

Amir, Muhammad Taufiq; Prabawani, Bulan

Article

Sustainability-oriented innovation through shaping the ecosystem; a case of an e-bus industry in Indonesia

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*Corresponding author: Muhammad Taufiq Amir, Department of Management, Faculty of Economics and Social Science, Universitas Bakrie, Jl. HR Rasuna Said, Kav C-22, Jakarta Selatan 12920, Indonesia
E-mail: taufiq.amir@bakrie.ac.id

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MANAGEMENT | RESEARCH ARTICLE

Sustainability-oriented innovation through shaping the ecosystem; a case of an e-bus industry in Indonesia

Muhammad Taufiq Amir^{1*} and Bulan Prabawani²

Abstract: Sustainability orientation is increasingly becoming a focus in companies' top management. In addition to social, environmental, and economic impacts, a sustainability-based strategy can be a source of excellence for the company in the future. Using the Network for Business Sustainability model as a lens, this study examines how companies are involved in the challenge of forming an ecosystem that is still not mature when developing the electric bus business. It includes how companies change their business orientation, identify and collaborate with stakeholders, and encourage the acceleration of regulatory existence. The company and new business' top management were interviewed to understand the company's orientation as part of a group of companies. A total of six interviews were conducted for this purpose. The factor of reconceptualizing the business's purpose and



Muhammad Taufiq Amir

ABOUT THE AUTHORS

Muhammad Taufiq Amir gained his Ph.D in Management in 2014. Now he is the Head of the Management program (2016-present) at Universitas Bakrie. Taufiq's research focuses on how organizational conditions strengthen the capabilities of individuals and firms. In particular, he examines how positive relationships, emotions, meaning, compassion, and resilience contribute to individual and organizational strength. In early 2023 he founded the Innovation & Transformation LAB, where he and his colleagues promote research and training streams on innovation, transformation, and sustainability.

Bulan Prabawani is a Professor as well as a researcher at the Department of Business Administration, Faculty of Social and Political Sciences. She graduated with a bachelor's degree in Business Administration (UNDIP), a master's degree in Management (UNDIP), and holds a doctoral degree from Edith Cowan University, Australia. Bulan is actively involved in research at Education for Sustainable Development (ESD) and Business Sustainability in which she has obtained national competitive grants for research and publication since 2014 for ESD, redenomination, business sustainability.

PUBLIC INTEREST STATEMENT

Most business leaders now pay attention to sustainability. Business concerns profit, social welfare, and protecting the environment. This intention requires the implementation of innovation within a company. This study explains how sustainability-oriented innovation plays a role in business development in Indonesia's e-bus sector. In an immature ecosystem, the company is changing its business orientation, identifying and collaborating with essential actors in the ecosystem, approaching regulators, and utilizing technology.

influencing the ecosystem through strategy, linkages, and learning was explored as the determining factor. Flexibility in business models, influential partners in global supply chains, and good relations with government agencies were also crucial factors. This study contributes to research on sustainability-oriented innovation, and corporate entrepreneurship. This study provides a comprehensive and general framework for sustainability-oriented innovation, highlighting the guiding principles of any ecosystem approach to innovation management.

Subjects: Innovation Management; Leadership Strategy; Sustainability

Keywords: Sustainability oriented innovation; EV ecosystem; electric bus; business development strategy; venture creation

1. Introduction

A growing number of top management organizations prioritize sustainability, and in recent years, the idea of responsible business has gained traction. 75% of CEO participants in a study by Shook et al. (2021), 75% of CEO participants expressed concern about sustainability-related concerns (Shook et al., 2021). The corporate community is shifting its focus to the UNDP's goal of drastically reducing carbon emissions by 2030. According to the Breakthrough business model report, sustainable development is now a top objective and mainstream across all industries (Elkington et al., 2016).

Shook et al. (2021) assert that companies need innovation to fulfill their ambitions to adopt sustainability successfully. The study also revealed that only approximately five percent of managers understood and felt involved with this thought. Top managers must close this gap by integrating it into other strategic decisions such as developing sustainability-oriented innovation as a strategy. This strategy, primarily when supported by technology, will be a competitive advantage (Bintara et al., 2023; Coccia, 2017, 2021).

Sustainability-oriented innovation (SOI) is defined as the deliberate alteration of an organization's guiding principles and objectives as well as its processes and products, with the specific aim of generating and achieving social and environmental value and financial gain (Adams et al., 2016, p. 18). SOI can ensure that the company gains a competitive advantage but still contributes to the social or environmental aspects. Like any other complex innovation, this initiative can entail greater risk and requires both technological and financial capacity. Bansal et al. (2021) have also seen that this field will be a priority for the company, even though they face more significant challenges.

Adams et al. (2016) classified SOI into three categories: operational optimization, organizational transformation, and system building. The latter is the most complicated category and urgently requires proactive initiatives to encourage ecosystem readiness because the changes organizations want to bring cannot be created alone. Jay & Gerard (2015, p. 18), who term this kind of SOIs as "sustainability-driven," emphasizes that the challenges are higher because its main agenda is solving one particular environmental or social problem that demands an innovative business model. The innovation that will be carried out is no longer something that is an "inside-out view" based on the company's existing strengths but is "outside in" (Polman & Winston, 2022a, p. 28), where innovation is carried out together with ecosystem actors. System building requires companies to reshape or wait until the ecosystem matures.

Although SOI studies are advancing, they primarily relate only to its general process and outcomes (Hansen & Große-Dunker, 2013). Studies of system-building SOI and how companies shape ecosystems and accelerate their readiness have been overlooked. Questions such as, "which ecosystem elements need to get priority?" "Which actors should be partnered with?" "How does

top management identify the role of ecosystem actors and respond to the dynamics of ecosystem development with a choice of strategies and partnerships?” How does the company redefine its purpose to be oriented toward sustainability? “What does ecosystem readiness look like, and which actors do companies need to partner with, especially if the company wants to lead the industry?” must be answered to conduct SOI successfully. Business players who want to act as “first movers” in the new ecosystem must study ecosystem actors’ readiness and seek partnerships. As the demand for change is broad, not all ecosystem actors are prepared (Han et al., 2022). Furthermore, each industry or country provides context, which must be adequately understood.

Using the Network for Business Sustainability model (Adams et al., 2016) combined with Jay and Gerad’s (2015) sustainability-driven innovation concept as the lens, this study examines how an automotive component manufacturer company in Indonesia fosters reshaping of the ecosystem in the new business development of e-bus manufacturers. Indonesia is still in the early stages of providing e-buses. When this country carried out preparations and trials in 2021, there were already 8,500 units of electric buses in Europe, and in the United States, around 75,000 units were operating (Editor, 2022). The global electric bus market is projected to multiply by 43.1% annually (Editor, 2023). With a population of 273.5 million and the largest country in South-east Asia, Indonesia is an important country in global electric vehicle production. Adams et al. (2016) call that we need to empirically study the system-building SOI when the complexity of the problem goes beyond organizational boundaries and the solutions obtained from technology are limited. This study extends the concept of system-building SOI and provides practical guidance for companies that wish to use SOI for business development.

The remainder of this paper is organized as follows. First, we review the literature on sustainability innovation and emphasize the challenge of the integration of stakeholders, the role of purpose, and the e-bus ecosystem. Second, based on the literature review, we used the develop conceptual framework of the system-building SOI. We then outline our methodology and highlight the various contextual conditions of Indonesia and the company’s profile. Afterward, we provide our analysis of findings using our framework and emerging themes and categories, such as purpose-driven SOI, various forms of partnerships, and approaches to the regulator. Finally, we provide directions for future research, identify managerial and theoretical implications, and outline the study’s limitations.

2. Literature review

Since the idea of the triple bottom line (TBL) was popular, namely, the environmental, social, and economic dimensions in business (Elkington, 2018), the demands of companies to implement sustainability issues are increasingly complex and require innovation. According to Buhl et al. (2019), comprehensive sustainability-oriented innovation (SOI) is the deliberate development and implementation of new (or improved) products, services, processes, or practices to generate social and environmental benefits along with financial gains throughout the physical life cycle. Adams et al. (2016, p. 18) also implies that SOI concerns a company’s philosophy and principles rather than only an endeavor linked to products, processes, or activities related to social and environmental values.

Sustainability has the potential to become a source of innovation because the problems and scope faced by companies are challenging to overcome with “business-as-usual” handling. The problem of environmental degradation, and the problems of the needs of people with low incomes, can only be solved with out-of-the-box ideas while involving parties outside the company. At a certain level, the company can make changes independently, but it needs systemic involvement from stakeholders. For example, transitioning the world onto a sustainable consumption and production trajectory requires the concerted action of all stakeholders, including promoting and switching to sustainable products, transforming taxation and accounting systems, developing long-term sustainable value chain systems, and investing in sustainable infrastructure (Jasiński et al., 2021). The transformation of the global economy toward sustainable development is a long-

term process that requires a constant commitment to innovation and improvement. Therefore, sustainability should not be considered a complete solution but a process requiring ongoing efforts.

2.1. System building SOI

Adams et al. (2016) categorized a more comprehensive SOI as a system building mainly because it involves several parties. System building offers new things but demands the involvement of other parties. This kind of SOI requires parties to “do good by doing new things with others” (Adams et al., 2016, p. 185). Table 1 explains the strategy, process, learning, and linkages of an organization conducting system building of the SOI.

Likewise, Jay and Gerard (2015) also emphasize a systemic theme in their models. Of the three degrees of SOI, they suggest sustainability-relevant Innovation, Sustainability-informed innovation, and sustainability-driven innovation (SDI). The latter is more than just an improvement or customer need; it aims to solve a public problem. For instance, Sun Power’s efforts to replace fossil fuels with highly efficient solar photovoltaic panels have reduced air and climate pollution produced by fossil fuels (Jay & Gerard, 2015). The SDI can also be achieved with innovative business models, like the Sanergy company, which uses a non-profit arm supported by franchisees and infrastructure with training and service. The above SOI practices characterize the company’s proactive and enabling initiatives.

The system-building SOI, which emphasizes attention to systems and enablement, requires the organization to employ a business model that alters or transforms the market (Hoffman, 2018). Instead of waiting for the market to support a new type of business sustainability, the company created it. The corporation brings about changes to make new types of business sustainability possible.

Hoffman (2018) asserted that these changes can be attained by rethinking the business model and implementing a systematic corporate strategy with a more comprehensive approach. This strategy should emphasize business alliances, proximity to the government, and transparency. The linear production model must be reduced, which entails extracting raw materials, converting them into products, selling them to customers, and disposing of them. Meanwhile, the reconceptualized business model has to decrease the need for raw materials and waste and conduct a life cycle analysis that observes the environmental and social costs of the product from raw material to the end of the product. Hoffman (2018) suggests that companies must challenge themselves using a new perspective on the market, corporate purpose, consumption, and underlying model to carry out the latter. With the various parties involved, the aspects of measuring success and its management become more complex (Jasiński et al., 2021)

Table 1. Activities of system building Sustainability-oriented innovation (Adams et al., 2016)

Strategy	The logic of broad collaboration and investing systems solution to derive new, co-created value proposition
Process	Adopt new collaborative process platforms with diverse stakeholders
Learning	Develop ambidextrous skills enabling “shadow tracking” and learning from experimentation with multiple new approaches
Linkages	Get the whole system in the room to diagnose the problem, understand the system’s complexity, build trust, and identify levers for change

Hoffman's concept is relevant to Elkington et al. (2016) work on exponential thinking, which states that businesses should think exponentially rather than put in the mediocre effort. Exponential thinking involves companies with different actors, achieving more than ten times improvement in the four areas. The first is socially exponential, not just a media network, but positioning the business for social entrepreneurs, intrapreneurs, and impact investors, as well as understanding changes in behavior and culture. Second, companies need to consider lean, a form of value creation (Elkington et al., 2016). The company applies lean production, startups, frugal innovation, and new forms of efficiency to all existing capital. The third method is exponential integration. Companies create financial and data integration, which can build new forms of corporate intelligence. Fourth, the company implements a circular economy and changes the take-make-waste model of the circular economy into a low-carbon one, which will form a new business model. Such practices have been found in various studies that have combined contemporary corporate social responsibility. For example, Niyommaneerat et al. (2023) combined CSR and circular economy in renewable energy companies and plastic waste handling. Likewise, Li et al. (2023) observed environmental CSR and Green Innovation practices in Chinese automotive companies and found that green human capital is significantly involved. Dey et al. (2020), despite focusing on small and medium enterprises, looking for the relationship between circular economy strategy and organizational's sustainability performance.

By paying attention to the problem in a broader context, environmental, social, and economic impacts, SOI differs from other innovations (Buhl et al., 2019). This complexity creates difficulties and challenges and requires the integration of stakeholders.

2.2. The challenge: Integrating stakeholders and changing the market

System-building SOI development in organizations involves significant challenges such as integrating a wide range of stakeholders and thoroughly understanding related user needs (Hansen & Große-Dunker, 2013; Klewitz & Hansen, 2014). Although these challenges are also relevant to conventional innovation, they are significant for SOI development. Hansen and Große-Dunker (2013) assert that SOI involves higher risks because it is uncertain whether the initiatives benefit the environment and society. Westman et al. (2023) study illustrates how difficult it is to influence the mass market because social forces often resist change. They offer three mechanisms to overcome this; network learning, collective norm construction, and collaborative advocacy. On the other hand, Elkington called "the unreasonable people" to describe the characteristics of those who are intentionally involved in sustainability initiative (Elkington et al., 2016).

Another challenge that must be overcome within the SOI framework is changing the market. Here, partnerships are not only related to the value chain but also to non-profit organizations, governments, competitors, and even unrelated companies (Hoffman, 2018). This practice was carried out by the automotive company Ford, which partners in researching seeing customer opportunities in hybrid and electric cars. Ford is also collaborating to build the MyEnergy Lifestyle Program with Infineon, SunPower, Whirlpool, and Eaton (Burger, 2015). Similar examples were also put into practice in the findings of Li et al. (2023). They evaluated the practice of five global automotive companies to become Global Citizenship by considering the sustainability aspect. Recently, Amir and Prabawani's (2022) study on the electric bus ecosystem in Indonesia showed the need for companies to involve stakeholders actively. These partnerships demand business owners and top management reconceptualize their business missions and existence.

2.3. Reconceptualize organizational purpose

To be able to engage in system-building SOI, companies need to challenge the way they see their business and not just create a strategy. The new concept of business goals, consumption, and models and measures for business success. The World Business Council for Sustainable Development encourages entrepreneurs to "Abandon the existing consumption paradigm and move to transformation in mainstream lifestyles and consumption patterns" (2011). The business round table, which consists of large companies in the United States, has formulated that attention

Table 2. Example of company's purpose

Company	Mission/Purpose
Unilever	Our purpose is to make sustainable living commonplace. It's why we come to work. It's why we're in business. It's how we inspire exceptional performance.
Danone	In line with the purpose of "bringing health through food to as many people as possible," Danone takes into account cultural, social, emotional, and physiological aspects related to dietary practices in each part of the world. Using the tagline 'One Planet. One Health' frame of action drives the approach to do business, with a strong focus on local relevance and anchoring.
Microsoft	The company's mission to empower everyone and every organization to achieve more has never been more urgent or necessary. Their actions must be aligned with addressing the world's problems, not creating new ones. Microsoft believes in the need to deliver innovation that helps drive broad economic growth. As a company, Microsoft will do well when the world around us does well.

Sources: The company's website

to stakeholders is essential and that the existence of companies needs to deliver value for the success of the community, not just the company (Gartenberg & Serafeim, 2019). Companies must invest in the employees' future, ensure diversity and inclusion, serve suppliers as good partners, support communities, and protect the environment.

Business communities with this new perspective are emerging increasingly, encouraging similar business concepts. For example, B Corporation (www.bcorporation.net) or We mean business coalition (www.wemeanbusinesscoalition.org) prompted the company to strengthen its focus on consumers and employees and governance, the environment, and the community. Such organizations carry a purpose that leads to changes in business models to emphasize human beings and trustworthiness rather than avarice, greed, and short-term thinking. Organizations use a more regenerative capitalist business model, collaborative, conflict-free sourcing, in the sharing economy (Hoffman, 2018). Transparency is enhanced by internal clarity and external validation by activists, investors, suppliers, buyers, and customers.

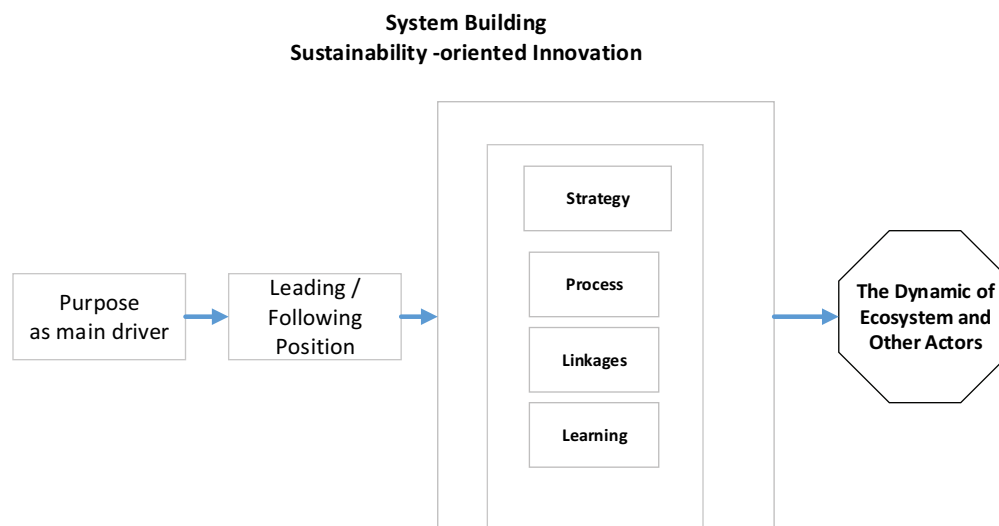
Many businesses, such as Unilever, Microsoft, and Danone, modified their missions and established foundations to emphasize sustainability (see Table 2). These businesses pledged to incorporate social fairness, welfare, and environmental considerations into their operations. Some people are more advanced and highly committed than others are. However, some businesses, even those that only sell cosmetics or perform poorly, engage in greenwashing (Mainali et al., 2014).

Several studies have shown that a link between purpose and profit exists, especially when top management can install these goals in organizational joints, such as in middle management, and make strategic clarity throughout the organization on how to achieve them (Gartenberg & Serafeim, 2019).

2.4. Electric Vehicle (EV) ecosystem

Studies have been quite diverse in formulating an electric vehicle ecosystem, but the actors involved are generally similar. Although the conceptual basis for the ecosystem does not have a consistent perspective toward a general analysis (Coccia et al., 2023), a specific grouping of actors is required. The Institute for Essential Services Reform (IESR) (Marciano et al., 2021)

Figure 1. System building SOI conceptual framework.



suggests five elements of the electric vehicle ecosystem: a) charging infrastructure, b) models and supplies of electric vehicles, c) public awareness and acceptance, d) supply chain of batteries and electric vehicle components, and e) incentives and supporting policies from the government. Additionally, Abdelkafi et al. (2013) added that technology can be considered a critical element of an ecosystem. These include technologies from battery components and telematics in bus operation. Complementing the supply elements, Abdelkafi et al. (2013) suggest the details of actors, consisting of manufacturing for automobile components and batteries, service providers, substitution goods, and government. In the electric bus context, the government plays an important role, mainly because it is a regulator but also because it often acts as a user and an incentive.

From reviews above, we propose the conceptual framework in figure 1 that guides our methodology.

3. Method

This study applies a descriptive and deductive qualitative approach (Woiceshyn & Daellenbach, 2018) to capture the phenomenon of sustainability-oriented innovation in the scope of an automotive component manufacturer and its new business in the e-bus sector. The system-building model of SOI from Adams et al. (2016) was used as the lens (Creswell & Poth, 2018), and the results were presented descriptively. According to Yin's (2009) case study guide, this approach describes several phenomena in real-life contexts.

3.1. Case selection and unit of analysis

Our case organizations were chosen because they reflect how the company's leaders are involved in establishing a new business unit and, together with the top management of the new company, actively shaped the e-bus ecosystem. The decisions of these leaders reflect the initiatives of the parent company and the new business, which changes elements internally and externally in the ecosystem. These decisions were the unit analyses of this study.

3.2. Data collection

The CEO of the focal company, who also acts as the new company's COO, and the CEO of the new company were interviewed in depth with a total of six interviews. Since this study uses a deductive approach, saturation is determined when the major themes are adequately represented in the data and are related to content validity. A venture capital consultant in the field of sustainability and two researchers of clean energy were also interviewed to validate the participants' answers (see Table 3 for the list of participants). The selection of participants was based on their knowledge

Table 3. List of key participants

Participating Companies	Key Participants
Parent company	• CEO1 (also act as the COO in the new business)
New business	• CEO2
Venture capital	• Consultant
Research institution	• Two researchers

Table 4. Milestones in the homologation and influencing regulatory environment

Period	Milestones
2018	• Product launch at IMF/World Bank Conference at Bali
2019	<ul style="list-style-type: none"> • Securing a partnership with Stakeholders • Pushing for issuance of Presidential Decree no 55 on BEV • Received order of 20 e-Bus from Prov of Jakarta for Formula e International Racing event • The pre-trial process was completed with Transjakarta
2020	<ul style="list-style-type: none"> • Completed all Homologation processes, including vehicle registration • Completed Transjakarta's official trial process • Completed Prov of Bali 2.5 months trial in some national strategic tourism destinations
2021	• Sales arrangement to supply the first order of 30 units of the 12-meter e-bus for Transjakarta and will supply another 70 units at the end of the year
2022	<ul style="list-style-type: none"> • Delivery of the first order of 30 units of the K9 Type e-bus for Transjakarta • Preparation of battery production and setting up an e-motorcycle line of business • Prepare a joint venture to handle Nickel production in the area of Sulawesi
2023	<ul style="list-style-type: none"> • Delivery of 22 units of K9 type of e-bus to PT Mayasari Bhakti as the operator of TransJakarta. • Launching of the e-motorcycle line of business collaboration • Final Preparation for the Initial Public Offering at Jakarta Stock Exchange

Sources: Company's internal document

and experience of the electric vehicle business development and the industries they handled before the e-bus initiative. This semi-structured interview guide was developed based on the concept of sustainability-oriented innovation (Adams et al., 2016; Jay & Gerard, 2015), especially those related to system building and sustainability-driven innovation. The questions will focus on purpose, strategy, process, linkages, and other behavior patterns related to stakeholders.

Table 5. List of new company partnerships

No	Partnership	Roles	Strategic Reasoning
1	BYD Auto	The biggest producer of EVs in the world	Having a patent for all four main core components - Batteries - Electric controls - electric motors - Charging infrastructure
2	The Electronic Engineering Polytechnic of Surabaya	Research and innovation center for electrification transportation	Advancing electric technology
3	Trisakti -	Bus body builder and assembler	Organize and produce the body, assembling bus chassis and other related parts
4	PT Transportasi Jakarta & JakLingko	The Jakarta Regional Government bus operator Telematica and IT Solution	Securing contracts for bus purchases, including financial schemes
5	Universitas Sebelas Maret	Battery technology	Advancing battery technology
6	PT Jasa Sarana (Local State-Owned Company – West Java Provinces)	Part of the operators of the West Java regional government	Securing contracts for bus purchases, including financial schemes
7	Equipmax	Manufacturing technology for retrofit	Securing retrofit projects and outsourcing/ capabilities.
8	Envision	Net zero industrial park, the green industry which will focus on the development of renewable energy projects (wind energy, from EV battery), electric vehicles battery and IOT and software for the energy transition	Advancing knowledge and capabilities in renewable energy
9	Going High-tech Co., Ltd, Gotions Indonesia Materials	Battery pack & module.	Securing supply for battery pack & module.
10	PT Gaya Abadi Sempurna Tbk (GAS)	Collaboration in producing and selling e-motorcycle.	Securing supply for e-motorcycle.

Secondary data were used, such as a recorded guest lecture on electric vehicles and two other public webinars and materials from electronic media. Four webinars involving the company's chairman, the parent company's president commissioner, and two online discussion forums involving the two CEOs were also examined. This study used NVIVO to analyze and categorize participants' statements.

4. Results & discussion

4.1. Results

The results highlight the data and information collected according to our framework. First, it informs the Indonesian context of electric vehicles, followed by a brief profile of the focal company. It continues by explaining the organization's purpose, partnership strategy, linkages, and learning in the form of technological partnership.

Table 6. SOI dimension relative to the company's position and the maturity of the ecosystem

SOI Dimensions	Position as a leading actor in the ecosystem	The immaturity of the ecosystem
Purpose	The company's purpose in sustainability and intention to lead and become an active actor the ecosystem in the ecosystem	The immature ecosystem determines which partners need to be approached
Strategy & Process	The company intends to drive the ecosystem partnership and push the regulation	The immature condition of the ecosystem requires companies to approach regulators
Linkages & Learning	The partnership that has been built is not only related to supply chain security or market dominance but also related to accelerated technological mastery	Newly developing ecosystems require companies to acquire new technologies

4.2. Indonesia's context of electric vehicles

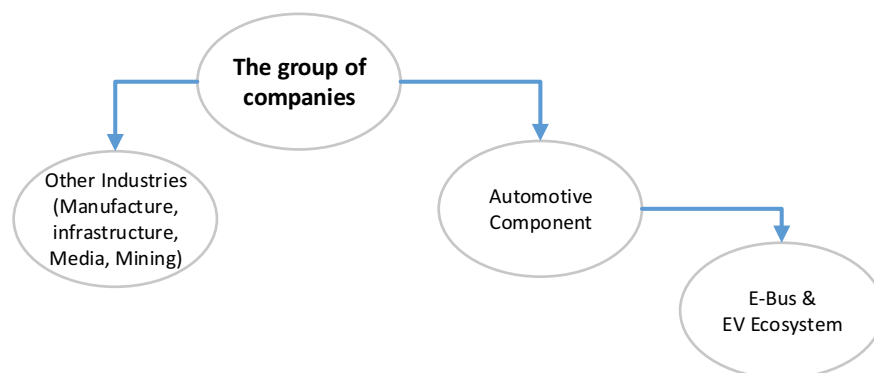
Indonesia was one of the countries that signed the Paris Climate Accord (UNCC) in 2016 and were committed to achieving the goals set. The government prepared a road map for the national energy consumption mix after the agreement. In 2025, Indonesia is targeted to produce and consume energy from renewable sources by at least 23%. The transportation sector is the largest energy consumer in Indonesia, at around 45%, which is more prominent than households and industry.

In 2021, approximately 5.8 million buses and trucks will operate, and more than 16.4 million passenger cars will operate in Indonesia. Furthermore, there are approximately 120.9 million motorcycles. Indonesia is estimated to emit 580 million tons of CO₂, of which 20% comes from the transportation sector. On the other hand, a recent study by Sunitiyoso et al. (2022) reported that public transportation users in Jakarta, Indonesia's capital city, prefer the electronic bus because of its lower cost, shortest travel times, and lowest emissions level.

4.2.1. Brief company profile

The object of this study is an automotive component company that wishes to expand into the EV business through a newly established company. The unit analysis is how the top management in the two companies (automotive component and E-bus and EV ecosystems) carry out the SOI initiative (see Figure 2). However, in the discussion later, it is inevitable that the company at the group level will be discussed.

Figure 2. The structure of the group, parent company, and the EV business.



We want to shift our focus from our fossil business. Eighty % of the revenue comes from traditional energy sources. So I guess going to our centennial year, my job is to pivot it so that only half of it comes from traditional energy sources and focuses on electrification and renewable energy. (FPCI, 2022)

The above statement comes from the new company's presidential commissioner and the board's chairman in the parent company (holding). The company is well known for its industrial, infrastructure, and metal industries and for managing the oil and gas mining business. The owner of the company seriously focuses on climate change and sustainability. It is expected to become the pivotal center of the group, focusing on renewable energy and electrification agendas. By 2043, 50% of the group's revenue was expected to come from these two areas when the company reached its centennial anniversary. Specifically, electrification is hoped to come from (a) upstream in the nickel-rich cathode to batteries and (b) downstream in EV Mobility.

The company group was established in 1975 and began handling the automotive component sector in 1983. The desire and dream of building an OEM for the automotive industry existed from 1997 to-1998, so building an electric bus business has its own sentimental for company owners. In 2018, the company formed a subsidiary that had been seriously exploring and developing electric cars. In mid-2018, the company signed an MOU with a giant electric car company from China and made continuous progress afterward.

As the EV business is different from existing automotive components, the company must also be led by a CEO and COO with insight and understanding of auto manufacturing. The company's owner is decided to recruit someone from externally with a background and experience in the bus and truck industry. Thus, it was determined that the new company would prioritize entering the electric car industry in the bus category. By making sustainability a future orientation, the company is directed by its owners to develop an e-vehicle electric vehicle business as a form of adaptation and welcome a more sustainable business future.

The new company's collaboration in the electric bus initiative is progressing and has achieved several milestones (see Table 4). Until early 2022, 30 e-buses were marketed to the Jakarta Provincial Government. Several regional governments in large cities in Indonesia are willing to use buses. The company's strategy is to create a transportation electrification ecosystem, and it is now exploring potential partners.

The company anticipates Indonesia's EV adoption with a capacity of 20% by 2035, which could reduce annual gas emissions by 319 million tons of CO₂. It will also be able to manufacture batteries using Lithium-ion LFP and LFP and NMC cells that are found to be safe and high-performance. Currently, the company is attempting to build an integrated transportation electrification and EV battery ecosystem in Indonesia. The network consists of batteries for EVs, EV-Bus, EV-Car, EV-motorcycle, EV-infrastructure, and battery recycling.

To guarantee electricity supply for its electric buses and anticipate market needs, the company plans to build a total battery supply chain capacity from upstream to downstream, which will be carried out while adhering to the strict ESG protocol (Widya, 2022a).

4.3. Purpose-driven SOI

The company believes that sustainability must be a concern for a better future for the group. In 2021, the group's CEO suggested the tagline, "Empowering sustainable future," as the theme carried by the group (TV One, 2022). The initial initiative was to support a better climate by promoting electrification and building better battery manufacturing and supply chains.

“We cannot go back. We have reached the point of no return, and as a group we have already dreamed about it. Since 2018, the question has been asked frequently, are we going to be the pioneers, or are we going to be the followers, right? We decided we want to be the pioneer. (COO)

“Right, the founder decided that okay, we have to be the pioneer. Why? Because our groups’ business “engine” is similar. The owner, including the founder, said this is our future. So yes, they are all “in” when asked who would commit to investing in this area. (COO)

The chairman of the company group believes that if it is run properly, a sustainability-oriented business will be welcomed by investors, the market, and especially the millennial generation, and indeed, will become a trend.

If you are doing it right with the proper transparency governance, the market will reward you, right? I’m not quite sure what the numbers say, but the last time I went to London Stock Exchange about three-four months ago, they said that at least 10 billion pounds are being raised every month. If not more, you know, in green bonds, sustainable bonds, or climate change bonds, just as an example. So, you know, one, I think the return is there. Number two, you just have to invest for the long term and not do it halfway. And the third thing I think the investor will reward it, and we spoke a little bit about the, you know, the people, the citizens of the world or Indonesia for that matter. I appreciate it as the younger generation looks for these types of companies that produce the right product for them.” (CH)

So the key is to ensure that you are preparing all the groundwork for that three to four years so that you can grow when the market finally takes up. And plus I have to also applaud the government from the president, the current government, and also the parliament work hard to provide the regulatory framework to make sure that it is not only from the supply side that would be very attractive to invest and so on but also from the demand side, right? (CH)

The company believed that establishing an electric bus business and involvement in the ecosystem was the best choice when it was first decided. Another option is to transform an existing business into a newer one by using the same business model. This is considered to not bring about significant changes compared to getting into electric buses. Management expressed that the company needs more than the transformation of the existing business.

Maybe we can continue to develop the business now, but it needs a significant investment. Meanwhile, the profit will not be more than 10%. We must look for a future that provides much greater than this. The promise we have to give is double, triple-digit of growth. And this will create a “story” for us, for the group as a whole (COO).

The SOI initiative of the company led by the new business unit has a big agenda for the parent company’s business development, even for the group as a whole. In the process of supplying e-buses, the new company’s strategic agenda changes dynamically, so that the company intends to become a battery producer and retrofit business and gradually prepare for the industrialization of electric buses.

Sustainability opens the opportunity for something bigger than us. The owner and the chairman of the group see wider, even more significant opportunities larger than before. The new e-bus company is expected to lead another turnaround for the automotive component company (CEO)

Initially, the plans for battery and self-produced as new OEM were in 2030, as a long term plan. It’s just because of the dynamics and our opportunity we’re willing to take it, so in the end we switched, okay, we even have our own brand (OEM), and we’re just filling in the others around it. In 2–3 years, we will have to run it (CEO).

Top management believes that the changes will continue towards sustainability in this business. From an internal perspective, there are few options other than developing an existing business model, but this requires significant investment.

It is a disruption that has technology, industrialization, and something that has a lot to do with lifestyle. So, yes, in the beginning, you have to invest in it, and I urge the investment to focus on deep belief that industrialization will scale it going forward, so there is no going back on this, right? If you believe in that and you execute. Well, I think the return definitely will come. (CEO).

The company experiences high dynamics when deciding on business development. Initially, the company plans to become a battery manufacturer by 2030. However, through the partnership of various parties, the company had the opportunity to start this business earlier. The company even saw the possibility of establishing a battery business in 2–3 years.

4.3.1. Sustainability-oriented as an identity

The company not only changed its vision, but also wanted to build a new identity. As expressed by the CEO of the parent company, the company wants to pivot from a “fossil business” to a company that pays more attention to sustainability with clean and renewable energy. Existing businesses such as construction, TV media broadcasts, coal mining, and energy will soon be considered past businesses. From this perspective, top management feels that domestic and foreign investors have different mindsets. As expressed by the CEO.

As for reinvesting, the owner has seen the investment development pattern at Tesla, yes, they offer promises, sexy technology, that supports sustainability, that supports net zero, that's what they're looking for. The concept is startup. Investors are starting to not be interested in the companies in the group, whose growth, CAGR is 15%, 10%, 15%. They want to invest in companies that can say ‘oh my CAGR is 500%. That's what they're looking for. We have to take advantage of the enthusiasm of our investors like that. (CEO1)

The parent company portfolio, which owns TV media, oil mining, coal, is now facing challenges and needs to change its business model. If we only have advertisements, sell advertising concepts, FMCG sells its goods through agencies, it is no longer interesting. Then, what else? Mining companies, which have the biggest backbone for us, how long guess, how long will it last? The coal mining company, how long will it last? I don't think ten years from now there will still be coal company like that, and the business is totally different (CEO1).

Yes, it's impossible for us to do the new initiative with our old identity. That means we have to have a new identity. Now, if you have a new identity, it means that you want it or not, you must be dragged here too, you know. We see that. We already have this, there's no way we can sell automotive component again, right? So, we close the book here. Start with a new chapter.” (CEO1)

4.4. Partnership in creating an ecosystem

The company is aware of being able to adapt to the demands of every element in the ecosystem while waiting for preparations to become an OEM and setting up other initiatives. It ensures that collaboration is established in brand-holding, body assembly, battery manufacturing, companies for retrofitting, universities and research centers, and global consulting institutions. These collaborations provide added value for the company in approaching and convincing the parties involved in the ecosystem, where one partner gives confidence to each other potential partners.

For example, the partnership with a battery cell manufacturer helped the company have a bargaining position with nickel players in Indonesia. They can get involved again by inviting foreign partners as actors who will become off-takers and buy nickel goods from existing Indonesian companies.

From an ecosystem perspective, companies must choose which party to prioritize. Partners support each other, and the portfolio becomes the company's strength in negotiating with new partners. Ecosystems are considered an element of resources that will smoothen a company's efforts to achieve milestones and others. The following Table 5 describes the parties that signed the MOU:

In determining partnerships, the company believes that a long-term orientation is essential. The partnerships built are not limited to the scope of the supply chain in Indonesia but also globally.

We run our partnership with a long-term perspective. It's like building a ship and knowing that one day we will be ready to set sail. But we don't have to make the sails ourselves. We don't have to make the anchors ourselves. There are parties we can invite to join in creating, but they also take part in our journey. Because if we rely on ourselves, it's complicated. Our main strength is precisely the market. This is undeniable for our partners. The Indonesian market is very potential (CEO1).

company tries to take advantage of the global network for parties invited to work together. For example, we approached UK parties to take advantage of their earlier experience in EV ecosystem. One explanation is that the climate of geopolitical relations between Indonesia and the UK is excellent. We are in a state of honeymoon with England. Several strategic technology industries have collaborated. Our chairman often returns to England because of this opportunity. (CEO1).

4.5. Approaching regulator

Governments play a significant role in ecosystems that have not yet been fully established. The company attempts to ensure that the policy directions issued can be adapted to the conditions and plans of the company. In general, a company considers the government to be supportive.

The government has been very supportive so far. With the issuance of Presidential Decree no. 55 2019 concerning battery-operated vehicles, the government has acknowledged that they must implement this. At COP 26, the president also said that our target in 2030 was net zero. Please note, not just carbon zero; net zero is even more challenging. Some of the necessary derivative regulations have begun to be issued by government agencies and regional governments (CEO)

The most advanced local government is DKI Jakarta Province. Both political will and budget are also regulated. In 2021 we should need 100 buses. DKI Jakarta will project 300 buses in 2022 and 20,000 buses in 2030. The West Java Provincial Government with Trans Bandung Raya requires around 200–300 buses, of which 30% are electric buses (retrofit and new buses). The government can give ten years multi-year budget that suits banking, and the government can pay the operator a fee per KM (CEO).

On the other hand, the company continuously monitors its readiness to comply with government policies. Many parties or elements are involved as regulators in the government because they are cross-sectoral. Among them are the Ministry of National Development Planning, Ministry of State-Owned Enterprise, Ministry of Public Works and Housing, Ministry of Finance, and Ministry of Energy and Mineral Resources. When there is an out-of-sync of these parties, it can make it difficult for ecosystem actors. Managers need to understand, monitor, and assess the support of each of these elements of the government.

In Indonesia, at least 12 institutions have an interest from a regulatory perspective. Usually, in various coordinations, the representatives sent from this institution are not the party that can decide. So that joint agreements are rarely taken quickly. This is a situation that sometimes makes it difficult for us (CEO1).

It is not uncommon for participants to find that parties that are very important among stakeholders are sometimes unsupportive. This is a reasonably common phenomenon related to the coordination of government agencies, where parties seem to have sectoral egos. Instead, agencies that should facilitate and facilitate become a hindrance. As the COO puts it:

Ironically, actors such as the PLN (State-owned electricity company) and the Industrial Ministry are challenging to cooperate with. They are most known for still trying to show that it is difficult to go 100% electric with battery operation and trying to have a hybrid stage in the ecosystem (CEO1).

4.6. Technology capacity through partnerships

The company realizes that technological innovation is crucial to the e-bus development plan. Therefore, the partnership strategy also aims to ensure that the company's capacity is guaranteed to increase. Although the fields in the parent company can complement the aspects of technology relevant to electricity, they are felt to be less supportive. Companies must quickly increase their technical capacity.

There are three important things that we must have to advance this business. When it comes to manufacturing, that's our DNA, and we can say anything we make for sale. But people don't just see that. How about Information Technology? That's why we are collaborating with the Surabaya State Polytechnic of Energy (PENS). So, for PENS we will get telematics technology, everything related to electronics, that's it. Then with UNS (Sebelas Maret University), we will also get battery technology. So, if we are dealing with British Volt, for example, we no longer seem awkward talking about technology. That's it, right? UNS also understands better when it comes to the usage of batteries in the Indonesian context. So, if we sell battery, we have an additional local concern that will serve as a parameter for making the battery." (COO).

There are three important things that we must have to advance this business. Good story, having a market, and having a good product, but we also need IT. Our DNA is manufacturing, and we can sell this. However, people don't just see that. We need IT. That's why we work together. For this reason, the company cooperates with Sebelas Maret University (UNS), Surabaya State Electronics Polytechnic (PENS). From here, we get the capacity for telematics technology, and everything related to electronics. So, if we are dealing with British Volt, for example, we no longer seem awkward talking about technology (COO).

5. Discussion

The system-building sustainable-oriented innovation (SOI) concept guides companies to navigate challenges in the new and early stages of ecosystem development. This study examines how a company establishes a new company to become a pioneer in the e-bus ecosystem in Indonesia and takes a position to shape the ecosystem. Our analysis suggests that focal companies (parent company and the new business) actively shape the ecosystem by identifying actors, approaching, and collaborating with priority actors, encouraging the formation of regulations, and collaborating with the government. New business unit plans are dynamic and are influenced by the partnerships built and the conditions of ecosystem development. Following the NBS system building of the SOI model as a lens, aspects related to strategy, process, and linkage are shown in [table 6](#), and discussed in the next section. This study contributes to the SOI literature, especially regarding the system-building model, and provides practical guidance for businesses wishing to seize opportunities in the e-bus business.

5.1. Strategy & process

In system building SOI, companies are required to look more broadly at their purpose and position in the ecosystem with the principle of "doing good by doing with others," and placing relationships with other stakeholders as the key (Carlos et al., 2019; Quinn & Thakor, 2019). To realize a conducive ecosystem, companies must collaborate with other stakeholders (Draper, 2013; Handayani et al., 2017; Prabawani, Saryadi, Widiartanto & Hidayat, 2017). If necessary, the

company must jointly create a new value proposition with the ecosystem network to produce a positive impact. Since the objective is not just for the company, companies try to initiate, inspire, mobilize, and lead changes whenever possible. This requires an unusual relationship with actors initially considered unconnected.

Several competitors of the focal company are involved in running the same thing in the ecosystem. However, the company has several advantages that support its strategic choice of being an active change leader in the ecosystem. One is the parent company's position as a company that produces automotive components. In addition, the company maximizes its chairman's access to one of the largest political parties in Indonesia. This allows the chairman to approach government policies that intersect with ministries of industry, investment and maritime affairs, regional governments, and so on. This strength becomes the basis for choosing a company's strategy to approach stakeholders and potential partners in this business. These strengths also benefit from competing with other actors to take positions, leading to the change needed. The political power factor can be considered an advantage because it can guess or suggest the direction of government policies.

As system building involves various stakeholders in creating an ecosystem, there is no single owner of the problems encountered. Actors must jointly formulate issues that must be addressed and resolved. One model of this process is creating an open innovation initiative (Enkel et al., 2009; Prabawani, Saryadi, & Hidayat, 2017). Open innovation allows companies to obtain ideas from experts, futurologists, designers, and sustainability experts.

The new company is involved in various forums, bringing together experts to strengthen its positioning as a leader and pioneer in E-mobility. The company wants to convey the message that it is concerned with international relations, climate change, global investment, and energy transitions. For instance, in Bali's 2018 World Bank agenda and other trusted agendas, such as the Foreign Policy Community of Indonesia, Bloomberg, the Miliken Institute, and other prominent global conferences and events. The CEO, COO, and chairperson are always present and are involved as participants or speakers. A major event that stands out is the B-20 Climate change agenda and the chairman's involvement in the G-20, which provides access to ecosystem and supply chain actors for e-buses. The chairman also established a relationship with Tesla through events that received wide publicity and potentially positively impacted the company.

The company packages the various initiatives mentioned above with public relations and storytelling to reinforce the new company's image as a pioneer. The narrative emphasizes the chairman's role and the concept that invites the public to recognize and appreciate the role of the e-bus that the local government has used. At the right time, when the company already acts as an OEM and has its brand, this positioning will help develop the brand in the eyes of both the government and the user community.

5.2. Linkage & learning

The new company fosters good relationships with ecosystem actors and stakeholders in existing networks, including community creation. A more constructive dialogue built with various stakeholders is considered more strategic than acting alone (Amir & Prabawani, 2022; Azis & Amir, 2020). It has not been seen that this aspect has been carried out optimally by companies because the communities or NGOs that specifically deal with the energy transition in the transportation sector are still limited. World Business Council for Sustainability Development (2011) signals a more empowering way of doing business to inspire widespread change in society, economics, and technical and environmental management systems through visionary leadership and leveraging of dynamic capabilities.

The new company engaged in and accessed the NetZero Hub platform from the Indonesian Chamber of Commerce (Paramitha, 2022). On this platform, the company engages with

communities that drive energy transition in Indonesia. The Hub also plays a significant role in addressing regulatory issues in Indonesia's electric vehicle ecosystems. With various partners, the company has broader access to innovation with other parties.

The new company's efforts to approach solid educational institutions in the EV field show how the learning strategy works. The company pursues an ambidextrous strategy by increasing its parent company's capacity and collaborating with advanced universities and research institutions for the new company.

To build linkages, a company needs broader collaboration with stakeholders. Polman and Winston (2022b) offer a model that does more than intervene in the industry and an ecosystem. If it only intervenes in the ecosystem, what he calls a "1 + 1 = 11 partnership", the impact will only be limited to changing the industry. Actors in the ecosystem that have not been fully established need to be integrated, and their challenges must be solved together. The costs will be too high when one party wants to solve the problem independently, because the horizon of responsibility is vast. However, if the company wants to have a further impact, namely changing the system, then the regulator needs to be approached.

The new company's move toward approaching the local government is correct. Additionally, company access to political parties and government officials is beneficial and a source of advantage (Polman & Winston, 2022a). The challenge is to bring together other actors to play a role. In Indonesia, several prominent business groups have run similar initiatives, such as the TBS Energy Utama Company (Widya, 2022b) and Indika Energy (FoxConn, 2022). The wider the challenge, the higher the potential impact generated, and the more interested other stakeholders are, although this requires courage, commitment, investment in energy, and focus.

Regulators are essential when the ecosystem has not yet been established (Lu et al., 2014). Companies can act as drivers and inputs for regulations. Even at a lower level, using knowledge and skills to help governments increase their capacity and operate in the environment. Like the experience of a company that carries out policy innovation in one province, it is used to assist the government in another province. Sharing experiences and lessons learned will accelerate the adoption of innovation and creation of ecosystems. Regulations in which companies play an important role. Although it is sometimes difficult to convince policymakers, companies must partner and improve their community well-being. Understanding short-term politics versus the need for long-term.

Polman and Winston (2022b, p. 161) suggest "net positive advocacy, in which companies build coalitions and discuss policies for the interests of all parties. This approach is the opposite of corruption or lobbying, in which the results are only for one or a few parties. Companies must be proactive and form regulations before they govern the company. Nevertheless, companies must avoid a selfish attitude and emphasize "moral strength" rather than political power (Polman & Winston, 2022b). This capacity provides opportunities for companies to lead sector partnerships, share difficulties, and help more parties.

5.3. Research implications

One key area in which future research can advance our understanding of sustainability-oriented innovation is how companies co-create value in the ecosystem, and whether specific industries could affect the different dynamics of the ecosystem. As Han et al. (2022) noted, this area remains overlooked. Several questions on this issue could be explored, such as how is the effective strategy for focal firms in the nascent stage of ecosystem development? As Makitie (2020) suggested, can an organization apply corporate entrepreneurship to accelerate the sustainability transformation? The selection of corporate strategy must focus on the stages of ecosystem development. In

addition, because of the dynamics of rapid ecosystem change, a company's learning aspects and agility in anticipating rapid changes in development must be a concern for managers.

Second, the company's aspirations to be a first mover or pioneer in system-building SOI demand a specific strategy, especially in establishing partnerships. Regulations and actors who are not fully prepared need to be concerned for those who choose this position. The purpose, position, access to political aspects, and position of communication are essential. Third, this study contributes to understanding the importance of agility in response to ecosystem dynamics. Our case study organization overcame the early stages of development challenges and convinced the government and several essential parties. Fourth, in leading and encouraging the establishment of a sustainable ecosystem, mastery of technology, as suggested by Coccia (2021) and Coccia et al. (2023) as well as Foda et al. (2023) is essential. The organization observed in this study do so with strategic partnerships.

5.4. Research limitations and future research direction

This study had several limitations that may provide directions for future research. First, we relied primarily on only one case of a company/group of companies. Examining the competitors further and comparing their positions in the ecosystem is noteworthy. Further research into organizations in different industries is needed to empirically assess the relationships between ecosystem contexts, the phase of ecosystem development, and organizational position in response to the dynamics of such development. Second, we only focused on the particular contextual conditions of the e-bus ecosystem in Indonesia, that is, the political and economic conditions, competitive conditions, and regulatory environment. It would be interesting for future research to analyze the differences between different actors and industries in other emerging countries in Asia, as the energy transition is taking place in many countries (Suh, 2022).

6. Conclusion

This study examines how a company, as a part of a business group, chooses to implement sustainability-oriented innovation as a business development strategy. The chosen mode is system building, in which the company must redefine its business and link with actors in the ecosystem, the key to shaping it. We found that the ability to respond to the dynamics of ecosystem development and carry out strategies and processes that approach important actors, especially regulators, allows companies to act as pioneers. Linkages that take advantage of a company's political success with the government and regulators provide distinct advantages and facilitate companies to play a leading role in ecosystem development. Meanwhile, strategic partners, including universities and research institutes, acquire learning elements in system-building. Mastery of technology management is essential and can be a source of competitive advantage in sustainability, especially in immature ecosystems. Overall, our study provides implications for the theory of sustainable-oriented innovation, especially related to the choice of company strategy, the level of maturity of the ecosystem, and how the company takes a position in forming this ecosystem.

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Author details

Muhammad Taufiq Amir¹
E-mail: taufiq.amir@bakrie.ac.id
ORCID ID: <http://orcid.org/0000-0001-9127-5568>
Bulan Prabawani²
ORCID ID: <http://orcid.org/0000-0001-7213-5770>

¹ Department of Management, Faculty of Economics and Social Science, Universitas Bakrie, Jakarta, Indonesia.

² Faculty of Social and Political Science, Universitas Diponegoro, Jalan Professor Soedarto SH, Tembalang, Kota Semarang, Jawa Tengah, Indonesia.

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