

Strengthening Construction Service Development Strategy Through a Comprehensive Business Ecosystem Approach

*Ecosystem Strategy
for Construction
Service Development*

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ABSTRACT

The contribution of construction services in Indonesia is quite large, where in the first quarter of 2024 it contributed 7.59 of the total gross domestic product. In the last decade, the construction industry has undergone major changes. From the beginning, the competition was not too fierce, with a few large companies dominating the market. This industry is growing rapidly. The three main problems faced by entrepreneurs are the high level of competition, the declining demand for construction services, and the fluctuating price of building materials. The same thing happened to PT Wijaya Karya Industri & Konstruksi (WIKON), which is engaged in construction services. The decline in demand for construction services has had an impact on the acquisition of contract turnover, revenue, and profit and loss at PT WIKON has decreased from 2021 to 2023. This research aims to identify the actors involved, to understand the interaction between actors, so that it can provide an overview or recommendations about what is needed by the company to develop the construction heavy equipment business. This study uses a business ecosystem approach with a qualitative method conducted through data collection, literature studies, and in-depth interviews to map it using the ecosystem approach.

Keywords: *Actors, Construction Services, Ecosystem, Interaction.*

ABSTRAK

Kontribusi jasa konstruksi di Indonesia cukup besar, dimana pada kuartal I-2024 menyumbang 7,59 dari total produk domestik bruto. Dalam dekade terakhir, industri konstruksi telah mengalami perubahan besar. Sejak awal, persaingan tidak terlalu ketat dengan beberapa perusahaan besar yang mendominasi pasar. Industri ini berkembang pesat. Tiga masalah utama yang dihadapi oleh pengusaha adalah tingginya tingkat persaingan, menurunnya permintaan jasa konstruksi, dan harga bahan bangunan yang berfluktuasi. Hal yang sama terjadi pada PT Wijaya Karya Industri & Konstruksi (WIKON) yang bergerak di bidang jasa konstruksi. Penurunan permintaan jasa konstruksi berdampak pada perolehan perolehan kontrak, pendapatan dan laba rugi di PT WIKON telah menurun dari tahun 2021 hingga 2023. Penelitian ini bertujuan untuk mengidentifikasi para pelaku yang terlibat, untuk memahami interaksi antar aktor sehingga dapat memberikan gambaran atau rekomendasi tentang apa saja yang dibutuhkan perusahaan untuk mengembangkan bisnis alat berat konstruksi. Penelitian ini menggunakan pendekatan ekosistem bisnis dengan metode kualitatif yang dilakukan melalui pengumpulan data, studi literatur, dan wawancara mendalam untuk memetakannya menggunakan pendekatan ekosistem.

Kata kunci: *Aktor, Layanan Konstruksi, Ekosistem, Interaksi.*

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INTRODUCTION

The construction services sector has an important role in supporting national development. This is because construction services have a close relationship with other sectors. Both in developing and developed countries, the construction sector is a sector that has an important role in the socio-economic development of a region. The dynamics of this sector's activities can have a great impact on the dynamics of other sectors (Forklift, 2022). The construction sector is a sector that plays a role in providing infrastructure for the national economy. In the service sector, the construction sector also has an important role. The growth of the service sector cannot be separated from the availability of infrastructure, from the results of construction sector activities. In addition to being an infrastructure provider for the development of other sectors, the development of the construction sector is also able to increase the demand for every input used in the production process of this construction sector (Aniqurroziqi et al., 2023). Inputs in the construction sector can be intermediate inputs that will be exhausted in the production process or primary inputs that are production factors. In addition to the impact given to other sectors, the contribution of the construction sector can also be seen through the share given by this sector to gross domestic product (Yasa, 2020).

GDP growth in the first quarter by economic sector. Mining and quarrying led with 9.31%, followed by construction at 7.59%, and other sectors such as manufacturing (4.13%), trade and repair (4.58%), and agriculture (-3.54%). The strong performance of the construction sector reflects ongoing investment in infrastructure and development projects, contributing significantly to overall economic growth.

In recent decades, the construction industry has undergone major changes. From the beginning, the competition was not too fierce with a few large companies dominating the market (Moore, 1996). However, as time goes by, this industry is growing rapidly. The emergence of more construction companies and the use of new technologies require construction companies in Indonesia must be able to compete in order to maintain their existence in this industry by preparing business development strategies that can increase competitiveness. According to the Construction Indicator, if described according to the variables, the three main problems faced by entrepreneurs are the high level of competition, the declining demand for construction services, and fluctuating prices of building materials.

There are three variables related to the business problem index, namely business competition, supply of building materials/materials and other components, and demand for construction services in general (Alamsyah et al., 2022). Business competition, which is marked by a blue bar, remained high throughout the period of 2023 and the first quarter of 2024, with a stable value of around 20. This shows that the level of competition in the construction sector remained strong and did not fluctuate significantly throughout the year. The supply of Building Materials and other Components, represented by the gray bars, showed a comparatively lower level compared to the competition, with values ranging between 5 and 10. This rate is relatively constant, signifying that there has been no significant change in the supply of materials and components in the construction sector during the given time.

The demand for General Construction Services, illustrated by the yellow trend line, showed a gradual decline from around 16 in the first quarter of 2023 to around 14 in the first quarter of 2024. The decline in demand for construction services can be an important signal for industry players to adjust their strategies or anticipate the impact of the decline in demand. Similar to what happened to PT Wijaya Karya Industri & Konstruksi (WIKON), the decline in demand for construction services also had an impact on PT WIKON, where the acquisition of contract turnover in 2021 of around 800 billion decreased in 2022 to 500 billion, and there was another decrease in 2023 to 400 billion. Thus, PT WIKON has experienced a decline from 2021 to 2023.

The objective of this study is to analyze and describe the current state of the construction services business ecosystem in Indonesia, identify the key factors and potential changes that may influence its elements, including actors, roles, and interactions

and propose a reconfiguration of the ecosystem by incorporating those potential changes. Furthermore, this study aims to determine the most appropriate position and role for WIKON within the reconfigured ecosystem, and to formulate a five-year strategic plan for WIKON that aligns with the dynamics of the construction services business ecosystem in Indonesia.

LITERATURE REVIEW

Business Ecosystem Concept

The concept of business ecosystems draws inspiration from ecology, emphasizing the interconnectedness and reciprocal relationships among various actors within a shared environment. In ecology, ecosystems are sustained by the dynamic interactions between living organisms and their surroundings, and similarly, business ecosystems consist of multiple participants who are loosely connected yet interdependent for effectiveness and survival (Moore, 1993; Iansiti & Levien, 2002). A dialogical ecosystem highlights not only the interaction among actors but also their embeddedness within a common environment. To better understand and manage these ecosystems, Ma et al. (2021) proposes a three-part framework: the first focuses on developing the architecture of a business ecosystem through identifying its targets and elements, including actors, roles, and interactions; the second emphasizes factor analysis to recognize potential changes and the dimensions influencing ecosystem dynamics; and the third involves simulation and reconfiguration, using models to explore ecosystem transitions and redesign structures for sustainability. This perspective positions business ecosystems as dynamic, adaptive systems that evolve through ongoing interactions and strategic reconfigurations.

Ma (2019) states the three stages of business ecosystem modeling and reconfiguration. Part I, the development of ecosystem architecture, involves identifying ecosystem boundaries, actors and their roles, value propositions, and interactions. Part II, factor analysis, examines influencing factors and potential ecosystem changes. Part III, simulation and reconfiguration, uses multi-agent models to assess ecosystem transitions, reconfigure structures and dynamics, and design business models. The final goal is to determine strategies, such as those applied by WIKON, to shift positions and roles within the ecosystem after reconfiguration.

Construction Industry

The construction industry is widely recognized for its unique characteristics that distinguish it from other sectors, particularly its fragmentation, project-based nature, and the involvement of diverse stakeholders with varying interests and expertise. These complexities often create barriers to efficiency and consistent performance, making the industry vulnerable to delays, cost overruns, and disputes (Love et al., 2016). Scholars highlight that innovation, whether through digital technologies, new project delivery models, or advanced materials, is critical for addressing these persistent challenges (Gambatese & Hallowell, 2011). Furthermore, collaboration among project participants has been emphasized as a vital mechanism for overcoming fragmentation, enhancing communication, and fostering trust, ultimately leading to improved project outcomes (Meng, 2012). The interplay of innovation and collaboration thus emerges as a central theme in construction management literature, underpinning the industry's capacity to adapt to evolving demands and achieve sustainable growth (Dave et al., 2016).

Effective integration of stakeholders, including contractors, consultants, suppliers, regulators, and clients, is increasingly recognized as a cornerstone of successful construction project delivery. The construction industry is inherently multi-stakeholder and multidisciplinary, often leading to conflicts of interest, communication gaps, and misaligned objectives (Winch, 2010). Research emphasizes that collaborative frameworks such as partnering and integrated project delivery (IPD) help to align the goals of diverse participants, improve trust, and enhance project outcomes (Meng, 2012). Contractors and consultants play a central role in technical execution and design alignment, while suppliers ensure material and resource flow, making their early involvement critical for

minimizing delays and cost overruns (Smits et al., 2017). Regulatory bodies further shape integration through compliance requirements, while clients influence decision-making by setting performance and sustainability expectations. The literature thus highlights that successful stakeholder integration is not only about contractual arrangements but also about fostering communication, mutual trust, and shared responsibility across the construction value chain.

RESEARCH METHODS

This study uses a qualitative method, where in this study, the researcher does not intervene data, and the type of investigation is a case study. In this research, the author will use source triangulation in testing the credibility of the data. This study applies the model of qualitative data analysis developed by Miles and Huberman (1984), which emphasizes an interactive and continuous process of analysis both before entering the field and throughout the data collection phase. The first stage is analysis before entering the field, which involves examining preliminary studies and secondary data to determine the initial focus of the research. However, as suggested by Sugiyono (2013), the focus remains temporary and may develop further once the researcher is immersed in the field. This flexibility ensures that the research can adapt to emerging findings and contextual nuances during the investigation process.

Once the researcher enters the field, the Miles and Huberman model of field analysis is applied. Data analysis in qualitative research does not occur only after data collection is complete, but is instead carried out simultaneously with the process of collecting data. For instance, during interviews, the researcher analyzes the answers directly; if the responses are incomplete or unclear, follow-up questions are posed until credible data is obtained. According to Miles and Huberman (1984), qualitative data analysis activities are interactive and cyclical, consisting of three main components: data reduction, data display, and conclusion drawing or verification.

The first component, data reduction, refers to the process of selecting, simplifying, and transforming raw field data into more manageable forms (Patilima, 2004; Hidayat, 2020). Data reduction occurs continuously throughout the research process, starting from the formulation of the conceptual framework and research design, to coding, summarizing, identifying themes, and clustering information. Hardani (2020) emphasizes that this process allows researchers to focus on the most relevant information until the final research report is written.

The second component, data display, is the stage where reduced data are presented systematically to facilitate interpretation. Miles and Huberman (1984) highlight that narrative text is the most common method of displaying qualitative data, though other forms such as charts, diagrams, and flowcharts can also be used. Presenting data in structured displays helps researchers understand patterns, relationships, and implications, which in turn guide further analysis and decision-making.

The third component, drawing conclusions and verification, involves interpreting the data to identify patterns, causal relationships, or theoretical insights. Miles and Huberman (1984) note that initial conclusions are often tentative, but they become more credible as they are validated through consistent and reliable evidence. Sugiyono (2013) emphasizes that conclusions in qualitative research may evolve as the study progresses, and they often result in new findings that provide deeper clarity, new hypotheses, or even theories. Through these three interconnected stages, such as reduction, display, and conclusion, the model of Miles and Huberman (1984) provides a systematic and rigorous framework for qualitative data analysis that ensures findings are both credible and meaningful.

RESULTS

Actors and Dynamics of the Construction Ecosystem

Within and outside the organization, including suppliers and distribution channels. It reflects the interdependence among business actors and their environment, where reciprocal relationships create opportunities for mutual success. Contractors in the construction industry interact with various key actors. The government regulates the industry through policies and taxation, while the media supports project success through promotion and publication in exchange for compensation. Contractors also rely on suppliers for building materials and equipment, often involving financial institutions that provide loans and insurance to both contractors and suppliers. Subcontractors handle specialized work under the main contractor and may also seek financing support. Meanwhile, service users or clients are the main source of contractor income, providing payment for completed projects. Lastly, contractors collaborate with educational institutions in research and development, benefiting from innovation while contributing practical field insights.

The government plays a central role in the construction industry as both a regulator and supervisor, ensuring that the activities of contractors and service users comply with established standards. Beyond its regulatory function, the government also benefits as a recipient of state revenue through taxes paid by contractors and service users involved in construction projects. Additionally, the government contributes to knowledge development by collaborating with educational institutions, particularly in supporting research and innovation aimed at advancing construction practices and strengthening industry capacity.

Educational institutions hold a strategic role in advancing the construction sector through research and innovation. By collaborating with contractors, governments, and service users, they contribute to developing new technologies, effective work methods, and evidence-based solutions. Contractors benefit from technical innovations and field problem-solving, while governments gain research-based insights to shape relevant policies and regulations. At the same time, educational institutions engage with service users to better understand societal needs and expectations, ensuring that construction outcomes align with community demands for quality, sustainability, and functionality.

Service users, on the other hand, are the direct beneficiaries of construction projects and compensate contractors according to agreed terms. Beyond their role as consumers, they also contribute to industrial development through research collaboration with educational institutions, helping bridge the gap between market needs and industry practices. Supporting these dynamics, financial institutions provide funding in the form of working capital loans, investments, and insurance, enabling contractors, subcontractors, and suppliers to manage project risks and sustain operations (Putri & Yunita, 2024). Other key actors in the ecosystem include media, suppliers, and consultants. Media outlets serve as communication partners for contractors by providing promotion and publication services that shape public perception of projects and companies. Suppliers ensure the availability of construction materials through procurement agreements, often supported by bank financing for working capital. Meanwhile, consultants play a dual role as planners and supervisors, working closely with service users or the government to design projects and monitor their execution with contractors, thereby ensuring that standards, quality, and timelines are met.

Using the method from Peppard and Ward (2002), there are 6 factors that can influence change using the PESTEL (Political, Economic, Social, Technological, Environmental, Legal) analysis approach. From a political perspective, three key factors shape the construction services industry in Indonesia. First, the Domestic Component Level (*Tingkat Komponen Dalam Negeri*/TKDN) policy and domestic product empowerment encourage the use of local materials, boosting demand for domestic products and reducing import dependence. Second, political stability is crucial for maintaining investor confidence and supporting long-term infrastructure investment. Third, clear government regulations on project implementation create efficiency, open new opportunities, and

build trust among business actors. These three elements, domestic product policies, stability, and regulatory clarity, form the political foundation that drives changes in the construction services ecosystem.

From an economic perspective, several factors play a significant role in shaping the construction services industry in Indonesia. Government and banking policies that provide contractors with easier access to financing are crucial for supporting project implementation. Flexible banking regulations, such as loan interest rates, credit guarantees, and financing requirements, can accelerate project execution, while strict or mismatched policies risk disrupting cash flow and delaying construction work. In addition, collaboration between educational institutions and financial support mechanisms is vital for strengthening research and innovation. Strong research output from universities and research centers forms the foundation for technological development, new working methods, and the creation of innovative construction materials.

Another key factor is the fluctuation of basic material prices, particularly steel and diesel, which are central to construction operations. Increases in these costs directly affect production budgets, service pricing, and overall financial stability. Contractors often need to adjust budgets or renegotiate with project owners when material prices surge, a process that becomes more complex when companies face limited cash flow. Thus, from an economic standpoint, three critical points of change for the construction services ecosystem can be identified: banking regulations for contractors, collaboration between educational and financial institutions, and the volatility of industrial base material prices.

From a social perspective, the construction industry in Indonesia is strongly influenced by population growth, lifestyle changes, the availability of skilled labor, and public access to information. The rapid increase in population and urbanization has driven higher demand for housing, infrastructure, and commercial spaces, while lifestyle shifts toward comfort, sustainability, and efficiency have encouraged the adoption of environmentally friendly and smart building concepts. These trends require the industry to be adaptive to modern preferences and oriented toward improving the quality of life.

At the same time, the availability of skilled labor is crucial to ensuring project quality, timeliness, and efficiency, making training, certification, and collaboration with educational institutions essential. Additionally, transparency and ease of public access to project information help strengthen trust, accountability, and stakeholder engagement. Together, these social factors highlight the importance of adaptability, workforce development, and openness in shaping a sustainable and responsive construction ecosystem in Indonesia. Technological factors play a crucial role in shaping the construction industry in Indonesia, particularly through the dual emphasis on strengthening human resources and adopting innovative technologies. The use of tools such as Building Information Modelling (BIM) and broader digitalization has transformed project management by improving efficiency, effectiveness, quality, and safety in construction processes. These innovations demonstrate that the industry's transformation depends not only on adopting advanced technology but also on equipping human resources with the necessary skills to utilize it effectively (Danusaputro et al., 2024). Thus, the key technological drivers of change in the construction services ecosystem are the integration of technology in project management and the continuous development of human resource competencies in the technological field.

Environmental factors have a significant influence on the construction industry, particularly through the government's role as a regulator in managing environmental impacts. In the face of global challenges such as climate change, adaptive policies are increasingly necessary to encourage the use of renewable energy and the adoption of eco-friendly building designs. The effectiveness of these policies depends on how responsive and accurate they are in accommodating industry dynamics while addressing critical issues related to sustainability. Therefore, the key environmental drivers of change in the construction services sector are the implementation of environmental impact

management policies, the promotion of renewable energy, and the development of environmentally friendly building design

Legal factors strongly influence the construction industry, particularly through the improvement of governance and efforts to eradicate corruption. Transparent budget management and reduced leakage not only enhance efficiency but also build greater trust in the construction system as a whole. At the same time, the role of competent contractors is crucial, as they are the main actors responsible for navigating the complex technical, social, and legal interactions within the construction ecosystem. Thus, from a legal perspective, the key drivers of change are the ongoing fight against corruption and the strengthening of contractor competence.

Several key factors drive changes in the construction industry, beginning with government policies and regulations, particularly the Domestic Component Level (*Tingkat Komponen Dalam Negeri*/TKDN) policy, which compels industry players to adapt to greater use of local resources and environmentally friendly materials, thereby reshaping cooperation patterns among contractors, suppliers, and the government while also requiring adjustments in fiscal policy, technical standards, and licensing. From an economic perspective, growth rates, inflation, exchange rate fluctuations, and global crises such as market uncertainty and geopolitical conflicts directly influence purchasing power, project demand, investment levels, and material prices, ultimately affecting interactions between suppliers, contractors, financial institutions, and government decisions related to project implementation. Meanwhile, technological innovation and human resource availability also play a vital role, as the adoption of tools like Building Information Modeling (BIM) and digitalization enhances efficiency, transparency, and collaboration among stakeholders, while the availability of skilled labor ensures project quality and supports the effective utilization of advanced technology. Together, these political, economic, and technological dynamics shape the evolving ecosystem of the construction services industry.

Driving Factors of Change in the Construction Industry

According to Handayani and Sarwono (2021), the strategic management process is guided by a deep and complete understanding of the market, external environment, and competition. One of the stages of the strategy management process is the evaluation stage. There are three main activities at the evaluation stage, namely analyzing all internal and external factors, measuring in the reconfigured construction services ecosystem, contractors such as WIKON remain at the center but with expanded roles and stronger collaborations. Initially, contractors mainly engaged in regulatory compliance with the government, transactional exchanges with suppliers and financial institutions, and promotional activities through the media. However, after reconfiguration, their role evolved to include the use of domestic and environmentally friendly materials in line with government policies, closer research collaboration with suppliers, and deeper involvement with educational institutions for human resource development and technological innovation. Media functions also expanded, not only serving as promotional partners but also as information channels to the government, influencing policy directions. Similarly, financial institutions that previously provided only loans and insurance now play broader roles in supporting subcontractors and supply chain sustainability, reflecting a more structured financing ecosystem.

The government's role also developed significantly. While initially functioning primarily as a regulator and tax recipient, the government is now more involved as a facilitator of collaboration, policy innovator, and driver of human resource development. Policies on TKDN, environmental management, renewable energy, and anti-corruption measures illustrate its wider influence. Educational institutions, which once acted only as research providers, have become active partners in innovation and workforce training, engaging in two-way collaborations with both contractors and the government. Service users, once passive consumers, are now actively involved in research and innovation processes, providing input that shapes construction practices and technological

development. Consultants, too, have moved beyond planning and supervision to contribute to innovation and environmentally friendly design.

Overall, no new actors were added in the reconfigured ecosystem, but existing actors gained expanded roles and deeper collaborations. This transformation highlights a shift from transactional and one-directional relationships to more integrated, strategic, and collaborative partnerships across the construction services ecosystem, ultimately strengthening innovation, sustainability, and industry capacity in Indonesia.

Based on the triangulation of sources and the strategic management theory by Handayani and Sarwono (2021), the author concludes the position and role of WIKON in its current condition. WIKON should strengthen its role as a major player in the steel fabrication industry by leveraging its assets and expertise to expand markets, improve efficiency, and serve as a subcontractor on projects requiring precision and high-quality steel work (Alle, 2008). To support this, WIKON needs to establish strategic collaborations using guaranteed payment systems such as escrow or standing instructions, which can build trust, minimize financial risks, and maintain quality control without being exposed to partners' operational risks. In the long term, WIKON must expand partnerships, uphold transparency, and adapt to industry dynamics, particularly the growing demand for local steel and sustainable infrastructure. By focusing on efficiency, innovation, and collaboration, WIKON can ensure its continued relevance and competitiveness in Indonesia's construction sector.

According to Kamaluddin et al. (2021), there are four ecosystem strategies for digitalization: orchestra, dominator, complementary, and protector. An ecosystem is a structured interaction of multilateral partners aimed at realizing a shared value proposition. The orchestral strategy emphasizes leadership through coordinated collaboration, where diverse actors complement each other to create value. This involves building open digital architectures, encouraging exploratory cooperation, and coordinating long-term partnerships to ensure successful commercialization.

Meanwhile, Handayani and Sarwono (2021) highlight that strategic management involves defining a company's mission, analyzing internal capabilities and external conditions, setting annual and long-term goals, and implementing strategies aligned with resource allocation. Through the two theoretical approaches above and collaborating with the results of the research, the author draws conclusions about the wikon strategy for the next 5 years in the context of the construction services business ecosystem in Indonesia, namely:

WIKON's five-year strategy centers on sharpening its business focus, optimizing internal capabilities, and selectively managing heavy equipment. The company will prioritize business lines aligned with its strengths in steel and aluminum structures as well as infrastructure projects supported by its existing resources, ensuring efficiency and maximum results. In response to financial challenges, WIKON will adopt a more flexible approach to heavy equipment investment, retaining only productive assets while improving cash flow efficiency. At the same time, digital transformation and innovation will serve as growth pillars, with initiatives aimed at project efficiency, process integration, data-driven decision-making, and human resource development through collaboration with industry and academia. Finally, WIKON will strengthen its role in the steel industry by expanding markets, increasing production capacity, and enhancing its ability to meet customer demands, ensuring both national competitiveness and global readiness.

DISCUSSION

The construction industry ecosystem is a network consisting of various actors with complementary and interdependent roles. The main actors in this ecosystem are contractors who act as project implementers, the government as a regulator as well as taxpayers, financial service providers who support project financing, material suppliers, educational institutions that contribute through research and technology development, media that disseminate information and promotion, and service users who are direct

beneficiaries of construction services (Laage-Thomsen & Seabrooke, 2021; Donina et al., 2022; Havinga et al., 2023; Oyighan & Okwu, 2024) The interaction between these actors forms a mutual relationship that creates mutual value, so that the development of the construction sector cannot be separated from the synergy of all parties involved.

PESTEL analysis helps to understand the external factors that affect the construction ecosystem (Battistella et al., 2012). From the political aspect, government regulations related to the Domestic Content Level and political stability greatly affect the investment climate and market opportunities for local contractors (Amin et al., 2024). From an economic perspective, material price factors, availability of financing, and global competitiveness also determine the sustainability of the project (Zhong & Wu, 2015). Furthermore, social factors include population growth, urbanization, and the need for a competent and skilled workforce (Green, 2013). The technological aspect is increasingly crucial with the development of digitalization, the use of Building Information Modeling (BIM), and data-based management systems that are able to increase project efficiency. Environmental factors drive the adoption of eco-friendly designs, the use of renewable energy, and sustainable construction practices. Meanwhile, legal factors emphasize the importance of eradicating corruption, increasing budget transparency, and increasing contractor capacity to ensure service quality according to standards.

Changes in the construction ecosystem do not mean adding new actors, but deepening collaboration between existing actors. The government, for example, now plays a role not only as a regulator, but also as a policy facilitator and innovator, especially in supporting transparent governance and collaborative research with educational institutions (Pulkka et al., 2016). Educational institutions, on the other hand, play a role as producers of new knowledge, technology, and methods that support increasing industrial competitiveness. They work with contractors to create technical solutions, with governments to formulate evidence-based policies, and with service users to understand the needs of the community. Thus, the construction ecosystem is increasingly emphasizing the importance of shared innovation and long-term sustainability (Li et al., 2017; Vigren, 2024).

In the context of the company, a relevant example is WIKON as one of the actors in the national construction industry. To strengthen its position, WIKON needs to sharpen its business focus and optimize its internal capabilities, especially in the field of steel manufacturing and infrastructure project work. This strategy will ensure that every step of the business is in line with the experience and assets it has, so that efficiency can be achieved. On the other hand, in the face of financial dynamics and high investment costs, WIKON must be more selective in managing heavy equipment ownership. Only truly productive equipment needs to be retained, while less efficient ones can be released to keep cash flow healthy. In addition, digital transformation is an important pillar that must be carried out. Digitalization initiatives not only improve project efficiency but also enable the integration of business processes and the utilization of data for strategic decision-making (Scott, 2023). WIKON can collaborate with educational institutions and industry partners to encourage innovation and development of superior human resources. Thus, companies not only strengthen competitiveness at the national level but are also better prepared to face global competition (Hattamimi & Afanassieva, 2022).

As the steel market develops, WIKON also has a great opportunity to expand production capacity and create new markets. The increase in local steel demand, especially from the infrastructure sector, can be leveraged to strengthen WIKON's position as a major player in the steel industry. With a focus on efficiency, innovation, and strategic collaboration, this company has the potential to maintain relevance while increasing competitiveness in Indonesia's increasingly dynamic construction industry (David, 2010).

Overall, the success of the construction ecosystem is determined by the extent to which actors are able to build synergy in the face of external and internal factors. The empowerment of competent contractors, transparent government policy support, the active role of educational institutions, and the involvement of service users, media, and financial institutions will create a healthy ecosystem. Companies like WIKON, with the

right strategy, can be an example of how focus, collaboration, and innovation are able to secure a competitive position in the national construction ecosystem.

CONCLUSION

In the construction services ecosystem in Indonesia, all actors involved have important roles, such as contractors, subcontractors, governments, educational institutions, financial institutions, suppliers, media, and service users. So that all these actors cannot be separated from each other. In the construction services business ecosystem in Indonesia, from the results of the Value Network Analysis (VNA), it can be concluded that there are transactions or relationships between interested parties in construction services, where contractors are the center of the entire construction business ecosystem in Indonesia. After analyzing the change factors using PESTEL analysis, it can be concluded that there is no addition of actors in the existing ecosystem, only the addition of roles between actors in the ecosystem. WIKON's strategy for the next five years in the context of the construction services business ecosystem in Indonesia is to sharpen business focus and optimize internal capabilities, heavy equipment investment selectivity, digital transformation and innovation, and market development of the steel industry.

Seeing the limitations of the research, further research is needed on different research objects on other contractors in the construction services industry. This additional research has the potential to look at different actors and interactions in the construction services ecosystem in Indonesia. By exploring the variations between construction companies, further research results can provide more in-depth and comprehensive insights into the factors influencing changes and strategies in the construction industry. Research involving different fields of the construction business can provide a better foundation for policy recommendations and strategies in the construction industry in the future

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