Final report for the East and North Finland (FI): Support to enhance S3 governance and coordination at the NUTS 2 level

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Management Summary

This report presents findings and recommendations from the ENF targeted assignment (TA) project. ENF TA aimed to explore opportunities and conditions for improving S3 governance and coordination at the NUTS 2 level in the East and North Finland areas. While regional S3s are operating well at the NUTS 3 level (e.g. the level of regions such as Lapland, Oulu, Pohjois Savo, Kaino, South Savo, etc.), the starting hypothesis is that the potential for synergies, cooperation and complementaries between these regional S3s within the ENF area remains poorly exploited.

To achieve these objectives, the team of experts conducted in-depth interviews with regional policy-makers and stakeholders of all NUTS 3 level regions, undertook two site visits (in Pohjois Savo and Lap-land), and organised an innovation camp in Rovaniemi that all regions attended collectively to identify opportunities for more inter-regional cooperation, discuss obstacles, and develop tailored solutions.

The first part assesses the current situation in terms of governance, challenges, and good S3 practices. It is, therefore, entirely based on our knowledge and information of what is going on in ENF regions at NUTS 2 and NUTS 3 levels regarding S3 governance, design, and implementation.

The second part explores the conditions, opportunities and procedures for establishing more inter-regional collaborations within ENF. It is essentially about developing a framework – called ''disciplined collaboration'' – to analyse the three steps of a process that will likely promote more inter-regional collaborations and better governance at the NUTS 2 level. This framework (based on Hansen, 2009) includes three steps: evaluate collaboration opportunities, spot barriers, and tailor solutions.

The third part returns to the ENF case to identify areas for improvement and summarises our recommendations using a five-step approach.

1 Introduction and Contextual Setting

1.1 East and North Finland (NUTS 2)

The regions of East and North Finland, ENF (NUTS 3 regions: Central Ostrobothnia, Kainuu, Lapland, North-Karelia, Oulu region (Northern Ostrobothnia), Pohjois-Savo and South-Savo) constitute 19.6% of Finland's economy, 23.9% of the population, and 66.9% of its land area. The economies of ENF have unique characteristics and challenges shaped by their geographical locations and resources. To boost its economic vitality, the regions of the ENF have been focusing on the sustainable growth of industries supported by innovations and digitalisation.
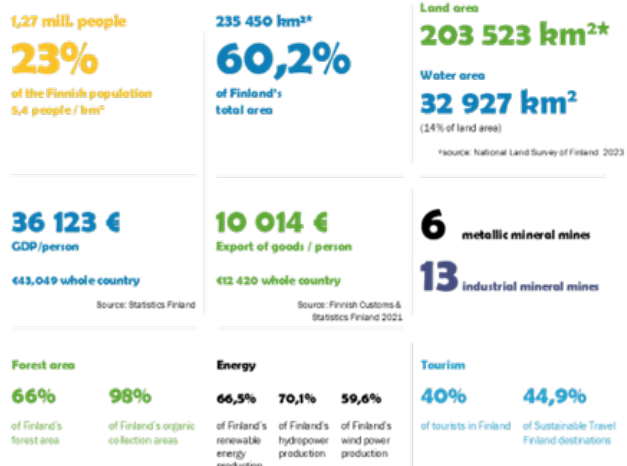
The natural environment plays a far more critical role in the ENF regions than in other parts of Finland and the European Union. The ENF regions have a mixture of abundant natural resources. Traditionally, industries that have utilised and processed natural resources in the ENF regions have provided the foundation for economic development. Tourism is gaining importance, giving the source of income more widely in the regions. Clean and renewable energy solutions are needed. In addition, traditional livelihoods still play an essential role.

Vast deposits of natural resources provide business opportunities and generate investments and employment. ENF is pivotal in ensuring a sustainable and secure supply of critical and strategic raw materials necessary for the European industry and society to achieve their 2030 climate and digital objectives.

At the same time, there is a pressing need to create and nurture a sustainable balance between these industries, other sectors and the vulnerable northern ecosystems.

East and North Finland as a cooperation area

1,27 mill. people	**235 450 km²***	**Land area**
23%	**60,2%**	**203 523 km²***
of the Finnish population 5,4 people / km²	of Finland's total area	**Water area** **32 927 km²** (14% of land area) *source: National Land Survey of Finland 2023
36 123 € GDP/person €43,049 whole country Source: Statistics Finland	**10 014 €** Export of goods / person €12 420 whole country Source: Finnish Customs & Statistics Finland 2021	**6** metallic mineral mines **13** industrial mineral mines
Forest area 66% of Finland's forest area / 98% of Finland's organic collection areas	**Energy** 66,5% of Finland's renewable energy production / 70,1% of Finland's hydropower production / 59,6% of Finland's wind power production	**Tourism** 40% of tourists in Finland / 44,9% of Sustainable Travel Finland destinations

Regional ecosystems have traditionally been a mix of large, medium, and small-scale actors. Industrial activities have catalysed several innovative start-ups in close interaction with regional RDI actors.

The identified common growth sectors in the ENF are bioeconomy and new products, sustainable mining, chemical industry, manufacturing industry, sustainable tourism and appeal and new emerging industries. Joint S3 priorities on "Clean technologies and low-carbon solutions", "Industrial circular economy & digitalisation", and "Innovative technologies & production processes" support the development. 'Industrial circular economy & digitalisation' is a priority that aims to promote the transition to a more sustainable and digital economy by encouraging the reuse and recycling of materials and the adoption of digital technologies in industrial processes.

1.2 Targeted Assignment Supporting East and North Finland (ENF)

1.2.1 Background for the Assignment

ENF is predominantly rural, characterised by the presence of R&I organisations in the larger cities and their absence in smaller urban centres. ENF, with its Northern Sparsely Populated Regions (NSPA) status in cohesion funds, is also a condition in Finland's EU Accession Treaty to EU. Each of the seven (NUTS 3) regions has developed and implemented its Smart Specialisation Strategy (S3). In addition, there is a complementary overarching S3 at the ENF level. Consequently, a strong consensus is required to formulate interventions that address common challenges and needs at ENF. ENF encourages stakeholders and organisations to collaborate and enhance their participation in joint activities. The significant distances between regional actors in the vast ENF hinder collaborations.

Moreover, the current situation on the eastern border with Russia is also considered a critical factor that could provoke a shift of priorities in regional development and S3. Additionally, ENF considers the EU policy landscape to be better recognised and integrated, supporting the particular S3 implementation. For these reasons, ENF sought support to enhance S3 governance and coordination at the NUTS 2 level, especially in changing circumstances, to implement the selected thematic priorities that support the industrial sectors effectively. The recommendations and suggestions of the targeted assignment should help the regions, fostering a sense of collaboration and shared responsibility. The regions need to improve coordination and cooperation to:
- Produce collective goods and services of relevance for the whole ENF
- Profit from collective learning and opportunities to share good practices
- Maximise strategic complementarities
- Augment regional value chains

1.2.2 Methodological approach to implement the assignment

The ad-hoc assignments will be conducted through four core stages. Methodologically, the starting point is understanding the rationale behind improving the NUTS 2 level S3 Governance. Why is it needed? What kind of added value will it provide? The core stages provide the delivery report will be the following :
- Desk study - to create a better understanding of the background and the need
- Meeting the regional representatives and stakeholders: Regional online interviews – reflections and creating a more profound understanding
- Field visit with Innovation Camp: to form the basis for the future better governance
- Report "Support to enhance S3 governance and coordination at the NUTS 2 level

The aim was to study how regions at the NUTS 3 level can benefit from additional incentives to drive transformation and innovation and uncover new opportunities that can be realised at the NUTS 2 level. Creating and implementing S3 at a more extensive NUTS 2 level involves coordinating multiple NUTS 3-level strategies. The regions need to be able to elaborate
- **Returns to scale** - the economics of scope, economies of scale and agglomeration economies
- **Value chain augmentation** - shortages in the NUTS 3 value will suggest the actions at the NUTS 2 level
- **Strategic complementarities** - Carefully crafted S3 at the NUTS 2 level may help find the complementarities.

2 Assessment of the Current Situation

2.1 Administrative Structure and Cohesion Policy Implementation

Finland mainland has one regional and structural policy programme, "Innovation and Skills Finland 2021-2027 – EU Regional and Structural Policy Programme" (Uudistuva ja osaava Suomi 2021 – 2027 – Suomen alue- ja rakennepolitiikan ohjelma.). The programme covers all current Cohesion policy objectives and instructs on using the structural funds ERDF, ESF+, and JTF. The Ministry of Economic Affairs and Employment (MEAE) is the management authority (MA). The programme is implemented in NUTS 3 regions, where MEAE has mandated that regional authorities act as intermediaries.

❑ Regional councils are the central bodies promoting the interests of the regions. They also act as statutory joint municipal authorities (the region's municipalities own the regional council, and the politicians form the board of the regional council from the region's municipalities).

❑ The ELY Centres are an administrative branch of the Ministry of Employment and the Economy. They also deal with tasks under the administrative branches of the Ministry of the Environment, Ministry of Transport and Communications, Ministry of Agriculture and Forestry, Ministry of Education and Culture, and Ministry of the Interior.

The regional cooperation group (MYR) monitors the work of the regional council and ELY centres. The MYR has the overall coordination responsibilities of the region's national and structural fund activities. The regional council chairs the MYR by law.

Regional-level work is supported by the regional strategic programmes and plans, highlighting regional needs and directing public funding in the region in line with the EU Regional and Structural Policy Programme. MEAE distributes the financing of structural funds to regional management authorities, such as regional councils and the Centres for Economic Development, Transport and the Environment (ELY Centres). Regional councils and ELY Centres are primarily responsible for deciding which projects will be carried out as part of the operational programme in the regions. The work is supported by the regional management committees, which have overall coordination responsibilities for the structural fund activities throughout their regions. Overall, the governance structure in Finland is explained in the infographic below.
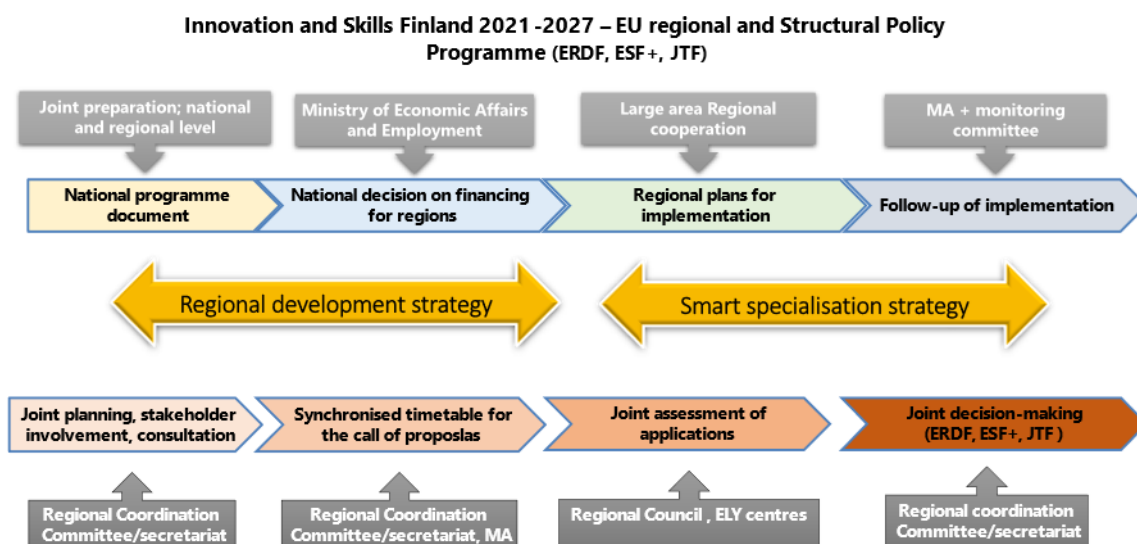

Figure 1: EU Regional and Structural Policy Management Structure in Finland

Finland has no NUTS 2-level authorities. The NUTS 3 regions have formed common coordination structures and working groups to support collaboration and coordinate common interests to steer NUTS 2-level collaboration. ENF has been the fourth runner in Finland in that relation in many ways, for example, by joining the DG Regio Regions in Industrial Transition, participating in the Partnerships for Regional Innovation (PRI) pilot, or being a member of the Vanguard Initiative. In addition, the East and North Finland EU Office in Brussels promotes the regions' interests and supports the EU in advocation.

2.1.2 The Smart Specialisation Strategies

East and North Finland (ENF) regions have long traditions of cooperation. In early 2018, the ENF was chosen as one of the European Commission´s pilot areas, Regions in Industrial Transition. The core of the collaboration consists of smart specialisation, which leads to identifying regional strengths and competencies. The goal was to develop new practices that help enterprises utilise the expertise and versatile network of innovation platforms in the ENF area. The ENF regions have created the second ENF Smart Specialisation Strategy (S3) in this collaboration. The ENF S3 is based on the complementary competencies supporting the development of the interregional value chains across the ENF regions. Below is a summary of each region's expertise in the ENF S3.

1 Lapland
- ❑ Circular economy as a basis for sustainable growth
- ❑ Wellbeing and experience services from nature
- ❑ Renewable energy solutions promoting self-sufficiency
- ❑ Technologies reforming sustainable production and services
- ❑ Elements supporting the priorities: Competence, research and development: business reform; international cooperation.

2 Oulu region (North Ostrobothnia)
- ❑ Reforming and prosperous North Ostrobothnia: Digital services and products, Health and welfare sector and Reforming and low-emission industry
- ❑ Climate-smart North Ostrobothnia: Energy production and storage, Sustainable building, logistics and mobility, Innovative circular & bioeconomy and smart food production
- ❑ International, networked and attractive North Ostrobothnia: Internationally competitive and interesting locality, Networked innovation activities, strong ecosystems & RDI and Innovative tourism

3 Kainuu
- ❑ Measurement technology
- ❑ Gaming and advanced simulation technologies
- ❑ High-performance computing, data economy and data analytics
- ❑ Circular economy in the mining industry and bioeconomy
- ❑ Knowledge-intensive services; top-level and competitive sports, activity tourism, social and healthcare services

4 Central Ostrobothnia
- ❑ Energy transition, Clean transition, Reforming expertise, Smart digitalisation, Sustainable tourism
- ❑ Priorities: Sustainable use of natural resources and primary production, companies and entrepreneurship, wellbeing, culture and recreation, internationality

5 Pohjois-Savo
- ❑ Machine and energy technology, Forest industry, Food products, Welfare technology, Tourism, Smart water systems, Biorefining
- ❑ Cross-cut: ICT and digitalisation; climate, circular economy and sustainable development; competence and manpower; wellbeing and culture; innovations, entrepreneurship and growth; accessibility and regional structure

6 North Karelia
- ❑ Reforming industry and developing technologies, Clean solutions and green transition, Innovative and sustainably produced services
- ❑ Cross-cut: Digitalisation, competence, cooperation

7. South Savo
- ❑ Forest, Water, Food, Tourism and 5. Wellbeing
- ❑ Cross-cut: Digitalisation, Entrepreneurship, ecosystems & clusters, Green transition & solutions and Competence

These regional priorities have formed the foundation of the ENF S3, which aims to foster stronger connections between regional innovation ecosystems and integrate regional expertise into industrial value chains. The smart specialisation priorities in the ENF region focus on developing innovation platforms and structures that support enterprise growth. Alongside investing in key growth platforms, the strategy

also nurtures the emergence and development of entirely new business forms and industries. Cross-cutting areas of expertise, such as clean solutions, digitalisation, and sustainable service production, provide opportunities for multidisciplinary development and strengthen the overall business structure of the ENF.

In the ENF S3, the following priorities with numerous competencies have been identified (more information: https://elmoenf.eu)

Priority I: Clean solutions
The objective is to have sustainable solutions in the energy economy and sustainable use of natural resources and raw materials. Aiming at products with a higher degree of processing and efficient utilisation of bio and circular economy solutions.
- Bioeconomy based on sustainable use of natural resources
- Expertise in industrial circular economy
- Smart solutions in the extraction and mineral sector
- Solutions in renewable energy production and energy efficiency
- Water expertise and solutions in water supply management

Priority II: Utilisation of digitalisation
The objective is to expertly utilise energy-efficient digital opportunities and data economy in businesses and organisations across sector boundaries. The changes aim to reform practices and services while increasing sustainability and productivity.
- Smart manufacture, processing and logistics
- Solutions and gamification of extended and augmented reality
- Wireless communication solutions and growth of the ICT sector
- Measurement and knowledge management

Priority III: Sustainable service production
The objective is to develop service production in East and North Finland to meet the growing global demand for high-quality services that provide well-being and are produced sustainably. The aim is to support sustainable growth of enterprises through innovative solutions that bring added value to the region, enterprises, residents, customers and the environment
- Wellbeing and health services
- Sports and fitness services and products
- Digital accessibility – marketing and sales

The regions' (NUTS 3) cluster operators are at the core of the smart specialisation strategy for East and North Finland. These operators unite the area's growth companies, research, development, and innovation (RDI) entities, educational institutions, investors, public organisations, and other relevant bodies into a well-defined cooperation network. This network typically focuses on regional or thematic targets that benefit the member companies.

2.2 Good Practices in the ENF S3 Achievements at NUTS 3

S3 design and implementation work well in most cases, and regions successfully deliver effective and transformative strategies based on the S3 principles. This is particularly true in terms of prioritisation and the way the EDP is organised.

2.2.1 Prioritisation

ENF regional authorities, supported by regional expertise and stakeholders, are allocating much effort to select which activities deserve public support – for what kind of sectors and what kind of transformations. Most cases reflect a true understanding of the rationale (why) and procedure (how) of prioritisation, which generates very valuable portfolios of priorities (what). Regions have well-understood three fundamental prioritisation principles (Feldman and Martin, 2005) :

- ❑ Simply being specialised in an activity does not mean that a region has a strong advantage in that activity; **the specialisation needs to be ''smart''** ;
- ❑ While high tech may be attractive, there is as much to be gained by creating a unique activity system for a non-high tech cluster as replicating the features of numerous other places pining after high tech. **Building coherent activity systems** is key, as illustrated by some prioritisations, such as the ones related to the well-being of the service from nature as well as sustainable tourism.
- ❑ Regional advantages depend not only on generic criteria that too many locations satisfy: a highly educated workforce or good infrastructure, or just the abundance of specific natural resources are not guaranteed for a region-specific advantage. Additional criteria are needed – those activity capabilities that, in combination, create a uniquely favourable region for some sets of industries. **Combining generic criteria with specific capabilities** is key, as illustrated by many priorities which involve both the promotion of an innovation ecosystem and transversal actions on the one hand and the focus on specific activities, which can be a sector, a value chain, a system of activities or particular activities related to a specific natural resource.

Therefore, priorities need to combine generic capacities and specific capabilities. This principle is well understood and reflected in the design and implementation of ENF regions S3.

- ❑ On the generic dimension, most regions care about developing an innovation ecosystem based on promoting a cluster policy, focusing on competencies (vocational education, training, continuous education, entrepreneurship), and cultivating a culture of inter-regional and international collaborations.
- ❑ Specific capabilities refer necessarily to specific regional assets that have been developed within the regional economy. This can be a sector, a (part of a) value chain, a technology or a natural resource. In other words, specific capabilities refer to particular parts of the region's economic [product/technology/natural resources] space.
- ❑ When both (generic and specific) dimensions meet consistently, this creates strong priorities. Such priorities feature a shared goal of improving and transforming a set of specific capabilities (referring to a particular part of the regional economic space) by mobilising, e.g., a specific cluster and particular actions from educational and research institutions to achieve the desired transformations. As a result, regions are likely to succeed in building specific advantages while conducting the needed transitions and transformations.

Examples of strong priorities following such guidelines are numerous in the ENF regions. For example, priorities involve:

> - **A particular sector or value chain** (e.g., renewable energy, mining and excavation for critical raw materials, food processing from agriculture to markets, etc.)
> - **A system of activities** (e.g. tourism combining wellness experiences and services based on nature and high tech or sport which involves healthcare services, leisures, services based on nature and high tech or healthcare combining well-being, health and nutrition, etc..)
> - **A system of activities** focussing on managing a specific natural resource (e.g. water, wood, etc.)

Box 1 – Illustrations of priorities combining generic and specific capabilities in ENF regions

Illustrations of sector or value chain as priorities include, for instance:
- [ ] Renewable energy solutions in Lapland, which include exploring the potential of forest biomass, lake and field biomass for energy production
- [ ] Circular economy solutions in Lapland to make critical industries such as mining or forestry more resource-efficient and responsible
- [ ] Smart food production in the Oulu region which combines many areas of interventions, including reducing the carbon footprint of the value chain, adapting to climate change, controlling emissions from agriculture, training workforces and securing food production
- [ ] Digital transformation in Kainuu, which is about supporting the digital transition, including applications of robotics, automation and the diffusion of data analytics in industries

Illustrations of systems of activities as priorities include, *for instance:*
- [ ] Wellbeing technology priority in the Pohjois-Savo region, which combines well-being, health and nutrition
- [ ] Arctic sports clusters in Lapland, which combine sports and exercise activities and technologies, healthcare and leisure services

Illustrations of systems of activities with a strong focus on one natural resource include, for instance:
- [ ] Water expertise, technologies and services in Pohjois-Savo, which combines product development, testing and commercialisation services
- [ ] Forest expertise, technologies and services in South Savo integrate all value-augmenting activities related to forestry - ranging from recreational and natural values to economic and sustainability values
- [ ] Sustainable use and primary production of natural resources in Central Ostrobothnia, focusing for instance, on wooden and concrete construction to support more effective carbon sequestration and promote digital, energy efficient and smart housing solutions and service development

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S3 Priorities and the regional productive base to tackle both demographic and ecological challenges
In general, choices are made very consciously and, in a certain sense, are path-breaking *vis a-vis* the S3 dominant practices. To substantiate this argument, let's start to observe that i) S3 has already experienced two phases characterised by the types of investments which were mainly channelled through the strategy, and ii) S3 is now entering a third phase:

- [ ] The first phase (2012 – 2017) featured the dominance of technological innovations, and so S3 essentially supported investments in manufacturing capital and technologies.

- In the second phase (2017 – 2022), emphasis was on technologies AND competencies (since training and high-skill formation became eligible for funding), consequently supporting complementarities between technology investments and human capital.
- The third phase, which we are entering now, features the consideration of three types of capital assets: manufactured, human and natural capital. This means that S3 is finally caring about the **full productive base** on which any regional economy builds its economic and social activities (Dasgupta, 2024). Figure 1 shows how the productive base (i.e., the stock of three types of capital assets) leads to an economy's ultimate purpose - if any –: social well-being.
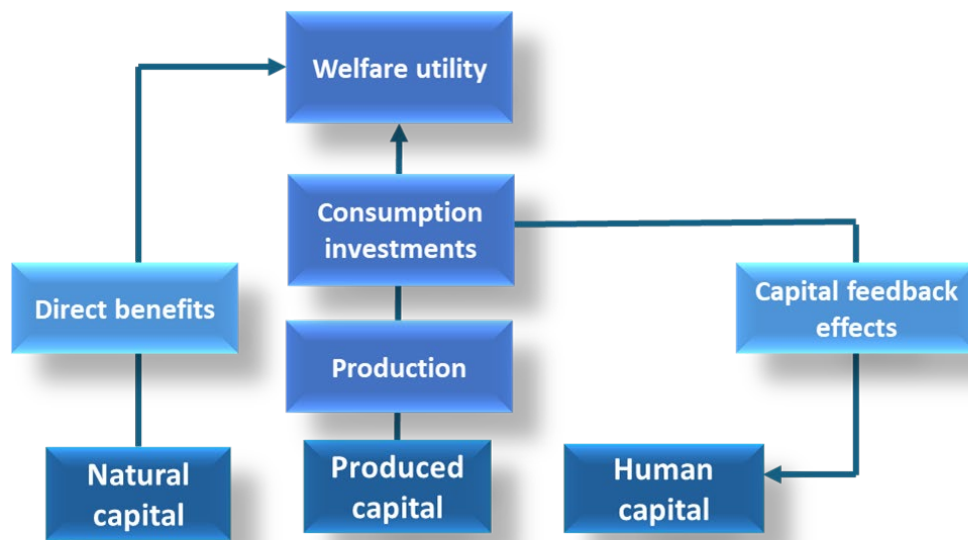

Figure 2 - Productive base and wealth creation (UNEP, 2018)

At this new stage of S3 – characterised by considering the full determinants of social well-being- any S3 outcome should not view Nature as external to the human economy but as an integral part of the strategy. In other words, Nature is viewed as a capital asset (such as human and manufactured capital) and, as such, requires management as the other types of capital assets (Dasgupta and Levin, 2023). For example, for a long time, regions identified tourism as an S3 priority including modernisation, digitisation and the development of innovative products or services – given their great maritime or alpine or arctic or whatever landscapes. Nature was external to the S3 strategy. Today, the S3 approach should internalise Nature in the priorities – so that, for example, tourism and Nature are considered on an equal footing as capital assets, which both need to be managed carefully. The consequence could be that some tourism projects should not be done because of the natural capital asset management. In the third phase, S3 priorities involve investing in technologies, people AND Nature.

Each priority should, therefore, reflect a certain combination between the three types of capital and a certain logic of the expansion of the productive base through, e.g. compensation (technology compensates for the decline of natural resources; technologies and manufactured capital compensate for the decline of human capital) or restoration (the critical goal of a priority involves investing in Nature) or expansion (the three types of capital are expanding through mutual reinforcement).

Focusing regional policy on the present and future evolution of the regional productive base allows for identifying regional challenges, such as demographic (human capital decline) or ecological (mismanagement of natural resources), and for designing S3 priorities accordingly.

The new S3 priorities in ENF regions reflect this evolution.

First, ENF regions, which are characterised by a very specific (and generous) endowment in various types of natural resources (forestry, water, minerals and other non-living materials) and a high societal awareness about the services provided by natural ecosystems, are at the forefront of this S3 evolution. This is reflected in many S3 priorities in ENF regions, which combine the three types of capital to achieve a certain transformation while paying high attention to the sustainable use of their natural resources. In most ENF S3 cases, Nature is not treated as external to the strategy but as fully integrated into the transformational goals and roadmaps. Priorities dealing with wellbeing and experience services from Nature (for example, in Lapland) illustrate this shift from S3 phase 2 to phase 3.

Second, ENF regions face a severe demographic challenge that will likely impact their long-term economic growth perspectives. The current and future S3s in ENF must deal with this challenge, which is also reflected in various priorities, such as the South Savo well-being priority.

Based on the ''productive base approach'' (three types of capital assets), one can observe different types of regional priorities in the ENF:

❑ In some priorities, the focus is on how manufactured capital and technology can compensate for the sustainable exploitation of natural capital. This is the case, for instance, of water intelligent systems or sustainable mining and extracting industries.

❑ The focus can also be on how manufactured capital and technologies can compensate for the demographic decline of human capital and an ageing society. This is the case for various priorities in digitalising critical services and social sectors.

❑ Some other priorities are about the full integration of the three types of capital assets in the perspective of the transformation of a unique activity system such as sport or tourism ;

❑ Some others strongly focus on one type of capital asset – e.g. natural resources such as forestry. However, investing in nature is not cheap and requires a smart combination of such investments with technologies and human capital.

By developing a rich portfolio of priorities – which reflects an integral appreciation of what is a productive base for the regional economy and how this productive base can expand (and not shrink) – ENF regions are very much advancing the practices of S3.

Mapping ENF S3 priorities along two dimensions
The table below aims to build a priority mapping according to the two dimensions we have just discussed

❑ What are the specific capabilities whose transformation is the goal of the priority (e.g. to what part of the regional economic space (sector, value chain, system of activities, natural resources) does the priority refer to ?)

❑ What combination of capital assets (technologies/human/natural) and what logic of expansion of the regional productive base are featuring a priority?

Combination of types of capital **(productive base)** The expression of regional-specific capabilities **(economic space)**	Just technology	Technology & human capital	Technology, human capital & natural capital
Sectors or value chains		Mining Food Wood Renewable energy	
System of activities			Tourism Sport Well being
Natural resources			Water Forestry

Table 1 – Mapping S3 priorities of ENF regions according to the productive base and the economic space of a region

It is certainly an important S3 trend that all priorities should be moved towards the second and third columns (the third column including priorities that manifest an integral approach to the productive base and the internalisation of Nature as a capital asset to be managed in the strategy). Such a trend is far from being achieved at the EU-wide level, but this is a clear outcome of the evolution of the ENF S3.

3.3.2 Entrepreneurial Discovery Process (EDP)

In most cases, the EDP (which can take various organisational forms) is appreciable because of the three following facts :

❑ All relevant partners are involved in the process – including industries, research, education and policy. This reflects the accurate view that innovation and transformation have multiple determinants – not only new knowledge and technologies but also skills, new business models, and the capacity not necessarily to invent but to adopt and absorb new technologies and novel organisational practices.

❑ In many cases, the EDP process is backed by a cluster or an innovation ecosystem, which regional policymakers consider assets of great value.

❑ Leaders and coordinators emerge continuously and make the EDP quite effective in terms of building transformation roadmaps. In some cases, University of Applied Sciences are on the driving seat, in some other cases, a specific cluster has some leadership capacities. Such coupling between ''leaders'' emerging from communities of practitioners and the policy structure (regional councils) makes the EDP process rather effective and efficient, leading to concrete outcomes (e.g. projects).

Given these facts, ENF regions are adopting the right approach for building and implementing roadmaps with particular priorities: a strategic collaboration between specific structures (referring to the regional economic space – a sector, a value chain, a system of activities, etc.) and the government to learn where the most significant bottlenecks are and to discover the private sector willingness to change as these bottlenecks and problems are progressively removed. This way of looking at the S3 process highlights an important implication: the right way of thinking about it is as a process of discovery by the

government no less than the private sector, instead of a list of specific policy instruments determined ex-ante. This perspective focuses attention on learning where the constraints and opportunities lie and responding appropriately rather than on whether the government should employ tax breaks, R&D subsidies, credit incentives, loan guarantees and so on.

What we describe here as dominant ENF regional S3 practices is the current industrial policy discussion in the economic literature, which brings some fresh air to this old debate: ''Under this conception, the government is not presumed to know where the potential problems and gaps (called ''market failures'') are beforehand and, therefore, does not determine ex-ante what the specific policy instruments are. The right approach consists of a collaborative process of discovery involving business and agencies of the state, where the objective is to identify the constraints and opportunities over time and to design interventions appropriately''. (Dani Rodrik, 2014).

3 Reflection – the Necessity of Better Governance at the ENF Level

The S3 theory and practices are strongly embedded in the policy culture of the individual ENF regions and the bottom-up initiatives of the relevant community of practices – universities and universities of applied sciences, vocational education institutions, research organisations, clusters and chambers of commerce. S3 is not just a slogan used by the policymakers to please the Commission but an epistemic culture adopted by all stakeholders and a robust framework providing a common language and a shared approach to the problem of ''business-driven'' transformation and transition of the ENF regional economies. Moreover, ENF smart specialisations at the NUTS 3 level are leading the process of entering a new stage where priorities reflect in various ways an integral vision of the development and expansion of the productive base of each regional economy.

Given the NUTS 3 level achievements, identifying the value of more collaboration and better governance at NUTS 2 is not trivial.

3.1 Is More Inter-Regional Collaboration Always Good?

''More collaboration'' is a goal that policymakers always want to achieve. In many cases, it is a wise objective. In some cases, it is not, and even smart people get it wrong. Sometimes, they overshoot the potential value of collaboration, underestimate the costs, misdiagnose the problem, and implement the wrong (collaboration) solution. All these traps lead to bad collaboration, characterised by high friction and a poor focus on results. Even smart policymakers can fall into these traps: well-intentioned efforts to promote collaboration can easily lead to too much collaboration. True synergies from cross-region collaboration are hard to assess. The costs of working across regions are difficult to pin down. It is also challenging to design solutions that promote collaboration (Hansen, 2009).

Clearly, regions do not want to collaborate just for the sake of collaborating. Collaboration is a means to an end, not an end by itself. The critical issue is, therefore, about discovering the fundamental needs for inter-regional collaborations (the opportunities) and, based on these critical needs, identifying gaps and obstacles and finding solutions as responses.

A framework is, therefore, needed - involving a set of principles called by Hansen (ibid) *disciplined collaboration*. This framework is about the leadership practice of properly assessing when to collaborate (and when not) and instilling in people and institutions both the willingness and the ability to collaborate when required.

A key step is to identify opportunities for inter-regional collaboration. Once opportunities have been identified, the second step is to spot barriers to collaboration, and the third step is to tailor solutions to overcome the barriers.

The novelty of the ENF collaboration lies in its aim to develop a unified S3 designed to strengthen inter-regional partnerships and encourage innovation ecosystem actors to establish robust cooperation. The challenge is to make strategic choices and identify valid smart specialisations at the ENF level. It cannot be a "bucket" where all regional smart specialisations are collected. Instead, at the ENF level, smart specialisation should be a strategic choice that becomes the new focus for the ENF, with practical implementation requiring international collaboration.

3.2 Guidance for ''Disciplined Collaboration'' at NUTS 2 –step 1 - Evaluate Opportunities

Identifying opportunities is a key task. It is a difficult one because many great things are achieved at the NUTS 3 level (above), and as we are concerned with a problem of multi-level governance, the **subsidiarity principle** should apply: only what cannot be performed at the (more local) NUTS 3 level matters for collaboration at NUTS 2 level

Obviously, many opportunities have been identified. Some of them are latent for a long time, some others are emerging because of exogenous shocks as the geopolitical one. The need for collaboration among ENF regions is derived from several opportunities, such as:

❑ **Producing collective (club) goods or activities of relevance for the whole ENF club**. What could be produced more efficiently at the NUTS 2 level – through inter-regional collaboration - than at NUTS 3 by single regions? Examples of club activities in this case involve, for example, the development of an ENF branding or promoting social acceptability in the whole ENF region about new technologies and novel industries.

❑ **Profit from collective learning, which is about sharing good practices and experiences.** To proceed to it systematically and effectively requires formal processes of collaboration and governance

❑ **Maximising strategic complementarities**. Strategic complementarities characterise a situation where one activity makes sense only when another already exists. Then individually, each activity has only a limited payoff. Realised together, however, they would form a self-sustaining system with enormous profit potential. For example, the transformation of one activity or sub-sector in micro-region A will only payoff if transformation also occurs in a complementary activity in region B. This is most likely to happen in the case of a value chain which is spatially distributed across ENF regions. Carefully crafted interregional collaborations may help capture these complementarities at the NUTS 2 level.

❑ **Augmenting regional value chains**. Constructing an ENF-wide value chain is very valuable when existing value chains have been disrupted by geopolitical events such as the war in Ukraine. Inter-regional collaboration at the ENF level can provide a means to identify and address local deficiencies and more general disruptions of existing value chains in sectors such as mining and extracting industries, tourism, or woods.

3.3 Guidance for ''Disciplined Collaboration'' at NUTS 2 –step 2 – Spot Barriers for Collaboration

Once opportunities have been identified, it is essential to answer the following question: What obstacles are blocking people and regional institutions from collaborating well? A few barriers are identified in the literature :

➢ People or institutions are unwilling to reach out to others ;
➢ People or institutions are reluctant to provide help ;
➢ People or institutions are not able to find what and who they are looking for ;
➢ People or institutions are not able to work with people they don't know well.

Not surprisingly, all these barriers apply to a certain extent to ENF's lack of inter-regional collaborations. ENF organised in partnership with the experts ENF Smart Specialisation Strategy Innovation Camp. For

the cap, the regional authorities selected 4 themes from the ENF S3 as cases to work with. These were the basis for the Camp Working groups :

❑ Theme I: Smart solutions in the extraction and mineral sector (Priority I)
❑ Theme II: (Forestry) Bioeconomy based on sustainable use of natural resources (Priority I)
❑ Theme III: Wellbeing and Experience service (Priority III)
❑ Theme IV: Food products and food services – integrates with both Priority I and III

In addition, each working group was asked to consider the cross-cutting themes of digitalisation and sustainability. Based on interviews with the ENF regions and the Innovation camp organised in Lapland, we could summarise the core points to consider while seeking to improve the ENF collaboration.

The strengths and resources of one's region are known, but *the conditions of neighbouring regions are still mostly unknown.* This is an obstacle/challenge for strategic cooperation. Smart specialisation cannot be based on chasing trends but on genuinely identified regional competencies and opportunities.

It is necessary *to identify which needs, with their root causes, are larger than a single region or area*. It is essential *to define cross-regional challenges and/or thematic entities* that are worth solving together with broader resources. Making choices is crucial for strategic success. We must "*clearly define what we focus on and do not focus on"*.

Currently, *interregional cooperation is too dependent on individual projects*. Cooperation must *be systematic*, and it must be recognised that not everything can be done "in addition to one's work" for things to progress as planned. Cooperation *requires clear structures, roles, and resources*. Development entities and collaboration must be managed decisively. In addition to leadership capability and responsibility, the activities must have the necessary resources. Ideally, the work is integrated as an essential part of one's own duties.

The lack of a mandate should not hinder making choices and cooperating. It must be ensured that there are individuals among the actors who can decide how to proceed if necessary, or at least there is direct communication with these key individuals.

The activities promote innovation, the benefits of which are ultimately reflected in the GDP through companies' operations. *Identifying business needs and building company interfaces cannot be overstated.* Development should focus on how innovations can be directly linked to business operations and economic growth. Cooperation structures should be created to better meet businesses' needs and provide practical benefits at the societal level. Understanding the Technology Readiness Level (TRL) and Service Readiness Level (SRL) added value and should be used systematically in innovation environments*.*

Smart specialisation and practical development cooperation in ENF require *cross-regional facilitation, strategic choices, and systematic action plans considering the regions' strengths and critical challenges*. *Operating at the NUTS 2 level when needed and simultaneously demonstrating the importance of decision-making at the NUTS 3 level is necessary*. Everyone has the responsibility to engage in regional and cross-regional cooperation. To achieve long-term practical impact, operational-level leadership, concrete accountability, resourcing, and measurement such as Key Performance Indicators (KPIs) are needed in addition to strategic-level leadership. *Joint practices for regular communication and networking* should be created, and the structure/methods for information dissemination should be agreed upon cross-sectorally and by the theme area.

Smart specialisation is more than just ERDF and Priority 1—it is essential to understand the opportunities it brings as a genuine tool to strengthen regional competitiveness.

4 Recommendations

We propose four recommendations based on our understanding of which barriers are operating and informed by the many discussions and insights from the interviews, visits, and innovation camp. The aim is to keep these simple and provide realistic and affordable guidance. The figure below will summarise the core points in the following way.
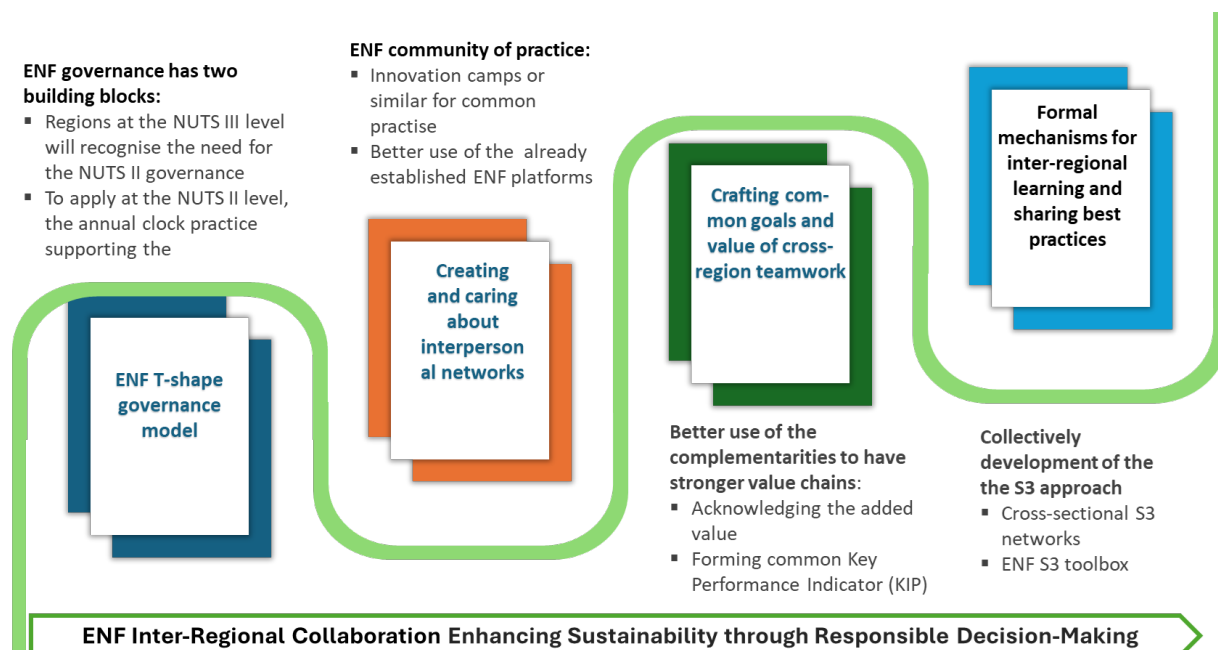

ENF governance has two building blocks:
- Regions at the NUTS III level will recognise the need for the NUTS II governance
- To apply at the NUTS II level, the annual clock practice supporting the

ENF community of practice:
- Innovation camps or similar for common practise
- Better use of the already established ENF platforms

ENF T-shape governance model

Creating and caring about interpersonal networks

Crafting common goals and value of cross-region teamwork

Formal mechanisms for inter-regional learning and sharing best practices

Better use of the complementarities to have stronger value chains:
- Acknowledging the added value
- Forming common Key Performance Indicator (KIP)

Collectively development of the the S3 approach
- Cross-sectional S3 networks
- ENF S3 toolbox

ENF Inter-Regional Collaboration Enhancing Sustainability through Responsible Decision-Making

Figure 3 – The core five characteristics to improve the ENF S3 Governance

4.1 The Role of the ENF Governance

An ENF policy culture oriented towards T-shaped governance of S3 will support and encourage regional policymakers to deliver two types of performances:

- ❑ **Achievements in their own NUTS 3-level strategy** (the vertical part of the T) - in-depth knowledge and skills about the region
- ❑ **Achievements by collaborating with the other ENF regions** (the horizontal part of the T)—a broad understanding of ENF with a bigger picture to match, for example, the complementarities needed to create a value chain.

The T-shaped structure provides an organisational scheme that allows us to implement our previous insight (3.3), which is that cooperation must be systematic, and it must be recognised that not everything can be done ''in addition to one's work''. This is why two kinds of performance are identified and articulated within the T-shaped framework. Thus, this framework will encourage and support two-sided performance – on the one hand, the design and execution of regional (NUTS 3) S3s; on the other hand, various regional initiatives to enhance and promote inter-regional collaborations. Three recommendations have been formulated to cultivate T-shaped management and governance (see the following three recommendations).

Practical tips to consider while improving the governance at the ENF level: The foundation for enhancing ENF S3 Governance and applying a proper T-shape governance model is integrated into the joint

governance practices already implemented by ENF regions. The systematic annual clock practice could support the practice. However, it is essential to recognise that the lack of financial and human resources is a significant hindrance that must not be overlooked. At the same time, we need to accept that more and more regular activists can be implemented only by adding financial support to the projects. And that should be considered.

In addition, the regional authorities should engage the regional innovation ecosystem actors in practically implementing the governance. After all, they implement S3 in practice and receive all the funds, which should go with obligations. This should include a better understanding and usage of all EU Growth programs and strategic agendas. In addition to the action plan to implement S3, there should also be a jointöy effort to better use other instruments such as Horizon Europe, Digital programme, Life+ Erasmus +, etc, in line with the S3 implementation.

Finally, every NUTS 3 region must develop its regional plan and strategy following the commonly agreed process and timeline. The next update of these programs has already begun. Each region could emphasise the need for ENF collaboration on the topics widely agreed upon in these programs.

4.2 Creating and Caring about Interpersonal Networks

The improved governance needs a practical and best-fitting approach to support collaboration. After all, it is all about people making things happen in practice. In other words, the development of interpersonal networks should be facilitated among regional policymakers and other regional ecosystem stakeholders.

The innovation camp was an excellent example of what can be achieved from such a perspective. This kind of objective addresses all barriers. Collaboration runs more on interpersonal networks than through formal hierarchies. The point is to facilitate the development of an ***ENF community of practice*** to support more and better knowledge of the expertise and competence of fellow regions and facilitate the implementation of the following two recommendations.

The practical tips for developing the ENF CoP: Communities of Practice (CoP) bring together individuals with shared goals and interests to exchange resources, strategies, innovations, and support, such as those related to ENF and smart specialisation. CoPs can leverage regional knowledge and expertise, fostering collaboration and innovation tailored to the specific needs of smart specialisation strategies. They facilitate the transmission and expansion of knowledge for leaders, learners, and professionals across various fields and disciplines. CoPs contribute to a more connected and collaborative community enriched by diverse regional insights and practices. The ENF established a solid foundation for this during the so-called ELMO collaboration. Practical guidance can be found in **"The Communities of Practice Playbook - A Playbook to Collectively Run and Establish Communities of Practice"** and is available here: https://op.europa.eu/webpub/jrc/communities-of-practice-playbook/en/about.html.

4.3 Crafting Compelling Common Goals and Articulating a Strong Value of Cross-Region Teamwork

It is essential to send signals that lift people and institutions' sights beyond narrow interests and toward a common goal. The approach here involves, for example, a systematic analysis and mapping of collaboration opportunities identified above. ''Discovering our complementarities'' was a goal frequently repeated during the camp.

Collectively developing KPIs for regional S3s was also a suggestion for further promoting collaboration. Agreeing about and sharing standard metrics will likely encourage inter-regional comparison and emulation.

Practical tips for developing cross-regional teamwork: Over the past few years, ENF has established a strong foundation for cross-regional collaboration, which should be maintained and built upon. All types of collaboration require nurturing and continuous care to keep participants motivated. Shared needs and ideas will form the basis and purpose of these partnerships.

The recommendations are to develop a framework for ENF cross-regional collaboration, with S3 providing the content for joint initiatives. However, the ENF S3 currently encompasses a broad range of topics. It would be beneficial to make more precise selections for annual support. For instance, focusing on Innovation Camp themes 2025 and inviting ecosystem actors to develop joint initiatives. It is not necessary to have a joint call but to encourage the creation of parallel or complementary projects with integrated work packages emphasising cross-regional actions. For the choices, developing the KPIs jointly and describing regionally and cross-regionally would be essential. TRL and SRL development can be systematically supported.

4.4 Putting in Place Formal Mechanisms for Inter-Regional Learning and Sharing Best Practices

Such mechanisms can operate from a sectoral perspective (when similar industries or systems of activities are prioritised in several regions) or from an institutional perspective (e.g., between universities of applied sciences that are leading S3 projects in different regions). In all these cases, cross-sectional S3 networks should be established to collectively develop the S3 approach based on the sector's or institution's identities and similarities. Such learning and sharing should involve, in particular, the S3 toolbox – what kind of policy instruments are used in similar priorities (e.g. mining, water, wood, food, well-being experiences and healthcare, tourism, sport); what are the pros and cons of deploying one or the other instruments; how is the EDP organised in specific regional contexts.

Practical tips for developing cross-regional teamwork, inter-regional learning, and sharing best practices: This final recommendation logically follows the previous one, delving deeper into practical work at the regional ecosystem level. The foundation for all efforts is understanding the pivotal role of smart specialisation as the driving force for regional innovation and sustainable growth. It is crucial to utilise all available policy tools embedded within smart specialisation effectively. This can be achieved through commonly recognised value chains, mapping out best practices, and systematically determining how various financial resources can be leveraged. This approach will be particularly important for developing the TRL and SRL, encouraging industries to grow, and fostering new businesses.

The TRL scale measures the technology's maturity and has become critical today. It is used as a basis for funding supporting the S3 implementation in many Horizon Europe (HE) calls, Interregional Innovation Investments (I3), Regional Innovation Valleys (RIV), and European Innovation Council (EIC) calls, and it will become even more relevant in the future. It will also provide the basis for developing KPIs for value chain development.

4.5 – ENF Inter-Regional Collaboration for Sustainability

The final recommendation is not about means (mechanisms and structures for better collaboration) but an end. This recommendation is directly related to the argument in section 2.2.1: ENF regions are at the

forefront of something new in S3 policy, which is about the development of an integral vision of the productive base of any region – including *produced, human, and natural capital*. The fundamental message of the new economics of sustainability (Dasgupta, 2024, Dasgupta and Levin, 2023) is the following: of course, it is imperative to improve the efficiency through which natural resources are transformed into final products and services; this is about circular economy, renewable energy, electrification, substitution between natural resources and labour & technologies, etc. and most regional S3 in Europe are dealing with such issues and are thriving (Foray et al., 2023). This is an important S3 area since it is a way to indirectly reduce the ecological footprint of the regional economy, with other things (GDP, population) being equal. But it is not sufficient. It is also very important to invest directly in Nature. This can be a passive investment: just letting an ecosystem alone, waiting for its health to improve, and that can take years. As waiting is, bulldozers, drills, and chainsaws constantly threaten costly wetlands, grasslands, lakes and forests. The first generations of S3 ignored this problem, treating Nature as external to the strategy, which obviously focused on the development and expansion of the two other types of capital assets – manufactured (technology) and human. First S3 generations considered natural capital as given – a sort of platform on which the strategy can be developed – leading to mismanagement of one fundamental asset: Nature. The new principle considers it a true capital asset that deserves careful management, just as the two others.

Such vision is going to change the S3 theory and practices fundamentally:

❑ New trade-offs will emerge: some investments, e.g. in tourism or in transportation or in some industries, will not be undertaken because the social value (or social productivity) of the threatened natural ecosystem is higher than the social value of the planned investments ;

❑ New economic and financial instruments will be needed; first, to measure the economic value of natural ecosystems (social productivity and shadow prices – prices which can't be observed on markets) and second, to finance the – non-cheap – passive investments such as the creation of protected areas (new financial engineering instruments such as social impact bonds);

❑ New strategies will be elaborated to enable local communities to reap some benefits from investing in Nature. Regions need to understand and identify the economic mechanisms through which local communities can capture benefits from protected areas that conserve nature. Many priorities dealing with tourism, well-being, and sports need to be re-designed to realise the economic opportunities offered by managing natural capital assets and extending protected areas (Albers, 2022).

ENF regions—because they are pioneering this new approach towards sustainability—are facing all these new problems. The case for inter-regional collaboration to address them is very strong. Some kind of ENF task force could be an effective way to start sharing knowledge and experiences on the three issues just mentioned above.

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