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The Impact of Artificial Intelligence on the Performance of Technopreneurship in Abuja Nigeria

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Abstract

This study examines the impact of Artificial Intelligence (AI) on the performance of technopreneurship ventures in Abuja, Nigeria. The objectives were to examine the impact of AI infrastructure flexibility and AI management on performance of technopreneurship ventures in Abuja. Utilizing a quantitative research approach, primary data were collected from 269 technopreneurship enterprise in Abuja using questionnaire and analysed using regression models. The findings indicate a strong overall relationship between AI and technopreneurial performance ($\beta = 0.699$, $p<0.005$), with AI management emerging as a significant factor in enhancing business outcomes. However, AI infrastructure flexibility did not significantly impact performance, challenging the common assumption that increased flexibility in AI systems always leads to better results. The research highlights the importance of effective AI management and a balanced approach to AI infrastructure, providing valuable insights for improving technopreneurial performance in Abuja.

Keywords: Artificial Intelligence, AI Infrastructure Flexibility, AI Management, Technopreneurship

1.1 Introduction

The rapid advancement of technology in recent years has profoundly influenced various sectors, leading to the emergence of new paradigms and reshaping existing ones. Among these technological advancements, Artificial Intelligence (AI) stands out as a transformative force with the potential to revolutionise industries, economies, and societies (Ernst et al., 2019). The global trend towards digitisation and the adoption of AI-driven solutions have opened up new opportunities for innovation, entrepreneurship, and economic development, particularly in emerging economies (Korinek and Stiglitz, 2021). 'Technopreneurship' the fusion of
technology and entrepreneurship has become a critical driver of economic growth, especially in developing regions like Nigeria (Boyd and Holton 2018). It encompasses the creation, development, and scaling of technology-based ventures that leverage innovative solutions to address local and global challenges (Adegbite and Alake, 2020).

In Nigeria, and particularly in the Federal Capital Territory (FCT) Abuja, technopreneurship is increasingly recognized as a vital component of the economic environment, offering potential solutions to the country's persistent issues of unemployment, poverty, and underdevelopment (Akinwale and Adesanya, 2021).

Despite its potential, the technopreneurship ecosystem in Nigeria faces numerous challenges, including limited access to capital, inadequate infrastructure, and a lack of skilled manpower. However, the advent of AI presents an opportunity to overcome some of these barriers (Chui and Francisco, 2017). AI can enhance technopreneurial performance by optimizing business processes, enabling predictive analytics, improving customer engagement, and fostering innovation in product and service delivery (Ndubuisi and Udo, 2019). The flexibility and adaptability of AI infrastructure (AIIF) are particularly critical in this regard, as they determine the ease with which technopreneurs can integrate AI into their operations and scale their businesses (Selz, 2021).

In Abuja, a city poised as a hub for innovation and economic activity in Nigeria, the adoption of AI by technopreneurs is still in its nascent stages. However, the city's unique position as the political and administrative centre of Nigeria, combined with its growing technological ecosystem, makes it an ideal setting for studying the impact of AI on technopreneurship (Makridakis, 2017:

Nabila et al., 2021). Understanding how AI influences the performance of technopreneurial ventures in Abuja could provide valuable insights into the potential of AI to drive economic growth and development not only in Nigeria but also in other emerging economies. Given the strategic importance of technopreneurship in fostering economic development in Nigeria, and the potential of AI to enhance technopreneurial performance, it is imperative to investigate the impact of AI on technopreneurship in FCT Abuja, Nigeria.

Despite the growing acceptance of technopreneurship as a vital engine of economic growth in Nigeria, particularly in the Federal Capital Territory (FCT) Abuja, the incorporation of Artificial Intelligence (AI) into technopreneurial projects is still constrained. This is exacerbated by issues such as insufficient infrastructure, limited access to new technology, and a misunderstanding of how AI may improve corporate performance (Makridakis 2017). As a result, the potential of artificial intelligence to greatly improve the efficiency, inventiveness, and scalability of Abuja's entrepreneurial endeavours is untapped. The research topic, then, is to investigate how AI, with a specific focus on AI Infrastructure Flexibility (AIIF) and AI management (AIM) affects the performance of technopreneurial businesses in FCT.

The main objective of this study is to examine the impact of artificial intelligence on the performance of technopreneurship in Abuja, Nigeria. The specific objectives are to:

i. To examine the impact of AI infrastructure flexibility on the performance of technopreneurship in Abuja Nigeria.
ii. To evaluate how AI management affects the performance of technopreneurship in Abuja Nigeria.

In line with this, the following hypotheses were tested:

HO_1: AI infrastructure flexibility has no significant impact on the performance of technopreneurship in Abuja Nigeria

HO_2: AI management has no significant impact on the performance of technopreneurship in Abuja Nigeria.

This study will focus on assessing the impact of Artificial Intelligence (AI) on the performance of technopreneurial ventures within the Federal Capital Territory (FCT) Abuja, Nigeria. Specifically, it will examine how AI Infrastructure Flexibility (AIIF) and Artificial intelligence management (AIM) influences key performance indicators such as innovation, efficiency, scalability, and market competitiveness among technopreneurs. The research will target technopreneurial businesses operating within Abuja, exploring the extent of AI adoption, the challenges faced in integrating AI into their operations, and the resulting effects on business outcomes. The study adapted quantitative approach and considered the role of external factors such as government policies, access to technology, and availability of skilled *labour* in shaping the adoption and impact of AI in technopreneurship in this region.

2.1 Literature Review

2.2 Concept of Artificial Intelligence

Jarrahi *et al.* (2023) establish a comprehensive definition of intelligence, defining it as "the capacity to engage, acquire, incorporate, and utilize information from past experiences, while also being able to handle situations with unknown outcomes." Additionally, the term "artificial" refers to something created by people that imitates or duplicates something found in nature (Pancane *et al.*, 2023). Artificial Intelligence has been a subject of attention for many decades, there is still a dearth of a universally acknowledged definition in the literature. The absence of a clear definition to serve as a basis for empirical investigations on AI has resulted in a fundamental challenge in comprehending AI as a whole (Arrieta *et al.*, 2020). To develop a comprehensive understanding of AI, it is crucial to initially examine the concept of "intelligence" and then attribute this idea to computers, therefore defining the term "artificial intelligence". Raisch and Krakowski (2021) corroborated that in order to assess the intelligence of various technologies, including those classified as AI, it is necessary to move away from the specific details of individual systems and instead focus on the fundamental principles that define the concept of "intelligence".

AI Infrastructure Flexibility (AIIF) refers to the capability of AI systems to adapt to changes in business needs and technological advancements. This includes the ease with which AI systems can be scaled, integrated with other technologies, and modified to meet specific business requirements (Arrieta *et al.*, 2020). AIIF refers to all the technical elements required for an AI system to operate correctly, such as network installations, software, hardware, and data. To effectively use AI, a company must be able to react swiftly to shifting business circumstances and plans. AIIF is a critical concept in the evolving landscape of AI-driven technologies (Ndubuisi and Udo, 2019). AIIF refers to the ability of AI infrastructures to adapt, evolve, and integrate with various systems and processes, enabling *organisation*s to respond quickly to changing business environments and technological advancements. This comprises crucial components: data, talent, technological know-how, outside relationships, and scalable infrastructure.

AI management refers to a firm support management system assisting the implementation of artificial intelligence. Such initiatives depend heavily on the

commitment of firms to implement AI technologies (Verganti *et al.*, 2020). Developing a clear AI strategy that aligns with the organisation's overall mission and objectives includes identifying key areas where AI can add value, setting realistic goals, and determining the necessary resources (Domini *et al.*, 2023). Establishing frameworks to ensure that AI systems are used responsibly (Blohm *et al.*, 2020). This involves creating policies that address issues such as data privacy, algorithmic bias, and transparency, ensuring that AI applications are ethical and comply with relevant laws. Identifying and mitigating risks associated with AI includes understanding potential threats, such as cybersecurity vulnerabilities or the unintended consequences of AI decisions and implementing measures to minimize these risks technologies (Raisch and Krakowski, 2021). Continuously tracking the performance of AI systems to ensure they meet the desired outcomes also involves setting up metrics to evaluate the effectiveness of AI applications and making adjustments as needed to improve performance and facilitating effective collaboration between human employees and AI systems (Haesevoets *et al.*, 2021).

2.3 Concept of Technopreneurship

Technopreneurship is a concept that fuses technology and entrepreneurship to create innovative solutions, products, and services that drive economic growth and societal progress. As the digital era continues to evolve, technopreneurship becomes increasingly vital, offering new opportunities for problem-solving, business development, and market disruption (Adegbite and Alake, 2020). Technopreneurship is the process of merging technological innovation with entrepreneurial skills to develop and manage new ventures. Technopreneurs, the key players in this process, leverage cutting-edge technologies to create value, often disrupting traditional markets and industries. Unlike conventional entrepreneurs,
technopreneurs focus heavily on technological advancements as the primary driver of their business models.

According to Akinwale and Adesanya (2021) Technopreneurship refers to the entrepreneurial endeavours that involve the use of technology to create new products, services, or business models. Technopreneurs are innovators who leverage technological advancements to address market needs, improve efficiencies, and drive economic growth. In FCT Abuja, technopreneurship is a vital component of the region's economic strategy, fostering a culture of innovation and resilience.

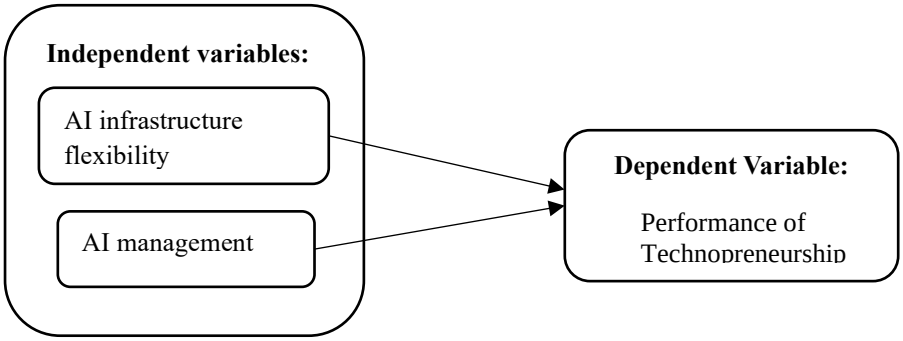

Figure 1: Conceptual framework
Source: Researcher's review, 2024

2.4 Theoretical Framework

The Technology-Organization-Environment (TOE) framework, proposed by Tornatzky and Fleischer (1990), provides a comprehensive model for understanding the adoption of

technological innovations within organizations. The framework posits that three key elements—technology, organization, and environment—interact to influence the adoption and implementation of new technologies. The TOE framework assumes that organizational decisions regarding technology adoption are influenced by internal and external factors (Awa et al., 2016). The technology dimension encompasses the characteristics of the technology itself, such as its perceived benefits and compatibility. The organizational dimension considers factors like firm size, resources, and managerial support, while the environmental dimension includes external pressures, such as competition and regulatory influences (Badghish & Soomro, 2024). One criticism of the TOE framework is that it may oversimplify the complex and dynamic nature of technology adoption by categorizing influencing factors into broad categories (Chatterjee et al., 2021; Yang et al., 2022). Additionally, it is sometimes criticized for lacking specificity in how these factors interact or for not sufficiently considering the role of human agency and individual decision-making processes. The TOE framework is particularly applicable to this study for it allows for a complex analysis of how technological (AI infrastructure flexibility), organizational (AI management), and environmental factors shape the adoption and effectiveness of AI in enhancing business performance. Recent studies have successfully employed the TOE framework in similar contexts. For instance, Abubakar (2016) used TOE to investigate cloud computing adoption in Sub-Saharan SMEs, while Otuka et al. (2014**)** applied the framework to evaluate AI the use and challenges of cloud computing services in SMEs in Nigeria. These studies demonstrate the relevance and adaptability of the TOE framework to emerging economies and technological innovations, reinforcing its applicability to the examination of AI in Nigerian technopreneurship.

3.1 Methodology

A descriptive research design was used in the study. The descriptive design was appropriate for this study because it allowed for data collection by measuring central tendency, variation, and correlation (Shajahan, 2018). The study's target population was 820 registered technopreneurial ventures in Abuja. (SMEDAN, 2017). Using Yamane's formula, a sample size of two hundred and sixty-nine (269) was obtained at a 95 percent confidence level and a 5 percent error of precision level (1967). Owners of technopreneurial ventures in Abuja are polled using an online questionnaire designed on a 5-point Likert scale ranging from strongly disagree to strongly agree. When operationalizing, the dependent and independent variables are mathematically represented. Artificial intelligence (AI) is the independent variable, and performance of technopreneurship (PT) is the dependent variable.

The model is represented by:

$PT_{it} = \beta 0 + \beta 1\ AIIF_{it} + \beta 2\ AIM_{it} + \mu_{it}$

Where:

PT = Performance of technopreneurship

AIIF = AI infrastructure flexibility

AIM = AI management

β_0 = Intercept

$\beta_{1\text{-}2}$ = Regression Coefficients

μ = The error term.

The data obtained are analysed with regression statistics using SPSS 5% level of significance, if the estimated t-value is equal or greater > than table (critical) t-value, we reject Null and accept alternate hypothesis

4.1 Results and Discussion

4.2 Descriptive Statistics

The descriptive statistics showing the gender, educational qualification, management level and the types of AI used are presented in Figure 1-4.

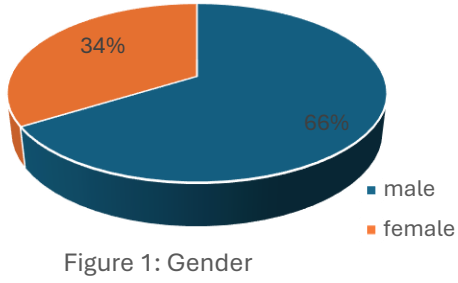

Figure 1: Gender

Source: Survey 2024

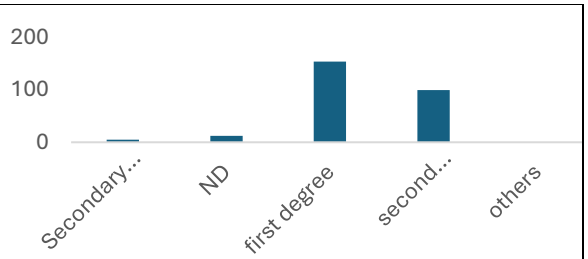

Figure 2: Education qualificatio

Source: Survey 2024

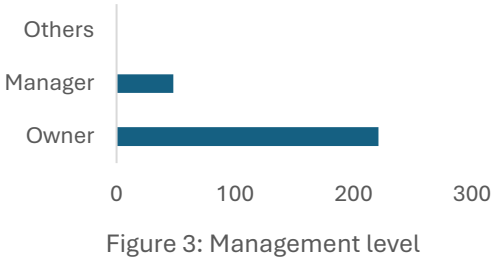

Figure 3: Management level

Source: Survey 2024

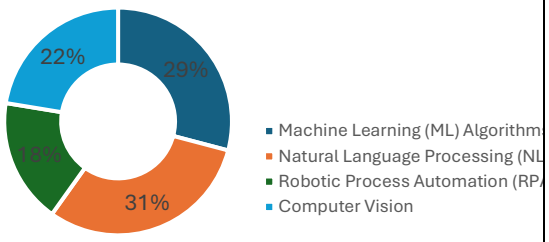

Figure 4: Types of AI used

Source: Survey 2024

The table summarizes the results of the variable correlation analyses. This exercise accomplishes two important goals. The first step is to see if there is a bivariate relationship

between each pair of dependent and independent variables. The second step is to ensure that the correlations between the explanatory variables are not so strong that they cause multi-collinearity problems.

Table 1: Correlation coefficient

This shows the correlation coefficients between the respective variables all of which have values that are less than 0.9 and greater than 0.1

		AIIF	AIM	PT
AIIF	Pearson Correlation	1	.64	.59
	Sig. (2-tailed)		.	.
	N			
AIM	Pearson Correlation			.84
	Sig. (2-tailed)			.
	N			
PT	Pearson Correlation			
	Sig. (2-tailed)			
	N			

**. Correlation is significant at the 0.01 level (2-tailed).
Source: Survey 2024
The results in table 1 indicates that the variables correlate fairly enough to be used for the study and there is no chance of harmful multicollinearity. In addition, using Variance Inflation Factor (VIF) to test for multicollinearity, Kothari and Garg, (2014) stated that a VIF figure greater or equals 10 shows serious multicollinearity. However, in this study, there was no problem of multicollinearity as all VIF figure in Table 2.

Table 2: Variance Inflation Factor

Model		Collinearity Statistics	
		Tolerance	VIF
1	(Constant)		
	AIIF	.	2.
	AIM	.	1.

a. Dependent Variable: PT
Source: Survey 2024

The assumption of no autocorrelation of the error terms is also a requirement of linear regression. Norusis (1995) is of the opinion that Durbin-Watson can be used to test the independence of error terms. He added that the general rule of thumb is that if the Durbin-Watson value is between 1.5 and 2.5, the assumption of independence of the terms is not

violated. The Durbin Watson coefficient stood at 1.616 as shown in Table 3 which falls within the benchmark. This indicates the absence of harmful serial correlation. This fulfils one of the assumptions of linear regression.

4.3 Hypotheses Testing and Discussion

This section presents the result relating to hypothesis testing. Upon the fulfilment of the assumptions of regression analysis, multiple regression analysis is considered suitable for testing the research hypotheses. In Table 3, the respective hypotheses are discussed.

Table 3: Regression Statistics

Model	F	t	Sig.
(Constant)	.	2.	.037
AIIF	-.	-.	.783
AIM	.	19.	.000
R			0.
R Squared			0.
Adjusted R Square			0.
F-Statistics			325.
Probability (F-Stat)			0.
Durbin-Watson			1.

Author's computation (2024)

Table 3 presents the ANOVA for the impact of Artificial Intelligence (AI*)* on the performance of technopreneurship. The F-statistics stood at 325.155. The p-value is less than 0.05, indicating that the relationship depicted in the model is significant at a 95% confidence level. Also, the value of R as depicted in the model indicates a positive and strong (0.853) indicating a strong relationship between the combined variables of artificial intelligence and the performance of technopreneurship. The value of the R square (0.728) implies that the independent variables account for about 72.8% variation in the performance of technopreneurship. The value of the adjusted R square (0.725) implies that the independent variables will still account for about 72.5% variation in the performance of technopreneurship if exogenous variables are added. The study findings concur with previous findings by Abbas, (2018), Tarmizi et al., (2023), and Wuisan et al., (2023) which reported that there is a strong relationship between AI and the performance of technopreneurship.

The coefficient of AI infrastructure flexibility stood at -0.016 which is negative implies that the more IA infrastructures are flexible the less the performance by 1.6%. However, the significance of this can be judged from the *t* statistics and its significance which stood at -0.276 having a p-value of 0.783. The p-value is greater than 0.05, indicating that the relationship depicted in the model is insignificant at a 95% confidence level. This implies

that the study has no statistical evidence to reject the null hypothesis which states that- AI infrastructure flexibility has no significant impact on the performance of technopreneurship ventures in Abuja. The result is however unexpected because it is believed that the more a new technology is flexibility the more it can accommodate the existing ones and the better the performance. The findings disagree with the previous

studies of Tanutama and Hardy (2022) and Doorsamy et al, (2021). Tanutama and Hardy (2022) stated that flexibility of cloud computing provides multi-platform system that improves business performance while Doorsamy et al, (2021) reported that using Decision Support System (DSS), it can increase flexibility in problem solving as the marketing strategies have a great influence on the business performance especially for technopreneurship business.

Furthermore, the study also reveals that the coefficient of AI management (AIM) stood at 0.699 which is high and positive and implies that an increase in AI management (AIM) would lead to an increase in the performance of technopreneurship by 69.9%. However, the significance of this can be judged from the *t* statistics and significance. The *t* statistics of AI management (AIM) stood at 19.006 with a p-value of 0.000. The p-value is less than 0.05, indicating that the relationship depicted in the model is significant at a 95% confidence level. This implies that the study has enough statistical evidence to reject the null hypothesis which states that - AI management has no significant impact on the performance of technopreneurship ventures in Abuja, hence, AI management has a significant impact on the performance of technopreneurship ventures in Abuja. This result is in sync with Zein et al., (2021), where the impact of AI management on business performance was tested. This result is also matched with the findings of Ndagi and Salihu (2019), Pei et al., (2010) and Rohman et al., (2023) who were of the opinion that if management gives supportive measures for the introduction and implementation of AI tools in an organization the business performance will improve.

5.1 Conclusion and Recommendations

The study examined the impact of Artificial Intelligence (AI) on the performance of technopreneurship ventures in Abuja, Nigeria, focusing on AI infrastructure flexibility and AI management. The findings revealed a significant and strong relationship between AI and the performance of technopreneurship, as indicated by the R value (0.853) and the R square value (0.728). However, AI infrastructure flexibility was found to have an insignificant and negative impact on technopreneurship performance, suggesting that increased flexibility in AI infrastructure does not necessarily enhance performance. Conversely, AI management demonstrated a significant positive impact, with a high coefficient (0.699), indicating that effective AI management can substantially boost technopreneurial success. These findings highlight the critical role of AI management in driving performance, while also challenging assumptions regarding the benefits of flexible AI infrastructure. The results suggest that while AI has the potential to revolutionize technopreneurship, the way it is managed is crucial to realizing its benefits. The study thus recommends that:

i. Given the unexpected negative impact, it is recommended that technopreneurs in Abuja prioritize a balanced approach to AI infrastructure. This includes ensuring compatibility with existing systems without overemphasizing flexibility, which may lead to inefficiencies.

ii. To enhance the performance of technopreneurship, it is crucial to invest in strong AI management practices. This includes training for management teams, developing clear AI strategies, and providing ongoing support for the implementation of AI tools.

References

Abbas, A. A. (2018). The bright future of Technopreneurship. *International Journal of Scientific & Engineering Research*, *9*(12), 563-566.

Abubakar, A. D., Bass, J. M., & Allison, I. (2014). Cloud computing: Adoption issues for sub-saharan African SMEs. *The Electronic Journal of Information Systems in Developing Countries*, *62*(1), 1-17. Abuja.

Mikalef, P., & Gupta, M. (2021). Artificial intelligence capability: Conceptualization, measurement calibration, and empirical study on its impact on *organisationa*l creativity and firm performance. *Information & management*, *58*(3), 103434.

Arrieta, A. B., Díaz-Rodríguez, N., Del Ser, J., Bennetot, A., Tabik, S., Barbado, A., & Herrera, F. (2020). Explainable Artificial Intelligence (XAI): Concepts, taxonomies, opportunities and challenges toward responsible AI. *Information fusion*, *58*, 82-115.

Asaad, R. R., Saeed, V. A., & Abdulhakim, R. M. (2021). Smart Agent and its effect on Artificial Intelligence: A Review Study. *Icontech International Journal*, *5*(4), 1-9.

Awa, H. O., Ukoha, O., & Emecheta, B. C. (2016). Using TOE theoretical framework to study the adoption of ERP solution. *Cogent Business & Management*, *3*(1), 1196571.

Badghish, S., & Soomro, Y. A. (2024). Artificial intelligence adoption by SMEs to achieve sustainable business performance: application of technology–organization–environment framework. *Sustainability*, *16*(5), 1864.

Benbya, H., Davenport, T. H., & Pachidi, S. (2020). Artificial intelligence in *organisationa*s: Current state and future opportunities. *MIS Quarterly Executive*, *19*(4)

Blohm, I., Antretter, T., Sirén, C., Grichnik, D., and Wincent, J. (2020). It's a people's game, Isn't it? A comparison between the investment returns of business angels and machine learning algorithms. Entrep. Theory Pract. 2020:1042258720945206. doi: 10.1177/1042258720945206

Boyd, R., & Holton, R. J. (2018). Technology, innovation, employment and power: Does robotics and artificial intelligence really mean social transformation?. *Journal of Sociology*, *54*(3), 331-345.

Chatterjee, S., Rana, N. P., Dwivedi, Y. K., & Baabdullah, A. M. (2021). Understanding AI adoption in manufacturing and production firms using an integrated TAM-TOE model. *Technological Forecasting and Social Change*, *170*, 120880.

Chen, L., Chen, P., & Lin, Z. (2020). Artificial intelligence in education: A review. *Ieee Access*, *8*, 75264-75278.

Chui, M., & Francisco, S. (2017). Artificial intelligence the next digital frontier. *McKinsey and Company Global Institute*, *47*(3.6), 6-8.

Cope, B., Kalantzis, M., & Searsmith, D. (2021). Artificial intelligence for education: Knowledge and its assessment in AI-enabled learning ecologies. *Educational philosophy and theory*, *53*(12), 1229-1245.

Dhanabalan, T., & Sathish, A. (2018). Transforming Indian industries through artificial intelligence and robotics in industry 4.0. *International Journal of Mechanical Engineering and Technology*, *9*(10), 835-845.

Domini, B., Dewi, A. S., & Cesna, G. P. (2023). Assessing the Effects of Artificial Intelligence on Startup Performance: An Analysis of Transformational

Initiatives. *IAIC Transactions on Sustainable Digital Innovation (ITSDI)*, *5*(1), 24-38.

Doorsamy, W., Paul, B. S., & Marwala, T. (2021). The Fourth Industrial Revolution in Africa. *International Perspectives on Artificial Intelligence*, *91*.

Ernst, E., Merola, R., & Samaan, D. (2019). Economics of artificial intelligence: Implications for the future of work. *IZA Journal of Labor Policy*, *9*(1).

Haesevoets, T., De Cremer, D., Dierckx, K., and Van Hiel, A. (2021). Human-machine col*labour*ation in managerial decision making. Comput. Hum. Behav. 119:106730. doi: 10.1016/j.chb.2021.106730

Ikalef, P., & Gupta, M. (2021). Artificial intelligence capability: Conceptualization, measurement calibration, and empirical study on its impact on *organisationa*l creativity and firm performance. *Information & management*, *58*(3), 103434.

Jarrahi, M. H., Askay, D., Eshraghi, A., & Smith, P. (2023). Artificial intelligence and knowledge management: A partnership between human and AI. *Business Horizons*, *66*(1), 87-99.

Jhurani, J. (2022) Revolutionizing Enterprise Resource Planning: The Impact of Artificial Intelligence on Efficiency and Decision-making For Corporate Strategies. *International Journal of Computer Engineering and Technology (IJCET)*, *13*(2), 156-165.

Korinek, A., & Stiglitz, J. E. (2021). *Artificial intelligence, globalization, and strategies for economic development* (No. w28453). National Bureau of Economic Research.

Makridakis, S. (2017). The forthcoming Artificial Intelligence (AI) revolution: Its impact on society and firms. *Futures*, *90*, 46-60.

Meshram, R. (2023). The role of artificial intelligence (ai) in recruitment and selection of employees in the organisation. *Russian Law Journal*, *11*(9S), 322-333.

Mikalef, P., & Gupta, M. (2021). Artificial intelligence capability: Conceptualization, measurement calibration, and empirical study on its impact on *organisationa*l creativity and firm performance. *Information & management*, *58*(3), 103434.

Nabila, E. A., Santoso, S., Muhtadi, Y., & Tjahjono, B. (2021). Artificial intelligence robots and revolutionizing society in terms of technology, innovation, work and power. *IAIC Transactions on Sustainable Digital Innovation (ITSDI)*, *3*(1), 46-52.

Ndagi, A., & Salihu, A. A. (2019). Technology Entrepreneurship and Fourth Industrial Revolution Era. *LAPAI International Journal of Management and Social Sciences*, *11*(1), 142-153.

Otuka, R., Preston, D., & Pimenidis, E. (2014, September). The use and challenges of cloud computing services in SMEs in Nigeria. In *Proceedings of the European Conference on Information Management* (p. 325).

Pancane, I. W. D., Dantes, N., & Perni, N. N. (2022). The Phenomenon of Artificial Intelligence as a Future Dream Technology According to Hindu's Teachings. *Vidyottama Sanatana: International Journal of Hindu Science and Religious Studies*, *6*(1), 124-136.

Pei, L. K., Noordin, K. A., Ting, Y. P., & Baharudin, A. S. (2010, December). Failure factors of The Malaysian IT technopreneurship. In *2010 International Conference on Science and Social Research (CSSR 2010)* (pp. 686-690). IEEE.

Raisch, S., and Krakowski, S. (2021). Artificial intelligence and management: the automation– augmentation paradox. Acad. Manag. Rev. 46, 192–210. doi: 10.5465/amr.2018.0

Rohman, N., Hardiyati, M., Rizqia, M., Simangunsong, N., & Wulandari, D. R. (2023). edu-technopreneurship: the concept of educational business development in the digital era. in *proceedings: Dirundeng International Conference on Islamic Studies* (pp. 35-48).

Ryketeng, M., & Syachbrani, W. (2023). Optimising Human Resources Capacity: Driving Adoption of Latest Technology and Driving Business Innovation amidst the Dynamics of the Digital Era. *Journal of Contemporary Administration and Management (ADMAN)*, *1*(3), 229-236.

Sarker, I. H. (2022). AI-based modeling: techniques, applications and research issues towards automation, intelligent and smart systems. *SN Computer Science*, *3*(2), 158.

Selz, D. (2020). From electronic markets to data driven insights. Electron. Mark. 30, 57–59. doi: 10.1007/s12525-019-00393-4

Sha, W., Guo, Y., Yuan, Q., Tang, S., Zhang, X., Lu, S., & Cheng, S. (2020). Artificial intelligence to power the future of materials science and engineering. *Advanced Intelligent Systems*, *2*(4), 1900143.

Tanutama, L., & Hardy, A. (2022). A Study of Information and Communications Technology Students e-Platform Choices as Technopreneur. In *Conference on Innovative Technologies in Intelligent Systems and Industrial Applications* (pp. 263-271). Cham: Springer Nature Switzerland.

Tarmizi, R., Septiani, N., Sunarya, P. A., & Sanjaya, Y. P. A. (2023). Harnessing digital platforms for entrepreneurial success: A study of technopreneurship trends and practices. *Aptisi Transactions on Technopreneurship (ATT)*, *5*(3), 278-290.

Tornatzky, L. G., & Fleischer, M. (1990). *The processes of technological innovation*. Lexington, MA: Lexington Books.

Verganti, R., Vendraminelli, L., and Iansiti, M. (2020). Innovation and design in the age of artificial intelligence. J. Prod. Innov. Manag. 37, 212–227. doi: 10.1111/jpim.12523

Wuisan, D. S. S., Sunardjo, R. A., Aini, Q., Yusuf, N. A., & Rahardja, U. (2023). Integrating artificial intelligence in human resource management: A smartpls approach for entrepreneurial success. *Aptisi Transactions on Technopreneurship (ATT)*, *5*(3), 334-345.

Yang, J., Luo, B., Zhao, C., & Zhang, H. (2022). Artificial intelligence healthcare service resources adoption by medical institutions based on TOE framework. *Digital Health*, *8*, 20552076221126034.

Zein, M., Ghalih, M., & Pebriana, R. (2021). Entrepreneurship and Technopreneurship in Era 4.0: GO-JEK Extended to Decacorn. In *Handbook of Research on Innovation and Development of E-Commerce and E-Business in ASEAN* (pp. 624-639). IGI Global.