

Bridging Regional Innovation Gaps: The Innovation Bridge Model for SME Support and Cross-Regional Competence Sharing

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Abstract: Finland has set a national objective to increase the number of companies engaged in research, development, and innovation (RDI), with a particular focus on encouraging small and medium-sized enterprises (SMEs) to scale up their RDI investments and deepen collaboration with other businesses, research organisations and RDI stakeholders. The innovation capacity of SMEs plays a crucial role in driving regional growth and competitiveness. This paper introduces the innovation bridge concept, developed within a joint project between higher education institutions operating across Finnish regions. The concept is grounded in an innovation capability assessment conducted among 50 innovation-oriented SMEs in South Savo, Finland, which examined barriers and support needs related to innovation commercialisation. The assessment identified key structural and competence-related gaps in existing regional innovation support. The results indicated that promising business ideas often remain unrealised due to a lack of timely support, limited local expertise, or the absence of suitable testing and development environments. The innovation bridge addresses this gap by integrating fragmented regional support services into a clear, company-oriented service pathway that brings complementary expertise and resources closer to SMEs. It functions both as a practical tool for SME support and as a strategic mechanism for regional development. The model is built on regional Digital Innovation Hubs (DIHs), which act as local one-stop shops and coordinate access to specialised expertise, testing environments, and networks across regions. Through cross-regional collaboration, the innovation bridge offers a concrete approach to strengthening SME innovation activity and regional vitality, particularly in structurally challenged regions. The innovation bridge enables intentional sharing and movement of know-how so that ideas, technologies, skills, and practices developed in one region can be understood, adapted, and used in the other. In the long term, the innovation bridge benefits both regions involved and their companies, while enabling development actors to operate within a more impactful innovation landscape and achieve more significant outcomes.

Keywords: University-industry Collaboration, Cross-regional Cooperation, Innovation Bridge, Digital Innovation Hub, SMEs, Digital Transformation

1. Introduction

Innovation is commonly understood as the development and implementation of new and significantly improved products, services, or processes that create value in economic or societal contexts. Within regional innovation systems, innovation is typically viewed as a distributed process emerging through collaboration across organisational and geographical boundaries (OECD, 2018). Strengthening such collaboration is essential for addressing complex societal and economic challenges and for enhancing the innovation capacity of small and medium-sized enterprises (SMEs), which play a key role in regional growth and competitiveness. Finland's national objective is to increase the number of companies engaged in research, development, and innovation (RDI), with a particular focus on encouraging SMEs to scale up their RDI investments and deepen collaboration with businesses, research organisations, and RDI stakeholders.

The innovation capacity of SMEs plays a crucial role in driving regional growth and competitiveness. In terms of innovation activities, Finland performs well above the EU 2025 average in both innovators and linkages. However, recent trends indicate a decline in the share of SMEs introducing product and business-process innovations. Although collaboration remains a key feature of Finland's innovation system, indicators for SME cooperation and the mobility of science and technology professionals have also declined. Concerns about weakening research–business collaboration have been raised. Finland has a relatively high level of RDI investment, currently at 3.1% of GDP, with a government target to reach 4% by 2030. Most companies develop new products and business processes in-house and rely primarily on their own innovation capabilities, while public–private RDI collaboration remains limited. SMEs in particular face barriers to engagement due to complex support systems, weak incentives, and limited capital for scaling, which contribute to Finland's “middle technology trap”. Government support for business RDI remains below the EU average, and collaboration with higher education institutions is constrained by systemic, institutional, and cultural factors, as well as a shortage of RDI talent and low mobility between sectors. (European Commission, 2025a; 2025b).

This paper introduces the innovation bridge concept, developed within a joint project between higher education institutions (HEIs) operating across Finnish regions. To respond to the innovation challenges faced by SMEs, the model is grounded in an innovation capability assessment conducted among SMEs in South Savo, Finland, focusing on barriers and support needs related to innovation commercialisation. This paper proceeds as follows. First, the findings are used to outline the structural and competence-related challenges identified in regional innovation support. The paper then introduces the innovation bridge as a response to these challenges, describing how it integrates fragmented regional support services into a clear, company-oriented service pathway that connects complementary expertise and resources across regions. Finally, the innovation bridge is positioned both as a practical support mechanism for SMEs and as a strategic approach to strengthening regional innovation systems.

2. Context: Innovation Imperatives and Regional Synergy

Regional councils in Finland operate as statutory joint municipal authorities responsible for coordinating regional development in collaboration with the central government, municipalities, cities, higher education institutions, and other stakeholders. In South Savo, RDI activities are constrained by limited resources, skills shortages, funding constraints, and a fragmented support landscape, all of which particularly affect SMEs and start-ups. The region's small business structure and limited number of leading companies contribute to low RDI activity, while access to national and EU funding remains challenging. To address these issues, South Savo has pioneered a business-oriented RDI roadmap and invested in RDI platforms and cluster initiatives, supporting SME participation in international projects, although access to Business Finland funding continues to be limited (The Ministry of Economic Affairs and Employment of Finland n.d.; South Savo Regional Council 2023; Etelä-Savo ennakoi n.d.).

According to Costin & Radulescu (2020), in a knowledge-based economy characterised by rapid transformation, SMEs find it increasingly difficult to build and sustain competitive advantage, particularly given the costs of adopting technological innovations, pursuing digital transformation, and addressing other critical innovation challenges. Cross-regional cooperation that extends beyond administrative and regional boundaries creates new opportunities for businesses to develop and scale their operations. By accessing expertise, markets, and support services located in other regions, companies can identify new growth paths that would not be available within a single region alone. Effective cooperation requires well-functioning networks that actively disseminate information about available services and guide companies toward solutions that match their specific development needs. Importantly, these networks must operate seamlessly across regional borders to ensure that businesses can benefit from the most relevant services regardless of their location.

European Digital Innovation Hubs (EDIHs) are initiatives under the EU's Digital Europe Programme. They act as service centres that promote digital investments, with a particular focus on advancing the digitalisation of SMEs. Their objective is to facilitate the rapid and widespread adoption of new technologies across both the business and public sectors. The EDIH service helps SMEs enhance their processes, services, and products by providing expert support, including training, financial guidance, and technical development (Ministry of Economic Affairs and Employment of Finland n.d.; European Digital Innovation Hubs Network n.d.). The initiative was launched in 2016 by the European Commission through the Digitising European Industry (DEI) Strategy. The programme aimed to strengthen the EU's competitiveness in digital technologies by ensuring that all organisations across Europe have access to nearby digital innovation centres, known as Digital Innovation Hubs (DIHs), while also fostering the development of a Europe-wide network among these stakeholders. Integrating DIHs into business and marketing requires clear strategic alignment with organisational goals, supported by well-defined objectives, resources, and a roadmap. Employee training, stakeholder engagement, and effective change management are essential to support adoption, while continuous evaluation ensures impact and ongoing improvement. Through a structured approach, DIHs can strengthen innovation, collaboration, and competitiveness (Georgescu et al. 2021; Sotirofski & Kraja 2024).

3. Innovation Bridge Model for SME Support and Cross-Regional Competence Sharing

The development of the innovation bridge builds on a background study that forms the analytical basis for the work. The following section provides the empirical and theoretical grounding for the development of the innovation bridge model. It integrates findings from a regional assessment of SME innovation capabilities and commercialisation support needs with relevant literature on collaborative innovation, knowledge transfer and

interregional innovation systems. These perspectives highlight key capability gaps, systematic constraints, and collaboration challenges that inform the design and focus of the proposed model.

3.1 Context for the Innovation Bridge Model

The INNOCOM – Supporting the Commercialisation of Innovations project (1.1.–31.10.2024) assessed the innovation capabilities and commercialisation support needs of 50 companies in South Savo region, Finland. Innovation capability assessments examined customer, product, and business perspectives, and the assessment sessions identified development needs and relevant support measures. Companies were selected using purposive, non-random sampling to identify SMEs with innovation potential in South Savo. Candidates were identified primarily through searches on a Finnish sales intelligence and data platform Vainu and company lists using visible indicators of innovation activity, such as growth, project or EU funding, internationalisation, media visibility, technology adoption, and prior development work. This was complemented by the project team's local knowledge, colleague recommendations, and company websites. Selection also considered regional relevance to South Savo's RDI roadmap and smart specialisation themes, sectoral diversity, and the inclusion of firms not already closely engaged with public support services or higher education collaboration. Practical feasibility further shaped the final sample, as companies needed to be reachable, have identifiable contact persons, and be able and willing to participate within the project timeframe. The sample represents a purposive group of innovation potential regional SMEs.

Data were collected through facilitated innovation capability assessment sessions conducted via Teams using a semi structured approach. Sessions concluded with an open discussion on broader innovation activities and experiences with public innovation support. Each session was conducted by two project team members, one facilitating the assessment and the other documenting observations for post session analysis. The analysis combined structured capability gap scoring with qualitative interpretation and cross case synthesis. Within each company, importance and current state ratings were used to identify capability areas that were both critical and underdeveloped, thereby prioritising development needs. The top two or three areas were reviewed with the company representative and discussed in more depth, focusing on underlying resource constraints, competence gaps, and support needs.

The results suggest that innovation in South Savo SMEs is often pragmatic, customer-driven and closely tied to day-to-day business, but constrained by limited time, personnel and systematic development practices. The clearest recurring gaps concern the transition from ideas and technical development to commercial impact: launching and scaling innovations, strategic planning, productisation, market-facing capabilities and the ability to turn customer insight into structured development. Companies recognise the value of public and higher-education-based support, but often experience the support landscape as fragmented, complex or insufficiently aligned with concrete business needs. They therefore call for clearer, more targeted and business-oriented support, especially for commercialisation, piloting, scaling and practical implementation, as well as more accessible, company-driven collaboration with higher education institutions. (South-Eastern Finland University of Applied Sciences, 2024).

The innovation bridge model builds on recent research on collaborative innovation, knowledge transfer, and interregional innovation systems. Innovation in SMEs depends on access to external knowledge and participation in collaborative networks, especially in contexts where internal resources are limited. Absorptive capacity, defined as the ability to recognise, assimilate, and apply external knowledge, is a key factor linking collaboration to innovation performance (Cohen & Levinthal, 1990; Zahra & George, 2002; Mata, Martins & Inácio, 2024; Motohashi, Ikeuchi & Yamaguchi, 2025). At the ecosystem level, structural challenges such as fragmentation, uneven distribution of capabilities, and limited mechanisms for effective knowledge utilisation continue to constrain innovation outcomes. Externally acquired knowledge does not automatically translate into innovation without processes that support its interpretation and application, especially in SMEs (Durst, Foli & Edvardsson, 2024). Intermediary organisations and structured cross-regional collaboration mechanisms help address these challenges. The concept of interregional innovation bridges provides a framework for sustained cooperation between regions by reducing information asymmetries, aligning stakeholder priorities, and enabling continuous exchange of expertise, technologies, and resources (Karanikolova et al., 2024). Within this framework, the innovation bridge functions as a connective structure between regional innovation ecosystems, facilitating mediated knowledge transfer, adaptation, and application in new contexts.

3.2 Creating the Innovation Bridge in Practice

Strengthening SMEs innovation capabilities calls for new cooperation models between higher education institutions (HEIs), development organisations, and companies. The construction of the innovation bridge is grounded in the joint development project *INKA*. The objective is to build a cross-regional innovation bridge between two DIHs and their regions to offer SMEs broader and more accessible development services through a one-stop shop approach. The participating hubs are DIH eSavo (South Savo Digital Innovation Hub coordinated by South-Eastern Finland University of Applied Sciences) and Digital Innovation LAB (LAB University of Applied Sciences).

Developing the innovation bridge applies service design methods and emphasises a customer-centric approach to support SME innovation through cross-regional cooperation. Service design is founded on a mindset that prioritises practicality, human and customer-centred focus, and collaborative development. Its objective is to create well-developed solutions through iterative processes, utilising a range of service design methodologies and tools. A key responsibility of the service designer is to determine which tools are best suited to address specific challenges. An effective service design process enables participants to view the service from the user's perspective and fosters the creation of innovative concepts and solutions through structured, creative approaches (Stickdorn et al., 2018, pp. 37–40). The process of developing the innovation bridge model has included benchmarking, co-creation and cross-regional workshops, guided discussions based on predefined questions, brainstorming, and the systematic collection and utilisation of information from stakeholders. The innovation bridge must evolve dynamically in response to changing company needs, priorities, and resources. The following observations are based on experience gained during implementation and reflect insights gathered by the project midpoint.

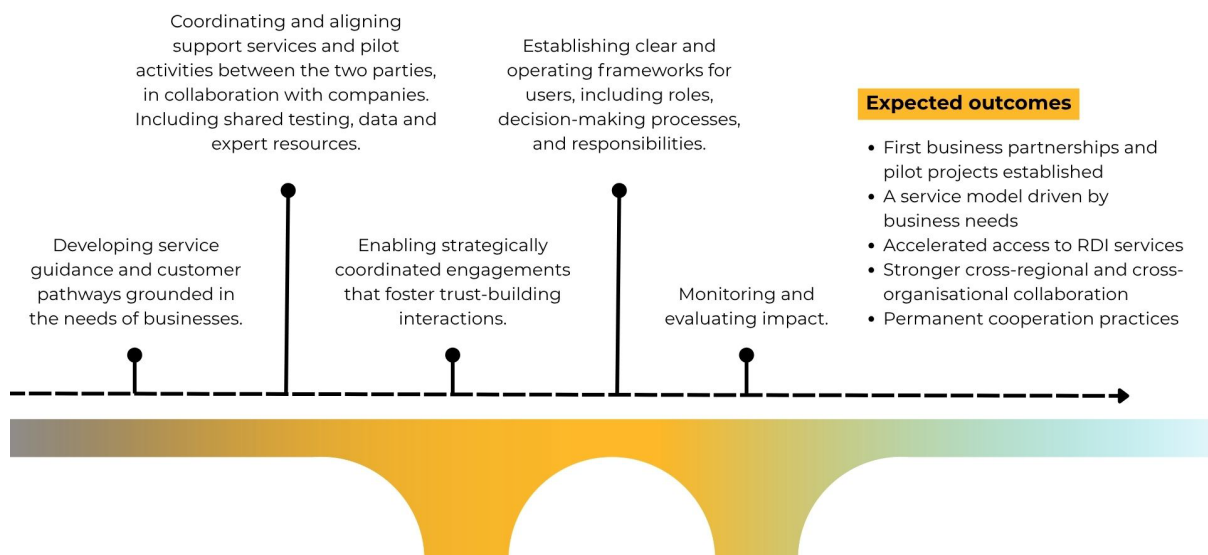


Figure 1: Illustration of the project developed model of the innovation bridge and the pathway towards a functional cross-regional cooperation model (INKA – Strengthening SMEs’ Innovation and Growth Potential in Internationalising Ecosystems project).

3.3 Implementation of the Innovation Bridge

Several significant challenges should be tackled throughout the innovation bridge development from a service design point of view. This includes coordinating the timing of development services, allocating resources efficiently, and ensuring effective communication among participants. To address this systematically, distinct phases were implemented to resolve the issues and establish the innovation bridge. The methods and phases of the Innovation Bridge are illustrated in Figure 1. Through these practical phases, the aim is to respond to the previously identified challenges and to gradually open an innovation bridge between two regions. The methods and phases have functioned as a development framework, even though the work has not always progressed in a fully linear manner, as several activities have been carried out in parallel.

3.3.1 *Developing Service Guidance and Customer Pathways*

When developing the innovation bridge, it became evident that regional characteristics shape SME needs and the delivery of development services, making it essential to adapt operating models to regional contexts through customer-centric approaches, service design, and co-creation. The strategy builds on the features of two universities of applied sciences (UASes) and their environments in the South Savo, Päijät-Häme, and South Karelia regions. The local business structures, ecosystem growth, and company needs have been considered in the development process. Reaching SMEs requires targeted communication tailored to different customer profiles. For example, in rural contexts, engagement could be more effective when focused on concrete business needs and conducted in familiar environments, whereas digitally mature companies could seek collaboration related to technology experimentation, research, or international networks. The innovation bridge also considers the user experience of DIH operators, internal actors in organisations and the public-sector actors. Within the innovation bridge, communication methods, service processes, and channels are systematically refined. Comprehensive, customer-focused service descriptions, effective management of expectations, and an integrated one-stop shop approach, complemented by accessible expert engagement, are critical to foster trust and deliver an excellent customer experience.

3.3.2 *Coordinating and Aligning Support Services and Pilot Activities*

Coordination forms the basis of innovation bridge operations, as it enables consistent and customer-oriented cooperation between different actors. Based on the experiences of the project, effective coordination is not based solely on structures, but on active encounters, consortia, and expert networks that integrate SMEs and experts. This coordination requires active engagement from stakeholders but especially from DIH coordinators and regular structured meetings.

3.3.3 *Enabling Strategically Coordinated Engagements*

The role of DIH coordinators emerged as central to enabling strategically coordinated engagements. Coordinators' proactivity, reliability, and sense of responsibility proved decisive for collaboration and service success. This role requires proactivity that refers to *actively connecting companies and experts, organising meetings and events, communicating about the opportunities for digitalisation and RDI, and suggesting new openings for cooperation*. Coordinators also interact widely with SMEs, public-sector actors, and internal organisational units. With multiple DIH coordinators, responsibilities should be shared. Through these strategically coordinated engagements (services, meetings, events, and communication), the aim is to build trust among companies and other stakeholders, so they can be confident they will receive reliable, high-value services and opportunities. Early successes include theme-based networks established between the regions, two successful cross-regional events that brought together companies, experts, and other key regional actors, closer cooperation between internal units, and improved communications, which have strengthened stakeholder commitment and demonstrated the potential for joint value creation.

3.3.4 *Establishing Clear Operating Frameworks*

The functioning of the innovation bridge requires a balance between flexibility and common structures. Although services adapt to changing needs, it is important that the parties share a mutual understanding of roles and responsibilities. This can be supported through jointly agreed operating models, documentation, and planning templates. The responsibility for documentation lies with both the DIH in question and the DIH coordinator. DIH organisations may have different internal policies regarding documentation. However, in connection with the INKA project at DIH eSavo, we have found that careful documentation of key information is essential. This way, information related to the customer relationship is also easily available to other DIH coordinators, for example, in connection with personnel changes. Documentation enables the analysis of customer processes and needs and supports data-driven operational development, which serves the interests of both DIH and the customer company. In addition, the project has concluded that the maintenance of the customer relationship will be kept light, and that contracts will not be drawn up unless there is a specific need for a particular measure or service.

3.3.5 *Monitoring and Evaluating Impact*

The innovation bridge is intended to function as a lasting operational approach, and its long-term success depends on fostering trust, motivation, and enthusiasm while integrating the model into routines. As mentioned earlier, the innovation bridge is intended to be a flexible model whose development is based on needs. The goal

is to be able to test the bridge with the first customer companies. Practical work is expected to accelerate access to RDI services, enhance cross-regional collaboration, and establish the operating model as a lasting component of core activities. Overall, the Innovation Bridge functions as an operating model rather than a single service. Its activation and maintenance require proactive coordinators and stakeholders who have a common will to promote SMEs' access to RDI services and expert networks and to build cross-regional cooperation. The coordination of activities requires common practices and systematic documentation, but the operating model must also be flexible and shaped according to the needs of the companies, regional characteristics and the starting points of the implementing organisations. The identification of different customer profiles and their associated customer paths support the appropriate targeting of services and communications.

4. Discussion and Conclusion

The innovation bridge model presented in this paper was developed through a joint project between two Finnish higher education institutions operating across regions, with the aim of improving SMEs' access to research, development, and innovation (RDI) activities. Responding to increasing challenges faced by SMEs in building and sustaining competitive advantages amid rising innovation and digital transformation costs (Costin & Radulescu, 2020), as well as identified structural and competence-related gaps in regional innovation support in South Savo, the model integrates fragmented services into a clear, company-oriented pathway. It is built on regional Digital Innovation Hubs (DIHs), which function as local one-stop shops and coordinate access to specialised expertise, testing environments, infrastructure, and networks across regions. Through intentional cross-regional collaboration, the innovation bridge enables the sharing and transfer of ideas, technologies, skills, and practices so that knowledge developed in one region can be understood, adapted, and utilised in another. As both a practical support mechanism for SMEs and a strategic coordination model, the innovation bridge strengthens regional innovation systems and supports more effective participation in collaborative innovation ecosystems, particularly in structurally challenged regions where individual regional DIHs are insufficient on their own.

Practical experience shows that a successful innovation bridge requires both complementary expertise and ongoing alignment between organisations. Coordinated practices, such as shared definitions, clear roles and responsibilities, and agreed processes for communication and contracting, have proven essential in ensuring smooth collaboration across organisational and regional boundaries. A key success factor lies in motivated and active network members who continuously develop the operational model, work actively across the different interfaces of the innovation bridge, and closely monitor company needs. By maintaining direct engagement with SMEs, these actors can identify emerging demands and proactively build effective pathways to relevant support services, expertise, and resources across the network. More broadly, the innovation bridge facilitates the deliberate circulation of knowledge, skills, and practices across regions, strengthening regional innovation capacity and resilience, especially in regions facing structural challenges. Through the DIH network, SMEs can also be connected to EDIHs, expanding access to specialised services and international collaboration opportunities. The effectiveness of such cross-regional models depends on a shared strategic vision and a mutual understanding of the value of collaboration for regional and national development. In a rapidly changing innovation environment, strengthening cross-regional cooperation and continuously refining operational models are increasingly important.

Despite the promising outcomes of the innovation bridge model, several limitations remain. Achieving sufficient timeliness in matchmaking and collaboration has proven challenging, and although the communication practices supporting the model have evolved, further development is required to ensure more effective and proactive information flow. The operational environment of the innovation bridge consists of a complex set of actors, objectives, and regional conditions, which complicates both coordination and evaluation.

While the model has generated several good practices that form a solid foundation for regional innovation support, there is no certainty that the approach can be directly scaled or transferred to other regions without significant adaptation. Consequently, scalability should be a central focus of future iterative development. Moreover, additional empirical experience is needed to draw robust conclusions about the long-term functionality and impact of the innovation bridge. Although, trust among key stakeholders is gradually increasing; however, overall awareness and visibility of the model within the region remain limited, posing a clear challenge and an important area for further development. While discussing further research, the focus shifts to evaluating the long-term impact of the innovation bridge on SME RDI activity and its effectiveness as a service and knowledge-sharing network. In addition, a greater understanding is needed to explore both the potential and the demand for cross-regional services within the innovation bridge, as well as effective approaches for reaching and engaging SMEs with innovation bridge services.

Ethics Declaration

The data referred to in this article is publicly accessible.

AI Declaration

Artificial intelligence (ChatGPT, Copilot) was used to support the writing and editing of this article. The tool was used to refine language, assist with translation, and enhance overall readability. All content was critically reviewed and approved by the authors.

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