to be a balance between support for innovation and legal protection of personal data and individual rights (Dhewanto et al., 2023).

Regulatory reform also needs to pay attention to the importance of harmonization with international standards. Given the cross-border nature of digital technology, legal arrangements cannot be done in isolation without considering global practices. Regulatory harmonization aims to create alignment between national laws and international standards, thereby facilitating the regulation of data flows and digital activities involving various jurisdictions. In addition, learning from best practices at the international level can be a reference in developing more comprehensive and effective regulations (Elahi et al., 2023).

Another aspect that is no less important in regulatory reform is increasing public awareness and digital literacy. Good regulation will not be effective without the understanding of the public as a subject of law. In the context of data protection, the public needs to understand the rights they have and the risks faced in the use of digital technology. Therefore, education and socialization efforts are an important part of supporting the implementation of existing regulations. Increasing digital literacy can also help people make wiser decisions regarding the use of personal data (Peres et al., 2020).

Furthermore, a risk-based approach also needs to be adopted in regulatory reform. This approach allows regulations to focus more on areas with high risk levels, so that supervision and control can be carried out more effectively. In the context of AI, this approach can be used to identify applications that have the potential to have a major impact on individuals, thus requiring stricter regulation. Thus, regulations can become more flexible and less burdensome to low-risk innovations (Aldboush & Ferdous, 2023).

In addition, regulatory reform also needs to include strengthening data security aspects. Data protection is not only related to legal aspects, but also technical aspects related to system security. Therefore, regulations need to encourage the implementation of high security standards in data management, including the use of encryption technology, anonymization, and other protection mechanisms. This is important to prevent data leakage and misuse of information that can harm individuals (Antoniewska, 2023).

Thus, regulatory reform in the face of AI technology and data protection requires a comprehensive and multidimensional approach. Strengthening regulations is not only carried out through updating legal norms, but also through the integration of ethical aspects, increasing institutional capacity, international harmonization, and increasing public literacy. This comprehensive approach is expected to be able to create a more adaptive, effective, and sustainable regulatory system in the face of evolving digital technology developments (Stavropoulos et al., 2024).

4. Conclusion

Advances in artificial intelligence and data processing systems have brought about significant changes in various aspects of life, while also presenting new challenges in the legal field, particularly regarding personal data protection and information security. Existing regulations, such as the Personal Data Protection Act, the Electronic Information and Transactions Act, and policies supporting the digital economy, have essentially provided a crucial legal framework for regulating digital activities. However, the effectiveness of these regulations still faces various obstacles, particularly in adapting to the dynamic, complex, and ever-evolving nature of AI technology.

Research findings indicate a gap between existing legal norms and actual technology usage practices. This gap is evident in the absence of specific regulations addressing key aspects of AI, such as algorithmic transparency, accountability of automated systems, and safeguards against potential bias and discrimination. Additionally, limitations in law enforcement and institutional capacity also influence

the effectiveness of regulations. This situation indicates that the existence of regulations alone is insufficient; they must be supported by robust and adaptive implementation that keeps pace with technological advancements.

The urgency of strengthening regulations becomes increasingly clear as reliance on data as the primary source for digital technology development grows. Without adequate regulations, the risks of privacy violations, data misuse, and legal uncertainty will continue to rise. Therefore, regulatory reform is needed that not only focuses on updating legal norms but also incorporates ethical considerations, enhances institutional capacity, and aligns with international standards. Thus, it can be concluded that the development of adaptive, comprehensive, and sustainable regulations is a crucial step in addressing legal challenges in the digital age. A balanced approach between legal protection and support for technological innovation is expected to foster a safe, fair, and sustainable digital ecosystem in the future.

References

Abdulrahman, O. T. (2024). Data privacy Assurance in Management Information System through cyber security measures. *PROSPECTIVE RESEARCHES*, *24*(2), 1-6.

Aldboush, H. H., & Ferdous, M. (2023). Building trust in fintech: an analysis of ethical and privacy considerations in the intersection of big data, AI, and customer trust. *International Journal of Financial Studies*, *11*(3), 90.

Antoniewska, J. (2023). Key considerations for companies in the rapid adoption of IoT technologies and its impact on privacy and the data protection of consumers. *Journal of Data Protection & Privacy*, *5*(4), 337-346.

Dhewanto, W., Umbara, A. N., & Hanifan, R. (2022, September). Towards policy development of entrepreneurial ecosystem: A review in Indonesia financial technology sector. In *Proceedings of the 8th International Conference on Industrial and Business Engineering* (pp. 282-290).

Elahi, M., Afolaranmi, S. O., Martinez Lastra, J. L., & Perez Garcia, J. A. (2023). A comprehensive literature review of the applications of AI techniques through the lifecycle of industrial equipment. *Discover artificial intelligence*, *3*(1), 43.

Jamal, H., Algeelani, N. A., & Al-Sammarraie, N. (2024a). Safeguarding data privacy: strategies to counteract internal and external hacking threats. *Computer Science and Information Technologies*, *5*(1), 46-54.

Jamal, H., Algeelani, N. A., & Al-Sammarraie, N. (2024b). Safeguarding data privacy: strategies to counteract internal and external hacking threats. *Computer Science and Information Technologies*, *5*(1), 46-54.

Kumar, P., Singh, D. K., Sharm, M., & Arora, P. (2023, November). Advancing education and cultural heritage through innovative AI techniques: A bibliometric analysis. In *2023 1st DMIHER International Conference on Artificial Intelligence in Education and Industry 4.0 (IDICAIEI)* (Vol. 1, pp. 1-6). IEEE.

Law Number 27 of 2022 concerning Personal Data Protection.

Law Number 19 of 2016 concerning Amendments to Law Number 11 of 2008 concerning Information and Electronic Transactions.

Law Number 6 of 2023 concerning the Stipulation of Government Regulations in Lieu of Law Number 2 of 2022 concerning Job Creation into Law.

Nuseir, M. T., Alshurideh, M. T., Alzoubi, H. M., Al Kurdi, B., Hamadneh, S., & AlHamad, A. (2024). Integrating Big Data and Artificial Intelligence to Improve Business Growth. In *Cyber Security Impact on Digitalization and Business Intelligence: Big Cyber Security for Information Management: Opportunities and Challenges* (pp. 53-66). Cham: Springer International Publishing.

Peres, R. S., Jia, X., Lee, J., Sun, K., Colombo, A. W., & Barata, J. (2020). Industrial artificial intelligence in industry 4.0-systematic review, challenges and outlook. *IEEE access*, *8*, 220121-220139.

Sebastian, R. T., Sherly Steffi, L., & Mathew, G. A. (2023). Examining the Impact of Mentoring on Personal Learning, Job Involvement and Career Satisfaction. In *Artificial Intelligence and Transforming Digital Marketing* (pp. 997-1006). Cham: Springer Nature Switzerland.

Stavropoulos, P., Alexopoulos, K., Makris, S., Papacharalampopoulos, A., Dhondt, S., & Chryssolouris, G. (2024). AI in manufacturing and the role of humans: processes, robots, and systems. In *Handbook of Artificial Intelligence at Work* (pp. 119-141). Edward Elgar Publishing.