

World-class Ecosystems in the Finnish Economy – Impact study

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"Ecosystem policy improve the effectiveness of innovation activities."

Ecosystems provide a strong avenue for supporting dynamics and collaboration

The welfare and prosperity of Finland is strongly linked to sustainable performance of Finnish companies. The success of Finnish companies is highly based on renewal and internationalization, due to the relatively small size of the Finnish market, the effects of globalization, as well as the speed of innovation. As outlined by the OECD in 2017, Finland should focus on diversification and value creation by creating new sources for growth as well as revitalizing traditional industries. Furthermore, it is clear that change should not only come from large but also from small companies, emphasizing the role of existing and new SMEs. At the same time, global trends show a strong increase in the importance of the UN Sustainable Development Goals (SDGs). The challenges of renewal, internationalization and SDGs can be better addressed by companies working collectively rather than individually, as these challenges ask for more dynamic knowledge generation and exchange, increased public-private collaboration, stronger involvement of end-users as well as the use of co-creation methods.

Ecosystems are a collaborative structure for companies and other stakeholders to work collectively towards strategic goals by addressing shared challenges. Ecosystems often have a governance structure that consists of a board of representatives of member companies and a neutral body that organizes networking within the ecosystem and formal activities in line with the common strategy of the ecosystem. Ecosystems often address key challenges related to for example innovation, internationalization, human capital, capital, and entrepreneurship. Ecosystem development provides a strong avenue for supporting the dynamics and collaboration activities needed to address the challenges of Finland.

Ecosystems are about working together on shared challenges through a common strategy

Ecosystems provide a strong way to foster structural collaboration between companies and other strategic partners, like knowledge institutions. By departing from an analysis of shared challenges, a shared strategy can be defined to support effective collaboration within these ecosystems. Together, companies can take on larger challenges and risks in terms of innovation, entrepreneurship and internationalization. Collectively, they can build their capacity, meet new partners, work towards industrial transformation and address relevant societal challenges. Ecosystems can support both formal activities, often organized by a central player or neutral body within the ecosystem, as well as informal activities between members through networking in the ecosystem. The core value of ecosystems to companies is that collectively members can achieve more than individually. Practically, the ecosystems provide companies with access to external resources through networking and formal activities, also called the ecosystem functions. These external

"Ecosystems can provide access to external resources to their members."

"Regarding human capital, activities could focus on a dialogue with educational institutions regarding their curricula, an internship program, and attracting foreign talent."

"Ecosystems are seen as a way to ensure Finland is better equipped for driving economic growth, increasing productivity, renewing activities, transforming industries and tackling today's societal challenges."

"The objective of the ecosystem policy is to create new billion-euro ecosystems."

"Case study results: While the orchestration funds [Growth Engine] have been successfully used for their respective purposes, the ecosystem needs further support, e.g., education and training."

"The overall profile of the ecosystems is very heterogeneous. In general, many ecosystems are clearly still in development."

resources may include market intelligence, human capital, R&D and technologies, capital, new markets, etc. As strategies are defined by the members themselves the focus of each ecosystem can be different as the challenges they face will dictate the focus of their activities and prioritization of specific ecosystem functions.

Complementary policy to achieve innovation/internationalization objectives

Business Finland is, as the public agency for innovation funding and trade, travel and investment promotion, an organization that focusses on generating prosperity for Finland, mainly through supporting companies to achieve sustainable growth at global level. Stimulating the emergence of new and innovative activities is a key aim for Business Finland, as this is where public intervention is most appropriate. Business Finland sees it as their role to push forward new initiatives and share risks to initiate activities that would not be realized without public intervention. While the portfolio of activities of Business Finland is large, ecosystems are at the core of its work, since innovation flourishes most when different stakeholders and industries collaborate.

The rationale of public policy is often related to certain "failures" to justify public intervention. The most important failures to address in Finland are called "system failures", and concern issues that require higher levels of coordination to solve. Ecosystems can clearly act on these system failures as they add value regarding collaboration, networks and dynamics. Next to that ecosystems also allow for synergies with other policies that target companies directly (like innovation subsidies) or that address large scale and often long-term changes that require effort to increase the urgency and sense of direction (like sustainability or industrial transformation). It should, however, be clear that ecosystem policy does not *directly* address aspects like stimulating innovation. However, it does so *indirectly*, as by addressing collaboration, networks, and dynamics it can induce, accelerate, and improve the effectiveness of innovation activities. In that sense ecosystem policy is a prime example of being complementary to existing policies.

Business Finland has many instruments through which it supports ecosystems. Over the past years it has had one instrument that was specifically focused on ecosystem development & functioning (Growth Engines). The support for ecosystem development & functioning is aimed at improving aspects like the governance and coordination within ecosystems. Next to that Business Finland has an array of instruments & services aimed at supporting specific ecosystem functions (like R&D cooperation funding), focused mainly on supporting innovation and internationalization activities. These instruments are not focused on supporting the development & functioning of the ecosystem, but rather on the performance of companies.

Both types of support, for development & functioning and the specific functions, depend more strongly on financial instruments than on services performed by Business Finland. This can be considered a political preference, as it is preferred that public means are provided directly to companies rather than spent on public personnel costs.

Two years of ecosystem policy show mixed results and a lot of potential

The ecosystem policy is a relatively new policy initiative showing strong potential for the future of Finland. Ecosystem development is known to be a long-term process in which the operations and governance of ecosystems as well as the trust levels and dynamics between ecosystem members emerge and mature. This impact study was performed after the first two years of the ecosystem policy, which is relatively early given the long-term nature of ecosystem development. At the same time, the conditions under which the ecosystem policy were implemented were quite turbulent given the Tekes and Finpro merger in 2018 and the COVID19-crisis from Spring 2020 onwards. The findings of this

"Innovation is a key focus of many of the ecosystems."

"Differences include aspects like a shared strategy, analysis of challenges, governance structure, and the overall dynamics in the ecosystems."

"Many companies are not yet convinced of the added value of the ecosystems, stating that 'the future will tell'."

"Research organizations and large companies tend to have a very central position in the ecosystems."

"Companies that were more active in the ecosystems also show stronger economic results."

impact study show mixed results. On the one hand we found that ecosystems are quite heterogeneous, development levels of the ecosystems differ strongly, and different degrees of engagement and commitment are visible among ecosystem members. It is still too early to make strong statements about the economic and social impact of the ecosystem policy. On the other hand, we also found that ecosystem members show a very strong innovation and growth profile, and some ecosystems already show to be well organized with decent governance models and strong network ties. We also found statistical signs that the length and depth of ecosystem participation of companies is associated with stronger company growth.

Input additionality: effects of resources put into the ecosystem policy

The overall policy framework of the ecosystem policy fits well with the observed system failures and challenges. System failures concern issues that require higher levels of coordination to solve, which is why ecosystems are a relevant intervention. The implementation, however, does not completely match the framework. Not all ecosystems have the set up and characteristics to develop into the ecosystems Finland needs to meet its long-term objectives. There are both ecosystems that have very dense networks and strong operational structures as well as ecosystems that have neither. Many ecosystems seem to have a strong core of committed members and a shell of companies around their core is often not strongly committed. Capacity building within the ecosystems regarding the operations of the ecosystem is not always secured. The companies in the ecosystems show, however, a strong economic and innovative profile.

Currently, the policy instruments at ecosystem level that support development and operations mainly revolve around the financial Growth Engine instruments by which only some of the ecosystems are supported. Since many of the ecosystems are still in development, they could benefit strongly from non-financial ecosystem services as well to help them taking steps towards maturity. The overall policy framework in Finland, in which the ecosystem policy of Business Finland operates, can be improved to better support stability and coherence between initiatives. A first step for coherence would be to continue the discussions regarding the link between the Business Finland ecosystems and other 'ecosystem-like' directions, like the flagships/competence platforms (Academy of Finland) and urban ecosystems as innovation platforms (TEM with cities).

Behavioral additionality: change in the processes of companies and ecosystems

While some ecosystems show very dense networks and strong operations, this is clearly not the case for all ecosystems. The analysis shows that not all ecosystems work based on an analysis of common challenges and a shared strategy. As a result, about half of the members are not very committed to the ecosystems. Many ecosystems show a structure of a core of central members consisting of research organizations and large companies. The role and the incentives of these central players are very important when a board of representatives of all members and a neutral orchestrating body are missing in the ecosystem.

During the development of the ecosystems the role of Business Finland is mainly limited to the Growth Engines since other instruments focus on stimulating innovation or internationalization instead of ecosystem development. The BF ecosystem leads seem to have a minor role in the development and operations of the ecosystems. Overall the instruments of Business Finland focus on financial instruments, which is a political preference.

Output additionality: the results that are realized due to the ecosystem policy

Overall, the economic performance of the companies has been strong in the past years. Both the turnover as well as employment grew significantly. The overall turnover of all companies combined is very large, but only a portion of this can be deemed relevant to the ecosystems. The rest is linked to activities that have little to do with the ecosystems the companies are involved in. Large companies have a very prominent role in the results as they are the size class with the highest number of companies in the ecosystems and they also have high turnover figures. In general, large companies have a bit higher productivity than smaller companies – but very large companies operate at far higher productivity rates than the rest. We found that exports mainly takes place for medium-sized and larger companies, the exports for smaller companies are very limited. Furthermore, signs were found that ecosystem participation has a positive correlation with the

"Renewal is a priority in the ecosystem policy, innovation by ecosystem members is the dominant method applied for renewal."

"Mainly medium-sized, large and very large companies perform export. For smaller companies this still is quite limited."

"The ecosystem policy is a relatively new policy initiative showing strong potential for the future of Finland."

"Ecosystem development is known to be a long-term process"

economic performance of the ecosystem participants, which could mean that companies that have been participating longer in ecosystems and use more of its functions show stronger growth figures in terms of turnover and added value (or vice versa).

Impacts to the Finnish Economy and Society

The ecosystems have been set up to stimulate growth. Therefore, the focus is often on increasing the economic activity of the companies in the ecosystems. Renewal is a priority in the ecosystem policy, as is shown in the focus of many ecosystems. A handful of ecosystems also focuses on absorbing technologies or entrepreneurship (new firms), but innovation by ecosystem members is the dominant method applied for renewal. Innovation is a key activity within many of the ecosystems, and many members have a strong innovation profile. Results show innovation seems mainly aimed at growth (new business activities), rather than industrial transformation (change of current business activities). Contributions towards other goals like FDI and sustainability will most likely be indirect and in synergy with other policies.

The overall objective of €20 billion plays a strong role in promotion of the ecosystems. Setting ambitious targets is important to activate players at all levels. However, the objectives are not well defined, making it difficult to make any statements regarding reaching this target. Definitions aside, with the companies of the ecosystems ambitious targets are attainable. When looking at turnover that is directly relevant to the ecosystems it seems like 1 Billion Euro growth should be attainable by the 13 ecosystems analyzed in this study by 2028. When at a later stage effects of the ecosystem policy will be analyzed, the COVID19-crisis will likely distort the analysis. It is key to make sure negative effects of the crisis are not identified as failures of the policy intervention.

Long-term commitment and stable policy making can prove to be fruitful

Overall, the emphasis on ecosystems could provide strong impacts for Finland given how well the policy intervention fits the faced challenges, requiring systemic solutions through higher levels of coordination and collaboration. The ecosystem concept also fits well with the role of Business Finland as ecosystems allow for strong interaction between Business Finland and collaborating growth-minded businesses that can be challenged to focus on renewal and internationalization. From this perspective, the ecosystem policy shows great potential, provided that Business Finland further develops its policy design and implementation of the ecosystem approach. While we think there is work to be done, we also recognize that ecosystem policy requires time, stable commitment, and continuous learning at policy level on how to reach the best results. To some extent the same holds true for other stakeholders in the innovation landscape, including the Ministry of Economic Affairs and Employment, as more can be gained through policy stability and commitment, better coherence between initiatives and clearly defined strategic and operational objectives.

KEY OBSERVATIONS

- Ecosystems have been set up in recent years, often stemming from earlier collaborations;
- Ecosystems show to have attracted innovative members, economic performance of the companies has been strong in the past years, and future growth modelling shows that ambitious growth figures are achievable under normal economic conditions;
- The ecosystem policy was launched during turbulent times for Business Finland, policy and conceptual thinking was still in development and KPIs/objectives were not designed to support policy monitoring and ecosystem development;
- Support for development/operations has been mainly financial, a broad service portfolio was absent (trainings, peer-to-peer learning, standardized methods, templates and platforms for common activities, reviews by international experts, etc.);
- Not all ecosystems have received financial support for development and operations. Many have only received support for innovation/internationalization activities of ecosystem members;
- While some ecosystems show to be well organized this is not the case for all ecosystems. Not all ecosystems show to have key ecosystem aspects in place, like an analysis of shared challenges, a common strategy, a board of representatives, a neutral orchestration body and networking activities to support collaborative dynamics;
- In many ecosystems not all members are strongly committed and engaged, many ecosystems have a strongly connected core and a shell of not strongly connected members. Knowledge institutions and large companies are often (too) strongly represented in the core, SMEs are only well connected in very dense ecosystem networks;
- The role and the incentives of central players are very important, in particular when a board of representatives of all members and a neutral orchestrating body are missing in the ecosystem;
- Ecosystems show a lot of potential for addressing the key challenges of Finland. However, development of ecosystems takes time and requires stable policy and support over a longer period of time;
- Ecosystem benefits can be further enlarged by exploiting coherence with other public policies and activities and using the dialogue with the industry through the ecosystems to gain industrial intelligence to address bottlenecks for instance for innovation.

"Business Finland should be able to unanimously answer questions such as: what are considered ecosystems, how exactly they are different from other (groups of) beneficiaries, and what are not considered ecosystems?"

Further policy development and focus on development and operations required

The ecosystem policy could be further developed and tailored, and should aim for stable support of the ecosystems. The impact study provides detailed insights regarding ecosystem thinking, policy making, and sustainability of public investments as well as future monitoring, evaluation & impact measurement.

KEY RECOMMENDATIONS

1. Set up a portfolio of ecosystems that fit a clearly defined ecosystem concept
2. Set up a balanced and stable policy mix of financial and non-financial instruments
3. Work towards clear agreements, guidance, monitoring & capacity building
4. Aim for balanced representation of all ecosystem members (including SMEs) and their challenges, in a board of representatives

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