INTERNATIONAL JOURNAL OF DIGITAL BUSINESS AND STRATEGY

NAWALA

Volume 2, Number 1, 2023

Synergy Digital Technology and Innovation Strategy in Build Ecosystem Collaborative Business

Ahyar Yuniawan [1]

[1] Universitas Diponegoro, Semarang, Indonesia

Abstract

Article history:
Received: January 16, 2023
Revised: February 9, 2023
Accepted: March 14, 2023
Published: June 30, 2023

Keywords:
Collaborative Innovation,
Digital Business Ecosystem,
Digital Transformation,
Platform Strategy,
Value Co-Creation.

Identifier:
Nawala
Page: 47-61
https://nawala.io/index.php/ijdbs

Digital transformation has given rise to a paradigm shift in the business world, known as Ecosystem Digital Business (Digital Business Ecosystems/DBEs). This article explores innovation strategies in DBEs, with a focus on the importance of collaboration across actors, the utilisation of digital technology, and managerial approaches that are adaptive to create value and sustainability. By adopting an ecosystem model, such as a hub-and-spoke, network, or layered model, organisations are capable of developing synergy that drives innovation together. Research This approach uses qualitative methods through studies, literature, and analysis of the case of Apple and Amazon as a representation of DBEs' success. The results show that digital platforms, supported by technology such as AI, IoT, and big data analytics, are becoming key enablers of collaboration and co-creation. However, challenges such as management risks, data security, and platform governance remain significant. This article recommends innovation strategies based on collaboration, an open and adaptive platform governance, and strengthening organisational digital capabilities. Thus, DBEs are not only a framework for operational work, but also become a foundation for innovation and sustainability in the digital era.

*Corresponding author:
(Ahyar Yuniawan)

1. Introduction

The development of digital technology has brought about a significant transformation in the way businesses operate, collaborate, and create value. In this digital economy era, the traditional business approach that relies on a linear structure and bilateral relationships between organizations is no longer adequate. Instead, it appears that draft Digital Business Ecosystems (DBEs), i.e., networks of various actors mutually beneficially connected through digital platforms, collaborate flexibly and innovatively to create a market together (Palmié et al., 2022). DBEs offer a more collaborative, complex, and adaptive model compared to a traditional supply chain. In an ecosystem, these actors like big companies, start-ups, research institutions, government, and even consumers are involved actively in the innovation process through digital mechanisms that enable the flow of current information and resources in a fast and multidirectional manner (Bonina et al., 2021). Collaboration in DBEs not only increases operational efficiency, but also speeds up the creation of more innovative solutions in accordance with the changing market needs (Ashuri et al., 2019).

One of the main elements in DBEs is the existence of digital platforms that become a backbone of interaction between actors. This platform provides infrastructure technology, standards interoperability, and governance that enable the perpetrator ecosystem to connect and collaborate in real-time. This digital platform also facilitates the integration of various technologies, such as artificial intelligence (AI), cloud computing, big data analytics, and the Internet of Things (IoT), among others, to create an adaptive and intelligent ecosystem (Vermesan et al., 2022). In

context, increasing global competition is competitive and not determined, DBEs offer a more resilient approach. Instead, companies and organisations now compete as part of a larger ecosystem, where value is created collectively through collaboration, crossing limits and synergising technology (Ganco et al., 2020). This expands room innovation at a time of demand for companies to have a more engaging strategy, proactive, good at building a position in the ecosystem and to add value for stakeholders' interests.

However, DBEs also present a challenge alone. Complex structural connections in ecosystems raise governance issues, such as uneven distribution of values, a dominant actor, and a significant gap in digital capabilities between perpetrators. Challenges other covers management data privacy, security, cyber and compliance with different regulations in each jurisdiction (Bechara & Schuch, 2021). Therefore, an innovation strategy in DBEs needs to approach not only technology, but also managerial and institutional capabilities to manage the connection ecosystem in a fair and sustainable manner. Digital transformation in the DBEs context also demands a change in the organisational culture. The needed pattern is to think collaboratively, courageously experimenting, as well as being open to external innovation. Organisations need to build the ability to study continuously, utilising data as a source of superior competitive advantage, as well as adapt to changing technology and consumer behaviour (Aghamiri et al., 2022). In this matter, digital transformation is not only a question of adopting technology, but also includes a fundamental change in business models and organisational architecture.

In this framework, innovation strategy plays a central role. The strategy encompasses inclusive platform design and development, the implementation of a co-creation approach to create new products and services, and the formation of strategic alliances to expand network collaboration. Innovation strategy also includes an effort to systematically build a learning organisation, management knowledge collective, and development indicator performance data-based for measuring contribution in the ecosystem (Elia et al., 2020). This article aims to explore how the innovation strategy can be implemented effectively in the DBEs context, focusing on the core components of the digital business ecosystem, the role of digital technologies and platforms, as well as the challenges emerging from managerial research. This is expected to give a contribution both practically and theoretically to organisations that want to build or are involved in DBEs. In addition to that, the article also presents a new perspective about how a company can position itself in a strategic way in an increasingly complex and disrupted.

2. Methods

This qualitative research adopts a literature review approach with the primary purpose of gaining a more profound and comprehensive understanding of innovation strategies within the broader framework of the digital business ecosystem. The emphasis of this study rests mainly on the methodological orientation, in which the researcher systematically examines and synthesizes findings from existing scholarly works. The study relies heavily on previously published scientific publications, peer-reviewed academic articles, and research results that

have been rigorously discussed in the field. These sources cover diverse yet interrelated aspects, including the conceptual draft of the digital business ecosystem, the role of technology as a fundamental enabler, innovation strategies applied by businesses, and the multifaceted challenges that emerge in the process of managing digital ecosystems effectively.

The reviewed literature is drawn from numerous international journals and other credible academic references that are highly relevant to the disciplines of management, technology, information systems, and digital innovation studies. The process of literature searching is conducted in a systematic and structured manner to ensure academic rigor. This systematic review seeks to identify recurring central themes that frequently appear in discussions, such as ecosystem development models, the strategic role of digital platforms, mechanisms of co-creation processes between stakeholders, and the integration of advanced technologies into business strategies for competitive advantage.

The analysis is carried out through a thematic approach, meaning that findings are organized and classified into themes or topics that are closely aligned with the key objectives of this study. Such a thematic analysis not only provides clarity but also makes it possible to identify broader patterns across the literature. By comparing diverse approaches adopted in different studies, researchers are able to draw meaningful insights and generate relevant conclusions that contribute to the overall understanding of the digital business ecosystem.

The main strength of this chosen method lies in its ability to unify different perspectives, both theoretical arguments and empirical evidence, into a coherent and

comprehensive analytical framework. Furthermore, the method demonstrates flexibility, as it allows the researcher to highlight the complex dynamics of digital ecosystems without being restricted to the boundaries of a single case study. Consequently, the research findings maintain a generalist yet robust character, grounded on a strong and reliable scientific foundation.

3. Results

3.1. The Strategic Role of Digital Platforms in Push Innovation Ecosystem

In Digital Business Ecosystems (DBEs), digital platforms hold a key position as the driving force of central collaboration and innovation. Platform action as room interactions in which various actors including companies, consumers, developers, and institutions, public meet to share information, build market together, and create synergy (Ansell & Miura., 2020). Function central platform not only as a liaison, but also as a regulator structure, incentives, governance, and technical standards in the ecosystem. The platform is designed to strategically facilitate the open, scalable, and flexible integration of third-party services, three principal design elements: modularity, scalability, and openness (Zutshi & Grilo, 2019). Modularity allows the development of applications without bothering the core system. Scalability ensures the ecosystem can grow without sacrificing performance. Meanwhile, openness drives innovation through participation from various entities, including external parties.

An example implementation of the principle examines how digital ecosystems utilise Application Programming Interfaces (APIs), cloud-based infrastructures, and

technologies like big data analytics to support the service-based needs of users. Technology integration. This allows the platform to understand user behaviour more deeply, improve responsiveness, as well as create more personalised and adaptive services (Todi et al., 2021). Besides aspect technology, the success of platforms in DBEs also depends on effective governance. Platform governance concerns the determination of rule participation, the mechanism for settling conflicts, and the regulation of access to data or source power. An imbalance of power between actors can create domination by certain actors (e.g., platform owners), which, if left uncontrolled, can hinder innovation and lead to inequality in the distribution of value (Feijóo et al., 2020). Therefore, a management system that is fair and transparent becomes a fundamental aspect in building sustainability.

The platform also becomes a driver of an important information market together (*co-creation*). In the Lots case, value is not only produced by one entity, but rather results from the interaction dynamics between producers, consumers, and third-party developers. Collaboration of this kind allows for the creation of more relevant solutions, as it involves active participation from users in the product design and development process (Hemantha et al., 2021). Thus, digital platforms in DBEs not only function as a tool for operational purposes, but also as a strategic decision-making architecture for innovation and collaboration in the long term. Success innovation in the ecosystem is highly dependent on how the platform can facilitate connectedness, sharing source power, as well as create incentives that encourage actors to actively contribute to the creation mark.

3.2. Innovation Strategy Collaborative For Resilience and Growth Ecosystem

In a complex and highly dynamic Digital Business Ecosystem (DBE) environment, innovation is no longer regarded as a natural and purely individualistic trait that emerges spontaneously from isolated actors. Instead, it is increasingly recognized that innovation in the current era must be approached as a deliberate, structured, and collaborative process. On the other hand, the development of innovation strategy within DBEs now places its main emphasis on the importance of collaboration between multiple actors who come from diverse institutional backgrounds, possess varied sources of power, and bring with them distinctive sets of resources and capabilities. Such collaboration has gradually become an essential strategic requirement for organizations that wish to respond quickly to rapid market changes, mitigate the high risks associated with innovation activities, and accelerate the overall creation of sustainable value for the ecosystem and its stakeholders (Abisoye & Akerele, 2022).

One of the most significant and widely discussed forms of innovation strategy is the establishment of collaborative co-innovation networks. These networks represent structured mechanisms that integrate various actors such as firms, technology providers, universities, governments, and even customers within a single ecosystem to jointly experiment, share risks, and co-create new products, services, and business models. This approach has been empirically proven to enhance both effectiveness and the innovative capacity of organizations because it benefits from a

wide spectrum of perspectives, better access to critical technologies, and a more direct connection with real market feedback, sometimes referred to as "reverse market pull" (Elia et al., 2020).

A collaborative innovation strategy also extends to the formation of digital alliances and long-term strategic partnerships. Through these forms of partnership, organizations are able to access technologies they have not yet mastered internally, significantly expand their market reach, and strengthen their adaptive capacity in the face of external disruptions such as technological turbulence or unexpected market shocks. The key success factors for implementing this strategy include the existence of mutual trust between the parties involved, clearly defined and precise mechanisms for coordination, a strong degree of harmony in terms of long-term vision and goals, as well as agreement on the appropriate duration of the partnership term (Siawsh et al., 2021).

In addition to collaboration and partnerships, an equally critical factor in DBEs is the ability to manage knowledge as a central strategic asset. Within digital ecosystems, the nature of knowledge tends to be dispersed, dynamic, and distributed across multiple stakeholders. Consequently, the success of an innovation strategy largely depends on how effectively an organization can access, absorb, and apply valuable information from its partners and from evolving markets. For this reason, knowledge management platforms become indispensable. Examples include the use of digital repositories for storing and sharing critical data, the establishment of systems for shared and collaborative learning, and the deployment of artificial

intelligence (AI) technologies to enable advanced knowledge analytics, forecasting, and decision support (Al-Kurdi et al., 2018).

Equally important, the success of innovation strategy in DBEs is strongly influenced by the digital culture that is cultivated and embedded within organizations. A robust digital culture encourages courage in taking risks, a willingness to experiment continuously, openness to disruptive ideas, and the capacity to make fast and data-driven decisions. Organizations that are recognized as being successful in digital ecosystems generally display characteristics such as adaptability, agility, and a systematic reliance on data-driven insights to guide strategic choices (Gade, 2021).

Nevertheless, despite its many advantages, the adoption of innovation strategies within DBEs also faces a series of critical challenges. Among the most pressing are conflicts of interest between diverse actors, inequalities in access to enabling technologies, and significant risks related to the potential loss of ownership of intellectual property when operating in an open and collaborative environment. Addressing these challenges requires carefully designed risk management strategies as well as governance frameworks that maintain a balanced ecosystem. Such frameworks must foster collaboration while at the same time ensuring that participation remains fair, equitable, and productive for all parties involved (Wong et al., 2018).

To respond to the challenges mentioned above, several recommended strategies have been proposed for the effective management of innovation within DBEs. These include designing an architecture of fair incentives so that each actor

is motivated to contribute actively; implementing collaborative-based security mechanisms and ensuring high interoperability standards; developing strong internal digital competencies to enable organizations to participate actively and effectively in the ecosystem; and evaluating the sustainability of ecosystem performance through well-defined collaboration success indicators. By systematically implementing these strategies, organizations can not only strengthen their competitive position within the ecosystem but also take an active role in safeguarding long-term sustainability, inclusivity, and continuous innovation.

4. Conclusion

Ecosystem digital business (Digital Business Ecosystems/DBEs) has become a paradigm in a business world characterized by collaboration across actors, intensive utilization of digital technology in intensive, and distributed innovation processes. Studies confirm that success in an ecosystem does not depend only on the capability of an individual or an organization, but rather on how organizations can collaborate, build strategic networks, and utilize digital platforms as means of creating and exchanging markets. Digital platforms play a strategic role as regulators in the ecosystem, while also serving as foundational technology that enables data integration, interoperability services, and innovative process management in a more efficient manner. Characteristics

The platform's inherent modularity, openness, and scalability provide flexibility for actors to innovate and adapt quickly to market and technological changes. Innovation strategy in the DBEs context emphasizes the importance of a

collaborative approach through the formation of a co-innovation network, alliance strategy, as well as the utilization of data and collective knowledge. Organizations that are capable implant digital culture, developing competence technology, as well as adopt structure adaptive management will own superiority more competitive sustainable in the midst ongoing disruption ongoing. However, DBEs also bring challenges alone, such as domination by large actors, inequality in access to technology, risk of data security, and complex governance issues. Therefore, success in managing digital business ecosystems is largely determined by the ability to build inclusive, transparent, and community-based governance with fair incentives. In a way, overall, findings from the study contribute significantly to enriching the understanding of how innovation strategies and the role of digital platforms can be optimized to build an adaptive, collaborative, and sustainable ecosystem in the digital era.

References

Abisoye, A., & Akerele, J. I. (2022). A practical framework for advancing cybersecurity, artificial intelligence and technological ecosystems to support regional economic development and innovation. *Int J Multidiscip Res Growth Eval*, *3*(1), 700-13.

Aghamiri, S., Karima, J., & Cavus, N. (2022). Advantages of digital transformation models and frameworks for business: A systematic literature review. *International Journal of Advanced Computer Science and Applications*, *13*(12).

Al-Kurdi, O., El-Haddadeh, R., & Eldabi, T. (2018). Knowledge sharing in higher education institutions: a systematic review. *Journal of enterprise information management*, *31*(2), 226-246.

Ansell, C., & Miura, S. (2020). Can the power of platforms be harnessed for governance?. *Public Administration*, *98*(1), 261-276.

Ashuri, B., Amekudzi-Kennedy, A., Amoaning-Yankson, S., Liang, Y., & Cao, Y. (2019). Strategies and resources for government agencies to utilize disadvantaged business enterprises in transportation design-build projects. *Journal of Legal Affairs and Dispute Resolution in Engineering and Construction*, *11*(4), 04519022.

Bechara, F. R., & Schuch, S. B. (2021). Cybersecurity and global regulatory challenges. *Journal of Financial Crime*, *28*(2), 359-374.

Bonina, C., Koskinen, K., Eaton, B., & Gawer, A. (2021). Digital platforms for development: Foundations and research agenda. *Information systems journal*, *31*(6), 869-902.

Elia, G., Margherita, A., & Passiante, G. (2020). Digital entrepreneurship ecosystem: How digital technologies and collective intelligence are reshaping the entrepreneurial process. *Technological forecasting and social change*, *150*, 119791.

Feijóo, C., Kwon, Y., Bauer, J. M., Bohlin, E., Howell, B., Jain, R., ... & Xia, J. (2020). Harnessing artificial intelligence (AI) to increase wellbeing for all: The case for a new technology diplomacy. *Telecommunications Policy*, *44*(6), 101988.

Gade, K. R. (2021). Data-driven decision making in a complex world. *Journal of computational innovation*, *1*(1).

Ganco, M., Kapoor, R., & Lee, G. K. (2020). From rugged landscapes to rugged ecosystems: Structure of interdependencies and firms' innovative search. *Academy of Management Review*, *45*(3), 646-674.

Hemantha, Y., Raghavendra, G., & Jain, C. (2021). Developing Innovative Business Model Using Design Thinking A Perspective. *UGC Care Group-I Journal*, *24*(1), 126-131.

Palmié, M., Miehé, L., Oghazi, P., Parida, V., & Wincent, J. (2022). The evolution of the digital service ecosystem and digital business model innovation in retail: The emergence of meta-ecosystems and the value of physical interactions. *Technological Forecasting and Social Change*, *177*, 121496.

Siawsh, N., Peszynski, K., Young, L., & Vo-Tran, H. (2021). Exploring the role of power on procurement and supply chain management systems in a humanitarian organisation: a socio-technical systems view. *International Journal of Production Research*, *59*(12), 3591-3616.

Todi, K., Bailly, G., Leiva, L., & Oulasvirta, A. (2021, May). Adapting user interfaces with model-based reinforcement learning. In *Proceedings of the 2021 CHI conference on human factors in computing systems* (pp. 1-13).

Vermesan, O., Bröring, A., Tragos, E., Serrano, M., Bacciu, D., Chessa, S., ... & Bahr, R. (2022). Internet of robotic things–converging sensing/actuating, hyperconnectivity, artificial intelligence and IoT platforms. In *Cognitive hyperconnected digital transformation* (pp. 97-155). River Publishers.

Wong, C. P., Jiang, B., Kinzig, A. P., & Ouyang, Z. (2018). Quantifying multiple ecosystem services for adaptive management of green infrastructure. *Ecosphere*, *9*(11), e02495.

Zutshi, A., & Grilo, A. (2019). The emergence of digital platforms: A conceptual platform architecture and impact on industrial engineering. *Computers & Industrial Engineering*, *136*, 546-555.