Received 4 September 2025
Revised 20 November 2025
27 January 2026
27 March 2026
Accepted 27 March 2026

From scarcity to sustainability: how entrepreneurial microfoundations and dynamic capabilities shape green innovation in emerging economies

Ching-Ying Yu
Graduate School of Comprehensive Human and Social Sciences, National Shinshu University, Nagano, Japan
Huu Tin Nguyen
College of Management, Yuan Ze University, Taoyuan, Taiwan and Vietnam Aviation Academy, Ho Chi Minh, Vietnam, and
Thi Hao Nguyen
College of Management, Yuan Ze University, Taoyuan, Taiwan

Abstract

Purpose – This study examines how green entrepreneurs in Vietnam build and legitimize innovation under conditions of institutional incompleteness. This explains how resource scarcity can catalyze sustainability-oriented innovation by enabling entrepreneurs to develop dynamic capabilities through entrepreneurial identity reconfiguration, local resource circularity, and local ecological empowerment.

Design/methodology/approach – This study employs an inductive multiple-case design involving four Vietnamese green ventures. Drawing on secondary qualitative data, it applies Gioia's methodology and Cheong's seven-step hybrid secondary qualitative approach to trace how sensing, seizing, and reconfiguring unfold in a theory-revealing context of emerging countries.

Findings – Institutional incompleteness creates a legitimacy bottleneck for green ventures. Entrepreneurs respond by reconfiguring their identities to sharpen ecological opportunity recognition, mobilizing circular local resources to seize opportunities, and empowering ecosystem actors to sustain reconfiguration and diffusion. Collectively, these microfoundations enable green innovation and scaling under certain constraints.

Originality/value – This study extends the dynamic capabilities theory by specifying how green innovation is built and legitimized under institutional incompleteness in Vietnam. It also contributes to sustainable entrepreneurship research by showing that, in emerging-market green transitions, capability formation depends less on resource abundance than on identity, circularity, and ecosystem empowerment.

Keywords Green entrepreneurship, Dynamic capabilities, Microfoundations, Institutional incompleteness, Green innovation, Emerging economies, Vietnam

Paper type Research article

1. Introduction

Global sustainability challenges have intensified the search for forms of entrepreneurship that can simultaneously generate environmental and economic value. Climate change, resource depletion, and ecological degradation have made green entrepreneurship increasingly central to debates on sustainable development because entrepreneurial action can transform

JEL Classification — L26, O32, Q01, Q56

Journal of Asian Business and Economic Studies
Vol. 33 No. 2, 2026
pp. 54-66
Emerald Publishing Limited
2515-964X
DOI 10.1108/JABES-09-2025-0461

environmental problems into opportunities for innovation, market creation, and institutional change (Belz and Binder, 2017; Cohen and Winn, 2007; Dangelico *et al.*, 2017; Dean and McMullen, 2007; Lüdeke-Freund, 2020). However, the conditions under which such entrepreneurship emerges are highly uneven. Much of the existing literature has been developed from resource-rich settings, where supportive institutions, more mature green markets, and stronger financing systems make sustainability-oriented innovation easier to launch and scale (Cohen and Winn, 2007; Dangelico *et al.*, 2017; Hällerstrand *et al.*, 2023). This leaves insufficient theoretical clarity on how green innovation is built when entrepreneurs face environmental urgency and institutional incompleteness.

This gap is important because emerging economies face a distinct paradox. They face acute environmental pressure, uneven regulatory enforcement, constrained finance and incomplete verification infrastructure. However, these same conditions often stimulate experimentation, bricolage, and locally embedded forms of sustainability innovation (Baker and Nelson, 2005; George *et al.*, 2016; Mair and Marti, 2009; Singh *et al.*, 2021; Teece, 2007). Under these conditions, green innovation is not simply a technological challenge but also a legitimacy challenge: ventures must make environmental value credible to customers, partners, and financiers while mobilizing scarce resources and coordinating diverse stakeholders. This suggests that the key theoretical issue is not merely whether dynamic capabilities matter but how they are formed and deployed under constraints and which entrepreneurial microfoundations make them effective in institutionally incomplete settings (Barney and Felin, 2013; Felin *et al.*, 2012; Helfat and Peteraf, 2015; Teece, 2007).

Vietnam provides a particularly revealing context for examining this problem. As a rapidly industrializing ASEAN economy, Vietnam faces mounting sustainability pressures while experiencing an active transition toward greener business models, policy experimentation, and entrepreneurial adaptation (Vo-Thai and Tran, 2024). The sustainability performance and innovation outcomes of Vietnamese firms are shaped by stakeholder engagement, financial constraints, government support, green leadership, knowledge practices, and capability renewal—a country's green transition is strategically important and institutionally uneven (Ho *et al.*, 2024; Ngoc Huynh *et al.*, 2024; Nguyen Dang *et al.*, 2025; Nguyen *et al.*, 2024; Nguyen-Van *et al.*, 2025). Green production practices improve technical efficiency in Thailand, while green finance supports renewable energy development in Singapore—sustainability transitions across Asia are increasingly capability-dependent yet contextually differentiated (Amornkitvikai *et al.*, 2024; Subramaniam and Loganathan, 2024). Therefore, we treat Vietnam not as a universal proxy for all emerging economies but as a theory-revealing case in which green-growth ambition, incomplete formal support, and strong relational embeddedness make the mechanisms of scarcity-driven green innovation especially visible (Minh *et al.*, 2022; Phong *et al.*, 2023; Roxas, 2021).

Against this backdrop, this study examines how entrepreneurial microfoundations activate the dynamic capabilities that enable green innovation under institutional and ecological constraints. We address this question through an inductive comparative analysis of four Vietnamese green ventures—Dat Bike, Green Beli, FUWA Biotech, and WSAFE—using Gioia's methodology and a structured secondary qualitative design (Cheong *et al.*, 2023; Eisenhardt, 1989; Gioia *et al.*, 2013). Our core argument is that institutional incompleteness creates a legitimacy bottleneck, and entrepreneurs respond by building dynamic capabilities through three interrelated microfoundations: entrepreneurial identity reconfiguration, which sharpens opportunity recognition and strengthens commitment under uncertainty; local resource circularity, which converts locally available waste, relationships, and material constraints into credible environmental value; and local ecological empowerment, which extends capability building beyond the firm through community, partner, and ecosystem mobilization. Collectively, these microfoundations explain how green ventures move from scarcity to sustainable innovation and scaling.

This study makes three main contributions to the literature. First, it extends the microfoundations of dynamic capabilities by showing that in constrained sustainability transitions, capability formation depends on routines and resource orchestration, identity work, locally embedded circularity, and ecosystem-facing empowerment (Barney and Felin, 2013;

Felin *et al.*, 2015; Mehrabi *et al.*, 2025; Teece, 2007). Second, it contributes to the green entrepreneurship research by explaining how sustainability-oriented ventures build innovation capacity and stakeholder credibility under institutional constraints, explicitly linking green entrepreneurship to legitimacy formation and adoption feasibility (Cohen and Winn, 2007; Dean and McMullen, 2007; Lüdeke-Freund, 2020; Singh *et al.*, 2021). Third, this study contributes to the emerging conversation on sustainability in Asia by offering process-based evidence from Vietnam, where green innovation is increasingly shaped by the interaction between policy support, market constraints, and entrepreneurial agencies (Amornkitvikai *et al.*, 2024; Ho *et al.*, 2024; Nguyen Dang *et al.*, 2025; Nguyen *et al.*, 2024; Subramaniam and Loganathan, 2024). Thus, this study advances a more precise explanation of how green innovation is built and legitimized in an emerging economy context.

2. Literature review

2.1 Green entrepreneurship under institutional voids in emerging Asia: Vietnam as a theory-revealing context

Green entrepreneurship refers to the creation and development of ventures that generate environmental and economic value simultaneously by transforming ecological problems into commercially viable opportunities (Belz and Binder, 2017; Cohen and Winn, 2007; Dangelico *et al.*, 2017; Dean and McMullen, 2007; Lüdeke-Freund, 2020). It has become increasingly important for sustainability transitions because such ventures do more than introduce greener products; they also reshape local production logics, mobilize new stakeholder coalitions, and accelerate experimentation around cleaner business models (Belz and Binder, 2017; Dangelico *et al.*, 2017; Dean and McMullen, 2007). However, the literature on this topic remains unevenly developed. Most established theories have emerged from relatively mature regulatory systems, stronger financing channels, and more stable demand for green products, whereas emerging economies often combine ecological urgency with institutional volatility, resource scarcity, and uneven enforcement (George *et al.*, 2016; Lüdeke-Freund, 2020; Mair and Marti, 2009; Singh *et al.*, 2021).

This distinction is important because sustainability transitions do not occur under equivalent structural conditions. In emerging Asia, green ventures must innovate while facing incomplete market-supporting institutions, a weak verification infrastructure, and fragmented policy implementation. These constraints can slow adoption but stimulate bricolage, locally embedded experimentation, and new combinations of social and material resources (Baker and Nelson, 2005; George *et al.*, 2016; Mair and Marti, 2009). Recent studies have reinforced this regional relevance. Green production practices improve technical efficiency among Thai manufacturers—sustainability can function as a capability-enhancing strategy rather than merely as a compliance burden (Amornkitvikai *et al.*, 2024). In Singapore, green finance has been linked to renewable energy development, highlighting the role of financial infrastructure in enabling transition pathways (Subramaniam and Loganathan, 2024). In Vietnam, emerging evidence indicates that green innovation can generate measurable social impacts, whereas SME innovation remains strongly shaped by government support and institutional conditions (Nguyen Dang *et al.*, 2025; Nguyen *et al.*, 2024). Collectively, these studies suggest that sustainability transitions across Asia are increasingly strategic but also highly context-dependent.

Vietnam is especially consequential as a setting that reveals this theory. It combines rapid industrialization, growing environmental pressures, evolving green-growth policy ambitions, and a dynamic entrepreneurial base. However, formal support systems for financing, verification, and ecosystem coordination remain uneven (Ho *et al.*, 2024; Minh *et al.*, 2022; Nguyen Dang *et al.*, 2025; Vo-Thai and Tran, 2024). Vietnamese firms are already engaging in green innovation through knowledge management, leadership, stakeholder engagement, and circular practices; nevertheless, these activities are embedded in a hybrid environment in which market opportunities coexist with institutional incompleteness (Chowdhury *et al.*, 2022; Ngoc Huynh *et al.*, 2024; Nguyen-Van *et al.*, 2025; Roxas, 2021). Therefore, Vietnam is

analytically valuable not because it represents all emerging economies but because it highlights how sustainability transitions unfold when ecological urgency collides with incomplete formal support.

2.2 Dynamic capabilities for sustainability: adaptation, legitimacy, and constraint

Dynamic capabilities provide a useful lens to explain how firms adapt to such environments. At their core, they refer to the capacity to sense opportunities and threats, seize opportunities through strategic actions, and reconfigure resources and routines to sustain their advantages under changing conditions (Eisenhardt and Martin, 2000; Helfat and Peteraf, 2015; Teece, 2007; Teece *et al.*, 1997). In this study, the framework's value lies less in its canonical breadth than in its ability to explain the formation of adaptive capabilities amid volatility. Green ventures must identify environmentally meaningful opportunities, mobilize scarce resources around them, and continually adjust their business models according to technologies, regulations, and stakeholder expectations (Dangelico *et al.*, 2017; Hällerstrand *et al.*, 2023; Teece, 2018).

However, under these constraints, dynamic capabilities do not merely involve strategic flexibility. They are also concerned about credibility. Institutionally complete settings, firms rely heavily on established certification systems, financing channels, and regulatory clarity to validate innovation. Conversely, institutionally incomplete settings, green ventures must build trust while building innovation. This means that sensing is partly about recognizing where ecological problems can be translated into legitimate market offerings, seizing involves aligning stakeholders and resources around claims that others will accept as credible, and reconfiguring entails sustaining that credibility through learning, adaptation, and ecosystem coordination (Eisenhardt and Martin, 2000; Helfat and Peteraf, 2015; Singh *et al.*, 2021; Teece, 2007). Recent evidence is consistent with this interpretation: financial constraints, competition, green leadership, stakeholder engagement, and digital-capability renewal shape the emergence and persistence of sustainable innovation (Duong *et al.*, 2024; Ho *et al.*, 2024; Ngoc Huynh *et al.*, 2024; Nguyen-Van *et al.*, 2025; Vo-Thai and Tran, 2024).

2.3 Microfoundations of scarcity-to-sustainability capability formation

The remaining theoretical question concerns the emergence of these capabilities. Microfoundation research has shifted attention from abstract firm-level capabilities to the individual, relational, and processual mechanisms through which capabilities are built and enacted (Barney and Felin, 2013; Felin *et al.*, 2012, 2015; Helfat and Peteraf, 2015). In green entrepreneurship, this is crucial because sustainability-oriented innovation is often assembled before supporting institutions are fully stabilized. Therefore, entrepreneurs must rely on cognition, commitment, social ties, and local resource recombination to make novel green offerings viable and credible, and pro-environmental behavior functions as the behavioral microfoundation of these capabilities (Khan *et al.*, 2020; Mehrabi *et al.*, 2025; Singh *et al.*, 2021).

This is where the core mechanism of this study is located. Under institutional incompleteness, green innovation is an innovation problem and a legitimacy problem. The challenge is not simply to develop a greener product or service but to make its environmental value credible to customers, partners, investors, and communities during uncertainty. We argue that these three interrelated microfoundations help entrepreneurs overcome this legitimacy bottleneck. Entrepreneurial identity reconfiguration refers to the process by which founders redefine themselves around a sustainability mission, strengthening opportunity sensitivity and commitment under uncertainty (George *et al.*, 2016; Helfat and Peteraf, 2015; Teece, 2007). Local resource circularity refers to the recombination of locally available waste streams, materials, and relationships into circular business models that reduce external dependence and provide visible evidence of environmental value (Baker and Nelson, 2005; Dangelico *et al.*, 2017; Khan *et al.*, 2020; Lüdeke-Freund, 2020). Local ecological empowerment refers to the mobilization of communities, partners, and ecosystem actors to co-produce diffusion, legitimacy, and

problem-solving capacity beyond the focal venture (George *et al.*, 2016; Mair and Marti, 2009; Mehrabi *et al.*, 2025; Nguyen Dang *et al.*, 2025).

This integrated framing clarifies the contributions of these papers to the broader literature. Sustainability performance is shaped by green production, ESG engagement, green finance, social impact, and government support (Amornkitvikai *et al.*, 2024; Ho *et al.*, 2024; Nguyen Dang *et al.*, 2025; Nguyen *et al.*, 2024; Subramaniam and Loganathan, 2024). Nevertheless, the micro-level entrepreneurial process through which these broader conditions are translated into capability formation and green innovation under constraints remains underexplained. This study addresses this gap by examining Vietnamese green ventures through a dynamic-capability and microfoundation lens. It offers a more precise explanation of how scarcity can translate into sustainability-oriented innovation when legitimacy, rather than resources, is in short supply.

3. Methodology

3.1 Research design and case selection

This study adopted an inductive multiple-case design to explain how green ventures build dynamic capabilities under institutional incompleteness and ecological pressure in an emerging economy. A qualitative, theory-building strategy is appropriate because the focal mechanism is processual, context-dependent, and not readily observable through variance-based designs; multiple cases also strengthen analytical generalization through cross-case comparison and theoretical replication (Eisenhardt, 1989; Eisenhardt and Graebner, 2007; Yin, 2009). Vietnam was selected as a theory-revealing setting rather than as a universal proxy for all emerging economies. The combination of green-growth policy ambitions, entrepreneurial dynamism, uneven financing and verification infrastructure, and strong stakeholder embeddedness makes the legitimacy bottleneck surrounding green innovation particularly visible (Duong *et al.*, 2024; Ho *et al.*, 2024; Nguyen Dang *et al.*, 2025; Nguyen *et al.*, 2024). To enhance methodological transparency, this study employed a seven-step hybrid secondary qualitative methodology adapted from Cheong *et al.* (2023), integrating pragmatic qualitative inquiry, narrative analysis, and grounded discursive techniques (Table A1 [1]).

Four ventures were purposefully sampled to maximize sectoral variation while keeping the empirical setting constant: Dat Bike, Green Beli, FUWA Biotech, and WSAFE. Collectively, they span electric mobility, eco-finance, circular biotech cleaning products, and green venture building, enabling us to examine whether a common capability-formation mechanism extends across distinct sustainability domains. Case selection followed three criteria: visible engagement with sustainability-oriented innovation, sufficient public longitudinal documentation for interpretive reconstruction, and meaningful variation in business models, stakeholder configurations, and scaling pathways. Table A2 [1] summarizes the case characteristics. This design enabled a comparison across different manifestations of green venturing while preserving a common national and institutional context (Eisenhardt, 1989; Eisenhardt and Graebner, 2007; Yin, 2009).

3.2 Data sources and analysis

The empirical material comprised a secondary qualitative dataset built from publicly available interviews, speeches, media reports, company documents, and ecosystem-facing communications published between 2018 and 2024. This approach is increasingly appropriate when access constraints limit direct fieldwork; however, rich digital traces permit the reconstruction of entrepreneurial processes over time (Cheong *et al.*, 2023). In this study, secondary data were especially suitable because the ventures are publicly visible, mission-driven organizations whose founders and partner networks routinely communicate their strategic decisions, market narratives, and sustainability claims across multiple channels. To reduce source dependence, the materials were triangulated across company-produced texts, independent media coverage, and external ecosystem sources. Table A3 [1] presents the documentary corpus.

Data analysis followed the Gioia methodology, moving iteratively from first-order concepts to second-order themes and then to aggregate dimensions (Gioia *et al.*, 2013). First, we coded venture narratives and documentary evidence in informant-centric terms to capture how founders and stakeholders described opportunity recognition, resource mobilization, legitimacy construction, and ecosystem collaboration. Subsequently, we clustered these codes into theoretically meaningful themes linked to sensing, seizing, and reconfiguring before abstracting them into three focal microfoundations: entrepreneurial identity reconfiguration, local resource circularity, and local ecological empowerment. The purpose of the analysis was not to generate three disconnected constructs but to specify a sequenced mechanism through which institutional incompleteness creates a legitimacy bottleneck, and entrepreneurs respond by building green innovation capability under constraints. The full Gioia methodology coding structure is reported in Table A4 [1], and a cross-case comparison is presented in Table A5 [1].

As part of the dataset originated in Vietnamese, translation reliability was treated as an analytical issue rather than as a technical afterthought. Key texts were translated into English, checked for conceptual equivalence, and standardized using an internal terminology protocol to ensure that sustainability-related meanings remained consistent across cases. Trustworthiness was strengthened through source triangulation, repeated comparisons across cases, and recursive movement between the data, emerging interpretations, and the dynamic capabilities literature (Cheong *et al.*, 2023; Gioia *et al.*, 2013; Lincoln and Guba, 1985). This combination of cross-case pattern matching and inductive abstraction is appropriate for explaining the microfoundational processes that occur between entrepreneurial cognition and observable organizational actions (Barney and Felin, 2013; Felin *et al.*, 2012; Teece, 2007).

3.3 Ethics and trustworthiness

The study relies exclusively on publicly accessible materials and therefore does not require direct human-subject interaction. Nevertheless, the analysis followed standard qualitative principles of transparency, proportionality, and interpretive restraint. Only publicly available statements were used, sources were cross-checked for authorship and contextual credibility, and quotations were retained only where necessary to support interpretation rather than to over-display raw material. In keeping with established standards for naturalistic inquiry and secondary qualitative analysis, credibility was supported through triangulation, dependability through transparent coding procedures, and confirmability through careful separation between documentary evidence and theoretical inferences (Cheong *et al.*, 2023; Gioia *et al.*, 2013; Lincoln and Guba, 1985). This procedure helps ensure that the findings are methodologically credible while keeping the Methods section proportional to the article's theory-building purpose.

4. Findings: green capability formation under constraint

This section presents the findings of Dat Bike, Green Beli, FUWA Biotech, and WSAFE. Across the four ventures, a common mechanism becomes visible: institutional incompleteness creates a legitimacy bottleneck, and entrepreneurs respond by building dynamic capabilities through a sequential process of entrepreneurial identity reconfiguration, local resource circularity, and local ecological empowerment. Rather than emerging as three parallel discoveries, these microfoundations unfold through sensing, seizing, and reconfiguring, explaining how green innovation becomes credible, actionable, and scalable in the Vietnamese context. Table A4 [1] summarizes the Gioia data structural analysis.

4.1 Sensing ecological opportunities under constraint

The first stage concerns how entrepreneurs recognize ecological opportunities in a context in which market demand, regulatory support, and verification systems are forming. Across these

cases, sensing did not begin with environmental aspirations alone but with exposure to ecological friction and underserved market spaces. Dat Bike identified the neglected electrification of two-wheel mobility in Southeast Asia, Green Beli translated visible plastic pollution into a digital environmental platform, FUWA Biotech reinterpreted pineapple waste as an input for biodegradable cleaning products, and WSAFE recognized that climate solutions in Vietnam often failed not because ideas were absent but because support systems for green venturing remained minimal. In all four cases, sensing combined environmental vigilance, stakeholder engagement, and technological foresight. Entrepreneurs scanned ecological pain points, tested them against community needs, and assessed whether a viable solution could be built with the available technological and relational resources rather than waiting for fully developed institutions to appear (Dangelico *et al.*, 2017; Eisenhardt and Martin, 2000; Hällerstrand *et al.*, 2023; Teece, 2007).

What distinguishes these ventures is that sensing was anchored in entrepreneurial identity reconfigurations. The founders identified a market niche and redefined themselves in response to a sustainability problem that demanded commitment amid uncertainty. One founder stated that he would "define [himself] based on the problem" rather than on existing skills, illustrating how identity shifted from occupation-centered logic to mission-centered orientation. This matters because, under institutional incompleteness, green opportunities are rarely self-evident or immediately profitable. They must be interpreted, defended, and pursued, despite delayed returns, fragile customer trust, and uncertain ecosystem support. Therefore, entrepreneurial identity reconfiguration functions as a microfoundation that stabilizes attention, sustains moral commitment, and sharpens opportunity sensitivity. Sensing in Vietnam was not a neutral information-processing routine; rather, it was a credibility-seeking process through which founders framed ecological problems as legitimate entrepreneurial opportunities worthy of collective attention and investment (Barney and Felin, 2013; Felin *et al.*, 2012; George *et al.*, 2016; Helfat and Peteraf, 2015; Mair and Marti, 2009; Nguyen Dang *et al.*, 2025).

4.2 Seizing through circular resource mobilization and relational agility

Once ecological opportunities were recognized, the core challenge shifted from discovery to mobilization. The cases show that seizing under constraints depends less on abundant capital than on the capacity to combine finance, partnerships, product innovation, and market narratives into a credible resource configuration. Dat Bike mobilized venture funding, supplier relationships, and manufacturing partnerships to commercialize its electric mobility. Green Beli used blockchain-enabled incentives and community-facing digital tools to connect environmental actions with user participation. FUWA Biotech transformed knowledge on fermentation and agricultural waste into a marketable, low-toxicity product system. Simultaneously, the WSAFE blended incubation logic, ecosystem brokering, and stakeholder coordination to support multiple climate-oriented ventures. Across the cases, seizing required obtaining resources and persuading partners, customers, and backers that the environmental claim was real, useable, and worth supporting. In this setting, eco-centric branding and stakeholder partnerships were not peripheral communication devices; they were integral to capability formation because market acceptance depended on whether ecological value could be made visible and credible (Cohen and Winn, 2007; Duong *et al.*, 2024; Ho *et al.*, 2024; Singh *et al.*, 2021; Teece, 2018; Teece *et al.*, 1997).

At this stage, the central microfoundation is local resource circularity. These cases show that circularity is not simply a sustainability outcome or a generic circular-economy label. It is an active mechanism for seizing opportunities among resource scarcity. FUWA Biotech's decision to "source pineapple waste locally" is illustrative of Local waste streams were converted into productive inputs, refill systems reduced reliance on packaging, and the business model generated tangible evidence of the environmental value that stakeholders could directly observe. Similar dynamics emerged in the WSAFE's venture-building

activities, where local research capabilities, startup networks, and climate problems were connected to commercially relevant solution pathways. Thus, local resource circularity performed two functions simultaneously. Operationally, it reduced dependence on scarce external inputs by recombining accessible materials, knowledge, and relationships. Symbolically, it generated locally legible evidence that the venture's environmental proposition was substantive rather than rhetorical. This dual role is crucial in a legitimacy-constrained environment because resource mobilization becomes easier when circularity itself serves as a proof of seriousness, feasibility, and social relevance (Baker and Nelson, 2005; Chowdhury *et al.*, 2022; Khan *et al.*, 2020; Lüdeke-Freund, 2020; Ngoc Huynh *et al.*, 2024; Vo-Thai and Tran, 2024).

Furthermore, seizing was relationally agile rather than firm-bound. These ventures involved community actors, suppliers, investors, users, universities, and public-facing platforms to assemble temporary yet effective coalitions around green innovation. These coalitions helped compensate for incomplete financing channels and uneven market verification systems. Circularity and partnership formation were mutually reinforcing: the more ventures could organize visible local loops of value creation, the more effectively they could attract collaborators and strengthen trust. Therefore, seizing operated as the practical middle stage of the study's core mechanism: entrepreneurial identity reconfiguration made ecological opportunities worth pursuing, while local resource circularity converted those opportunities into investable and adoptable configurations under constraints (Dangelico *et al.*, 2017; Dean and McMullen, 2007; Nguyen-Van *et al.*, 2025; Roxas, 2021).

4.3 Reconfiguring toward ecosystem-level sustainability

The third stage concerns reconfiguration, in which ventures move beyond launching green offerings to reshape routines, networks, and business models as a support to long-term adaptation and diffusion. These cases show that reconfiguration does not occur solely within a firm. Dat Bike deepened its control over key technological and production activities, FUWA Biotech expanded refill-based and closed-loop operations, Green Beli iteratively adjusted its platform and engagement model, and WSAFE evolved toward an ecosystem role that connects startups, researchers, investors, and public actors. These changes reflect more than incremental improvement—green ventures in Vietnam must repeatedly realign resources and organizational arrangements as they learn from customer responses, supply conditions, partnership opportunities, and institutional gaps. Therefore, reconfiguring was cumulative and path-dependent, but its distinctiveness lay in the fact that adaptation increasingly depended on the venture's capacity to shape its surrounding ecosystem rather than merely responding to it (Eisenhardt and Martin, 2000; Felin *et al.*, 2015; Mehrabi *et al.*, 2025; Teece, 2007).

This is where local ecological empowerment has become the decisive microfoundation. The strongest cases did not scale by protecting narrow firm boundaries; they scaled by enabling others to participate in the sustainability transition. FUWA linked farmers and local sourcing practices to circular production, converting waste recovery into community-linked value creation. WSAFE explicitly sought to "work directly with research institutions and local entrepreneurs," illustrating how ecosystem orchestration became part of the reconfiguration process itself. At this stage, continuous ecological learning, capability realignment, and network reconfiguration converged into a broader social process through which partners, communities, and support organizations became part of the venture's adaptive capacity. Thus, local ecological empowerment extends from organizational redesign to ecosystem-level capability building, creating diffusion infrastructure, widening stakeholder ownership of green solutions, and strengthening the social conditions under which innovations can persist beyond early niche adoption (Amornkitvikai *et al.*, 2024; George *et al.*, 2016; Mair and Marti, 2009; Nguyen Dang *et al.*, 2025; Subramaniam and Loganathan, 2024; Teece, 2018).

Collectively, these findings support a single-sequence mechanism rather than three disconnected contributions. In this theory-revealing Vietnamese setting, institutional

incompleteness produces a legitimacy bottleneck that shapes each stage of capability formation. Entrepreneurs first stabilize attention and purpose through entrepreneurial identity reconfiguration, then mobilize credible solutions through local resource circularity, and finally scale adaptation through local ecological empowerment. The result is not simply green product innovation but a broader capability system through which ecological intent becomes credible, socially embedded, and more scalable under constraints. This study's central empirical contribution is as follows. Green innovation in emerging Asia becomes durable when ventures transform scarcity into a chain of sensing, seizing, and reconfiguring grounded in identity, circularity, and empowerment rather than in resource abundance alone.

5. Discussion and conclusion

This study shows that green innovation under institutional incompleteness is best understood as the co-formation of capabilities and legitimacy. Vietnamese entrepreneurs did not simply respond to environmental problems by deploying their existing resources more efficiently. Rather, they built dynamic capabilities in a setting where formal verification systems, financing channels, and ecosystem support were uneven; thus, innovation had to become credible before it could become scalable. Therefore, the evidence supports a sequenced mechanism: entrepreneurs first stabilize ecological commitment through entrepreneurial identity reconfiguration, then translate that commitment into viable offerings through local resource circularity, and finally extend adaptation beyond the firm through local ecological empowerment. In this sense, green entrepreneurship in Vietnam is not driven by resource abundance but by the capacity to convert scarcity into trusted innovation through sensing, seizing, and reconfiguring under constraints (George *et al.*, 2016; Mair and Marti, 2009; Singh *et al.*, 2021; Teece, 2007; Teece *et al.*, 1997). Figure 1 summarizes this mechanism.

These findings extend the microfoundations of dynamic capabilities in three ways. First, entrepreneurial identity reconfiguration shows that sensing in sustainability transitions is an informational activity and a moral-cognitive one: founders redefine who they are in relation to ecological problems, and that identity shift sustains opportunity recognition despite delayed returns and uncertain support. Second, local resource circularity shows that seizing under constraints depends on more than resource mobilization in the conventional sense; it depends on building locally legible loops of environmental value that simultaneously reduce input

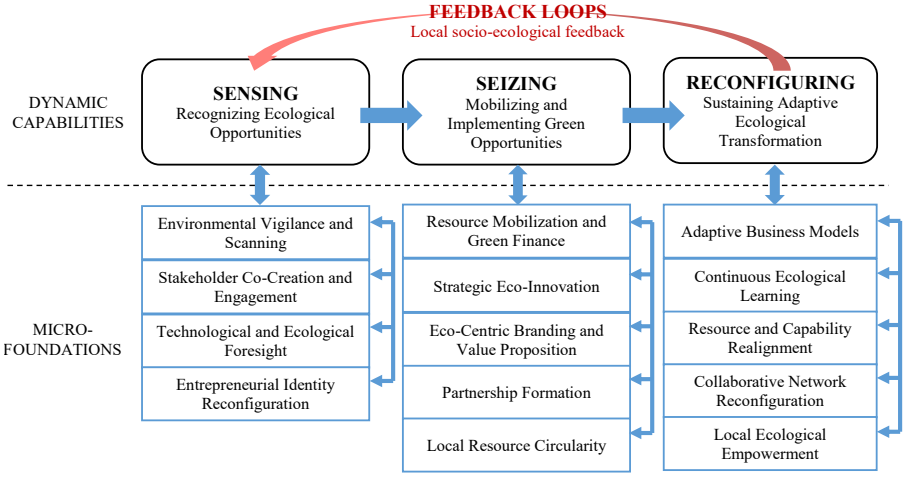

Figure 1. A Contextualized framework of green entrepreneurial microfoundations and dynamic capabilities in Vietnam's sustainability ecosystem. Source: Adapted by authors

dependence and strengthen stakeholder confidence. Third, local ecological empowerment expands reconfiguration beyond internal restructuring by demonstrating how firms build adaptive capacities through communities, universities, public actors, and ecosystem partners. Collectively, these constructs extend dynamic-capability theory into sustainability settings, where legitimacy is not an outcome that follows innovation but part of the mechanism through which innovation becomes adoptable and scalable (Barney and Felin, 2013; Felin *et al.*, 2012, 2015; Helfat and Peteraf, 2015; Khan *et al.*, 2020; Mehrabi *et al.*, 2025).

The study also speaks directly to recent Asia-focused sustainability research by showing how entrepreneurial mechanisms operate in a real, emerging-market transition context rather than in an abstract strategic space. Recent studies in Vietnam and Asia have highlighted the importance of stakeholder engagement, financial constraints, innovation support, green production, and green finance in shaping sustainability outcomes across the region (Amornkitvikai *et al.*, 2024; Ho *et al.*, 2024; Nguyen Dang *et al.*, 2025; Nguyen *et al.*, 2024; Subramaniam and Loganathan, 2024). Our findings complement this stream by moving from macroconditions to micro-processes; they explain how entrepreneurs act when these conditions remain incomplete. Therefore, Vietnam is best treated not as a universal proxy for all emerging economies but as a theory-revealing Asian context in which green-growth ambition, entrepreneurial dynamism, relational embeddedness, and institutional incompleteness coexist in a way that makes capability formation empirically visible. The broader implication is that institutional constraints can suppress innovation but can also stimulate sustainability-oriented experimentation when entrepreneurs can build capability and legitimacy jointly through identity, circularity, and empowerment (Chowdhury *et al.*, 2022; Duong *et al.*, 2024; Ngoc Huynh *et al.*, 2024; Nguyen-Van *et al.*, 2025; Roxas, 2021).

The practical implications of this study are twofold. For policymakers, evidence suggests that support for green entrepreneurship should focus on funding and infrastructure that reduces legitimacy barriers, such as verification systems, circular-resource platforms, university–industry interfaces, and partnership mechanisms that enable green ventures to demonstrate credible value and scale more effectively. These priorities align closely with concerns about sustainability, industrial upgrading, and development in Asian economies (Amornkitvikai *et al.*, 2024; Ho *et al.*, 2024; Nguyen Dang *et al.*, 2025; Subramaniam and Loganathan, 2024). For managers and founders, evidence suggests that capability development should be treated as an integrated process: identity-driven strategic commitment sharpens sensing, circular resource mobilization strengthens seizing, and stakeholder collaboration deepens reconfiguration. In emerging-market green transitions, firms are more likely to scale when they treat ecological value, stakeholder trust, and adaptive capability as mutually reinforcing rather than as separate strategic tasks (Cohen and Winn, 2007; Dangelico *et al.*, 2017; Hällerstrand *et al.*, 2023; Lüdeke-Freund, 2020; Teece, 2018).

This study had several limitations. Secondary qualitative data preclude direct observation of entrepreneurial cognition. Vietnam's socio-political configuration limits cross-contextual generalizability, and inductive abstraction risks oversimplifying the lived complexity of entrepreneurship despite methodological rigor. Future research should employ longitudinal, cross-country comparisons, mixed-method designs that integrate digital-trace data with ethnography, and network-analytic approaches to map the diffusion of circular resources. Such efforts can test and extend the relational ontology of dynamic capabilities proposed in this context.

In conclusion, this study answers the question of how green entrepreneurs in emerging economies build sustainable innovation under constraints by showing that scarcity can catalyze innovation when entrepreneurs jointly form capabilities and legitimacy. In Vietnam, institutional incompleteness creates a legitimacy bottleneck, and entrepreneurs respond through a sequenced dynamic-capability process: entrepreneurial identity reconfiguration sharpens sensing, local resource circularity enables seizing, and local ecological empowerment sustains reconfiguration and diffusion. Here, Vietnam matters not as a universal stand-in but as a theory-revealing Asian setting in which green-transition ambition and institutional incompleteness co-exist visibly. More broadly, this study shows that green

innovation in emerging economies is built not on resource abundance alone but on the capacity to convert scarcity into credible, adaptive, and socially embedded entrepreneurial action.

About the authors

Prof Ching-Ying Yu is a Full Professor at Shinshu University, Japan. Her research interests include behavioral economics and sustainability governance, with a focus on ESG, carbon markets, and digital transformation. She received her Doctorate in Economics from Kyoto University, Japan, and PhD in Management from Yuan Ze University, Taiwan.

Huu Tin Nguyen is currently a PhD candidate at the College of Management, Yuan Ze University, Taiwan. He is also a lecturer at the Vietnam Aviation Academy, Vietnam. He received the MBA in International Business Management from ESDES Business School, Lyon Catholic University, France. His research interests focus on Green Entrepreneurship, Strategic Management, Internationalization of Higher Education, Education for Sustainable Development, Organizational Behavior, Human Resource Management, and Marketing Behavior.

Thi Hao Nguyen is a PhD candidate at the College of Management at Yuan Ze University, Taiwan. Her research interests focus on Organizational Behavior, Human Resource Management, Career Development, and Entrepreneurship. Her recent works used qualitative approaches to understand employee turnover and work–family dynamics and were published in the *International Journal of Hospitality Management*.

Acknowledgments

This paper was previously presented at the 7th Asia Conference on Business and Economic Studies (ACBES 2025), organized by the Journal of Asian Business and Economic Studies (JABES) and the University of Economics Ho Chi Minh City (UEH), on August 14 and 15, 2025, in Ho Chi Minh City, Vietnam. The authors would like to thank the editor and the anonymous referees for their valuable feedback. We also thank the participants at ACBES 2025 for their fruitful comments.

Note

1. Please see it in the Online Appendix.

Supplementary material

The supplementary material for this article can be found online.

References

Amornkitvikai, Y., O'Brien, M. and Bhula-or, R. (2024), "Toward green production practices: empirical evidence from Thai manufacturers' technical efficiency", *Journal of Asian Business and Economic Studies*, Vol. 31 No. 3, pp. 216-232, doi: 10.1108/JABES-05-2023-0151.

Baker, T. and Nelson, R.E. (2005), "Creating something from nothing: resource construction through entrepreneurial bricolage", *Administrative Science Quarterly*, Vol. 50 No. 3, pp. 329-366, doi: 10.2189/asqu.2005.50.3.329.

Barney, J.B. and Felin, T. (2013), "What are microfoundations?", *Academy of Management Perspectives*, Vol. 27 No. 2, pp. 138-155, doi: 10.5465/amp.2012.0107.

Belz, F.M. and Binder, J.K. (2017), "Sustainable entrepreneurship: a convergent process model", *Business Strategy and the Environment*, Vol. 26 No. 1, pp. 1-17, doi: 10.1002/bse.1887.

Cheong, H.-in, Lyons, A., Houghton, R. and Majumdar, A. (2023), "Secondary qualitative research methodology using online data within the context of social Sciences", *International Journal of Qualitative Methods*, Vol. 22, pp. 1-19, doi: 10.1177/16094069231180160.

Chowdhury, S., Dey, P.K., Rodríguez-Espíndola, O., Parkes, G., Tuyet, N.T.A., Long, D.D. and Ha, T.P. (2022), "Impact of organisational factors on the circular economy practices and sustainable performance of small and medium-sized enterprises in Vietnam", *Journal of Business Research*, Vol. 147, pp. 362-378, doi: 10.1016/j.jbusres.2022.03.077.

Cohen, B. and Winn, M.I. (2007), "Market imperfections, opportunity and sustainable entrepreneurship", *Journal of Business Venturing*, Vol. 22 No. 1, pp. 29-49, doi: 10.1016/j.jbusvent.2004.12.001.

Dangelico, R.M., Pujari, D. and Pontrandolfo, P. (2017), "Green product innovation in manufacturing firms: a sustainability-oriented dynamic capability perspective", *Business Strategy and the Environment*, Vol. 26 No. 4, pp. 490-506, doi: 10.1002/bse.1932.

Dean, T.J. and McMullen, J.S. (2007), "Toward a theory of sustainable entrepreneurship: reducing environmental degradation through entrepreneurial action", *Journal of Business Venturing*, Vol. 22 No. 1, pp. 50-76, doi: 10.1016/j.jbusvent.2005.09.003.

Duong, K.D., Dang, H.G., Tran, T.N.D. and Pham, H. (2024), "How do financial constraints and market competition affect innovations: evidence from Vietnam", *Journal of Open Innovation: Technology, Market, and Complexity*, Vol. 10 No. 3, 100321, doi: 10.1016/j.joitmc.2024.100321.

Eisenhardt, K.M. (1989), "Building theories from case study research", *Academy of Management Review*, Vol. 14 No. 4, pp. 532-550, doi: 10.5465/amr.1989.4308385.

Eisenhardt, K.M. and Graebner, M.E. (2007), "Theory building from cases: opportunities and challenges", *Academy of Management Journal*, Vol. 50 No. 1, pp. 25-32, doi: 10.5465/AMJ.2007.24160888.

Eisenhardt, K.M. and Martin, J.A. (2000), "Dynamic capabilities: what are they?", *Strategic Management Journal*, Vol. 21 Nos 10-11, pp. 1105-1121, doi: 10.1002/1097-0266(200010/11)21:10/11<1105::AID-SMJ133>3.0.CO;2-E.

Felin, T., Foss, N.J., Heimeriks, K.H. and Madsen, T.L. (2012), "Microfoundations of routines and capabilities: individuals, processes, and structure", *Journal of Management Studies*, Vol. 49 No. 8, pp. 1351-1374, doi: 10.1111/j.1467-6486.2012.01052.x.

Felin, T., Foss, N.J. and Ployhart, R.E. (2015), "The microfoundations movement in strategy and organization theory", *The Academy of Management Annals*, Vol. 9 No. 1, pp. 575-632, doi: 10.1080/19416520.2015.1007651.

George, G., Kotha, R., Parikh, P., Alnuaimi, T. and Bahaj, A.S. (2016), "Social structure, reasonable gain, and entrepreneurship in Africa", *Strategic Management Journal*, Vol. 37 No. 6, pp. 1118-1131, doi: 10.1002/smj.2381.

Gioia, D.A., Corley, K.G. and Hamilton, A.L. (2013), "Seeking qualitative rigor in inductive research: notes on the Gioia methodology", *Organizational Research Methods*, Vol. 16 No. 1, pp. 15-31, doi: 10.1177/1094428112452151.

Hällerstrand, L., Reim, W. and Malmström, M. (2023), "Dynamic capabilities in environmental entrepreneurship: a framework for commercializing green innovations", *Journal of Cleaner Production*, Vol. 402, 136692, doi: 10.1016/j.jclepro.2023.136692.

Helfat, C.E. and Peteraf, M.A. (2015), "Managerial cognitive capabilities and the microfoundations of dynamic capabilities", *Strategic Management Journal*, Vol. 36 No. 6, pp. 831-850, doi: 10.1002/smj.2247.

Ho, L., Nguyen, V.H. and Dang, T.L. (2024), "ESG and firm performance: do stakeholder engagement, financial constraints and religiosity matter?", *Journal of Asian Business and Economic Studies*, Vol. 31 No. 4, pp. 263-276, doi: 10.1108/JABES-08-2023-0306.

Khan, O., Daddi, T. and Iraldo, F. (2020), "Microfoundations of dynamic capabilities: insights from circular economy business cases", *Business Strategy and the Environment*, Vol. 29 No. 3, pp. 1479-1493, doi: 10.1002/bse.2447.

Lincoln, Y.S. and Guba, E.G. (1985), *Naturalistic Inquiry*, Sage, Beverly Hills, CA.

Lüdeke-Freund, F. (2020), "Sustainable entrepreneurship, innovation, and business models: integrative framework and propositions for future research", *Business Strategy and the Environment*, Vol. 29 No. 2, pp. 665-681, doi: 10.1002/bse.2396.

Mair, J. and Marti, I. (2009), "Entrepreneurship in and around institutional voids: a case study from Bangladesh", *Journal of Business Venturing*, Vol. 24 No. 5, pp. 419-435, doi: 10.1016/j.jbusvent.2008.04.006.

Mehrabi, S., Mahdad, M., Bijman, J., Cholez, C., Mesa, J.C.P. and Giagnocavo, C. (2025), "Microfoundations of dynamic capabilities enabling scaling pathways of sustainability-oriented innovation business models", *Business Strategy and the Environment*, Vol. 34 No. 1, pp. 849-871, doi: 10.1002/bse.4004.

Minh, N., Khan, M. and Bensemann, J. (2022), "Corporate social responsibility in Vietnam: systematic review of research and future directions", *Society and Business Review*, Vol. 17 No. 1, pp. 92-119, doi: 10.1108/SBR-09-2020-0114.

Ngoc Huynh, H.T., Thanh Nguyen, N.T. and Y Vo, N.N. (2024), "The influence of knowledge management, green transformational leadership, green organizational culture on green innovation and sustainable performance: the case of Vietnam", *Journal of Open Innovation: Technology, Market, and Complexity*, Vol. 10 No. 4, 100436, doi: 10.1016/j.joitmc.2024.100436.

Nguyen Dang, H.-A., Khan, A., Ibbett, N. and Doan, A.-T. (2025), "Investigating the social impact of green innovation: an exploratory study of Vietnamese organisations using 'concept cards' interviewing", *Journal of Asian Business and Economic Studies*, Vol. 32 No. 3, pp. 160-173, doi: 10.1108/JABES-12-2023-0497.

Nguyen, H.T., Vu, T.T.D., Nguyen, H.M. and Nguyen, D.B.P. (2024), "SMEs' innovation and government support during the COVID-19 pandemic", *Journal of Asian Business and Economic Studies*, Vol. 31 No. 3, pp. 203-215, doi: 10.1108/JABES-08-2023-0300.

Nguyen-Van, H., Le, A.H., Van Nguyen, C., Ho, L.D. and Nguyen, Q.T.T. (2025), "Green ambidextrous innovation and sustainable performance in Vietnam's low-carbon transition: the role of green intellectual capital, green ambidextrous leadership, and green entrepreneurial orientation", *Journal of Open Innovation: Technology, Market, and Complexity*, Vol. 11 No. 4, 100655, doi: 10.1016/j.joitmc.2025.100655.

Phong, T.N., Tat Thang, V. and Nguyen Trong, H. (2023), "The effect of sustainability labels on farmed-shrimp preferences: insights from a discrete choice experiment in Vietnam", *Aquaculture Economics and Management*, Vol. 27 No. 3, pp. 468-497, doi: 10.1080/13657305.2022.2147248.

Roxas, B. (2021), "Environmental sustainability engagement of firms: the roles of social capital, resources, and managerial entrepreneurial orientation of small and medium enterprises in Vietnam", *Business Strategy and the Environment*, Vol. 30 No. 4, pp. 2194-2208, doi: 10.1002/bse.2743.

Singh, S., Del Giudice, M., Jabbour, C.J.C., Latan, H. and Sohal, A. (2021), "Stakeholder pressure, green innovation, and performance in small and medium-sized enterprises: the role of green dynamic capabilities", *Business Strategy and the Environment*, Vol. 31 No. 1, pp. 500-514, doi: 10.1002/bse.2906.

Subramaniam, Y. and Loganathan, N. (2024), "Does green finance affect renewable energy development in Singapore?", *Journal of Asian Business and Economic Studies*, Vol. 31 No. 3, pp. 162-174, doi: 10.1108/JABES-02-2023-0052.

Teece, D.J. (2007), "Explicating dynamic capabilities: the nature and microfoundations of (sustainable) enterprise performance", *Strategic Management Journal*, Vol. 28 No. 13, pp. 1319-1350, doi: 10.1002/smj.640.

Teece, D.J. (2018), "Business models and dynamic capabilities", *Long Range Planning*, Vol. 51 No. 1, pp. 40-49, doi: 10.1016/j.lrp.2017.06.007.

Teece, D.J., Pisano, G. and Shuen, A. (1997), "Dynamic capabilities and strategic management", *Strategic Management Journal*, Vol. 18 No. 7, pp. 509-533, doi: 10.1002/(SICI)1097-0266(199708)18:7<509::AID-SMJ882>3.0.CO;2-Z.

Vo-Thai, H.-C. and Tran, M. (2024), "Green innovation strategies in Vietnamese enterprises: leveraging knowledge management and digitalization for sustainable competitiveness", *Journal of Knowledge Management*, Vol. 29 No. 4, pp. 1055-1091, doi: 10.1108/jkm-06-2024-0642.

Yin, R.K. (2009), *Case Study Research and Applications: Design and Methods*, 4th ed., Vol. 5, Sage, Thousand Oaks, CA.

Corresponding author
Huu Tin Nguyen can be contacted at: s1119417@mail.yzu.edu.tw, tinnh@vaa.edu.vn