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Common tools for European regional growth – ERDF in Practice in West Finland

The cohesion policy has developed through reforms into the policy it is today: a tool for the regions to support and foster place-based growth and innovation, as well as becoming the means of achieving common European goals. It serves the regions as the most efficient tool in their efforts to implement the European strategies for smart, sustainable and inclusive growth, while its place-based approach allows a regionally sensitive instrument to consider regional differences and build on their strengths and smart specialization strategies.

European Structural and Investment Fund (ESIF) as a structural tool covering all European regions is an investment policy, which has the possibility to create added value beyond local, regional and national investment policies. The policy has become successful in bringing together governments, knowledge institutions and private parties in a way that no other investment policy does. The funds act as an incentive for municipalities, cities and regional development as well as business organisations, companies and educational institutes alike to be proactive in the bigger picture of regional development. Especially in regions such as West Finland, this is of crucial importance as the lack of critical mass and development resources can be partly compensated by creating momentum and disseminating knowledge via efficient networking both inside as well as together with actors outside the region. This kind of cooperation has been enhanced in recent years with the support of structural funds and smart specialization principles. ERDF has pushed forward innovative ideas that are built on networks of expertise within the regions.

On the path towards a more competitive European economy, there is an enormous need for new investments in all European regions. Whereas the European Fund for Strategic Investments is a welcome addition to the tools available, it does not cater for all purposes: during the economically tough times when public sector, universities and companies have had to cut their investments in innovation, all means available are needed to create further possibilities for growth and to incubate new European success stories.

ESIF can collect the critical mass needed to address challenges identified at the European level, and its emphasis on transnational cooperation between regions brings European actors together to find common solutions to common problems. The co-financed policy generates also a multiplier effect, as even more is invested by the member states, regions and local actors on top of the resources allocated by Brussels. With common goals and investment priorities the results and impact can be bigger than what could be achieved in a single country, region or municipality.

Socioeconomic development requires the participation and involvement of the regions. For improving competitiveness, we need strong regions advocating and implementing the policies at a right level. Cohesion policy is the tool to turn common European goals into local action, and it is the tool present in all European regions.

Through the ESIF the four West Finnish regions have invested in the knowledge and capacity building based on their regional strengths, demonstrating that regional policy makes difference. These examples have been described later in the document.

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Development needs for the Cohesion policy post 2020

➢ One Fund

The complexity of the funds is an obstacle to their success: this complexity has created a climate of fear leading to a risk-averse behaviour hampering the creation and funding of innovative projects. A single regulation or a more streamlined structure for all ESIF funds instead of an array of regulations and guidelines is needed to create a level playing field for the EU funding.

➢ Differentiation

Whereas the current intervention logic is designed for major recipients, proportionality should be introduced to the management models. The administrative burden should be related to the volume of the policy, considering the proportion of ESIF funding in public investment within the country in question, or the character and size of the program, as well as the past performance in terms of error rates. Disproportionate costs of administration, especially in countries with a relatively limited volume of recipients, should be replaced by the principle of proportionality.

➢ Role of Financial Instruments

The use of FIs is a welcome addition in supporting investments for regional development, but their use should base on an analysis of their effectiveness, market conditions and user demand. A sufficient assessment is needed, considering the differences in regional uptake, disbursement rates, leverage effect, as well as management costs and endowments; regional coverage, best practices and distribution of funding need to be assessed to see where the FIs might work.

There is no one-size-fits-all solution when it comes to funding of the programs. This is due to a number of factors: the geographic region, policy area, beneficiary types and sizes, as well as administrative capacity and market conditions all affect the uptake and possibilities of loan-based instruments.

Grants and FI's have different but equally important roles, FIs concentrating more on the business sector. The use of FI's is a good addition for having all the tools available to ensure investments in Europe. However, retaining the use of grant-based instruments in all regions is justified, as they fill a gap in support instruments and are crucial in situations where the market cannot yet support effectively (e.g. research which is not yet in the commercialisation phase).

➢ Regions as motors for growth

Cooperation between regions and cities can be a game changer in many common challenges, showing that alliances can effectively address problems that Member States cannot solve at a

centralised level. It should be considered what can be achieved with a centralised model and what not: whereas top-research heavily depends on joint international research, innovation policies foster in different environments and can benefit from the economic specialisation of the regions. Here European investment policies can offer keys to success. By linking the European objectives to regional tasks and capacities, efficient solutions can be developed.

A greater focus has been placed on innovation thanks to Smart Specialisation Strategies. These strategies invite regions to make choices, as well as generating mass and focus around their core competences. What European economy needs is more regions that have a strong knowledge base and the capacity to develop themselves by taking advantage of their potential to increase productivity and competitiveness through innovations. ESIF must cover all EU regions in the future and give leverage for each region to develop their potential.

Regional motors, be they big or small in the European context, act as focal points for growth and have an important role in the development of the whole region. Hence, urban policies of the EU should not address only bigger cities, but give the possibility to these regional actors to be part and contribute in addressing common European challenges. As we cannot predict the winners and breakthroughs of the future, no region should be left behind. Europe needs more engines for growth, and by investing in innovation, we make sure that all the regions and cities have the tools and entrepreneurial mindset to become the next motors for growth.

➢ Flexibility and focus

Whereas cohesion policy addresses a wide range of challenges from economic growth and innovation to structural and legal reforms, policy decisions are needed and the focus of the policy should be carefully targeted. While the funding will not increase, it cannot be expected that all the new challenges can be tackled via one instrument and that at the same time focus on results can be safeguarded. The aim of the policy should be clear and realistic to be able to show results of these regional investments. Impact and change should be at the center of the agenda as well as policy formulation and finally be reflected in the investments. This enables more focus on the structural changes at European and regional level, while at the same time, allows a shift from input-output thinking on project level to an impact-result orientation.

➢ De minimis

While the multifund approach is important to promote complementarities between the different funds and combining the use of financial instruments, grants, and possible private capital, state aid rules and de minimis -principle should be evaluated closely together with the efforts to facilitate the synergies between funds to guarantee their compatibility. We need create the right conditions for synergies to take place. We need to ensure that the state aid rules or their interpretation do not unnecessarily hamper the development of promising projects and minimise the participation of industries.

Results and Strategic Development of Regional Economies in West Finland

Central Finland: Modernisation of the forest industry towards diverse products and open innovation platforms

ERDF has enabled new solutions to increase the competitiveness and transition towards fossil free manufacturing. Paper and board sector had a vision (-2008) to renew the business with radical resource savings, to use less energy and water, and less raw materials per product. The aim was to create new fibre and cellulose based products outside the traditional value chains. An important driving force was the focus on bioeconomy and renewable resource utilization on EU level. Long and multidisciplinary tradition in bioeconomy and a necessity for modernization were the driving forces for this smart specialization focus area.

Between 2007-2010 Regional Council of Central Finland funded through a national Centre of Excellence Program, OSKE, a joint project to understand the role of the SMEs in modernization and diversification of forest industry processes and products. The aim in this project was to find new possibilities in utilization of cellulose and wood fibres. This included a close cooperation between forest industry, SMEs and public research institutes. The core idea was an open innovation platform enabling the cooperation between the actors.

Between 2010-2012 an ERDF funded project started to develop the technologies enabling the diverse utilization of wood fibres. This technological solution development was conducted in cooperation with business clusters, to verify the potential of the technology to new markets. Products from this phase include e.g. nano-cellulose and wood composites, technological solutions include wood fibre utilization in fabrics and foaming technology to enable diverse set of new products from cellulose.

Continued ERDF funding 2012-2015 enabled further development of the technological solutions together with the companies, especially SMEs. Special focus was on SMEs, a total of 20 SMEs were actively involved in the development of new technologies and actively participating in the utilization of the potentials in this new technology and products. Outcomes include pilot scale production unit of foam products (Metsä Board in Kyrö, Finland) and further technology development of wood fibres into yarns (start-up Spinnova, Jyväskylä, Finland). Other promising innovations are currently being developed for future needs.

This example shows the importance of long-term funding (ERDF) when developing new innovative solutions. Intensive, open, and inclusive R&D in close cooperation with the big companies and SME's developed technologies that are now on the edge of large scale piloting, and in the future, will enable new fossil free products from forest industry to replace foams in e.g. insulation materials.

This process has also a significant effect on attitudes in forest industry. Throughout the process, an open dialogue between the actors - big forest industry, SMEs and public R&D organizations - has increased. This open dialogue enables new kinds of business models, innovations and new forms of cooperation. This kind of open, participative approach in developing new products from the side streams and wastes is a core process for Metsä Group, when they are creating new bioproduct mill in Äänekoski, Central Finland.

Central Finland: Cyber Security – ERDF as an enabling factor

During the programme period 2000-2007, Central Finland region started to focus more on digital knowledge and security issues. This was rather natural selection for a topic, since Central Finland has expertise on ICT solutions related to security: military data center, active ICT faculty at the University of Jyväskylä and University of Applied Sciences with a focus on ICT. As a result, digital economy is now one of the Smart specialisation focus areas.

An open environment from the Finnish defence and military sector on these issues has enabled the progress. Simultaneously, on private sector, there has been a strong development in secured data transmitters. Nokia started to develop this sector in Jyväskylä between 2000 and 2008. However, Nokia announced 2009 that they would end their activities in Jyväskylä. Nokia left behind a very good infrastructure, high skilled labor force, a network of subcontractors, and universities with a focus on ICT. The defence and military sector had earlier on concentrated most of their ICT and cybersecurity development and activities in the region.

To increase the businesses commitment in joint development projects, the region launched a new call in ERDF projects requiring 20% funding from the private sector. This ensured the private sector commitment in the projects and facilitated more business-driven projects where the knowledge of the region is utilised to its full potential.

Jyväskylä security technology project, JYVSECTEC, (ERDF project 2011-2015) is a simulation environment for cybersecurity management systems as well as a development platform for competence building. Simulation environment built in the project is used to test the programs in isolated environment to develop different organisation's cybersecurity. This supports the growth of companies and promotes networking and entry of SMEs to the international market. The implementation of the JYVSECTEC project has significantly strengthened the preconditions of ICT and cybersecurity companies for research, growth and development activities in Central Finland.

With these actions, the region started to attract more actors in the cybersecurity business and development. Businesses started to concentrate their cybersecurity related operations in Jyväskylä. Enabling factors of this success story were the cooperation with the Finnish defence forces and their activities within digital modernisation, a strong focus on cybersecurity in the university of Jyväskylä and the JAMK University of Applied Sciences, business actors' commitment, and the right timing in ERDF funding. All these together created a niche for the development of cybersecurity.

One outcome of this development was the first national cybersecurity exercise in Jyväskylä. This gave the military, the JAMK University of Applied Sciences and the companies an opportunity to test and develop programs that are resistant to cyber-attacks.

Another result of this project is the development of a cybersecurity auditing system for companies (FinCSC). Businesses send and receive great amounts of data, but this auditing system ensures the cybersecurity throughout the supply chain.

Third phase of the project includes problem solving in IoT related threats. Data security is one of the major industrial challenges for IoT- solutions. Continuous change in the information generates a need for IoT development environments adapted to meet the real-world changes and developments. The results of this new project will give more detailed information of overall cyber security vulnerabilities related to the IoT devices, and thus we can develop better mechanisms to protect different devices against attacks.

JAMK University of Applied Sciences, a key actor in this development, is one of the founders of European Cyber Security Organisation (ECSO).

Ostrobothnia: Smart Specialisation and focus on clusters with a high export rate

Ostrobothnia's objective for the Smart specialisation work is to be a "triple-helix connected region" from the stand point that we have a business driven innovation system. Within the smart specialization, four main clusters with a high level of export, which indicates a high-level innovation within the clusters, have been identified. The main clusters are energy technologies, maritime technology and services, composite technologies, and fur farming. The focus has been in different cross-sectoral technologies that support the development within the chosen clusters as such, but particularly in the opportunities for the SMEs working in close cooperation within and between the clusters. The cross-sectoral technologies mentioned are, for example, renewable energy solutions, communication and control systems, design and digitalization, automation, and mechanical system solutions. These cross sectoral technologies are related to different research areas provided by research institutes within and outside the region. Regional technology platforms are networks of R&D institutions that can support several clusters. Well-developed regional technology platforms are likely to enable innovation of new products, industries and clusters through related varieties and entrepreneurial discoveries[1].

Advanced energy production systems with the use of different energy sources and smart digital technology solutions

Cleantech and renewable energy systems have been in the forefront of the regional discussion. Energy solutions, energy transmission and energy system solutions are one of the strong focus areas in Ostrobothnia. There has been a lot of different projects (with both national and EU funding during the different programming periods) that supports energy system change and energy efficiency. The aim is to create globally competitive products and services that can contribute to the development of more advanced energy production systems. This is being done through innovation in the use of different energy sources and smart technology solutions.

Future energy solutions was one of the main headings within the Centre of Excellence program (OSKE) 2007-2013 with the responsible lead partner from the Region of Ostrobothnia. The leading role was further enhanced by the Finnish national Innovative cities (INKA 2013-2015) programme where the responsibility for Sustainable Energy Solutions was held by Vaasa. An example of a project funded by the Finnish Funding Agency for Innovation (TEKES) during the INKA-programme, is Sundom Smart Grids. Within the project Energy operators in the Vaasa region – ABB, electric utility company Vaasan Sähkö, the ICT-sector company Anvia, and the University of Vaasa – have tested and piloted the most recent smart grid technology in the village of Sundom in Vaasa. The goal of the smart grid pilot project is to make electricity delivery more reliable and to establish the preconditions for solar and wind power use in the region's households.

[1] (The Ostrobothnian Model of Smart Specialisation, Seija Virkkala, Antti Mäenpää, Åge Mariussen (Eds.) (University of Vaasa 2014))

Another example is VEBIC - Vaasa Energy Business Innovation Centre, that aims at providing a leading edge international research infrastructure that serves both academic and industrial needs. Internal combustion engine and fuel laboratories are complemented by a multi-disciplinary research platform focused on the wider business and societal impacts of new energy technologies. This innovation platform hosted by the University of Vaasa is a welcomed complement to the different innovation platforms within the Technobothnia Education and Research Centre and strengthens the position of Vaasa as a significant centre of expertise in the field of technology. Technobothnia is co-owned and used by the University of Vaasa, Vaasa University of Applied Sciences and Novia University of Applied Sciences. Smart protection and control systems of the power grid, like protection relays, are one of the most important products of the Vaasa Energy Cluster. The telecommunication between these protection units has been recently standardized. For these purposes the energy cluster has already established the DEMVE laboratory developed with ERDF-funding.

Automation has for long been in the heart of the product development processes within the industry in Ostrobothnia. The Regional Council of Ostrobothnia has used the smart specialisation process in Ostrobothnia as a base for identifying key cross-sectoral technology areas, and to decide on focus areas for funding through the ERDF-program. Through a series of discussions involving enterprises, universities and the public sector, digitalisation has been identified as a main comprehensive headline. This covers also internet of things, automation, robotics, smart grids, simulation and so forth. Digitalization of the industry has been chosen as one of the main themes for funding for 2016-2017 by the Regional Council within the ERDF-program.

Satakunta: Investing in the biggest automation and robotics cluster in Finland

There are one hundred robotics, automation, artificial intelligence, sensor and IoT companies working closely with each other and with regional research centers and universities in Satakunta. All of them belong to the Robocoast network[2]. Thanks to ERDF, Satakunta has been able to support several projects developing the automation and robotics know-how and competitiveness in the region.

Satakunta Robotics Region – from a national brand to an EU level center of excellence[3]

The project aims to create an international profile for Satakunta as a region with high-level knowledge in robotics. This profile will strengthen regions role as one of the most interesting RDI environments in Europe, as an environment where global robotics companies want to be present. The region has an evolved local ecosystem led by public sector financiers, development companies and universities. This development enables the next step – going international. A realistic strategy is needed, accompanied by a wide regional common understanding and concrete actions to take the existing Robocoast concept to the next level – from local and national level to the EU level. The goal is to make Robocoast network an internationally interesting center of expertise.

It is quite evident that next years will expand the area of robotics from factories to consumer and service sectors. Robotics is estimated to become a megatrend inside a megatrend (digitality). Satakunta region has a strong robotics cluster, which is affected by the rapid development of the sector. The possibilities for future growth are significant. On the other hand, Satakunta lives strongly from industries that need new technology to survive. All this means that high level knowledge needs to be strengthened in Satakunta, and even more research and knowledge of the upcoming possibilities need to be sought after. This enables both the growth of current companies and the emergence of start-up's in the field of automation and robotics.

The creation of an international center of expertise requires that the current companies, universities and other key players agree on common vision, concrete actions, time schedules and resourcing to make it happen.

Satakunta has the crucial elements to build on:

- about 100 companies building a Robocoast network;
- study possibilities in ICT and automations (more than 100);

[2] www.robocoast.fi

[3] Development project funded by ERDF (2017 – 2019)

- research groups in the field of automation and robotics in Satakunta University of Applied Science and Tampere University of Technology;
- ALL IN -business accelerator;
- Robocoast -brand successfully launched;
- the needs that are declared in "Satakunta Industrial Vision" -report;
- automation statistics barometer of Satakunta.

The results of the project will be:

1. Robotics Academy concept has been started. This work will strengthen the RDI -environment so that new international co-operation with hi-tech companies can be started.
2. Robocoast has become an international brand that Satakunta is known for (as a European robotics region).
3. Robocoast has become a consortium led by companies and it operates on its own funding.

The project will also generate a "Robotics Strategy" for Satakunta region.

Robotics ecosystem ensuring industrial modernization in automation and service sectors[4]

Many of the work processes and tasks demand great precision, error-free operations and high quality outcomes. Humans are not at their best in these actions. Due to this human frailty, many duties can be assigned to carry out by the automatised platform. Healthcare and hospice operations retain processes, which can be assisted by mobile robots. The service architecture model developed in Tampere University of Technology, Pori campus, consists of a novel mobile cloud robotic platform supporting the patient care. The presented ecosystem, OpenCRP, includes an open-source cloud computing platform, software frameworks and a physical multi-robot environment for the automation or assisting of preprogrammed work processes.

Mobile robots with service-oriented functions are entering into our lives in hospitals, hospices and industries where robots can help to assist or perform all the arduous working duties. A lot of laborious processes can be automatised, e.g. in hospitals, medicine delivery and food service to patients. The service architecture model presents a pilot and demonstration environment for multiple open-source mobile robots sharing their collected data with each other via a private cloud. In addition, the presented platform introduces a novel ecosystem based on an open-source software frameworks and robots.

[4] Development project funded by ERDF (2016 – 2018)

South Ostrobothnia: eHealth co-operation on a macroregional level

The number of citizens with chronic diseases is increasing, especially among elderly people throughout the Baltic Sea Region, as a result of the ageing of the population. This is a great challenge for both the well-being of the citizens and the public health care systems. Health care solutions provided by information and communication technology (ICT), also known as eHealth, offer one solution to this problem. The tools and services which contribute to eHealth provide better and more efficient health care services for all.

eHealth technologies empower patients to take more responsibility for their own health and quality of life, and they lead to better cost-efficiency in the health sector. The use of eHealth technologies allows a mutually beneficial collaboration and involvement of patients and medical professionals in the prevention and treatment of chronic diseases. Overall, ICT can be used to ensure the top-quality health care of citizens.

Although basic eHealth technology is widely available on the market, the absorption of new knowledge and acceptance to use ICT in health care varies remarkably among citizens and medical professionals. The wider use of ICT in healthcare is a basic condition for the development, implementation and further generation of innovative health care technologies. Therefore, social capacity, knowledge and acceptance to utilise eHealth technologies among citizens and medical professionals need to be strengthened throughout the Baltic Sea Region.

The eHealth for Regions network has its origin in the transnational ERDF project with the same name “eHealth for Regions”. The project ran from June 2004 until May 2007 and was co-financed by the European Union within the framework of the Baltic Sea Region Interreg III B programme. Based on the results and the built network of persons and organisations, the Political Strategic Board of the project was proposed to continue the work after the end of the funding period. The legal basis of the network is a network agreement signed by the Political Strategic Board in May 2007, which defines the network structure and tasks.

In 2007, the participants of the Interreg-Project „eHealth for Regions“ decided to stay together in a network to secure project results and to communicate the opportunities of eHealth applications for the Health Care Systems in the Baltic Sea Region (BSR). They signed a network agreement and founded the eHealth for Regions Network, which was the first transnational network dealing with eHealth in the Northern part of Europe. Since 2008, the Management Secretariat has been hosted by Flensburg University of Applied Sciences in Germany. Other permanent network members are South Ostrobothnia (Finland), Region of North Denmark (Denmark), National Health Service (Latvia), Kaunas Region (Lithuania) and Skane Region (Sweden).

From 2008 until today, various transnational projects coordinated by the members of the network have run in the six countries of the Baltic Sea Region. The network members represent

all relevant actors in the Health Care System. They believe in the opportunities of eHealth services to secure quality and efficiency in modern Health Care Systems and to overcome the tremendous challenges. Therefore, the network has established regular face-to-face and virtual meetings to exchange experiences and knowledge and to share those between the network partners. The network is an incubator of innovative ideas in the field of eHealth. This role was confirmed by the Northern Dimension Partnership in Public Health and Social Well-being (NDPHS). They awarded the network as an Associated Expert Group within the NDPHS in 2013.

Today, the Baltic Sea Region is the leading region regarding eHealth services in Europe. The Electronic Health Record (EHR) systems, for example, in Estonia, Sweden or Denmark are benchmarks for all other countries in Europe. In addition, telemedicine services are widespread in the Scandinavian countries. It is the vision of the network to develop all these services further for the benefit of the citizens and patients. It is the task of the network to underline the leading role of the regions in developing new ideas in the field of eHealth services.