

**Savolainen, Sanna**

**Ahokangas, Petri and Hirvonen-Kantola, Sari**

**Business Ecosystem Development in the Oulu Region – Influence of Public Financing for International Support Services and Export Development**

**University of Oulu Graduate School; University of Oulu, Oulu Business School, Martti Ahtisaari Institute**

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**ABSTRACT**

This study focuses on business ecosystem development and public financing influence on development work in the Oulu region. Based on an in-depth qualitative analysis of eleven ISS (internationalization support service) organizations and eight SMEs and previous findings reveal that various development mechanisms of ISS organizations and publicly financed project actions have strengthened new international businesses and increased export activities for SMEs, affected positively regional growth and developed and tightened business ecosystem work on Oulu region. The preliminary analysis indicates weaknesses and challenges in regional cooperation and decision-making and ambiguity in regional cooperation with organizations and SMEs and in policy and decision-making. This study contributes to the extant literature highlighting public financing's influence on regional business ecosystem development, regional decision-making and cooperation, and the development of SME support services for internationalization and export. The study presents suggestions needs for future planning and development work for the Oulu region's SMEs, ISS organizations and public financing. There are opportunities for future regional development work to use this study's results for more open, comprehensive, and confidential decision-making on long-term planning and for business ecosystem development on regional and national levels. In addition, the findings increase knowledge and understanding of regional development for developing organizations and SMEs on internationalization and export. Moreover, this study is highlighting the role of business ecosystem development work on the regional level, sharing knowledge of SMEs' key persons and the leaders of regional development organizations, and publicly financed services on the regional level.

## 1 INTRODUCTION

The starting point for this research is timed over ten years ago when the regional actor of the regional entrepreneur association published a measurement of the regional economic and decision-making situation in Northern Ostrobothnia. There were differences between entrepreneurs' and policymakers' opinions on how political decision-making influenced and supported the business of SMEs in the region. In the measurement, policymakers answered, that their decision-making is supporting and helping regional businesses and entrepreneurs' life. But at the same time, SMEs answered, that political decision-making and regional policy are not helping businesses but hindering them. I was participating in the meeting as a policymaker -role and wondering what was going on.

There is need for research and up-to-date knowledge how public funding has affected regional development, especially research on supporting export- and internationalization-oriented SMEs and its impacts on development work. Qualitative research of business ecosystem processes, causes and effects is minor in economic research. One basis for the research question is to understand how and in what way public financing is affecting the development process and e.g., for actors' roles, attitudes, and future of the business ecosystem development (BED) work in the Oulu region.

Oulu region is a strong ICT region because of Oulu University, the University of Applied Science and Oulu Innovation Alliance (OIA), the history of NOKIA and strong regional development work and public funding for BED. EU funding and regional development of smart specialization have strong involvement of OIA and its' development work. Smart specialisation is one part of regional ecosystem development, but this study is not focusing on it, instead focusing on export actions and international support services (ISS) in the BED and public financing influence for the development work and ISS.

Using the Business Ecosystem definition in this research is like using different types of objectives to research the lens of the phenomena. The phenomena of a business ecosystem are nearly the same as we commonly understand entrepreneurial ecosystem (EE), being a blend of economic, cultural, social, and political actions and processes, which are coordinated in a way that enables successful entrepreneurship within a geographically limited area or region. Further, EE is created to support the businesses, SMEs and startups which are being commenced, companies which are starting new businesses or starting export and internationalization actions in their businesses. (See Acs & al 2017, Ahokangas & al 2018, Cavallo &al 2018, Isenberg 2011, Malecki

2017, Mason and Brown 2013, Segers 2015 and Stam 2015). Instead of using EE and focusing on supporting SMEs and mechanisms of SMEs, it is needed to have a wide-angle lens, when it is possible to research a large entity and system at once.

The business ecosystem definition follows Brooks & al. (2011:3) general definition of business environment: "It is a general concept that embraces the totality of external environmental forces which may influence any aspect of organisational activity." to Moore (1993:79) and Corallo (2007:18) approaches, where firms are part of business ecosystems, not just a member of a single industry but part of the business ecosystem that crosses variety industries. Regional ISS organizations and export-oriented SMEs are seen as part of the one business ecosystem, regardless of whether they define themselves as belonging to it or not.

## **1.1 Research questions**

The topic and research questions of this study and the need for scientific research have arisen from situations where policymakers' have had critical comments about using public financing in BED. There have been also in the decision-making process repeatedly questions about the public financing use of ISS and asks of impacts of used public resources. Policymakers ask for research-based analysis and qualitative definition of the public financing impacts and development processes utility on the city and regional level. Especially the ISS and export development of SMEs were in the teeth of policymakers, and they were repeatedly asking for reasons and arguments to finance development work. Instead of ignoring the criticism faced in daily duties, it was decided to start research and find out how public financing is influencing BED and ISS and open future planning and view of the regional developers and export-oriented SMEs.

At the starting point of this research, there was a need to define in a qualitative way, what is the link between public financing, BED and SMEs participation and roles and the need to define how regional development - and public funding mechanisms impact the SMEs and developing organizations and for whole region success and wealth. Choosing the qualitative method for this research led to system theory as a theoretical background which is a comprehensive approach to a complex phenomenon, where is needed to understand not only the overall picture and complex relations but also the background of the process and the effects of the research topic and development processes.

To understand regional BED it needs to answer to missing information on development processes' mechanisms, as Alvedalen & Boschma (2017, 887): "The entrepreneur ecosystem literature lacks a clear analytical framework that makes explicit what is cause and what is the effect." This approach is placed also in the research question. What is the cause and influence of the public financing for the BED on the Oulu region and what is the impact of the BED and its future? In this study effects and causes are researched and found by interviewing key actors of internationalization developers and export oriented SMEs in the Oulu region.

In this study, the research question to be answered is:

- 1) How public financing influences SMEs' and ISS organizations' BED activities at the regional level?

## **2 SYSTEM THEORY IN BED –a theoretical and practical overview**

As mentioned before, the purpose of this research is to understand the mechanisms of public financing and development processes but also to reveal the effect of a certain factor on the large entity. System theory enables addressing a complex entity on a regional, national and multinational level, where everything is connected to each other and affecting everything. System theory helps to understand diverse and long-term development work and processes and opens complex relations and relationships of various actors. (see Chen & Stroup 1993, Järvillehto 1994, Moore 1993, Ramage & Shipp 2020)

### **2.1 System theory and thinking - history and link to the BED**

To research and understand the complex process, connections, relationships, effects, and processes – like a BED in the Oulu region - needs a holistic and comprehensive view of phenomena. Systemic thinking gives basement and tools to understand the time and area linked and open equation, where everything affects everything and where one factor is in focus, as in this study, being an influencer from outside to the ecosystem – like the public financing - which directly and indirectly influences the different actors and relationships in the entire system.

The system theory bases are where the system and all subsystems and actions are seen as part of a larger entity, where everything affects everything and causes and effects are cross-influenced, and it gives an approach to research and engages change, development and complexity of people and organizations. (See Järvillehto 1994, Chen & Stroup 1993 and Moore 1993). In researching regional BED, it is important to understand the whole system, where various actors – as SMEs and ISS organizations- and actions – such as public financing - influence each other and are more in the result in an ecosystem system than on their own. Geoffrey Vickers (Ramage & Shipp 2020, 79) suggests:” Open systems, by definition, do not exist in isolation. They depend on complex exchanges with their surround; exchanges of matter, energy, information, and of other communications not conveniently included in the useful but very narrow concept of information. The variety and reliability of these exchanges vary vastly.” Researching regional and geographically limited areas is interpretable as an open system, where communication and actions are linked to the bigger system and other systems even at the global level. In this study focus of the business ecosystem is on the mechanisms, networks and relationships of developers and export-oriented SMEs.

Vickers argues also in Ramage & Shipp (2020, 81) that:” Systems are nets of relations which are sustained through time. The processes by which they are sustained are the process of regulation. The limits within which they can be sustained are the conditions of their stability.” Timing, limitation as well regulation and relationships are highlighted in this study and there are chosen one specified influencer to be researched in the development work. Focusing on the relationships, networks, mechanisms, and future impacts in time-bound ecosystem development work will be a key to understanding the complex entity of BED on a regional level and give analyzed information for policymakers. In this study, BED is including organizations as SMEs and developing organizations as well their processes, relationships, mechanisms, and actions in and out of their own open systems. According to Vickers (Ramage & Shipp 2020, 81-82), open systems depend on and contribute to their surround and are thus involved in interdependence with it as well as being dependent on the interaction of their internal relationships.

## **2.2 System thinking in BED and development practices in the Oulu region**

In this study, the research of the BED in the Oulu region focuses on public financing i.e., ERDF funding influence for the advancement of internationalization and ISS targeted to SMEs. The business ecosystem is researched as a regional-level ecosystem-development environment in Northern Ostrobothnia, Finland, and mainly focused on the City of Oulu, BusinessOulu ISS practices, Oulu region SMEs and developing organizations. BED in the Oulu region comprises regional policymaking and decision-making, governmental and EU regulations of public financing and - law, public organizations relations and company-related business networks and SME’s export actions. (See Antikainen et al 2014, European union 2014, BusinessOulu 2019.) Oulu region Business Ecosystem is researched in this study as an open system, where actions, relations, decision-making, development mechanisms, networks and various actors are affecting each other and to the whole entity.

The decade of practical development work of the BusinessOulu, the unit of City of Oulu, has indicated that there is a positive impact of ISS on SMEs' export activities and businesses. According to the previous research and business ecosystem discussion, it is shown that long-term development work has a positive influence and impact on the whole region’s BED, resilience, and evolution, this is shown also in the Oulu region measurements, evaluations and SME’s feedback. (see BusinessOulu 2019, Kakderi and Tasopoulou 2017, Mack and Mayer 2016, Simmie and Martin 2010, Stam 2015, TK-Eval 2017, 2020, 2023). Policymakers and regional development

organizations need research-based analysis and up-to-date knowledge to make relevant and effective decision-making and successful policy for the region. This study is answering to this need to define public financing influence and qualitative impacts of BED in the Oulu region and helps to understand the mechanisms of all actors on each other and the future at the system level.

As stated above the business ecosystem is identified in this study as a variable, diverse and complex system, where interacting organizations and networking SMEs are enabled by modularity and creating opportunities fostering entrepreneurship and innovation in the region. (Acs et al 2017, BusinessOulu 2019, Jacobides 2018, Nordregio). BED in the Oulu region is in support of key developing organizations to increase entrepreneurial activity and networking of entrepreneurs, the leadership of business mechanisms, finance, business knowledge, ISS organizations networking, employee resource management and regional policy making. (Acs et al 2017, Alvedalen & Boschma 2017, Malecki 2017, Nordregio 2019, Segers 2015).

This study researches the business ecosystem as regional development and cooperation with global actions, and relationships between SMEs and organizations on regional and global levels and linked to policymaking and regional collaboration of developers. Business Ecosystem is defined in the City of Oulu strategy and it is part of daily work in the BusinessOulu business services development unit. (BusinessOulu 2019). This study will approach the business ecosystem as a variable, unique and dynamic system of organizations and cooperators, where actors are involved in the development and delivery of a specific product or service and cooperation is requiring bespoke policy interventions (Brown and Mason 2017, Cavallo et al 2018, Iivari 2016, Mason and Brown 2013) on Oulu region.

Vickers (see Ramage & Shipp 2020, 76-82) highlights interdependence, limitation, and organization, when individuals and the systems to which they belong become engaged in an increasingly complex net of interdependence, both the constraints and the commitments tend to impose more contradictory imperatives. In this study the complexity of BED and SME's processes and mechanisms are focused on the global market makes challenges in ISS and public financing.

Internationalization and export process development is one important part of BED in the Oulu region. There are national, regional, and municipal level organizations offering ISS services in the region and this study, is focused on mechanisms of BED, particularly for– public financing in ISS and particularly in one organization - BusinessOulu. According to the research questions, the development mechanism (in BED) is named an ISS and public financing is researched on how it is influencing ISS. Results and effects are researched from export-oriented

SMEs and ISS organizations. The influence of public financing in ISS is mostly bespoken in this study as European Commission regional funds.

### **2.3 ISS and BED in the Oulu region**

Since the year 1995, when Finland became a full member of the European Union and signed the agreement, Finland has been part of the world's biggest free trade area. During the European Union's history, there have been several forms of public founded processes and aid for regional equality and enable businesses. The European dimension of structural funds have helped to underpin regional development strategies and fund are divided into four themes the European Social Fund (ESF), the European Regional Development Fund (ERDF), the European Agricultural Guidance and Guarantee (EAGGF) and Financial Instrument for Fisheries Guidance (FIFG). (Brooks &al. 2011, European Union 2014, Nordregio 2019.)

Oulu region's business ecosystem is a large entity of City of Oulu actors, companies, and organizations and BusinessOulu as a city-level actor has a strong role in this regional collaboration. Business ecosystem and business environment is a general concept which embraces the totality of external environmental forces which may influence any aspect or organisational activity. In the Oulu region, the political decision-making is based on regional cooperation, public organizations collaborations and SMEs and private sector representatives. (Antikainen et al 2014, Brooks 2000, BusinessOulu 2019, Iivari 2016, Nordregio 2019).

According to the Spigel and Harrison (2017) the role of policymaking in creating a supportive environment for innovative entrepreneurship even public investment cannot drive commercialize innovations. The largest policy challenge of Entrepreneurial Ecosystem (EE ) is how entrepreneurs, and the state can support the development of a strong well-functioning entrepreneurial ecosystem. (Spigel & Harrison 2017.) Oulu region public support and BED is managed by Maakunnan Yhteistyöryhmä (MYR) and responsibilities are shared between organizations meanwhile following each organization's strategy.

### **2.4 BusinessOulu's ISS in practise**

Business Oulu started the year 2011 and it is responsible for implementing the business and employment policy of the City of Oulu by promoting business, employment and business activities in the area and regional level. The purpose of the business policy of the City of Oulu is to create an



operating environment for companies and entrepreneurship that promotes the creation, operation, growth, competitiveness, and employment of companies. The City Government, together with the Business Oulu Department, is responsible for the development and implementation of the business policy defined above. Business policy is implemented in cooperation with the business community in the region. (BusinessOulu 2019, Nordregio 2019).

Part of the City of Oulu strategy BusinessOulu has defined the task of development for open innovation environments, ecosystems and think tanks to have new courage and results which are creating fast business and start-up growth in the region. The city's top priorities are to increase exports, create jobs and promote investments. The collaboration and openness of actors are crucial for growth and as Iivari (2016) argues the local firm with its ecosystem is one of the defining factors of business model openness. (BusinessOulu2019, Iivari 2016). BusinessOulu ISS services are seen as tools and methods of BED in this study. Tools are practical development actions in projects such as export delegations, BtoB meetings, exhibition participation and business matchmaking. The development work and ISS has tasks from policymakers to create new innovation opportunities, new companies and new export actions for global business. (Business Finland 2019, BusinessOulu 2019, Nordregio 2019, Pohjois-Pohjanmaa 2019).

The City of Oulu has a new City Strategy for 2026 and it has a target to increase new jobs 18 000 places, which means 2000 new jobs every year and 2000 more companies until 2026 and increase export by 10% every year (BusinessOulu 2019). According to Oulu city strategy exporting and developing ISS in the region is one of the main practical tools for regional growth and vigour. BusinessOulu has five tasks for this city strategy and vision: 1) support companies in main activities in growth and developing 2) network and support networking with stakeholders on national and global levels 3) update the regional view of new business opportunities 4) enable value-added operations in strategical fields 5) marketing Oulu region as an attractive and potential city to have new businesses, investments, tourism, events and exports. According to the strategy BusinessOulu support services for companies have seven different types: 1) business planning 2) starting business 3) company financing 4) sales and export development 5) business trainees 6) invest-in and 7) owner changes (BusinessOulu 2019). There are different kinds of ISS and export activities in BusinessOulu. For example, the Finnish Business Hub service is part of sales and export development, and it is started by TEM -funded money since the year 2012. Finnish Business Hub has offered platform and services for entrepreneurs to start new businesses for new markets. (BusinessOulu2017, BusinessOulu 2019, Saine interview 2020).

## **2.5 ISS services and BED financing from Finnish level to metanational level**

Business development and ISS for SMEs are one of the main urban development operations in Finnish cities and the advancement of regional vigour. On the City level in BusinessOulu, business development and ISS are usually public and open for entrepreneurs and SMEs. ISS and BED in BusinessOulu are mostly financed by the EU, from different programs. According to the European Union regional development program, the key challenge to the development of the Finnish economy is the low number of fast-growing companies and their slow internationalization. There are relatively many start-up companies in Finland, but the growth of companies and advancement to international markets has proved difficult. Continuing economic success requires combining the knowledge base and innovation with growth-oriented entrepreneurship, Finland needs more growth companies that successfully commercialize ideas into products and services for the international market. (European Union 2014, Nordregio 2019)

There is no need only for internationalization in the ecosystem development but meta nationalization for SMEs for regional, national and global success. According to Williamson (in Corallo 2007: 82) there are metanational- definitions for companies or organizations when they are building an ecosystem which harnesses differentiated knowledge that is scattered around the world to fuel innovation that cannot be matched by competitors whose innovation process focuses more restricted, local sources of knowledge around their home base. Metanationals build an ecosystem to identify and access dispersed knowledge ahead of the competition and produce and sell the resulting innovations globally through a network of sales and marketing subsidiaries in large markets. Building a metanational ecosystem or a business ecosystem also calls for change in mindset and ways to cooperate on the regional level. Oulu region business ecosystem actors such as Business Oulu have also metanational targets to develop regional growth by collaborating with international and national level companies, organizations, clusters, and business actors. In addition, there is evidence that strong clusters facilitate growth in entrepreneurship and social interactions between clusters, regional actors and entrepreneurs enabling tools for business ecosystem development. (Alvedalen & Boschma 2017, Andersson & Larsson 2016, BusinessOulu 2019, Delgado et al 2010, Pohjois-Pohjanmaa 2019, Segers 2015).

Oulu region is part of the joint regional plan for eastern and northern Finland's "Innovation and Skills 2021-2027" - Structural Fund program. Innovation and Skills in Finland 2021–2027 promotes regional vitality, employment and wellbeing and the programme supports industrial, energy, climate, innovation, education, and employment policies as well as the work against exclusion and poverty. The programme includes the measures of the European Regional

Development Fund (ERDF) and the European Social Fund Plus (ESF+). The implementation of the new regional and structural policy programme will take place in 2021–2027. The programme funding consists of EU and national funding. The programme's public funding amounts to EUR 2.493 billion, of which EUR 1.469 billion will come from the EU, and EUR 1.024 billion from national co-financing. The funding from the Just Transition Fund, which will be confirmed later, will total about EUR 700 million. The Northern Ostrobothnia ELY Center serves the regions of Northern Ostrobothnia, Lapland and Kainuu for ESF and ERDF certain funding. Provincial federations manage certain ERDF funding in their respective provinces and in Oulu region it is Pohjois-Pohjanmaan Liitto -Regional Council of Northern Ostrobothnia. (Nordregio 2019, Rakennerahastot 2021).

## **2.6 OIA and smart specialization part of BED**

In the Oulu region, the Oulu Innovation Alliance (OIA) is a publicly clarified network having representatives from the business, science and municipal, private -, and public levels. OIA is the Oulu region Smart Specialization concept where both public research and education institutions and ISS organizations and companies are involved. Iivari (2016: 18) considers innovation ecosystems to consist of economic agents and relationships together with non-economic parts, such as institutions, sociological interactions, technology, and culture, and the authors suggest that an innovation ecosystem is a hybrid of different networks or systems.

Integrating innovation and opportunity-related discussion and decision-making within entrepreneurship development have opened business ecosystem development chances for future challenges and changes on a regional level. (Acs et al 2017, Ahokangas et al 2018, Brown and Mason 2017, Isenberg 2011, Möller and Svahn 2008, Stam 2015). Several new companies related to the innovative business ecosystem development have emerged the pressure for policymakers to develop the Oulu region business ecosystem, publicly financed operations, political decision making and business support services and collaboration in the region (Antikainen et al 2014, BusinessOulu 2019, Pohjois-Pohjanmaa 2019).

### **3 METHODOLOGY, RESEARCH MATERIAL AND ANALYSIS**

Choosing a qualitative approach to this study make it able to research the mechanisms of the regional business ecosystem development work in the Oulu region and get an experience and material from both sides of development work – from developing organizations and from SMEs. Using interviewed data, background material and the researcher's own experience of the BED work, it was able to make in-depth qualitative analysis and interpretations of the phenomenon. The system-theory bases made it possible to form a comprehensive view of the phenomenon, where the actors and actions were related to the same system – BE of Oulu region, where the public financing is part of BED and ISS practices. Qualitative research bases were chosen as the research approach because it is important to get qualitative and descriptive information from both parties – SMEs and ISS organizations and find definitions for questions of how and why.

#### **3.1 Starting point and Researcher's choice of Qualitative approach**

As previously mentioned, the start of the research was the event, where it was a paradox between policy makers' decision-making compared with SMEs' experiences for business opportunities in the Oulu region. At the same time, BusinessOulu and other ISS organizations had several ongoing development activities and public financing for export and internationalization. As a practitioner with ISS in BusinessOulu, the researcher started to ask from ISS organizations and also from SMEs, what is the role and influence of public financing for the whole ecosystem on a regional level. Very soon it was clear, that it needs research and a scientific justification for the phenomenon when it will be able to use as information for policymaking and increase regional knowledge for decision-making.

In the first step, the researcher started to define one single factor, which would compound policy makers' decision-making, SMEs' actions, developing organizations and business opportunities development in the Oulu region. ISS services were, and are, the link between SMEs, developing organizations and regional policymaking and it was chosen as a lens to approach business ecosystem development work in the Oulu region. The researcher handled both, ISS organizations and SMEs in terms of data collection as a research source. As well it was decided to focus to the influence of concrete actions of ISS and use of public financing, not for policy-making or decision processes.

The ISS services are mostly funded by public financing and there were very soon after choosing ISS a lens, appearing the question, is public financing, what has used to finance ISS development decades, influencing development work and how it is influencing especially BED in the region. ISS development by public financing is like a process, where 1. EU shares regional development funds for countries, on state and on regional levels 2. Government delivers financing to regions 3. Policymakers deliver regional funds for developing organizations and 4. Organizations use financing in practice for SMEs and internationalization- and export development actions in several ways such as arranging international events, delegations, supported expert services, shared participation in exhibitions etc.

### **3.2 Research material**

Oulu region development organizations and this research involved organizations are Oulu Innovation Alliance, the University of Oulu, the University of Applied Science, the City of Oulu, Finnvera Oulu, Ely Center Northern Ostrobothnia, Council of Northern Ostrobothnia, and the Chamber of Commerce of Oulu as well as export-oriented SMEs of the region. There are used as background material for decision-making minutes from the regional financing board of the council of Northern Ostrobothnia Maakunnan Yhteistyöryhmä (MYR) and evaluation reports from three different EU ERDF projects of BusinessOulu. Having various aspects, research material from developers and companies and background material from policymakers is following the system thinking-frame, were are important to the understand whole, not only one point of view or one perspective of the phenomena.

Research material was collected by interviewing regional key actors of internationalization and export development and SMEs which were participated in public financed actions during the years 2017-2023. As background material, there were used regional policymakers meeting minutes from the years 1999, 2004, 2009, 2014 and 2019 as well as three (3) evaluation reports from EU-funded projects during 2017-2023.

Interviews were held on Teams in Finnish, recorded and transcribed in Finnish. There were used structured interview method, where the main questions were listed and followed during Teams meetings:

- 1) What comes to mind when you think of the words business ecosystem and public funding?

- 2) Which sources of public funding do you typically deal with? Which new channels of public funding could be interesting?
- 3) In your opinion, what role does the organization you represent play as a developer of the Oulu region's business ecosystem?
- 4) What are the most important and strongest tools or things in your organization's development work in developing the business ecosystem in the Oulu region?
- 5) What things do you see as an obstacle or slowing down the development of the area's business ecosystem?
- 6) Mention the three most important things that you value most in the development of the business ecosystem in the Oulu region, or which things in your opinion will move the development forward the most?
- 7) In your opinion, name the three most important development subjects in the Oulu area, or which things currently need the most attention or correction?
- 8) What enablers do you think are missing in the development of the Oulu region's business ecosystem?
- 9) How do you see the future of the region? (Drivers, opportunities, challenges, obstacles)?
- 10) How do you see the role of public funding in the future and regional development?
- 11) How do you see the role of the organization you represent in the future?
- 12) How do you see the role of cities and municipalities in the development of the business/business ecosystem?
- 13) Something else, what? Will there be new actors or roles in the future?

SMEs total of 8 were allotted from indicator lists of developing projects, which were in researcher use and were private information of BusinessOulu. There were also used as background material for MYR meeting minutes. MYR is responsible for example ERDF fund on the regional level. MYR minutes were picked from five years of meetings and there were seen the progress and change of aims and themes of funded development projects in the region. In addition, there were used as background material evaluation reports from ERDF projects, which were targeted to support SMEs' internationalization and export actions and processes. Via evaluating reports, it was easier to

understand indirect support and export and internationalization practices for SMEs on a regional level. Three reports were picked for the same period as there were SMEs picked to interviews.

### **3.3 Analysis**

According to the system theory approach, it is important to notify and define actors and actions, subsystems, and connections in the researched system, in this study, the Oulu region business ecosystem. For data analysis, it is used classical theming and typing- methodology by Eskola & Suoranta (1993) where data is collected from regional actors of SMEs and ISS organizations. According to Eskola and Suoranta (1993), thematization is all about locating the topics that are relevant to the research problems, i.e., themes, from the research material. The themes of the material have emerged because of the analysis - and pieces of the material, i.e., transcribed text, and have been placed in the recurring themes. The themes are recurring topics in the material, and they have not arisen solely from the questions or the body of the structured interviews, after the first analysis there placed different themes of participation from regional to metanational business and development working and themes from regional attraction and SMEs impact styles for BED.

In the analysis, a deductive approach is used, where general phenomenon and the overall picture are defined through the lens towards individual actors and functions. This fits well with the system-theoretic approach, where the influence of everything and everyone is on everything. By narrowing the lens, interpretations and conclusions can also be drawn based on individual actions, comments and events.

Analysis of the data was started by transcribing video material and collecting answers of ISS organizations and SMEs for their own tables and typing them following structured interview questions. In the second analysis, there was a thematization of the typed tables and answers. The first results were interpreted from thematic answers and after thematic interpretation, there were started set up for similar words sentences, terms and metaphors. After that there were started analysing the whole material again, where were interpreting the thematization data and making new sights from transcribed texts, like new words, new metaphors new definitions linked to the research questions. During analysing process it was easy to name the same idea following answers and mechanisms. Generally we understand a mechanism as a combination of moving parts relative to each other that causes or transmits movement and it was compatible to understand as ecosystem mechanisms. There were some moving, something concrete, relations and relationships mentioned, which are influencing each other in time linked context. Bespoken policy interventions and

decision-making on a regional level are notified as background material of MYR minutes for understanding the long-term development process on the policy-making level and practices in BED.

The researcher was called analysing process and transcribed material analysis as Round1 and Round2, when text-material was marked and themed in Round1 and arranged and divided to the “mechanisms” during after Round2. Round2 is still ongoing. First mechanism was named as “Increasing BED activity in collaboration starting from own actions”, where the focus was on collaboration and activity in relations between SMEs, organizations and other actors linked to BED and whole business ecosystem actions. During second analysis Round2 there were picked comments, words and sentences which were linked “useful relationships”, “more creative networking”, “we need new events to participate”, “successful openings and starts” and “could we do more with Oulu as a group together”. During Round2 the second mechanism “Internal strategy changes and needs for change in BED” were found from interviews and transcribed texts from words, sentences and comments about changing and need of change of their own actions linked to BED and future planning. Words and comments have been used in this context were linked “Need to start new businesses”, “Too old-fashioned and rigid operation now”, “Too slow, need to do something”, “We must participate more”, “We should tell ourselves to public sector what we need”, “We need to something, that we will have young talents staying in the region” and “You need to network, it doesn't help that you work alone”. SMEs and organizations were analysing and commenting on their own activity, actions and behaviour in the BED and regional concept.

The third mechanism named during Round2 as “External changes in BED” was linked to the comments and words about external forces influencing SMEs and organizations operations in such a way that they cannot influence or control themselves. There were comments about Covid-19, global financial depression, national and EU-level regulation and barriers, especially about public financing use and having public financing, like: “Corona has disciplined us”, “The restrictions on the use of money for those EU projects would be the same with more flexibility, so that would help. They have their own certain limitations, and with them, you have to compose a bit”, “The biggest forums are elsewhere, they are not here” and “politics, we need tolerance, it is a dream and a goal image for regional success”. Analysis will continue with Round2 to the end and Round3 during autumn 2023.



## **4 PRELIMINARY RESULTS**

After completed the analysis Round1 and during ongoing Round2 there were found the first three mechanisms from BED. Preliminary findings reveal that various development mechanisms of ISS organizations and publicly financed project actions have strengthened and increased SMEs and organizations' internal activity, influenced to the strategy working and external collaboration of SMEs and ISS organizations. The analysis indicates weaknesses and challenges in regional cooperation and decision-making and ambiguity in regional cooperation with organizations and SMEs and in policy- and decision-making.

### **4.1 Mechanisms in BED**

During and after two analyzing rounds, Round1 completed and Round2 still ongoing, there are emerged first three mechanisms in BED.

#### **Mechanism 1: Increasing BED activity in collaboration starting from own actions**

There are seen at the company and organizational level indirect results of BED, like increased export, more investments, trades received, new leads and connections for actors in practical work of BED in BusinessOulu. Also, there are new jobs reported after project actions and participation for BED. On the organizational level, the direct and indirect influence of public financing has influenced actors' networks and cooperation on regional, national, European, and global levels. The first level of mechanisms is linked to the organisation's and SMEs' activity for participation in BED in the region. Organizations and SMEs' increasing participation and activity in the BED have been seen in the interviews as a participation to the shared and publicly funded business delegations, participation to the new market openings and various type of seminars, webinars and btob meetings. In interviews and transcribed texts both parties, ISS organizations as well SMEs were commenting and telling their own activity increasingly linked to the public financed events and activities.

The interest, state of will and valuation of participating BED actions are defined from the operators' own starting points and their own needs, but the increasing activity is powered by the other/external side like events, activities abroad, actions with other organizations and companies which are linked to the internationalization or export.

## **Mechanism 2: Internal strategy changes and needs for change in BED**

SMEs and organizations' future planning is seen mainly as positive. The growth and development of the region are based on cooperation between the various operators and companies in the region in future and there is a need for stronger cooperation to have more global super talents and super specialists in the region. There are local and national needs for BED like educated employees, well-oriented and organized infrastructure for workers and families and needs for bigger markets. Those needs and pressure for future planning are powering and changing ISS organization's and SMEs internal strategy planning and decision-making.

## **Mechanism 3: External changes in BED**

Having external forces and an unpredictable change in the operating business environment of companies and organizations creates uncertainty. There are challenges with funding, which should be distributed more equally (not only to certain industries). The lack of international talents and super-specialist needs in the region affects the companies' business. The lack of some super specialists also affects ISS organizations and universities, like future planning of research development and resources on a regional level and global crises and instability like Covid-19 policies bring uncertainty to SMEs and ISS organisations operations and future planning, when they feel that there are uncontrollable forces around that affect how companies operate. Those forces are independent of them and cannot be influenced or affected or there is no way to prepare for them.

As previously mentioned, the Round2 is still ongoing and the analysing process will continue when all transcribed texts are analyzed. Round3 will continue mechanisms, when transcribed material will be analyzed a third time but then have a lens inside the mechanisms and analyzing one by one according to the deductive approach.

## **4.2 Affects on the BED planning and decision making**

BED is mostly funded by public financing and supported development for SMEs. ISS organizations are using regional funding and other financing instruments for development work and BED actions. According to the previous results and interpretation of analysed material there are found mechanisms and forces of public financing, which are affecting and influencing to the SMEs and ISS organizations internal and external processes and activities. Those mechanisms are influencing

for short term - and long term -planning and orientation for SMEs export and internationalization actions and ISS organizations strategy making.

## 5. CONCLUSIONS

According to the previous research on system theory (see Järvillehto 1994, Chen & Stroup 1993 and Moore 1993) and the system theory bases (see Cavallo & al 2018 and Chen & Stroup 1993), where the system and all subsystems and actions are seen as part of a larger entity and where everything affects everything, gives an approach for research change, development, the complexity of the business ecosystem are in deep and fast change and systems are prone to global incidents and forces that may change the system's operation even in the short term. The global business and metanational processes are pushing collaboration with SMEs and organizations in a more wide and open direction. As Vickers (Ramage & Shipp 2020, 79) suggests about open systems, they do not exist in isolation and they depend on complex exchanges with their surroundings like information and communication.

This research opens mechanisms in business ecosystem development, specially in ISS and export and internationalization processes and activities on regional level. Increasing knowledge for policy making on regional level in this research is highlighting obstacles and opportunities of public financing use for BED. Using qualitative research methods there were aim to find out how companies and organizations see the impact of public funding on development. And how the regional and BED future planning is seen, in shorter- and longer-term planning and visioning.

BED at the regional level and using public financing is a sensitive and politically driven process where SMEs and ISS organizations are collaborating in a shared entity, one big system, where everything influences and affects everything. BED in export and internationalization is a highly valued action in both parties, in SMEs and in the ISS organizations. Ways to use financing are various and mostly for ISS organizations it is sharing EU support with SMEs or arranging events and actions to the global market using EU financing for activities in various ways. In the Oulu region most SMEs are using indirect support for internationalization, which means

active participation in ISS organization's events and activities or having some bigger direct support and financing from EU funds, like Horizon program .

Political decision-making guides the availability and implementation of funding, and for that reason, policymaking is one of the forces in the BED field, which manifests itself to companies and organizations in very different ways. As a pre-results, there are found first three different types of mechanisms, which are forcing BED in export and internationalization on the Oulu region and which are seen and experienced various way in the ISS organizations and in the SMEs. Those mechanisms are influencing SMEs internal and external strategy making and future planning of export and also influencing tho whole BE strategy on regional level.

For future policy making it is important to identify decision-making process forces and mechanisms in public financing for ISS development and BED and understand those invisible forces which are regardless of actors influencing both, SMEs and ISS organizations, and with that, influencing BED in whole. One target is to strengthen resilience for global crises and increase readiness to stay strong in sudden changes, which are not planned to happen in internal and external strategies and action plans.

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