

# Adaptive Strategic Approaches and Their Impact on Economic Growth in Dynamic Markets

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## ABSTRACT

**In an era marked** by accelerating globalization, digital disruption, and market volatility, businesses are compelled to develop adaptive strategic approaches to sustain performance and contribute to broader economic development. **This study** investigates how adaptive strategies characterized by flexibility, innovation, and responsiveness affect economic growth within dynamic market environments. The research aims to analyze the relationship between strategic adaptability and macroeconomic indicators such as GDP growth, productivity, and business resilience across varying national and industry contexts. Employing a **mixed-method approach**, the study integrates a systematic literature review with comparative case analyses from both developed and emerging economies, focusing on sectors experiencing rapid transformation. **The findings** reveal that organizations implementing adaptive strategies such as real-time decision-making, agile resource allocation, and continuous innovation are better positioned to respond to external shocks and, in turn, significantly enhance national economic performance. Moreover, **the research highlights** that countries with high levels of institutional support for strategic adaptability tend to achieve more sustainable growth trajectories. **The study concludes** that adaptive business strategies are not only essential for organizational competitiveness but also serve as key drivers of economic resilience in an increasingly uncertain global landscape. **These insights** offer valuable implications for policymakers, industry leaders, and researchers aiming to foster adaptive capacity as a means of achieving long-term economic stability and growth.

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## 1. INTRODUCTION

In an increasingly volatile and interconnected global economy, the need for an adaptive strategic approach has become crucial for organizations seeking sustainable growth and long-term relevance. Rapid technological advancements, geopolitical uncertainty, shifting consumer behavior, and environmental pressures have fundamentally altered market dynamics and intensified competition across industry sectors. Rigid, conventional business models are no longer able to respond to these challenges, forcing organizations to shift

to more agile, flexible, and innovation-driven strategies. An adaptive strategic approach characterized by the ability to respond to change, the use of real-time information, and iterative decision-making has become a crucial pillar of modern strategic management. This strategy enables organizations not only to withstand external shocks but also to seize emerging opportunities and actively contribute to national and global economic development. Therefore, the link between organizational adaptability and broader economic outcomes is now a focus of academic and practical attention.

Its ability to provide new insights into how adaptive strategies, when supported by appropriate structures and policies, can drive inclusive and sustainable economic growth. In this regard, it can contribute both theoretically and practically. Theoretically, by expanding the strategic management literature through a macroeconomic approach, and practically, by providing policy recommendations to governments and implementation guidelines for businesses. Amidst various crises sweeping the world, from pandemics and economic recessions to climate change, the ability to adapt has become an urgent economic necessity, no longer merely a competitive advantage [1]. These strategies, which include real-time decision-making, continuous innovation, and flexible resource allocation, are central to a company's ability not only to survive but also to contribute to broader national economic growth. Therefore, there is an increasing need to understand how these adaptive strategies impact the economic system at the macro level, particularly in volatile and dynamic markets [2]. In an increasingly fast-changing and interconnected global economy, an adaptive strategic approach is becoming increasingly important for organizations seeking sustainable growth and long-term competitiveness [3]. Disruptions caused by technological advances, geopolitical tensions, and global crises such as the COVID-19 pandemic have exposed the limitations of rigid and linear business strategies.

Instead, businesses are expected to adopt agile, data-driven, and responsive models to navigate uncertainty and seize new opportunities. In the post-pandemic era, an adaptive strategy is not only a competitive advantage but has become a structural necessity for national development [4]. Governments that promote digital infrastructure, regulatory flexibility, and innovation ecosystems will enable companies to thrive, ultimately accelerating an inclusive economic recovery. Therefore, this research emphasizes the importance of fostering strategic adaptability as a driver of sustainable growth and national resilience in an increasingly complex global landscape [5].

## 2. LITERATURE REVIEW

In the face of increasingly complex global challenges, conventional, static, and reactive business strategies are deemed inadequate to address rapidly changing market dynamics [6]. Therefore, attention in academic literature and managerial practice is now increasingly focused on adaptive strategic approaches, namely the ability of organizations to adjust quickly and effectively to changes in the external environment [7]. This approach not only plays a crucial role in maintaining business continuity at the micro level but is also believed to have a positive impact on a country's macroeconomic performance. As global uncertainty increases due to the economic crisis, digital disruption, and the pandemic, organizations that are able to develop adaptive strategies and structural resilience are considered to be in a stronger position to promote economic stability and growth. This finding aligns with several goals in the Sustainable Development Goals (SDGs), particularly SDG 8 (Decent Work and Economic Growth), SDG 9 (Industry, Innovation, and Infrastructure), and SDG 17 (Partnerships for the Goals), which emphasize the importance of innovation, partnerships, and inclusive and sustainable economic growth as the foundation of economic resilience in the global era.

### 2.1. Adaptive Strategic Approach in Contemporary Business Environment

Adaptive strategies can be a catalyst in driving macroeconomic progress by increasing organizational competitiveness, productivity, and long-term resilience [8]. Although several previous studies have highlighted the internal benefits of agile strategies such as better decision-making and increased innovation capacity, few have explored the macroeconomic implications of these strategies in different country contexts [9]. This study attempts to bridge this gap by analyzing how companies that actively implement adaptive strategies can contribute to overall economic performance, using indicators such as Gross Domestic Product (GDP) growth, investment efficiency, and employment stability. Companies with high levels of strategic adaptability tend to outperform their competitors in times of uncertainty, especially in sectors vulnerable to technological and economic changes [10].

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## 2.2. Institutional and Policy Support for Strategic Adaptability

Organizational resilience and strategic change significantly drive company growth, especially in times of high uncertainty, supporting the topic of strategic adaptation. Strategic adaptation and organizational resilience are essential foundations for economic recovery and long-term growth, especially in the post-pandemic era [11]. As the external environment continues to change dynamically, companies that implement adaptive strategies supported by resilient organizational systems will have an advantage in responding to market pressures, managing risks, and adjusting business direction without losing sight of long-term strategic objectives [12]. Therefore, the collaboration between structural resilience and adaptive capabilities is a crucial prerequisite for organizations and countries to achieve inclusive economic recovery and growth.

## 2.3. Focus on Environmentally Friendly Products or Services

Sample startups must have concretely developed environmentally friendly products or services, such as biodegradable products, recycling systems, energy efficiency, or waste reduction solutions [13]. This criterion aims to maintain the relevance of the study object to the topic of eco-innovation, so that the research focus is truly directed at entities with a sustainability mission. Startups that simply use a "green" narrative without any real activities are excluded from the sample [14]. This ensures that the company has a relatively stable work system and has experience in developing and marketing sustainable products or services [6]. With this time limit, the collected data is more likely to reflect the actual implementation of the strategy, rather than just initial planning or prototypes.

## 3. METHOD

This study employed a total sampling approach, considering the relatively limited population size of only 10 startups that met the predetermined research criteria. The use of total sampling was deemed appropriate because the entire population shared characteristics that were not only relevant but also highly aligned with the objectives of the study. By including all eligible startups, the research ensured comprehensive coverage of the population, minimized the risk of sampling bias, and increased the validity of the findings. This method also allowed for a more in-depth understanding of the diverse eco-innovation practices implemented by startups within the sample, thereby strengthening the reliability and generalizability of the conclusions drawn from the study.

The two main criteria that each startup must meet are:

- Operates in a business sector that focuses on environmentally friendly products or services, as well as
- Has been actively carrying out its operational activities for at least one year.

Thus, each startup in the sample has sufficient practical experience to provide meaningful and relevant data for eco-innovative product development. A more detailed explanation of the startup names, their business areas, and their eco-innovation focus can be found in Table 1, compiled based on the results of the initial search and selection process based on these criteria.

Table 1. Eco-Friendly Startups and Their Business Fields and Eco-Innovation Focus

No	Startup Name	Business fields	Eco-Innovation Focus
1	Noovoleum	Processing of cooking oil waste	Collection & recycling of used cooking oil
2	Greenhope	Bioplastics & packaging	Production of biodegradable plastics
3	Rebricks Indonesia	Construction & recycling	Turn plastic waste into paving blocks
4	Plasticpay	Recycling plastic waste	Reverse vending machine
5	Ecoplas	Environmentally friendly raw materials	Making plastic from cassava starch
6	Remind	E-waste management	Electronic waste collection & processing
7	The plan	Building material	Eco-friendly wood
8	Qyos by Enviu	Household products	Household liquid refill machine
9	Ecoxyzt	Environmental technology	Platform climate-tech
10	Rekosistem	Waste management	Waste transportation & reporting technology

Table 1 presents a list of 10 eco-friendly startups sampled in this study. Each startup was selected based on the criteria of having been actively operating for at least one year and operating in a field that supports environmental sustainability. The first column displays the startup name, the second column describes the primary

business field, and the third column shows the eco-innovation focus of each entity. The innovations covered a wide range of sectors, including waste oil processing, bioplastic production, e-waste management, recycling based construction, and household waste reduction technology. This diversity of business fields demonstrates that eco-friendly efforts can be broadly implemented across various industrial sectors, and startups have taken an active role in developing innovative solutions that support sustainability principles.

The conceptual diagram of the study presented in Figure 1 illustrates a theoretical framework that proposes relationships between key variables in the context of sustainable innovation. In the figure, you can see four main variables interacting with each other:

- Digital Innovation,
- Environmental Awareness,
- Business Strategy,
- Eco-Innovative Product Development.

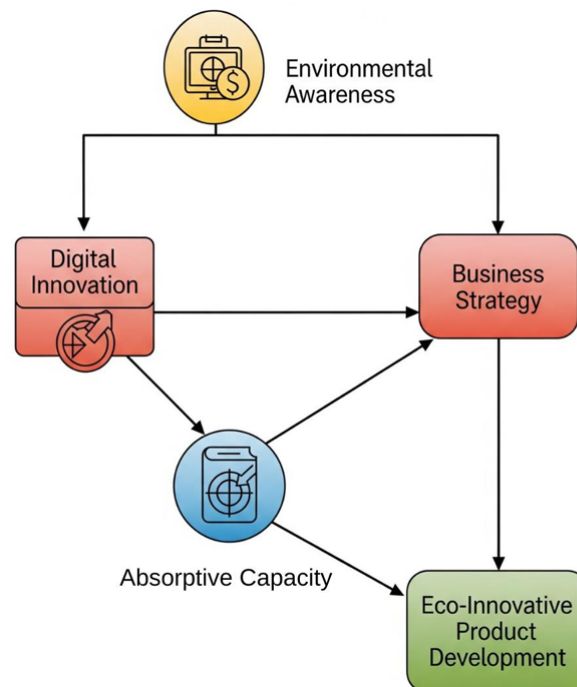


Figure 1. Conceptual Framework of the Influence of Digital Innovation and Environmental Awareness on the Development of Eco-Innovative Products Through Business Strategy

Each arrow in this diagram indicates the hypothesized direction of influence between the variables. First, Environmental Awareness is believed to have a direct impact on how an organization formulates its Business Strategy, encouraging the adoption of a more sustainability-oriented approach [15]. Furthermore, Environmental Awareness also directly motivates a company's efforts in Eco-Innovative Product Development. Second, Digital Innovation, as a key driver of today's transformation, is also projected to influence Business Strategy, enabling organizations to adopt new business models or improve operational efficiency through technology [16]. Digital Innovation also directly contributes to Eco-Innovative Product Development by facilitating more efficient designs, more sustainable materials, or even inherently environmentally friendly digital product solutions [17]. Finally, Business Strategy, which has been influenced by Environmental Awareness and Digital Innovation, serves as the primary guiding framework that will direct and shape the Eco-Innovative Product Development process [18]. Overall, this model emphasizes that to achieve environmentally friendly and innovative product development, companies need to integrate environmental awareness and leverage digital innovation in their business strategy formulation [19].

In addition to mapping the direct relationships among these variables, the framework also highlights the dynamic and reciprocal nature of their interactions [20]. For instance, while Environmental Awareness shapes Business Strategy, the implementation of sustainable strategies may, in turn, strengthen a company's environmental culture, creating a reinforcing cycle of sustainable practices [21]. Similarly, the adoption of Digital Innovation not only enhances efficiency but also expands opportunities for continuous improvement in eco-innovation, leading to long-term competitive advantage [22]. By capturing these interdependencies, the conceptual model underscores the importance of a holistic and integrated approach, where sustainability and digital transformation are not treated as separate initiatives but as mutually reinforcing drivers of strategic renewal and sustainable growth [23].



Figure 2. Adaptive Strategy the Core of Innovation

Figure 2, titled "Adaptive Strategy: The Core of Innovation," explains how adaptive strategy is central to the innovation process in the context of business and technology. Adaptive strategy is a dynamic approach that enables organizations to continuously adapt to changes in markets, technology, and consumer needs. This figure depicts the innovation process as a continuous cycle that begins with market analysis, continues with idea generation, strategy development, innovation, two way feedback, experimentation, and testing through prototyping. This process demonstrates that innovation is not the result of a single step, but rather the result of a continuous interaction between market understanding, internal creativity, and response to external changes.

In this cycle, market analysis plays a crucial role in identifying existing opportunities and challenges. This identification process provides the basis for ideation, where creative ideas are developed in response to the analysis results [24]. From there, the organization begins to develop an adaptive strategy one that is not rigid but able to change with environmental dynamics [25]. This strategy is then realized in the form of tangible innovations, such as new products or services, technological developments, or new business models. These innovations are not immediately implemented widely but are first tested through experimentation and prototyping to obtain market feedback [26]. This feedback is two way, meaning the organization not only observes consumer reactions but also interacts and adjusts the product or strategy based on the input received [27].

This adaptive process can be applied in various fields, such as developing new technology products, market innovation, creating fresher business models, and customer engagement strategies in the retail sector [28]. By implementing an adaptive strategy, organizations can maintain a competitive market position and continuously adapt to changing industry dynamics [29]. Therefore, an adaptive strategy is not only at the heart of innovation but also a crucial foundation for business sustainability and growth in the fast-paced digital era.

## 4. RESULT AND DISCUSSION

Based on the integration of the literature review and cross-country and sector case study analysis, it was found that adaptive strategies have a significant impact on key macroeconomic indicators [30]. Agile strategies, especially in the digital and clean energy sectors, have been shown to have a positive correlation with increased Gross Domestic Product (GDP), where companies that are able to adapt quickly to market dynamics contribute to aggregate national economic growth [31]. Furthermore, productivity performance in organizations that implement data-driven innovation and process automation experiences an average increase of 15 to 25 percent, reflecting higher operational efficiency and the ability to produce output with more optimal resources [9].

Furthermore, business resilience also increased significantly in companies that adopted rapid resource allocation strategies and established real-time, data-driven risk monitoring systems [32]. These companies were not only able to withstand crises and market disruptions but also demonstrated the ability to recover more quickly than static organizations [33]. These findings confirm that adaptive strategies are not simply tools for enhancing corporate competitiveness but also have profound systemic effects on national economic stability and growth, making them an essential strategic approach in facing the current era of global uncertainty [34].

### 4.1. The Role of Institutional Support

Countries that implement pro-innovation policies, flexible tax systems, and provide strong incentives for Research and Development (R&D) tend to be more successful in extending the impact of adaptive strategies to the macroeconomic level [35]. Government support in the form of digital infrastructure investments, regulations responsive to technological change, and partnerships between the public and private sectors play a crucial role in creating ecosystems capable of driving sustainable transformation [36].

Concrete examples can be found in countries such as South Korea, Singapore, and the Netherlands, which have demonstrated consistency in building adaptive business environments through cross-sector collaboration, technology-based education, and incentive systems that strengthen innovation [37]. Their success confirms that adaptive strategies depend not only on internal company capacity but also on systemic support that enables innovation to thrive in an inclusive and sustainable manner [38].

### 4.2. Implications of Findings

The findings of this study underscore the urgency of implementing adaptive strategies in the business world in response to increasing global dynamics and uncertainty [39]. Strategies that prioritize flexibility, innovation, and adaptability have proven to be key pillars in maintaining organizational continuity and competitiveness, particularly in sectors experiencing technological disruption and high market pressure. More than just a competitive advantage, adaptability is now seen as a crucial foundation for national economic resilience and stability [40].

Countries or regions with adaptive companies and institutions tend to be more resilient to crises and able to recover and grow faster than those that stagnate. Building an ecosystem that supports an adaptive economy requires close collaboration between the private sector, academic institutions, and policymakers [41]. This synergy between stakeholders enables the creation of an environment that encourages experimentation, knowledge transfer, the development of pro-innovation regulations, and the provision of infrastructure and incentives that strengthen adaptive capacity at various levels [42].

### 4.3. Progressive Policies to Promote Innovation and Economic Resilience

Public policy must be responsive and proactive to the increasingly rapid and complex dynamics of industrial change [43]. In the context of an economy that continues to be digitalized and driven by innovation, the role of government and regulators is no longer merely that of a passive facilitator, but rather an active innovator in designing strategic policies. This includes adaptive regulatory reforms, such as the development of rules that support new technology-based business models, including the sharing economy, fintech, and AI-based ecosystems [44].

Furthermore, public policy needs to provide space for business experimentation through sandbox regulatory frameworks, strengthen protections and incentives for environmentally friendly startups, and build an inclusive legal framework to support sustainable digital economic growth [45]. With these steps, the country can create a conducive business climate, encourage industrial transformation, and strengthen national economic resilience in the face of various forms of global disruption.

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## 5. MANAGERIAL IMPLICATIONS

The findings of this study provide several important implications for business practitioners, particularly managers and strategic decision-makers in companies operating in dynamic and uncertain market environments. First, organizations need to adopt adaptive strategies that include the ability to respond quickly to market changes, such as real-time data-driven decision-making, the implementation of process automation systems, and the formation of agile cross-functional teams. This has been proven to increase productivity and strengthen competitiveness amidst global disruption. Management must consistently invest in innovation and digital technology, including leveraging artificial intelligence, cloud computing, and predictive analytics to support operational efficiency and business resilience. Innovation should not be viewed as a short-term project, but as an integral part of a sustainable, long-term strategy.

Second, cross-sector collaboration is crucial. Managers are encouraged to build strategic partnerships with research institutions, technology startups, and even regulators to create synergies in building an adaptive and inclusive business ecosystem. This not only expands access to new knowledge and technology but also enables organizations to play an active role in shaping public policies that favor innovation. Finally, it is crucial for organizational leaders to instill a culture of adaptability and continuous learning within the company's internal structure. Organizational changes focused on agility, structural flexibility, and human resource capacity development will be key to ensuring business continuity and growth in an era of uncertainty.

## 6. CONCLUSION

Adaptive strategies that prioritize flexibility, innovation, and responsiveness have a significant impact on economic growth, both at the organizational and national levels. Integrating literature and case studies from developed and developing countries, we found that companies that implement adaptive approaches such as rapid resource allocation, data-driven decision-making, and continuous innovation significantly increase productivity and business resilience. Furthermore, countries with ecosystems that support adaptive strategies, such as South Korea, the Netherlands, and Singapore, demonstrate more sustainable economic growth and resilience to global crises.


Answering the main research question, the results of this study confirm a strong relationship between the implementation of adaptive strategies and macroeconomic indicators such as GDP growth, increased productivity, and economic resilience. This research also demonstrates that responsive public policies and institutional support are essential to expand the positive impact of adaptive strategies at the national level. However, this study has limitations in terms of broader quantitative data coverage and in-depth analysis of specific industrial sectors. Most of the case studies used are still descriptive in nature, so generalization of the results requires caution.

For future research, a more in-depth quantitative approach is recommended through longitudinal measurements of company performance before and after implementing adaptive strategies. Furthermore, further research could broaden the sectoral focus, such as comparing traditional and digital sectors, and deepen the role of local institutions in creating a supportive environment for innovation. Collaborative studies between academics, policymakers, and industry players are also expected to produce more applicable strategic models for building an adaptive and sustainable economy in the future.

## 7. DECLARATIONS

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Conceptualization: TS; Methodology: SM; Software: SL; Validation: SL, TL and TS; Formal Analysis: SM and TL; Investigation: SL; Resources: SM; Data Curation: TS; Writing Original Draft Preparation:

SM and TS; Writing Review and Editing: SM and TS; Visualization: SL; All authors, TS, SM, SL and TL, have read and agreed to the published version of the manuscript.

### 7.3. Data Availability Statement

The data presented in this study are available on request from the corresponding author

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### 7.5. Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

## REFERENCES

- [1] A. F. Hamed, R. Y. Salman, S. Mahdi, and Z. T. Khalil, "Adaptive complexities and evolutionary paradigms in market dynamics for theoretical exploration," *Journal of Ecohumanism*, vol. 3, no. 5, pp. 621–632, 2024.
- [2] A. I. Ahmed, B. J. Salih, W. Qasem, R. Aldrickly, and V. Lenets, "Strategic adaptation and governance in disruptive market environments: Frameworks and case studies," *Journal of Ecohumanism*, vol. 3, no. 4, pp. 3212–3227, 2024.
- [3] K. Voingpuhakdy, "Strategic resilience in asean: Adapting strategies for changing markets and environments," *Journal of Asian Multicultural Research for Economy and Management Study*, vol. 4, no. 1, pp. 52–58, 2023.
- [4] T. N. Huu, "Adaptive management approaches in asean economies: Navigating inflation, unemployment, and economic growth dynamics," *Revista Gestão & Tecnologia*, vol. 23, no. 4, pp. 396–419, 2023.
- [5] M. Kryshchanovych, D. Mishchenko, V. Chala, P. Fisunencko, O. Tadeoshchuk, and I. Prokopenko, "Assessment of the effectiveness of the adaptive strategy for managing marketing activities of open socio-economic systems through the formation of security conditions for functioning," *Financial & Credit Activity: Problems of Theory & Practice*, vol. 3, no. 62, 2025.
- [6] Y. Wu and H. J. de Vries, "Effects of participation in standardization on firm performance from a network perspective: Evidence from china," *Technological Forecasting and Social Change*, vol. 175, p. 121376, 2022.
- [7] S. Basu, S. Munjal, P. Budhwar, and P. Misra, "Entrepreneurial adaptation in emerging markets: Strategic entrepreneurial choices, adaptive capabilities and firm performance," *British Journal of Management*, vol. 33, no. 4, pp. 1864–1886, 2022.
- [8] V. Prasol, V. Velichko, G. T. Cirella, O. Konoplina, I. Mizik, and L. Novoskoltseva, "Adaptive marketing strategies for post-conflict reconstruction, regional development, and sustainable growth in ukraine," in *Handbook on Post-War Reconstruction and Development Economics of Ukraine: Catalyzing Progress*. Springer, 2024, pp. 295–311.
- [9] R. Hu, Y. Yang, and Z. Zheng, "Patent protection and income inequality in a model with two growth engines," *Economic Modelling*, vol. 123, p. 106280, 2023.
- [10] M. A. S. Al Jabri and A. Lahrech, "The role of strategic orientations in the relationship between adaptive marketing capabilities and ambidexterity in digital services firms: The case of a highly competitive digital economy," *Systems*, vol. 13, no. 5, p. 358, 2025.
- [11] E. Quansah, D. E. Hartz, and P. Salipante, "Adaptive practices in smes: leveraging dynamic capabilities for strategic adaptation," *Journal of Small Business and Enterprise Development*, vol. 29, no. 7, pp. 1130–1148, 2022.
- [12] I. Yusnita, A. Kadim, R. Lesmana, A. Sutarman, C. Yu, and S. Millah, "Examining the interaction of economic business strategies in the context of global market dynamics," *Startupreneur Business Digital (SABDA Journal)*, vol. 4, no. 1, pp. 93–103, 2025.
- [13] S. Haque, M. A. Sufian, K. Al-Samad, O. Faruq, M. A. Hossain, T. Talukder, and A. U. Shayed, "Business management in an unstable economy: Adaptive strategies and leadership," *AIJMR-Advanced International Journal of Multidisciplinary Research*, vol. 2, no. 5, 2024.

- [14] N. N. Rafiana, "Technopreneurship strategy to grow entrepreneurship career options for students in higher education," *ADI Journal on Recent Innovation*, vol. 5, no. 2, pp. 110–126, 2024.
- [15] B. Rawat and D. Maulidditya, "Entrepreneurship in information technology as a method for improving student creativity in the digital economy," *IAIC Transactions on Sustainable Digital Innovation (ITSDI)*, vol. 4, no. 1, pp. 32–37, 2022.
- [16] A. Firasati, F. Azzahra, S. R. P. Junaedi, A. Evans, M. Madani, and F. P. Oganda, "The role information technology in increasing the effectiveness accounting information systems and employee performance," *International Journal of Cyber and IT Service Management*, vol. 4, no. 2, pp. 114–121, 2024.
- [17] D. Varakin, D. Osipenko, V. Ishchenko, N. Hlevatska, and I. Hordieieva, "Adaptive management strategies for decision-making in business in the context of armed conflict." *Pakistan Journal of Life & Social Sciences*, vol. 22, no. 2, 2024.
- [18] I. Klimova, I. Hordieieva, N. Sereda, O. Pashchenko, and I. Petecki, "Strategic marketing in a dynamic market environment:: Adaptive approaches, analysis of trends and implementation of innovations," *Conhecimento & Diversidade*, vol. 15, no. 40, pp. 98–118, 2023.
- [19] L. Sanbella, I. Van Versie, and S. Audiah, "Online marketing strategy optimization to increase sales and e-commerce development: An integrated approach in the digital age," *Startupreneur Business Digital (SABDA Journal)*, vol. 3, no. 1, pp. 54–66, 2024.
- [20] V. Ivanyuk, "Formulating the concept of an investment strategy adaptable to changes in the market situation," *Economies*, vol. 9, no. 3, p. 95, 2021.
- [21] R. Ramya, V. Kiruthiga, R. Vettrisvelan, V. Gayathri, and P. R. R. Velmurugan, "Hybrid entrepreneurship navigating career transitions: Career shifts and their impact on economic growth," in *Applications of Career Transitions and Entrepreneurship*. IGI Global Scientific Publishing, 2025, pp. 241–268.
- [22] M. Faris and F. Abdullah, "Adaptive marketing strategies in iraq's oil sector informed by bayesian structural time series analysis," *Academic Journal of International University of Erbil*, vol. 2, no. 01, pp. 35–46, 2025.
- [23] A. Qayyum, A. Arslan, A. H. Malik, S. N. Khan, A. U. Rehman, M. Asim, S. Ahmad, and M. A. ElAffendi, "Financial innovation can hamper the sustainable economic growth: A tale of two emerging economies," *Journal of Open Innovation: Technology, Market, and Complexity*, vol. 11, no. 1, p. 100446, 2025.
- [24] P. Saah, C. Mbohwa, and N. S. Madonsela, "The role of adaptive management in the resilience and growth of small and medium size enterprises," *International Review of Management and Marketing*, vol. 14, no. 1, p. 1, 2024.
- [25] A. I. Afolabi, N. Chukwurah, and O. A. Abieba, "Harnessing machine learning techniques for driving sustainable economic growth and market efficiency," *International Journal of Multidisciplinary Research and Growth Evaluation*, vol. 6, no. 2, pp. 277–283, 2025.
- [26] U. Y. Hasanah and R. Rino, "Pricing and adaptation strategies in market dynamics: A systematic literature review," *Electronic Journal of Education, Social Economics and Technology*, vol. 6, no. 1, 2025.
- [27] N. Zahoor, I. Golgeci, L. Haapanen, I. Ali, and A. Arslan, "The role of dynamic capabilities and strategic agility of b2b high-tech small and medium-sized enterprises during covid-19 pandemic: Exploratory case studies from finland," *Industrial Marketing Management*, vol. 105, pp. 502–514, 2022.
- [28] S. Lestari, S. Watini, and D. E. Rose, "Impact of self-efficacy and work discipline on employee performance in sociopreneur initiatives," *Aptisi Transactions on Technopreneurship (ATT)*, vol. 6, no. 2, pp. 270–284, 2024.
- [29] A. Rosado-Serrano and A. Navarro-García, "Alternative modes of entry in franchising," *Journal of Business Research*, vol. 157, p. 113599, 2023.
- [30] C. Sarfo, M. Fakhra Manesh, and A. Caputo, "Exploitative and exploratory search: dynamic capabilities enhancing sme adaptation, new product development, and environmental performance," *Journal of Small Business Management*, pp. 1–30, 2024.
- [31] L. Liang and Y. Li, "How does organizational resilience promote firm growth? the mediating role of strategic change and managerial myopia," *Journal of Business Research*, vol. 177, p. 114636, 2024.
- [32] L. Cheng, X. Wei, M. Li, C. Tan, M. Yin, T. Shen, and T. Zou, "Integrating evolutionary game-theoretical methods and deep reinforcement learning for adaptive strategy optimization in user-side electricity markets: A comprehensive review." *Mathematics (2227-7390)*, vol. 12, no. 20, 2024.
- [33] M. Alabi, "Data-driven pricing optimization: Using machine learning to dynamically adjust prices based

- on market conditions,” *J. Pricing Strategy Anal*, vol. 12, pp. 45–59, 2024.
- [34] K. Lakshmi, G. S, S. H. R, N. M. S, R. Rajan, D. Pandey, and B. K. Pandey, “Circular economy: A catalyst for economic growth-an empirical study,” *Circular Economy and Sustainability*, vol. 5, no. 2, pp. 729–750, 2025.
- [35] M. M. Sulaeman, E. Suhartono, and S. N. Wibowo, “Knowledge management as a strategic pillar in organisational adaptation to the dynamics of business environment change,” *Journal of Contemporary Administration and Management (ADMAN)*, vol. 1, no. 3, pp. 208–214, 2023.
- [36] A. Zia, M. Z. Ali, M. N. Jamil, Z. Mukhtar, K. Q. Yaquub, and K. Javed, “The impact of financial monetary economic variables on economic growth,” *Kashf Journal of Multidisciplinary Research*, vol. 2, no. 01, pp. 1–18, 2025.
- [37] N. Lutfiani, S. Wijono, U. Rahardja, A. Iriani, and E. A. Nabila, “Artificial intelligence based on recommendation system for startup matchmaking platform,” in *2022 IEEE Creative Communication and Innovative Technology (ICCIT)*. IEEE, 2022, pp. 1–5.
- [38] A. Wilson and M. R. Anwar, “The future of adaptive machine learning algorithms in high-dimensional data processing,” *International Transactions on Artificial Intelligence*, vol. 3, no. 1, pp. 97–107, 2024.
- [39] A. Peterson, “Evaluating the impact of price fluctuations on consumer buying decisions and adaptation strategies in the automotive market,” *Law and Economy*, vol. 3, no. 4, pp. 1–9, 2024.
- [40] E. Friedman, “Constructing the adaptation economy: Climate resilient development and the economization of vulnerability,” *Global Environmental Change*, vol. 80, p. 102673, 2023.
- [41] G. A. Pangilinan, S. Audiah, M. R. Shauqy, and O. F. P. Wahyudi, “Entrepreneurial marketing mindset as a determining factor for digital startup success,” *Startupreneur Business Digital (SABDA Journal)*, vol. 4, no. 1, pp. 34–46, 2025.
- [42] D. Galoyan, T. Mkrtychyan, V. Hrosul, R. Buhrimenko, P. Smirnova, and H. Balamut, “Formation of adaptation strategy for business entities in the context of digital transformation of the economy,” *Review of Economics and Finance*, vol. 21, no. 1, pp. 616–621, 2023.
- [43] T. A. Wiratno and B. Callula, “Transformation of beauty in digital fine arts aesthetics: An artpreneur perspective,” *Aptisi Transactions on Technopreneurship (ATT)*, vol. 6, no. 2, pp. 231–241, 2024.
- [44] C. Challoumis, “Innovation and economic growth: A comparative study of economocracy and traditional systems,” *SSRN Electronic Journal*, 2024.
- [45] G. Zakhidov, “Economic indicators: tools for analyzing market trends and predicting future performance,” *International Multidisciplinary Journal of Universal Scientific Prospectives*, vol. 2, no. 3, pp. 23–29, 2024.
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