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Innovation Corridor: A New Transition Management Tool

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Abstract

This conceptual study introduces the Innovation Corridor as a framework and novel instrument for approaching the management of innovation processes, drawing upon Frank Geels's Multi-Level Perspective (MLP) on socio-technical transitions and David Teece's dynamic capabilities (DCs) approach to business modelling. The study employs the Innovation Corridor to address the persistent fragmentation of innovation activities across technological, organizational, and institutional domains in Entrepreneurial Discovery Processes (EDPs) and Smart Specialization Strategies (S3). While the MLP has been widely applied to analyse transitions across niche, regime, and landscape levels, its use has remained largely retrospective and descriptive, offering limited support for proactive innovation management and strategic decision-making. By contrast, dynamic capabilities (DCs) theory has been extensively applied to innovation management and strategic decision-making in a proactive and prescriptive manner, yet it offers more limited support for analyse processes of transition management. The study contributes by operationalizing the MLP as a dynamic capability, and conversely, dynamic capabilities within an MLP framework, while integrating foresight, business model innovation, and growth-oriented decision-making into a unified transition process. By embedding foresight as part of the dynamic capabilities cycle and aligning it with policy and cluster-level strategies, the Innovation Corridor strengthens strategic coherence across actors.

Key words:

Entrepreneurial Discovery Process; Transition management; Business model innovation, Technological innovation; Multi-Level Perspective (MLP), Dynamic capabilities; Innovation policy; Smart Region, Strategic Foresight; Innovation management.

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1. Problem and the scope of a study

Managing innovation in complex socio-technical systems remains a persistent challenge, particularly in sectors undergoing deep structural transitions. While innovation activities are abundant, they are often fragmented across organizational, technological, and institutional boundaries and multiple levels of analysis.

Many promising innovations fail to scale or to contribute effectively to transition and system-wide transformation because fragmentation makes it difficult to discover a culture of growth and dynamically align the innovation with long-term transition pathways. There is a lack of integrative frameworks that simultaneously support expert foresight, business model development, and growth-path modelling across multiple system levels to sustainably manage the transition (see e.g. Ogbeibu et al., 2020, Myllylä & Kaivo-oja, 2024, Myllylä & Kaivo-oja, 2025, STRAIND-project, 2025).

This conceptual study provides a framework and a new tool for this problem – the Innovation Corridor Framework (ICF).

2. Current understanding

Built on Frank Geels's (Geels, 2004, 2006, 2019) work, the Multi-Level Perspective (MLP) has emerged as a dominant framework for analyzing socio-technical transitions (Geels, 2004, Kaivo-oja et al., 2021; Myllylä & Kaivo-oja, 2024; STRAIND-project, 2025), as well as clusters (Kaivo-oja & Roth, 2023; Karstegl et al., 2025). The MLP conceptualizes socio-technical change as occurring through the interplay of three analytical levels: (1) niches (micro-level), which constitute protected spaces wherein innovations such as new technologies and experimental practices emerge; (2) regimes (meso- and/or macro-level), which encompass the dominant configurations of industries, institutions, rules, routines, and infrastructures; and (3) the landscape (macro/global level), which refers to exogenous pressures such as climate change, long-term socioeconomic trends, cultural developments, and political dynamics. Transition occurs when niche innovation gains sufficient momentum to disrupt and transform or replace existing regimes, often under the influence of pressures originating from the broader landscape.

The MLP has substantially advanced understanding of the processes through which innovations emerge, diffuse, and challenge incumbent systems. However, the framework remains predominantly analytical and retrospective in orientation. Its application to proactive innovation management, strategic foresight, and business modelling is still limited (see, e.g., Kaivo-oja, 2016; Kaivo-oja & Roth, 2023), resulting in suboptimal strategic alignment. There is an increasing recognition of the need for integrative and forward-looking approaches that would operationalize the MLP for innovation management and policy design. One promising avenue in this regard is dynamic capabilities (Pugliese et al., 2026; Laakso et al., 2021; Strøm-Andersen, 2019; Wittmayer et al., 2017).

3. Research questions and research gaps

The paper addresses three questions: (1) How can foresight process be systematically combined with business model in a multi-level framework analysis to support industrial and innovation policy and processes in small, open economies? (2) What value does a business modelling linked to the MLP offer for identifying and prioritising emerging technologies and dynamic capabilities in a regional industrial ecosystem? (3) How can dynamic capabilities improve alignment between the global landscape, national industrial policy, and regional microlevel innovation strengths and initiatives? These research questions are linked to (1) various challenges of innovation management (Bellis et al., 2026), (2) eco-innovation and green transition problems of the EU (de Jesus et al., 2019, Strøm-Andersen, 2019, Geels, 2019, Ogbeibu et al. 2020, Kaivo-oja et al., 2021, Köhler et al., 2022, Laakso et al., 2021, Ries et al., 2026), (3) AI- and Industry 5.0 transition challenges (Ainamo, 2026, Ainamo & Peltokorpi, 2024, Nyqvist et al., 2025, European Commission: European Political Strategy Centre, 2025, Karstegl et al., 2025, Ojanen et al., 2025, European Commission, 2017).

The research questions outlined above are employed in this paper to examine the Finnish "AEC" ecosystem (Artificial Intelligence in Architecture, Engineering and Construction). These questions are closely aligned with identified gaps in strategic foresight within regional industrial policy and the management of innovation ecosystems across the European Union. Key challenges in the field of European regional innovation management are associated with the concepts of Entrepreneurial Discovery Processes (EDP) and Smart Specialization Strategy (S3) (Foray, 2023; Foray, 2019; Foray, 2017; Foray, 2015; Foray, 2009; Foray et al., 2012; Kaivo-oja et al., 2017). It is for these reasons that we, building on contributions such as Köhler et al. (2022) and Björck et al. (2022a; 2022b), introduce what we term the Innovation Corridor.

4. Research design

Multi-level perspectives (MLP method for expert foresight and innovation management)

The Innovation Corridor proposed in this paper extends the Multi-Level Perspective (MLP) to engage more directly with Entrepreneurial Discovery Processes (EDPs) by introducing structured expert foresight as a central mechanism. Expert foresight is conceptualized as a dynamic process and capability that informs strategic decision-making, supports the prioritization of innovation, and enables the exploration of transition dynamics over time (Bellis et al., 2026; Ainamo, Dell'Era and Verganti, 2021).

We examined a series of use cases and conducted interviews with experts and other informants in order to identify emerging niche innovations, regime-level constraints, and landscape-level drivers, including policy developments, societal values, and macroeconomic trends. Rather than relying on static scenarios, we organized foresight activities along "corridors", understood as plausible transition pathways (Köhler et al., 2022; Björck et al., 2022a; Björck et al., 2022b). In line with, and extending, earlier research, we captured the co-evolution of technologies, markets, regulations, and practices across multiple levels of analysis (Krabbe and Grodal, 2023; Dalpiaz et al., 2016; Djelic and Ainamo, 2005; Djelic and Ainamo, 1999).

Development process of business models

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Within any given innovation corridor in the context of EDPs and S3, business modelling is conceptualized as an iterative and adaptive process that is partially, though not entirely, path-dependent. The early stages of this process tend to exert a stronger influence on subsequent developments than the reverse, a dynamic moderated only by short-term feedback effects and organizational slack (March, 1991).

Business models emerging from niche–regime interactions and foresight are not independent of dynamic capabilities; rather, they are either integrated with such capabilities or progressively selected out over time. Mechanisms of value creation, delivery, and capture evolve from protected niches towards regime integration and, ultimately, broader transformative change (Geels, 2004; Geels, 2006).

This bottom-up orientation facilitates experimentation with alternative business model configurations and highlights critical alignment challenges, including regulatory compatibility, ecosystem interdependencies, and patterns of customer adoption. Consequently, business model innovation functions not merely as a downstream commercialization activity but as a central lever for navigating transition pathways.

By contrast, an alternative innovation corridor within EDPs and S3 appears as a top-down process. Decisions-makers at the strategic apex of the organization coordinate sensing, identification, and selection of promising ideas. These ideas are subsequently articulated into strategic priorities, mobilized, and delegated to middle management for implementation. Transformation is realized when these initiatives are effectively enacted at the operational level of the organization (Teece et al., 1997).

Linking innovation corridors to growth path modelling

Foresight-informed business models for growth path modelling constitute structured frameworks that integrate long-term environmental scanning and scenario planning into core strategic and value-creation processes. Unlike traditional forecasting methods, which extrapolate past data linearly, these models examine multiple plausible futures to "shape growth proactively, mitigate risk, and strengthen organizational resilience" (Bluemorrow, 2026).

Foresight enables decision-makers to make informed decisions under conditions of uncertainty, before external pressures compel reactive responses. In an era characterized by recurring disruptions and continuous change, linear plans would quickly become obsolete. What remains essential is the capacity to detect change early, interpret its implications, and commit to strategic options with discipline.

Within the context of EDPs and S3, strategic foresight is not concerned with predicting the future, but with governing uncertainty so that entrepreneurs and policymakers may navigate change with confidence, allocate resources effectively, shape portfolios, and adjust course when necessary. It supports the integration of foresight into decision-making processes, encompassing outcomes, frameworks, governance, metrics, and the responsible use of AI. By translating signals of change into actionable understanding, foresight enables decision-makers to determine what to fund, pause, accelerate, or discontinue before uncertainty crystallizes into risk. At its core, strategic foresight is concerned with "future-making" (Ainamo, 2026); that is, modelling patterns of change that give rise to alternative futures and the growth of successful businesses.

Through foresight approaches, decision-makers can systematically interpret change and prepare organisations to ensure "form-giving" (ibid.) and to act under conditions of uncertainty, thereby extending conventional trend analyses and scenario exercises while avoiding "analysis paralysis" and enabling decisive organizational action based on selected pathways. Analysis paralysis denotes a condition in which excessive deliberation inhibits timely decision-making, thereby preventing the adoption of any course of action (see Ansoff, 1965). In the worst case, no decision is made as a consequence of analysis paralysis.

According to David Teece and subsequent contributions (Teece et al., 1998; Eisenhardt et al., 2000; Zollo & Winter, 2002; Winter, 2004; Teece, 2007; Helfat & Peteraf, 2009), dynamic capabilities comprise three core activities: (1) Sensing (searching) opportunities and threats, (2) seizing them through strategic action, and (3) transforming (shifting) organisational structures to sustain competitiveness. These dynamic capabilities enable firms to adapt to disruption, pursue continuous innovation, and maintain long-term advantage by reconfiguring their resource base. These dynamic capabilities underpin transformative and radical innovation, extending beyond ordinary capabilities for support of incremental improvements (see Fig. 1; Teece, 2007).

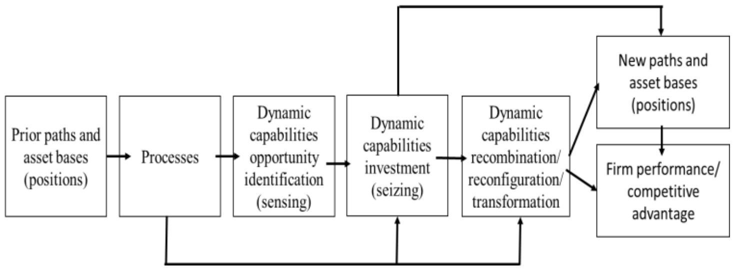

Figure 1. Basic chain of logic in dynamic capabilities (Teece, 2007).

The above kind of foresight is not simply a rebranded version of forecasting. The distinction lies in intent and methodology. Forecasting tries to predict the future based on past data. Foresight explores what is plausible in the future, creates optionality, and ultimately governs how insights translate into concrete decisions over time. Foresighting is thus about "exploration" of what we know of or can imagine as to the future. It introduces a continuous sensing and review loop that complements planning rather than replacing it. Decision-makers gain a mechanism to revisit assumptions, adjust portfolios, and reallocate resources without restarting the entire strategy process. With the help of the right tools, strategic monitoring can be largely automated, enabling very fast reactions in case things take a turn against the organization's intended strategy, something we portray in Table 1, below.

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Table 1. The foresight cycle (Source: authors, modified, Bluemorrow, 2026).

	Exploration	***Exploitation***
Organisations in action	Creative tension: delegate and/or seize	Transform and/or transition
Individual-level cognition	Sense	Reflect

We can observe that the foresight cycle includes sensing (or searching), seizing, and transforming (or shifting) phases of dynamic capabilities, and individual human reflections.

Strategic foresight rests on a small number of fundamentals that decision-makers should be fluent in, even if they never run the analysis themselves (Ainamo, 2026):

1. Foresight rests on the premise that the future is *plural rather than singular*. Alternative futures may emerge depending on the evolution and scaling of technologies, regulatory choices, consumer behaviour, and systemic interactions (Ainamo, 2026). Sound strategy therefore prepares organizations for uncertainty, rather than for a single assumed outcome.
2. Foresight emphasizes *early signals, drivers of change, and alternative trajectories, rather than precise prediction*. Early signals are typically weak and ambiguous indications of underlying systemic shifts. Their value lies in the identification of patterns over time, rather than in any individual observation.

Deeply integrated strategic foresight enables actors within EDPs and S3 to act earlier by: (1) identifying where uncertainty is most consequential, (2) distinguishing between reversible and irreversible decisions, and (3) preparing options before commitment becomes urgent. The impact of such strategic foresight is greatest when it is closely linked to concrete actions, decisions, and design narratives. Effective foresight is inherently grounded in questions of strategic design: where to invest, which risks to assume, how to hedge against uncertainty, which options to preserve, and what overall strategic approach to adopt (Keenan et al., 2003; Kaivo-oja & Roth, 2023; Ainamo, 2026).

To support strategic decision-making, Innovation Corridor connects foresight-informed business modelling with growth-path modelling. Quantitative and semi-quantitative methods are employed to estimate market development, investment requirements, and scaling trajectories across alternative scenarios of the Innovation Corridor. These growth paths capture not only firm-level expansion but also system-level effects, including infrastructure development and emissions reduction. By embedding growth modelling within MLP, the approach facilitates comparison of alternative innovation corridors in terms of feasibility, timing, and transformative potential, bridging qualitative transition analysis with quantitative strategic planning.

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Application context: the Finnish AEC ecosystem

We apply the Innovation Corridor framework in the context of the Finnish Architecture, Engineering, and Construction (AEC) ecosystem, which is characterized by strong technological capabilities, active public–private collaboration, and ambitious climate targets. This AEC ecosystem provides a suitable empirical setting due to the diversity of its actors, including technology providers, utilities, policymakers, and research organizations. We use Innovation Corridor here to map transition pathways related to renewable energy, digital services, and AI transformation.

Our preliminary results demonstrate that coordinated foresight, business models, and growth pathways can enhance strategic alignment across the ecosystem to support scalable, system-level AI innovation (Ainamo, 2005, Ainamo & Peltokorpi, 2024, Nyqvist et al. 2025). The Innovation Corridor framework is a tool of practical relevance and operationalize the MLP for managing innovation in real-world transition contexts.[1]

5. Contribution: Innovation Corridor as a framework and as a tool

We are arguing that there are nine alternative models of innovation corridors. These categorize into four groups: (1) linear innovation corridors, (2) top-down innovation corridors, (3) bottom-up innovation corridors, and (4) non-linear innovation corridors. Various categories suit different technological and business model innovations (Wittmayer et al., 2017).

Innovation corridor matrix of dynamic capabilities

Figure 2 presents the innovation corridor matrix of dynamic capabilities as a three-by-three matrix of firm-level dynamic capability processes. Particular attention is given to the four categories outlined above in order to delineate the full range of alternative innovation corridors. Business modelling can happen on three levels; (1) Global landscape level, (2) Macro/meso level (socio-technical landscape) level, and (3) Niche level (micro level).

[1] We will provide details as evidence of these claims of relevance, above, and of rigor, below, at the ISPIM 2026 presentation in Granada.

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Figure 2. Innovation corridor matrix of dynamic capabilities.

Figure 2 serves as a starting point for alternative models of innovation corridors. The Innovation Corridor Framework integrates Frank Geels' MLP with David Teece's framework on dynamic capabilities and business modelling. This theoretical and conceptual synthesis offers numerous advantages for innovative business modelling.

Linear innovation corridor models of dynamic capabilities

What we term here as "the ivory tower" is a linear innovation corridor based on a global landscape model (Figure 3). When entrepreneurs, S3 policymakers, or both, pursue innovation as the ivory tower, they overlook the national macro level as well as the niche micro levels of analysis.

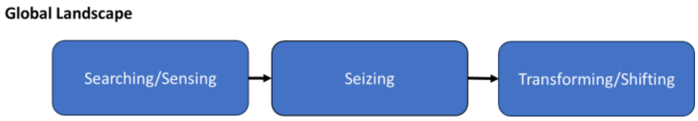

Figure 3. Linear "ivory tower corridor process" on the global landscape.

A linear socio-technical innovation corridor process on the national-macro level disregards consideration of the global-landscape and micro-niche levels of analysis (Fig. 4).

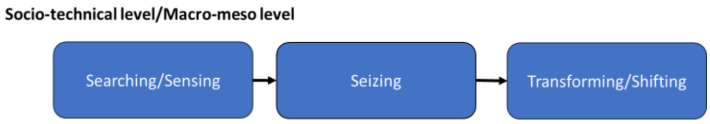

Figure 4. Linear national macro level corridor process, on the socio-technical level.

A linear micro-niche-level corridor disregards the global landscape level and sociotechnical national-macro level (Fig. 5).

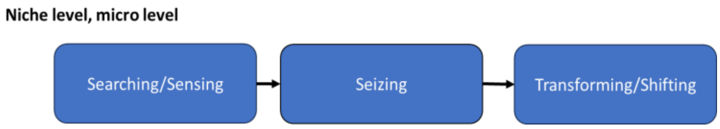

Figure 5. Linear and local ”niche level corridor process” on the micro-level.

All linear innovation corridors possess limitations. This is a testament to how strategizing about dynamic capabilities is not a straightforward choice. Consequently, many decision-makers focus on ordinary capabilities and seek to “pick the low-hanging fruit.” This strategic choice does not include the development of dynamic capabilities. Picking the low-hanging fruit is an ordinary capability.

Top-down and bottom-up innovation corridors

In the third Section, we present two alternative innovation corridors. First, we introduce what we term a “bottom-up” innovation corridor, a distinctive grassroots approach originating from the lower levels of the system. This approach emerges from the ground up, reflecting locally driven innovation processes. Many start-up companies are adopting this innovation corridor mode of ICF (Fig. 6).

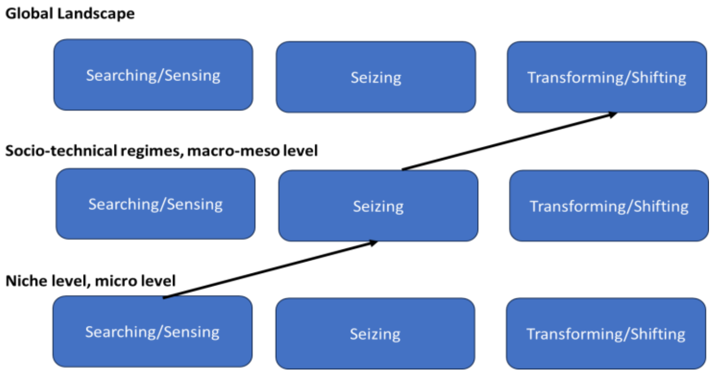

Figure 6. ”**Bottom-up**” corridor process.

If a company selects this innovation corridor, leaders may reach both the macro level (socio-technical regime). and the global-landscape level. This multi-level approach is a very attractive innovation corridor for start-up companies, which aim to reach global success. This is a typical start-up business modelling approach. Implementation requires very special DCs and also ordinary capabilities. Orchestration of a ”bottom-up” corridor process requires professional planning skills and special competence.

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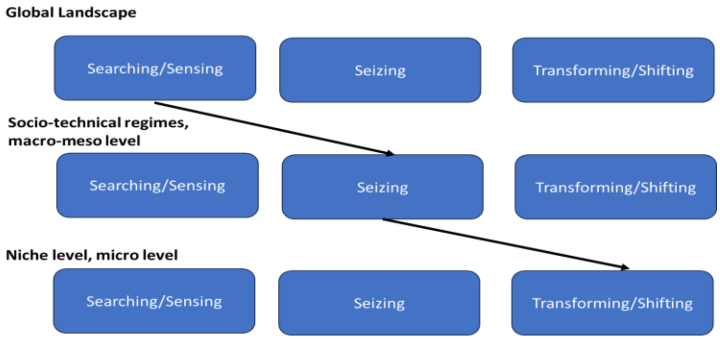

Figure 7. “Top-down" corridor process.

The top-down approach implies that a "born global" firm engages simultaneously at the macro level - namely, the socio-technical regime within a given country or territory, and at the micro, or niche, level in a particular market context. There are numerous compelling reasons for adopting such a locally oriented innovation corridor.

In certain instances, local niche markets provide highly favourable and novel environments in which to develop new, dynamic, and distinctive capabilities and business models. These capabilities may show promise of being valuable across a range of other market contexts. This approach can facilitate a new and innovative "learning journey" for a global corporation. Furthermore, serendipitous thinking may also influence a firm’s decision to pursue this particular innovation corridor (see Kakko et al., 2016, Kakko, 2026).

Other possible more complex innovation corridors

In Fig. 8, we visualize more complex innovation corridors. We can see that these innovation corridors are not linear, but non-linear and multi-level choices

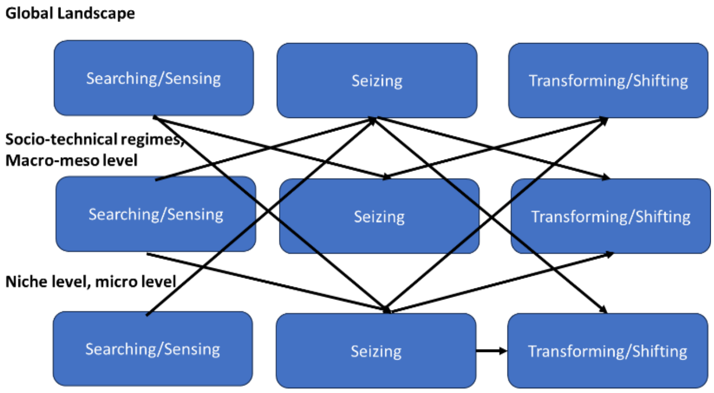

Figure 8. Other possible ”pilot” corridors.

The Innovation Corridor Model (ICM) framework thus addresses all levels of MLP—namely the micro (niche), macro-meso level (socio-technical regimes), and global landscape. Mastering Innovation Corridor demands advanced dynamic capabilities, as well as a high degree of maturity in both strategic foresight and implementation. With only ordinary basic capabilities, firms are unlikely to manage such complex innovation corridor operations effectively. Linear innovation corridor models can be managed with ordinary capabilities.

Dynamic capabilities enable organizations to adapt, evolve, and remain competitive in rapidly changing environments. Innovation is not a singular event; rather, it is continuous, uncertain, and frequently disruptive. Dynamic capabilities, grounded in the theoretical framework developed by David Teece, equip companies and corporations to sense (search) changes, seize emerging opportunities, and reconfigure (shift) their resources in response to shifting market conditions (see Teece et al., 1997; Teece, 2007).

6. Practical implications

This study was guided by three main research questions. First, we asked how MLP can be transformed from an analytical framework into a proactive method for innovation management. As an answer to this first question, we have developed Innovation Corridor as a concept and a tool. Second, we examined how expert foresight, business model development, and growth-path modelling can be systematically integrated. As an answer to this second question, the experts have provided us with insight on how and why a bottom-up and top-down innovation corridors are superior to linear and non-linear innovation corridors in practice, in theory, and as policy. Third, we explored how such an integrated approach can support coordinated innovation management in an industrial cluster undergoing transition. As an answer to this question, the experts provided us with insights on how and why EDPs link most effectively with bottom-up innovation corridors and the European S3 approach with top-down innovation corridors. The complexity of the innovation corridor framework still requires more research.

7. Summary

This paper presents the Innovation Corridor Framework (ICF) to improve innovation management within the MLP, focusing on dynamic capabilities and sustainability transitions in complex socio-technical systems. It addresses the fragmentation of innovation activities across technological, organizational, and institutional domains in EDPs and S3, which often prevents promising innovations from scaling and contributing to system-level change. While MLP has been widely used to analyse transitions, it has remained largely descriptive, offering limited support for proactive transition management and strategic decision-making of firms.

Innovation Corridor Framework (ICF) builds on expert foresight to identify and structure multi-level processes and transition pathways. Companies can strategically breed dynamic capabilities with niche innovations, regime structures, and broader landscape drivers such as global governance trends, systemic societal expectations, and economic market trends. Rather than static scenarios, the benefits include insight, capabilities, and a tool on how to master co-evolution of technologies, markets, regulation, and user practices.

Previous research has often treated foresight, business model innovation, and growth modelling as separate processes, weakening strategic alignment and limiting practical value. This paper addresses this gap by co-operationalizing dynamic capabilities and MLP as a forward-looking, integrated framework and tool for managing innovation strategies and portfolios. We also demonstrate how the firm-level foresight cycle can be embedded into firms' capability development processes. Dynamic capabilities (DCs) are not easy to copy or imitate by competitors. This is why the development of DCs inside the innovation corridors is an important strategic research issue in the field of innovation management.

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