NWE Territorial Analysis and Programme Draft
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TASK 1: The Territorial Analysis of the NWE Cooperation Area

FINAL REPORT

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Terrritorial Analysis of the NWE cooperation area
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CBC	Cross-border cooperation
CCS	Carbon capture and storage
CCU	Carbon capture and utilisation
CBM	Circular Business Models
CE	Circular economy
CPR	Common Provisions Regulation
CEF	Connecting Europe Facility
DESI	European Digital Economy and Society Index
EQS	Environmental quality standards
EAFRD	European Agricultural Fund for Rural Development
EMFF	European Maritime and Fisheries Fund
ERDF	European Regional Development Fund
ESF+	European Social Fund Plus
EU	European Union
EU2020	Europe 2020 Strategy
EUR	Euro
FUA	Functional Urban Area
GDP	Gross Domestic Product
GHG	Greenhouse gas
GI	Green infrastructure
GVA	Gross Value Added
ITI	Integrated Territorial Investments
NECP	National Energy and Climate Plans
NUTS	Nomenclature des unités territoriales statistiques
NWE	North-West Europe
PA	Priority Axis
PO	Policy Objective
PPS	Purchasing Power Standard
RBD	River basin districts
RES	Renewable Energy Sources
RPF	Restoration Prioritisation Frameworks
SDGs	Sustainable Development Goals
SGI	Services of general interest
SME	Small and Medium sized Enterprise
SO	Specific Objective
SUMPs	Sustainable Urban Mobility Plans
SWOT	Analysis of strengths, weaknesses, opportunities, and threats
TEN-E	Trans-European Networks for Energy
TEN-T	Trans-European Transport Network
UIA	Urban Innovative Actions
UN	United Nations

EXECUTIVE SUMMARY

This report presents the territorial and stakeholder analysis of the North-West Europe (NWE) cooperation area in preparation for the Interreg NWE Programme 2021-2027. It consists of thematic analyses related to new policy objectives proposed for the 2021-2027 programming period. These feed into SWOT analyses and the identification of needs, challenges and niches for the future Interreg NWE Programme. The report closes with a stakeholder analysis.

For this report 22 analysis of thematic areas have been conducted, closely related to the five policy objectives (POs) and the more detailed specific objectives (SOs) outlined in the regulations proposed for Interreg Programmes 2021-2027 (COM(2018) 372 final, 2018; COM(2018) 374 final, 2018).

PO	THEME
PO1 – A smarter Europe	• Socio-economic developments • Competitiveness (SMEs) • Innovation capacities • Transition to a digital economy and society
PO2 – A greener, carbon free Europe	• Energy • Natural risks of flooding and environmental risks of climate change • Greenhouse gas emissions and air quality • Green infrastructure (GI) and natural capital • Water quality and provision • Circular economy (CE)
PO3 – A more connected Europe	• Digital connectivity • Mobility and connectivity at different scales (local to TEN-T) • Multimodal infrastructure and use of intermodal transport
PO4 – A more social Europe	• Population • Labour Market • Health • Social inclusion and poverty
PO5 – A Europe closer to the citizens	• Urban-rural disparities and functional links • Rural and coastal area development and geographic specificities • Urban development • Sustainable Development Goals

The main results of the thematic analyses are presented in this document. A separate annex includes the extensive in-depth examination with the full territorial analyses. A few methodological notes in Chapter 2 provide background information.

Territorial needs, challenges and cooperation niches under PO 1 – A smarter Europe by promoting innovative and smart economic transformation

Territorial analyses for the four themes covered under PO 1 identify several opportunities and needs for territorial cooperation related to all SOs of PO 1. Assessing the cooperation potential for value added and complementarity with other EU Programmes reveals that niches for transnational cooperation under PO 1 exist mainly for the SOs on digitisation (SO 1.2) and skills (SO 1.4). For innovation (SO 1.1) there are niches concerning a horizontal understanding of innovation, i.e. considering innovation across POs.

- **SO 1.1 Research and innovation capacities and the uptake of advanced technologies.** To overcome territorial disparities, the need for enhancing research and innovation capacities is mostly in rural regions. This may build on a similarity of objectives and approaches across the NWE cooperation area. Research, development and innovation activities are typically not linked to a transnational cooperation area and may thus be better suited under other EU programmes such as Horizon Europe. However, if considered as a horizontal topic with a stronger territorial dimension, SO 1.1 has various niches under all POs.
- **SO 1.2 Benefits of digitisation for citizens, companies and governments.** There is a need to diffuse and apply technologies from frontrunners to other areas, in particular rural areas. This also addresses the need to better balance innovation performance across the area. These needs create cooperation potential for new technology development, digitisation of public service provision and ICT deployment by SMEs. To avoid overlaps with other programmes addressing digitisation the territorial focus should be central and could seek synergies with other EU programmes.
- **SO 1.3 Growth and competitiveness of SMEs**. Unbalanced growth and attractiveness of regions for businesses imply regional competitiveness imbalances. Improving SME competitiveness is crucial given their importance for regional development across NWE. This need is further enhanced by the challenges of industrial transition and the embeddedness of SMEs in international value chains. This raises cooperation potential for enhancing SME value chains and diversification. However, there is a wide variety of national and EU programmes targeting SMEs, some of which also include cooperation. Thus, niches with specific advantages for the Interreg NWE Programme may be very limited.
- **SO 1.4 Skills for smart specialisation, industrial transition and entrepreneurship.** While there are Research and Innovation Strategies for Smart Specialisation (RIS3) in all NWE cooperation area territories, better knowledge of their links and commonalities is needed to scale up innovation capacities. Industrial transition in the area means there is a need for skills development, especially in regions with high shares of the respective industries. The similarity of transition process challenges creates cooperation potential especially among these regions. Enhancing skills in view of these challenges may also be supported under mainstream European Social Fund (ESF) and European Regional Development Fund (ERDF) programmes and the proposed Just Transition Fund. Scaling up individual approaches across the NWE cooperation area and addressing regional and local development challenges rather than general skills development may offer specific niches and comparative advantages of the Interreg NWE programme.

Territorial needs, challenges and cooperation niches under PO 2 – A greener, low-carbon Europe by promoting clean and fair energy transition, green and blue investment, the circular economy, climate adaptation and risk prevention and management

Territorial analyses for the six themes covered under PO 2 identify several opportunities and needs for territorial cooperation related to all SOs under PO 2. Assessing the cooperation potential for value added and complementarity with other EU Programmes reveals that niches for transnational cooperation under PO 2 exist mainly for the SOs covering water management (SO 2.5) and CE (SO 2.6). For energy related objectives (SO 2.1 to SO 2.3) and climate change adaptation (2.4) some niches may be better placed under digitisation and innovation, given a horizontal understanding of innovation.

- **SO 2.1 Energy efficiency measures.** Many regions in NWE need to strengthen their efforts to increase energy efficiency measures, particularly in existing building stock and through strategies for decoupling economic growth and energy consumption. A wide variety of other EU Programmes that partly include cooperation. This limits the value added of Interreg NWE programme activities and niches, so there may be insufficient demand for projects.
- **SO 2.2 Renewable energy.** There is a need for soft measures supporting further renewable energy sources (RES) deployment in NWE. This ranges from planning challenges to administrative implementation, from community engagement to developing alternative business models for transition regions. Different governance settings in the NWE cooperation area should be carefully considered to find the best ways to unlock NWE cooperation area potential. Better deployment of RES energy potential requires simultaneous activities on energy systems and networks (SO 2.3). In addition, a wide variety of other EU Programmes, partly including cooperation, limits the value added of Interreg NWE programme activities and niches to achieve a sufficient demand for projects.
- **SO 2.3 Smart energy systems, grids and storage at local level.** There is a need for more flexibility in energy supply and demand through better distribution and transmission across the NWE cooperation area. This means investments in distribution and transmission capacities as well as new technology for smart energy systems and energy and carbon storage. Investment needs go beyond transnational cooperation programmes. It also requires innovation activities, which may be fostered by transnational projects as well as designing and testing local solutions. At the same time, a wide variety of other EU Programmes that partly include cooperation, limits the value added of Interreg NWE programme activities and niches, so there may be insufficient demand for projects.
- **SO 2.4 Climate change adaptation, risk prevention and disaster resilience.** Two common challenges are found across the NWE cooperation area, namely heat stress in urban regions and the risk of floods due to rising sea levels and extreme weather events. The latter are linked to the functional links of several river catchment areas. Given the variety of other programmes addressing climate change action at EU level, transnational cooperation could aim to implement and transfer innovative approaches and thereby contribute to scaling-up successful solutions.
- **SO 2.5 Sustainable water management.** There is considerable need to improve the ecological and chemical status of surface and groundwater bodies due to discharges from various economic activities. Partially, there is also a need for better wastewater treatment. Solutions and strategies to improve water quality need to consider the different combinations and volumes of discharges. The transnational nature of several river basins in NWE favours transnational cooperation more than other EU programmes.
- **SO 2.6 Transition to a circular economy.** Within the existing approaches towards a CE there is a need to reduce waste and improve recycling and circular material use. This may benefit from further testing and disseminating existing experience, creating spill-over effects. A uniqueness of NWE lies in the potential to ensure that the transition towards a CE in the area is just and the benefits are territorially as evenly distributed as possible which is not typically offered by other EU programmes.
- **SO 2.7 Biodiversity, green infrastructure in the urban environment and reducing pollution.** In NWE, biodiversity and existing GI need to be maintained and connectivity between protected areas improved to enhance their functional links. As far as these measures benefit from territorial cooperation a focus may be on connectivity between protected areas and their restoration especially in cross-border and functional areas, such as cross-border Functional Urban Areas (FUAs), where cross-border Interreg programmes may be more appropriate.

Territorial needs, challenges and cooperation niches under PO 3 – A more connected Europe by enhancing mobility and regional ICT connectivity

Territorial analyses for the three themes covered under PO 3 identify several opportunities and needs for territorial cooperation related to all SOs under PO 3. Assessing the cooperation potential for value added and complementarity with other EU Programmes reveals niches for transnational cooperation under PO 3 mainly for the SOs on local and regional mobility (SO 3.3) and urban mobility (SO 3.4). For digital connectivity (SO 3.1) niches for transnational cooperation may be better placed under SO 1.2.

- **SO 3.1 Digital connectivity.** Needs relate to overcoming the digital divide between urban and rural areas as well as better utilisation and integration of digital solutions in SMEs and public services. To avoid overlaps with other programmes, transnational cooperation should focus on activities and investments requiring cooperation across territories, which are mostly linked to the deployment of digitisation benefits.
- **SO 3.2 Sustainable, climate resilient, intelligent, secure and intermodal TEN-T.** Due to the high accessibility of most territories in the NWE cooperation area, needs are mainly related to inter-modality and improving access to TEN-T core network corridors in rural areas. A focus should be on ecologically sustainable solutions including traffic management and other IT solutions. However, transport infrastructure investments require action by other programmes dedicated to TEN-T development, where they are implemented in a coordinated way along corridors.
- **SO 3.3 Sustainable, climate resilient, intelligent and intermodal national, regional and local mobility, including improved access to TEN-T and cross-border mobility.** Not least due to congestion and air pollution there is a need to promote alternative modes of transport for goods and people. Links for less well-connected rural areas require a territorial approach. Transnational cooperation can address this need in the NWE cooperation area by deploying new technologies locally when this niche is beyond activities under other programmes.
- **SO 3.4 Sustainable multimodal urban mobility.** To mitigate congestion and air pollution in urban areas public transport needs to be enhanced at the cost of private cars. This can be promoted in urban planning activities that take alternative modes of transport into account. Projects may build on successful examples of new urban mobility solutions and support their wider territorial implementation in cities and FUAs facing similar challenges. To do so, synergies with other programmes focusing on urban development and mobility may be sought.

Territorial needs, challenges and cooperation niches under PO 4 – A more social Europe implementing the European Pillar of Social Rights

Territorial analyses for the four themes covered under PO 4 identify several opportunities and needs for territorial cooperation related to all SOs of PO 4. Assessing the cooperation potential for value added and complementarity with other EU Programmes reveals niches for transnational cooperation under PO 4 are mainly for the SO on health care access (SO 4.4). This assessment is affected by impacts of the COVID-19 pandemic.

- **SO 4.1 Effectiveness of labour markets and access to quality employment.** Labour market needs mainly concern labour market mismatches and youth unemployment in some rural areas. COVID-19 induced economic impacts will further affect job availability and access. Contributions

from transnational cooperation may be limited to joint development of better labour market access in specific types of territories.

- **SO 4.2 Access to inclusive and quality services in education, training and lifelong learning.** Needs in this field are limited, mostly relating to supporting mobility and lifelong learning rather than education and training in general. Beyond capitalising on past experience and contributing to awareness raising, there is a high risk of overlaps with other programmes.
- **SO 4.3 Socioeconomic integration of marginalised communities, migrants and disadvantaged groups.** Needs to overcome social exclusion are mainly in larger urban areas. There are different national and regional challenges such as housing, in-work poverty, etc. This calls for better territorial governance of different sector policies. While there are niches for territorial cooperation, many measures are not transnational. These may not be easy to transfer to other regions in the NWE cooperation area as they require individual local activity which may be better provided by other programmes.
- **SO 4.4 Equal access to health care.** There is a need to improve access to healthcare services in peripheral areas, particularly in view of decreasing numbers of hospital beds in recent years. In addition, COVID-19 has illustrated a lack of resilience of healthcare systems across borders as well as interdependencies between countries. Transnational cooperation may support coordinating national healthcare policies to be better prepared for emergencies, helping to develop more resilient healthcare systems. In addition, the opportunities for digital transformation of health and care through robotics, artificial intelligence, digital platforms and administration could be exploited beyond pilot actions.

Territorial needs, challenges and cooperation niches under PO 5 – A Europe closer to citizens by fostering the sustainable and integrated development of urban, rural and coastal areas and local initiatives

Territorial analyses for the two themes covered under PO 5 identify several opportunities and needs for territorial cooperation related to both SOs of PO 5. Assessing the cooperation potential for value added and complementarity with other EU Programmes reveals niches for transnational cooperation under PO 5 for both SOs. However, given the continued ambivalence of conditions to use PO 5 in transnational cooperation programmes, many territorial challenges in different regions could also be implemented through other policy objectives, however, not by means of integrated approaches across sectors.

- **SO 5.1 Integrated social, economic, cultural and environmental development, cultural heritage and security in urban areas.** In view of the degree of urbanisation in the NWE cooperation area, the variety of topics challenging urban area development is considerable. These include climate change adaptation, urban poverty, mobility and digital transition and can build on existing networks and experience. Integrated approaches on these themes, while considering other territorial challenges of urban areas, can contribute to achieving Sustainable Development Goal (SDG) objectives. Functional links crucial for urban area development are another need that can be addressed. In particular, urban-rural partnerships between regional urban centres and their surrounding resource-based communities need to be revitalised to achieve stronger territorial cohesion and more integration in different types of territories (ESPON, 2019h). These partnerships could also be a horizontal objective to address fragmentation risks and include a comparative

perspective of the influence of different frameworks. Transnational cooperation can complement other programmes by taking wider transnational links into view.

- **SO 5.2 Integrated social, economic, cultural and environmental local development, cultural heritage and security, including for rural and coastal areas.** Rural areas can be frontrunners in renewable energy or brand names for sustainable tourism in the region. Coordinated strategies at transnational level would add value by promoting more balanced territorial development. This also contributes to environment related SDGs. Coastal areas depend on both maritime and land-based policies and hence require specific types of cooperation at different levels. PO 5 addresses this and the importance for local initiatives (ESPON, 2019a). Climate change and flood prevention strategies are also necessary to adapt to climate change and mitigate its consequences. Following the discussions about places left behind, bringing policies to the lowest governance levels contributes to better integration and less fragmentation across European regions. Territorialising and localising SDGs supports more sustainable development through a more holistic approach, i.e. through implementing these SDGs under all POs.

Stakeholder analysis

The analysis highlights lessons from stakeholder participation in the 2014-2020 programming period. In 2014-2020, in terms of project partners, by far the most involved stakeholder group in NWE projects 2014-2020 were higher education and research organisations. These are followed by SMEs, local public authorities and business support organisations. Other stakeholder groups such as regional public authorities, infrastructure and service providers, national public authorities or sectoral agencies have a relatively low representation. Stakeholder involvement mostly follows the same pattern in all three Priority Axes in 2014-2020. Participation indicates that NWE projects in 2014-2020 are knowledge-driven and business-oriented, with a local rather than regional focus.

The analysis for the new programme highlighted different stakeholder groups as potential beneficiaries. An overview table summarises potential interests in the new SOs for each stakeholder group and potential barriers that may limit their future participation. This analysis needs to be deepened, when the new SOs have been selected for the new funding period.

1 Introduction

With a population of about 118 million inhabitants in 2019, the Interreg North-West Europe Programme[1] cooperation area accounts for more than one quarter of the EU population (without the UK). Including the UK in the cooperation area increases the share of the population to above one third of EU population, which accounted for 46% of the EU's gross domestic product (GDP). Thus, the area is one of Europe's most productive and wealthy areas, which is mirrored in high levels of innovation as well as digital and transport connectivity. This comes with several environmental costs such as high greenhouse gas emissions as well as water quality and quantity challenges.

The overall high level of economic wealth is however not evenly distributed across the cooperation area. With the UK it includes the two largest European metropolitan areas – London and Paris – as well as many other highly urbanised and densely populated areas, ranging from small to second tier cities, but also rural and relatively remote areas. Disparities are distinct in many regards and often relate to urban-rural disparities but country specific differences and other territorial structures also matter. For instance, in 2018, GDP per capita was nearly ten times higher in Inner London than in some rural regions of the cooperation area. Disparities exist also regarding connectivity, the availability and access of services of general interest (SGI), environmental quality, etc. Overall, the cooperation area of North-West Europe[2] is rich in a variety of different types of regions sometimes facing very different challenges. For most characteristics, including or excluding the UK does not change the principal territorial strengths and weaknesses but mainly affects only the extent of certain disparities. How far the economic strength and disparities of the NWE cooperation area will be challenged by the COVID-19 pandemic remains to be seen.

This report presents results and recommendations for the territorial analysis of the NWE cooperation area regarding Interreg NWE Programme 2021-2027. This work aims to identify potential territorial cooperation needs of this transnational cooperation programme. It supports preparation of the Interreg NWE Programme by gathering and providing information, which will be used to define the future focus of the programme, to develop a coherent programme strategy and elaborate an intervention logic including clear and consistent priorities.

Nature of territorial cooperation projects in transnational cooperation under the Interreg NWE Programme

At the time of drafting of this report, programme authorities and partners still had to reflect where exactly to place future cooperation projects in NWE within a variety of possible cooperation approaches. This box summarises the principal objective of territorial cooperation and provides additional reflections for further discussion.

The overarching objective of European Territorial Cooperation 'is to promote a harmonious economic, social and territorial development of the Union as a whole'.[3] In this framework, transnational cooperation

[1] The area of the future cooperation programme as delineated in the orientation paper of the European Commission (2020a).
[2] In the following always referred to as 'NWE cooperation area'.
[3] https://ec.europa.eu/regional_policy/de/policy/cooperation/european-territorial/

'aims to promote better cooperation and regional development within the Union by a joint approach to tackle common issues'.[4]

Transnational cooperation programmes typically focus on activities like policy learning, developing tools, feasibility studies, testing, pilots and exchange of experience. This takes into account the size of transnational project funding compared to other EU and national funding sources. Within this variety of project activities, the Interreg NWE Programme has a tradition of focusing more on 'hard' (investment) projects rather than 'soft' projects, which affects how outputs and results are measured. To strengthen the 'territorial dimension' of transnational cooperation, the following may be considered:

- All selected POs and SOs may use territorial disparities in the NWE cooperation area as a starting point for action to avoid increasing regional disparities e.g. by innovation projects. This may require project calls for different types of activities.
- Cooperation potential can be based on both differences and similarities of partners that face common challenges. These can then, for instance, be addressed jointly or by transferring successful solutions.
- Strengthening the territorial dimension may imply changing the partnership structure to focus less strongly on enterprises and more strongly on public authorities and other groups representing public and citizen interests. This could bring transnational cooperation closer to citizens but may require a change in the understanding, for instance, of the nature of 'innovation' projects, especially when aiming to reduce territorial disparities.
- The Interreg NWE Programme as well as many other EU Programmes have created multiple solutions tackling local and regional challenges during previous programming periods. Often, they are not well known beyond the project partners. Strengthening the territorial dimension of cooperation may also be possible through 'upscaling', i.e. supporting implementation beyond previous project partners and areas. This may also strengthen synergies with other EU Programmes, especially for actions implemented in the Interreg NWE Programme area.

This analysis focuses on 22 thematic analyses closely related to the five POs and the more detailed SOs outlined in regulations proposed for Interreg Programmes 2021-2027 (COM(2018) 372 final, 2018; COM(2018) 374 final, 2018). The POs guide the structure of the report. Correspondingly, this report includes:

- **Chapter 2: Methodological notes.** This chapter summarises the data used for the territorial and stakeholder analyses, the approach of the analytical matrix that summarises the steps from needs to niches and an outline of other funding programmes that contribute to defining the comparative advantage of the Interreg NWE Programme.
- **Chapter 3: Analysis of territorial needs, challenges and cooperation niches under future POs.** The thematic analyses are assigned to the PO most relevant for the respective themes. Each PO section starts with a short overview of links between themes and SOs. The results of each thematic analysis are presented and concluded in a SWOT table that identifies territorial cooperation needs. Each PO section concludes with an assessment of niches and comparative advantages of the Interreg NWE Programme in relation to the cooperation needs. This compares

[4] https://ec.europa.eu/regional_policy/en/policy/cooperation/european-territorial/trans-national/

possible actions under transnational cooperation and value added created by the programme with other funding programmes for that objective. The more detailed needs and limits and tentative lists of possible transnational actions that provide food for thought are outlined in the corresponding section of the analytical matrix at the end of each PO section.
Given the state of programme development the assessment and recommendations at the end of each PO are proposals for further discussion. It does not exclude a certain SO but rather establishes a priority ranking based on the territorial and strategic analyses. A selection based on priorities might be necessary as NWE funds are limited and concentration on certain SOs is required.

- **Chapter 4: Stakeholder analysis.** The analysis differentiates between lessons from participation in the 2014-2020 programming period and an ex-ante assessment of potential groups for 2021-2027. The analysis of stakeholder participation in 2014-2020 highlights the most relevant groups in view of the themes. The ex-ante assessment for 2021-2027 further details this analysis in view of the variety of potential SOs.

For better legibility, Chapter 3 summarises the thematic analysis of the territory's status and trends of the NWE cooperation area. A more extensive analysis with additional figures and maps is available as separate file.

2 Methodological notes

The territorial analysis builds on statistical data, studies and strategies, NWE programme data on stakeholders and partnerships and information on other EU funding programmes. Together these sources fed into an analytical matrix.

2.1 Information sources and organisation of the analysis

The most important source for the thematic analysis of territorial development in the area is regional statistical data from Eurostat, EEA, ESPON etc. The main indicators and statistical sources are listed in Annex I as agreed at the inception meeting of the study. These are complemented by additional data and findings from studies and strategies to fill regional statistical data gaps and to build on findings from previous analyses of the NWE cooperation area.

Overall, indicators and data sources have been selected according to relevance and availability (possibly including NUTS[5] 2 or NUTS 3 level information) to best describe the corresponding theme and highlight needs for actions based on territorial developments. In addition, a separate table in Annex I lists the pre-agreed studies. These and further references are detailed in the bibliography.

The thematic analysis is provided in two documents. The thematic in-depth report gives details of the territorial development and state of the NWE cooperation area for all agreed and available indicators. It is accompanied by figures and maps to visualise the territorial state of the area. Findings of these in-depth analyses are summarised in this report to provide the main findings of the SWOT analyses. Each SWOT analysis highlights territorial cooperation needs for different functional relations and areas.

[5] Nomenclature des unités territoriales statistiques (NUTS) is a geocode standard for referencing the administrative divisions of countries for statistical purposes.

Examples are urban-urban, rural-rural, urban-rural, coastal areas, river basins, transport corridors and cross-border areas. Cross-border areas always refer to scaling-up activities, i.e. transfer of solutions between cross-border areas at transnational level rather than activities within single cross-border areas.

Given the territorial uncertainties about the participation of the UK when the report was developed, the thematic analysis differentiates two alternatives when suitable, i.e. an NWE programme area with and without the UK.

2.2 Comparative advantage to other EU funding programmes

For all thematic areas, alternative public funding programmes (mostly national funding or mainstream ERDF, as well as EU programmes such as Horizon Europe, ERASMUS+, ESF+, and LIFE) have been identified. Together with other ETC programmes they might be equal, or more adequate and accessible for final beneficiaries, reducing the potential attractiveness of NWE.

To assess the comparative advantage of the Interreg NWE Programme, other EU funding programmes have been reviewed. This includes project sizes, any cooperation component, knowledge of these programmes by potential NWE project partners, difficulties in accessing these programmes and their attractiveness regarding co-funding rates. Annex II includes an assessment table based on:

- a previous analysis of funding sources, conducted by the Interreg NWE Programme in 2018 and
- data from the funding programme descriptions and webpages.

This analysis, together with the findings from the SWOT analysis, feeds into an initial prioritisation of SOs. This highlights potentially promising SOs within each PO from an analytical perspective. This prioritisation is not a proposal for selecting SOs, especially since it balances the prioritisation of SOs between all POs.

2.3 Analytical matrix

Building on the SWOT analyses, for each SO the analytical matrix differentiates analytical steps from identified needs to tentative formulations of niches and comparative advantages. Each SO is presented on a separate page to facilitate flexible use of the matrix. For each SO the matrix has the following columns:

- **Specific needs in NWE.** Based on the findings from the thematic analysis of the NWE cooperation area related to an SO, this column summarises the needs for territorial development intervention.
- **Transnational functional links.** The NWE cooperation area shows functional links and territorial similarities between regions (e.g. rural areas or coal regions) that indicate access points for transnational cooperation in relation to the specific needs.
- **Potential for cooperation.** Combining specific needs with transnational functional links highlights ideas for cooperation. These indicate possible thematic foci of cooperation to address a need.
- **Challenges for transnational cooperation.** Transnational cooperation may face challenges from within the cooperation area (e.g. the availability and know-how of stakeholders to implement the cooperation potential, funding limitations) as well as from external influences (e.g. other funding sources).

- **Common challenges / joint investment needs.** These give first ideas of possible activities under the future transnational Interreg NWE Programme. Their further specification depends on the decision of the programme on the types of preferred activities.
- **Stakeholder mapping.** Previous experience of the programme and a review of motivations for different stakeholder groups is the basis for a first indication of possible stakeholders in cooperation projects of an SO. They may be refined after specification of the preferred types of activities.
- **Niches / comparative strengths of NWE.** This gives an indication of what can be concluded for the further programming process with respect to selecting SOs. It highlights which SOs offer the Interreg NWE Programme high potential for cooperation, with niches for activities and where potential added value is high also compared to alternative EU funding programmes.

The first four bullet points build the basis for a more detailed assessment and proposal in the last three points. Thus, the last three columns of the analytical matrix are tentative. They identify areas and proposals for interesting potential and should be considered in further programme development. However, given the very early phase of programme development, the proposals still need to be discussed with stakeholders and potential beneficiaries (through consultation) and analysed in the light of the final ERDF and Interreg regulations for 2021-2027. Thus, this input may inspire further discussion among programme partners when specifying the Interreg NWE Programme 2021-2027. For SOs selected by the programme partners, the final content of joint investment needs, targeted stakeholders and niches and comparative advantages will be outlined in the programme document.

2.4 Stakeholder analysis

The stakeholder analysis aims to provide first insights for defining target groups of the Interreg NWE programme 2021-2027. Given the uncertainty about selecting SOs and the types of activities favoured by the programme under different objectives this stakeholder analysis needs to be further detailed during programme drafting as the programme becomes more specified.

Within these limitations, the stakeholder analysis consists of an ex-post analysis that reflects on the participation of stakeholder groups in the Interreg NWE Programme 2014-2020 across different thematic domains. For this the partnership database has been reviewed to delete double-entries within themes.

Apart from participation in partnerships in the themes covered by the programme this analysis includes an assessment of the motivations of partners that was used to develop the ex-ante stakeholder analysis for the 2021-2027 programming period. As a first step to further specify potential future target groups for the Interreg NWE Programme, stakeholders have been divided into specific types of organisations with different motivations or which face different barriers limiting their future participation.

3 Territorial needs, challenges and cooperation niches under future POs

This chapter provides an overall territorial analysis of the NWE programme area for all five POs proposed by the European Commission in 2018 (COM(2018) 375 final, 2018). This approach aims to identify specific territorial needs and development goals in all policy and thematic areas that could be relevant under the POs of future Interreg programmes in 2021-2027. For each PO there is:

- **An overview of relations between the PO and the themes covered in the chapter.** Some thematic analyses may also be relevant for other POs but have been assigned to the PO where they are most important.
- **The results of the analysis of territorial needs and challenges for each theme that depicts corresponding features in the NWE cooperation area.** More in-depth thematic analyses underlying the results are detailed in the 'thematic in-depth report'.
- **A concluding SWOT table for each thematic analysis.** The SWOT analyses are complemented by an indication of territorial cooperation needs related to different functional areas. This provides initial territorial cooperation perspectives for the future Interreg NWE Programme.
- **Niches and comparative advantages of the Interreg NWE Programme for each SO within the PO.** These have been identified based on the analytical steps described above in the methodological notes (i.e. thematic territorial analyses, SWOT, steps of analytical matrix and assessment of other funding programmes). These sections provide tailored advice for recommending SOs per PO.
- **Analytical matrix for each SO within the PO.** For an overview and summary of needs, proposed tentative actions and niches, each PO chapter closes with an analytical matrix.

3.1 PO 1 – A smarter Europe

The regulatory framework defines four SOs under the first PO; enhancing research and innovation capacities, reshaping the benefits of digitalisation, enhancing growth and competitiveness of SMEs, and developing skills for smart specialisation, industrial transition and entrepreneurship (Table 3-1). All these SOs need to support good governance for national or regional smart specialisation strategies (COM(2018) 375 article11(1) and Annex IV).

To assess the challenges and needs for the SOs under PO 1 requires an understanding of general economic developments and possible disparities, regional economic structures and their implications for competitiveness, the level of innovation capacities and the progress made to transform to digital economies and societies. The table below presents the main links between the themes of the territorial analysis and the SOs.

Table 3-1 Overview of relations between PO 1 SOs and territorial analysis themes

SO / Theme	1.1 Enhancing research and innovation capacities and the uptake of advanced technologies	1.2 Reaping benefits of digitisation for citizens, companies and governments	1.3 Enhancing growth and competitive-ness of SMEs	1.4 Developing skills for smart specialisation, industrial transition and entrepreneurship
Socio-economic developments	X		**X**	
Competitiveness	**X**	X	**X**	X
Innovation capacities	**X**	X	X	**X**
Transition to a digital economy and society	X	**X**		X

3.1.1 Socio-economic developments[6]

In 2018, the cooperation area for North-West Europe accounted for 46% of Europe's gross domestic product (GDP), making it one of Europe's most productive and wealthy areas. On average the NUTS 2 regions in the cooperation area have a GDP at purchasing power standard (PPS) per inhabitant of EUR 34,820 against EUR 30,800 on average in Europe.[7]

The wealth is, however, not equally spread across the cooperation area. In 2018, the GDP per capita in PPS was highest in Inner London (EUR 190,500) and the lowest in West Wales and the Valleys (EUR 20,500). Half of regions in the cooperation had a GDP per capita close to the EU average.

The extent of the expected decrease of disparities and the timespan resulting from COVID-19 may differ significantly between territories, depending on the level of COVID-19 cases and government responses to the outbreak. The Alsace, province of Liège, North Brabant, Paris and London are among the territories most hit by the virus. Countries with very strict containment measures, such as France, Belgium and Luxembourg face severe impacts on the economy.

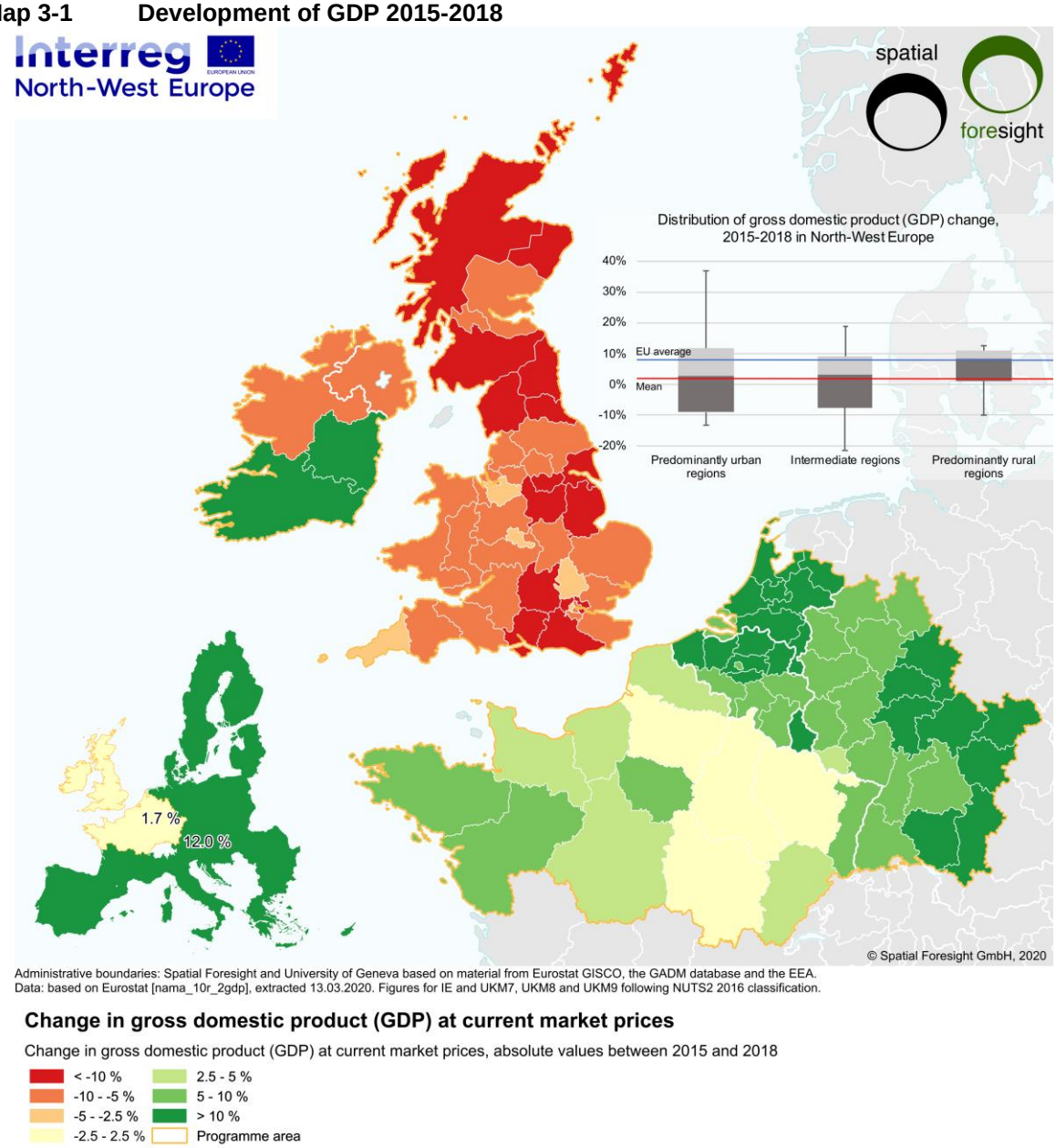
GDP has moderately increased in the cooperation area with differences between NUTS 2 regions and countries following the financial crises and the anticipation of Brexit. The increase of disparities is most pronounced between the UK and Western Ireland compared to other territories in the NWE cooperation area (Map 3-1). Between 2015 and 2018 and excluding the UK, GDP increased mostly in urban and intermediate regions and economic growth was moderate in rural regions. Without the UK, average GDP growth was 9% for NWE NUTS 2 regions, which is slightly above EU average.

These territorial patterns are confirmed by the development of disposable household income, both with respect to the UK and urban-rural disparities. Some predominantly rural areas benefit from income generated by commuters to neighbouring regions with a higher GDP (e.g. the predominantly rural region of Luxembourg in Belgium).

[6] Any territorial pattern observed in this section may alter in the next years, following diverse impacts of COVID-19 across the cooperation area. It may be assumed that overall GDP and household incomes will decrease.

[7] If not explicitly referenced, Eurostat 2020 data is used.

Map 3-1 Development of GDP 2015-2018



Source: own representation, 2020

Increasing socio-economic disparities in the NWE cooperation area call for cooperation on addressing these trends by adjustments and transfers from more successful regions with similar socio-economic and demographic structures (Figure 3-1).

Figure 3-1 SWOT on socio-economic developments*

Strengths	Weaknesses
• The cooperation area is one of Europe's most productive and wealthy areas.	• Regional GDP and household income are uneven and the difference between regions is increasing. Without the UK disparities are less severe and disparity increases are lower.
Opportunities	**Threats**
• Mainly outside UK, spill-over effects resulting from commuting may contribute to balancing income between regions.	• Brexit seems to have a considerable effect on GDP development especially in Irish regions, increasing levels of uncertainty.
Territorial cooperation needs	
• Cooperation on regional economic policies targeting lowest income territories. • Encourage investments or provide examples for investments in lowest income territories.	

*Here and in following SWOT-figures, blue highlights refer to variations from excluding the UK in the NWE programme area.

3.1.2 Competitiveness

Competitiveness has been assessed by analysing the regional competitiveness index, regional sector compositions and the regionally differentiated situation and development of SMEs as the backbone of economic activity in NWE.

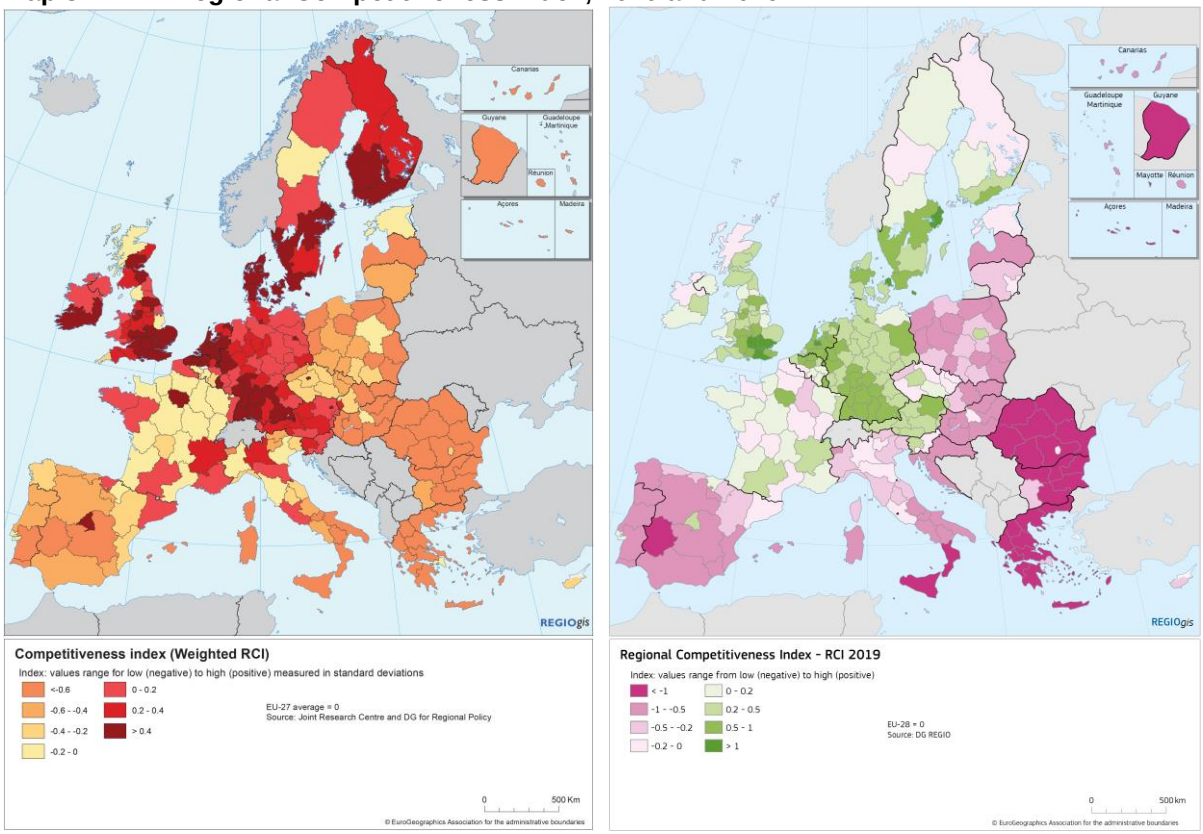
3.1.2.1 Regional competitiveness index

The regional competitiveness index measures a region's ability to offer an attractive and sustainable environment for firms and residents to live and work by comparing 11 competitiveness dimensions and 74 indicators. The index compares all European NUTS 2 regions (Annoni and Dijkstra, 2019).

Regional competitiveness in the NWE cooperation area is generally better than in most other parts of Europe (Map 3-2). Only eight NUTS 2 regions in the cooperation area have a slightly lower score than the European mean. These are mostly in France and in Belgium, Ireland and the UK. At the same time, six of Europe's ten most competitive regions are in the NWE cooperation area.

Similar to the socio-economic performance, urban and capital regions tend to perform better than rural regions. In addition, national differences for some aspects of competitiveness matter. Methodological changes in the index limit comparability, however about one third of the cooperation area's regions have been stable since 2010. For the other two thirds there is no clear geographical or territorial pattern for regions gaining or losing comparative competitiveness. The in-depth report (Chapter 1.2) provides for a multi-year comparison.

Map 3-2 Regional Competitiveness Index, 2010 and 2019*



* RCI scores as z-scores for EU-28 = 0 for the respective years

Source: Annoni et al. (2011) and Annoni and Dijkstra (2019)

3.1.2.2 Economic sectors

Regional economic profiles contribute to different regional competitiveness levels. Diverse regional profiles make the economy more resilient in case of crises (Bristow et al., 2014) and general trends create new opportunities and challenges for regions and/or specific sectors (ESPON, 2018a).

Table 3-2 shows the diversity of profiles in terms of gross value added (GVA) and highlights the most and least concentrated cooperation area sectors in NWE regions. Overall, financial and insurance activities contribute most to the GVA in the cooperation area with public administration and defence activities second. In some of the top-5 regions in the table, these sectors account for more than one-third of the total GVA. Despite being slightly less relevant in the NWE cooperation area compared to the EU average, industrial activities dominate GVA creation in some regions due to a focus on manufacturing while others face industrial transition challenges due to the role of coal, steel and other heavy industries (European Commission, DG REGIO, 2019).

Information and communication activities distinctively concentrate in urban areas. Outside these areas, the dominance of this sector in Eastern and Midland, in Ireland, is at least partly based on large multinational communication and software companies. Construction activities concentrate close to growing urban areas. Finally, the GVA contribution of agriculture, forestry and fishing is low in the NWE cooperation area. However, regional specialisations in sub-sectors gives relatively high GVA

contributions for these sectors in some regions as outlined in Section 1.2.3 in the thematic in-depth report.

Table 3-2 Sectors contributing most and least to regional economies in NWE, 2017[8]

	Agriculture, forestry and fisheries (% GVA in NACE code A)	Industry (except construction) (% GVA in NACE codes B, D & E)	Construction (% GVA in NACE code C)	Wholesale and retail trade, transport, accommodation and food service activities (% GVA in NACE codes G-I)	Information and communication (% GVA in NACE code J)	Financial and insurance activities (% GVA in NACE codes K-N)	Public ad-ministration and defence (% GVA in NACE codes O-U)
Top-5	Champagne-Ardenne, Cornwall and Isles of Scilly, Lincolnshire, Zeeland, Flevoland	Southern Ireland, Stuttgart, Tübingen, Schwaben, Rheinhessen-Pfalz	Essex, Outer-London East and North East, Kent, Cornwall and Isles of Scilly, Bedfordshire and Hertfordshire	Vlaams-Brabant, Flevoland, Outer London East and North-West, Zeeland, Zuid-Holland	Eastern and Midland, Greater London, Paris, Cologne, Utrecht	Inner London, Luxembourg, Outer London South, Brussels Capital Region, Paris	Namur, Luxembourg (Belgium), Hainaut, Nord-Pas-de-Calais, Lorraine
Bottom-5	Greater London, Brussels Capital Region, West Midlands, Greater Manchester, Paris	Greater London, Brussels Capital Region, Luxembourg, Utrecht, Noord-Holland	Inner London -West, Souther Ireland, Brussels Capital Region, Eastern and Midland, Noord-Holland	Southern Ireland, Inner London, Tübingen, Stuttgart, Rheinhessen-Pfalz	Zeeland, Trier, Luxembourg (Belgium), Champagne-Ardenne, Picardie	Southern Ireland, Highlands and Islands, Champagne-Ardenne, Trier, Zeeland	Southern Ireland, Eastern and Midland, Inner London – West, Stuttgart, Cheshire

Source: Based on Eurostat 2020 data (nama_10r_3gva)

3.1.2.3 SMEs

Small and Medium-sized Enterprises (SMEs) represent the majority of all business in the EU and in the cooperation area. They have a particularly high potential for innovation and growth. The share of SME value added in the overall economy increased between 2008 and 2016.[9] SMEs and micro-enterprises are particularly important for employment in rural regions as they account for about half the employment in several predominantly rural regions in the NWE cooperation area (ESPON, 2018b).

The number of social enterprises, focusing on social impact as well as economic benefits, remains very small but has been increasing in the cooperation area. Some countries introduced specific policy instruments to facilitate the development of these enterprises and the cooperation area includes some of Europe's leading countries and regions supporting them (Borzaga et al., 2020).

[8] Data for NWE NUTS 2 regions. In some cases, NUTS 2 regions in the greater London area have been grouped to describe more diversity. Data for France from 2016.

[9] SBA factsheets 2019 are available at https://ec.europa.eu/growth/smes/business-friendly-environment/performance-review_en

Different policy instruments facilitate the development of SMEs. In 2018, the Netherlands had the most comprehensive policy instruments in the cooperation area[10].

Territorial cooperation needs for enhancing competitiveness mainly arise from similarities in economic profiles and value chains (Figure 3-2).

Figure 3-2 SWOT on competitiveness

Strengths	Weaknesses
• Territories in the cooperation area have generally higher competitiveness scores than elsewhere in Europe, offering attractive and sustainable environments for firms and residents. • Regions in the cooperation area are among the leading regions to support social enterprises and social economy organisations. This is an economic niche with increasing attention, notably in FR, BE and the UK.	• Different instruments in NWE countries provide different conditions for SMEs across borders, challenging internationalisation and cooperation ambitions of entrepreneurs.
Opportunities	**Threats**
• Competitive urban regions may function as hubs for growth and innovation that can spread in their 'rural' surroundings. • SMEs increasingly contribute to national economies in NWE countries enhancing innovation potential and the dynamics of the economy. • Different foci in policy instruments for SMEs in NWE countries may be a source of inspiration to further support SME development. • General presence of financial and insurance activities, public administration and industrial activities throughout the area provide possibilities for cooperation in these sectors. • NWE has a diverse economic profile covering a variety of sectors making the overall economy robust in case of economic crisis. • Without the UK, fewer regions have low competitiveness scores following the European regional competitiveness index. Regions with low competitiveness and decreasing scores remain only in FR.	• Niche sectors like the social economy lack a common definition in the cooperation area which may hamper common approaches to support such sectors. • Some regional economies are dominated by one or a few sectors. This makes these regions more prone to economic crisis. • Overrepresentation of coal, steel or other heavy industries in a territory may pose additional challenges in view of ongoing industrial transformations. Without the UK the number of these regions decreased, risking a lack of critical mass for cooperation activities.

[10] SBA country reports 2019 available at https://ec.europa.eu/growth/smes/business-friendly-environment/performance-review_en

Territorial cooperation needs

- Policy coordination of SME instruments, notably targeting internationalisation and territories with the lowest competitiveness scores.
- Dissemination of practices to enhance attractive and sustainable environments for enterprises and entrepreneurship notably from the most competitive to less competitive regions (according to the DG REGIO competitiveness index).
- Sector specific investments and policy coordination of support instruments to enhance competitiveness in regions with similar economic profiles (functional regions along economic value chains), e.g. fintech in London, Luxembourg, Brussels and Paris; industrial transition in Northern France, Wallonia, Northern England, Ruhr and Saar regions; regions with automotive industries including suppliers, tourism regions
- In view of COVID-19 (not covered by the statistical analysis) economic recovery strategies could be developed jointly in regions with similar economic profiles.

3.1.3 Innovation capacities

Innovation systems in cooperation area regions, measured in terms of the regional innovation scoreboard[11], are among the best developed in Europe (European Commission, 2019a). The cooperation area includes some of Europe's leading innovative regions and only four are considered as moderate innovators, namely Koblenz, Normandie, Hauts-de-France and Zeeland. However, all regions provide specific conditions that favour innovation as indicated by individual indicators in the regional innovation score and no region excels in all of them.

Between 2011 and 2019, many regions with high scores, especially in Germany, lost ranks against the European average. While others either kept their relative position or even improved it, this may suggest that territorial disparities decreased during this period.[12]

The strength of the NWE cooperation area innovation system is visible in above EU average R&D expenditure (Map 3-3). In 2017, R&D expenditure matched the European 2020 target of 3% of GDP in a few regions north of London, the southern Netherlands, regions around Antwerp and Brussels and several German regions.

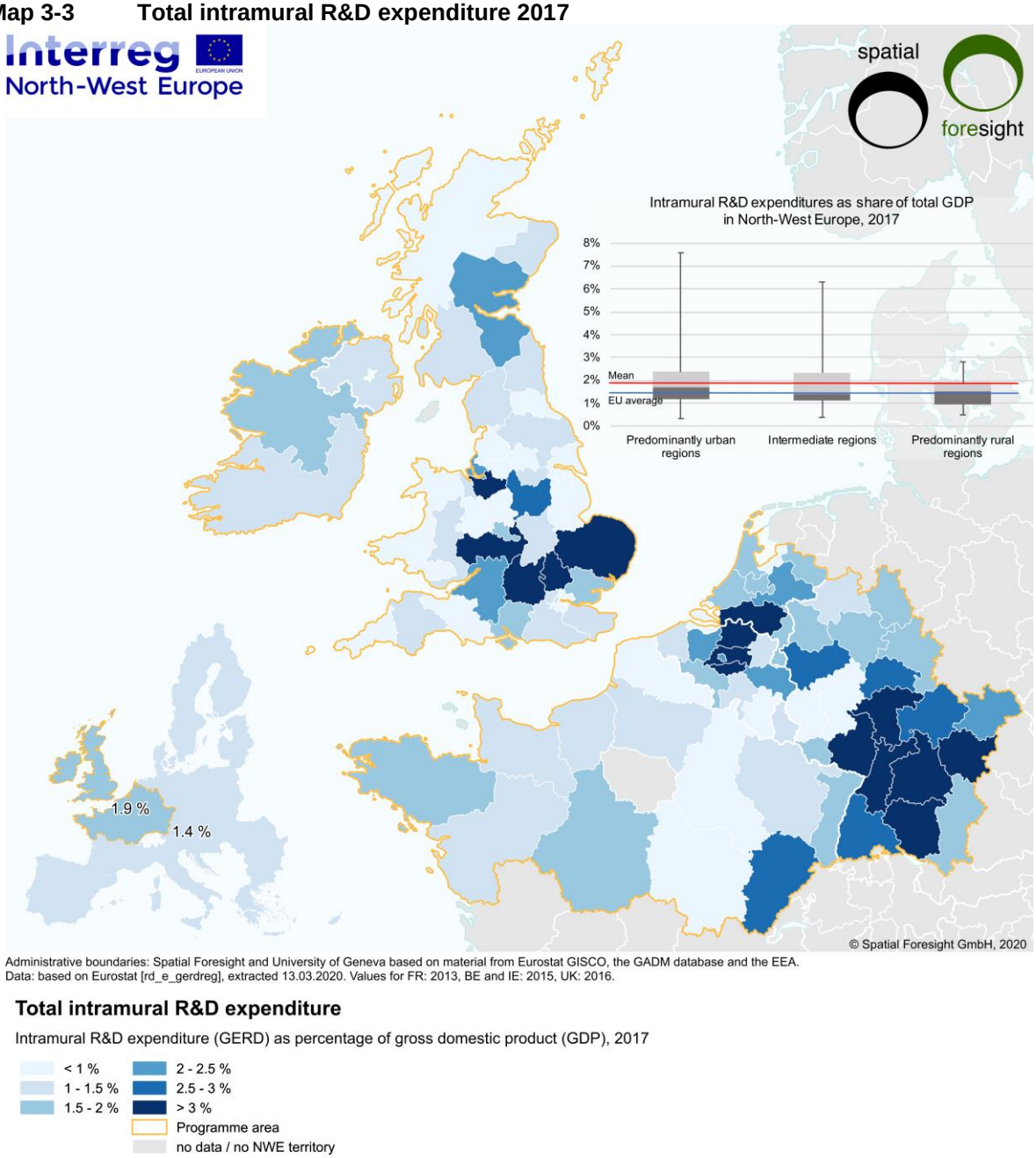
Public authorities in Europe encourage innovation mainly by overall support for business R&D and increasingly through support for science and industry cooperation. Fewer public authorities encourage innovation through public sector innovation initiatives, social innovation initiatives and support for participation in international R&DI programmes (Walenndowski et al., 2017). Similarities among policy objectives, scientific domains and economic domains in RIS3 can be a cooperation starting point to further enhance and implement this policy instrument. Coordination among these strategies and corresponding investments enable further strengthening of priorities, e.g. to strengthen a critical mass for R&D, or by linking value chains. Sustainable innovations, digital transformations, key enabling technologies and public health and security are among the key policy objectives in the cooperation area RIS3. The main scientific domains are a general advancement of knowledge and focus on increasing

[11] The scoreboard combines 17 indicators to measure the innovation score of each region against the European average. The scoreboard includes territories at different NUTS levels. Information is for example published at NUTS 2 levels for the Netherlands and Germany and only at NUTS 1 level for France and the UK.

[12] Precise trends cannot be concluded from the data as the ranking is subject to the European average. Thus, a region may be ranked lower despite increasing its innovation performance.

knowledge of industrial production and technology. The most important economic domains in the cooperation area's RIS3 are manufacturing, professional scientific and technical activities and information and communication technologies.[13]

Map 3-3 Total intramural R&D expenditure 2017



Source: own representation, 2020

Territorial cooperation potential relates mostly to measures that help reduce territorial disparities, i.e. cooperation between innovation leaders and regions lagging in innovation performance (Figure 3-3).

[13] Based on the JRC Eye on RIS database.

From a more horizontal perspective (see also chapters on other POs and analytical matrix), there may be a variety of cooperation potential attracting different types of regions.

Figure 3-3 SWOT on innovation capacities

Strengths	Weaknesses
• Territories in the cooperation area have generally above EU-average innovation systems. • RIS3 in the cooperation show several similarities in policy objectives, scientific domains and economic domains offering a starting point for dialogue.	• Changes in regional innovation scores between 2011 and 2019 suggest that most territories in the cooperation area increased their innovation performance less than elsewhere in Europe. Only a few territories in the cooperation area improved their score, among which were territories that were already innovation leaders. • Public R&D expenditures are unevenly distributed across the cooperation area.
Opportunities	**Threats**
• Territorial differences among the key strengths for regional innovation provide opportunities to share experiences and learn from different examples. • The variety of policy measures in support of SMEs provides opportunities for local and regional authorities to share experiences and learn from different examples. • Regional innovation capacities may be improved based on commonalities in RIS3.	• Overly diverse measures encouraging innovation may hamper a balanced playground for innovations, offering more opportunities in one region than in the other, with the risk of increasing territorial differences on regional innovative capacities.
Territorial cooperation needs	
• Further disseminate approaches to enhance innovation capacities between innovation leaders and regions that are less well ranked on the EU innovation scoreboard or have lost their positions in recent years.	

3.1.4 Transition to a digital economy and society

The von der Leyen European Commission made digital transformation one of its six priorities for 2019-24.[14] It stimulates the development and use of new technologies in businesses and services as outlined in Section 1.4 of the thematic in-depth report.

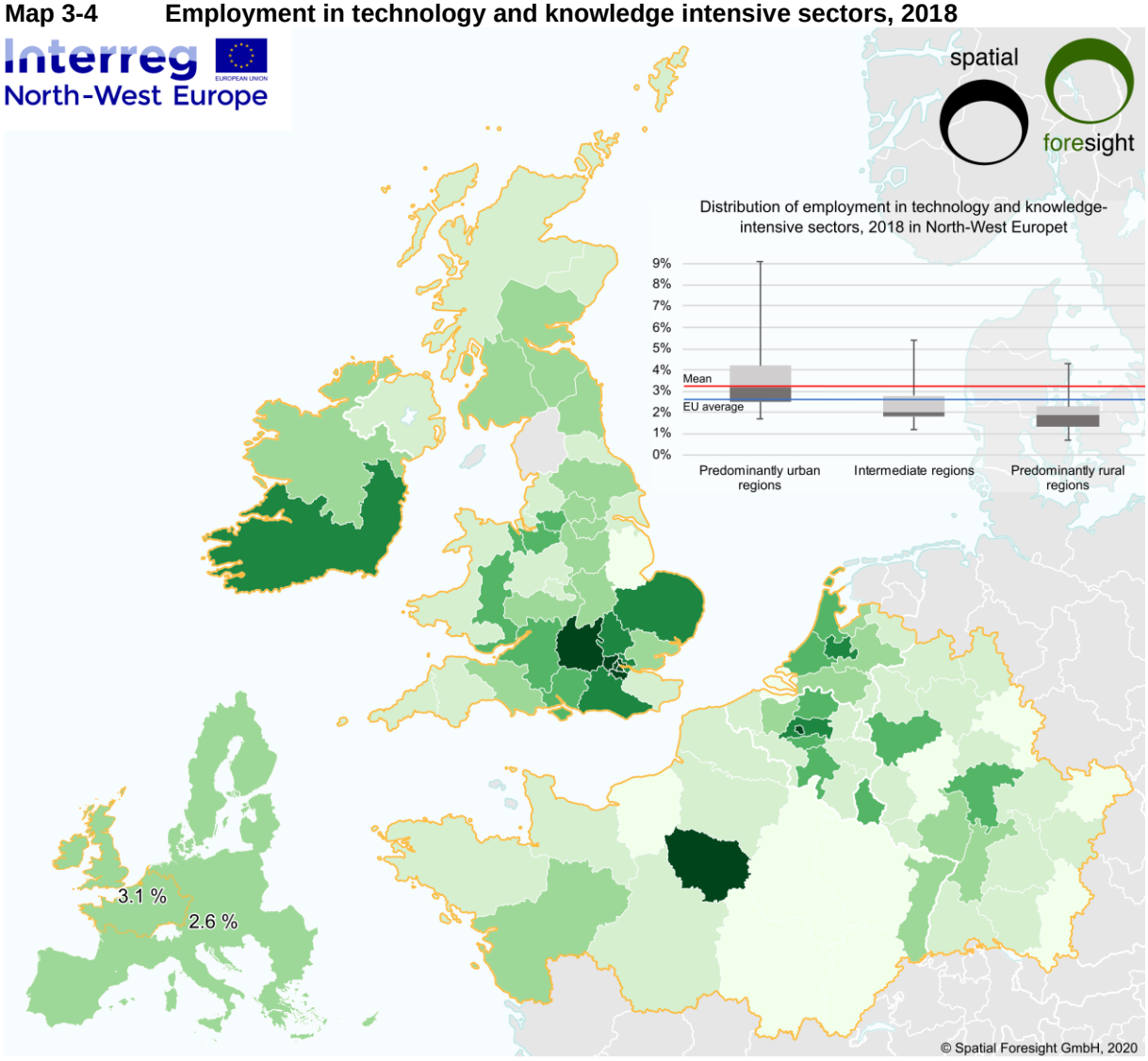
Several regions in the NWE cooperation area are frontrunners in the transition to a digital economy and society. Particularly regions in the Netherlands, UK and Ireland score highly on the European Digital Economy and Society Index (DESI).[15] Between 2014 and 2019, the digital performance of countries in the cooperation area increased for all five components. This increase was most pronounced in connectivity and was considerable for integrating digital technology in businesses and public services. Some regions previously leading in these two components managed to perform better than the EU

[14] See https://ec.europa.eu/info/priorities_en

[15] Based on the EU DESI composite index available at https://digital-agenda-data.eu/datasets/desi. DESI is a composite index summarising indicators on Europe's digital performance and tracks the evolution of EU Member States. The index has five components and 13 indicators.

average, which contributed to increasing disparities for digital technology integration. At the same time, digital public service disparities decreased.

Map 3-4 Employment in technology and knowledge intensive sectors, 2018



Administrative boundaries: Spatial Foresight and University of Geneva based on material from Eurostat GISCO, the GADM database and the EEA.
Data: based on Eurostat [htec_empl_reg2], extracted 13.03.2020. Values for FR21 and UKM5: 2017, DEB2, UKM2 and UKM3: 2012, IE01 and IE02: 2011.

Employment in technology and knowledge-intensive sectors, 2018

Employment in technology and knowledge-intensive sectors, percentage of total employment

< 1.5 %	4.5 - 5.5 %
1.5 - 2.5 %	> 5.5 %
2.5 - 3.5 %	Programme area
3.5 - 4.5 %	no data / no NWE territory

Source: own representation, 2020

Few comparable data allow insights at regional level of the transition to a digital economy and society. The share of employment in technology and knowledge intensive sectors illustrates a potential for the development of technological solutions that can support the digital transition. Employment in technology and knowledge intensive sectors concentrates in capital regions (Map 3-4) and is still relatively high in

regions hosting secondary cities and university towns. High population density and the availability of highly skilled labour attract knowledge intensive enterprises and provide fertile ground for respective start-ups. In addition, a concentration of technological expertise and knowhow with respect to industry 4.0 can be observed in some leading innovative regions (Walenndowski et al., 2017).

Territorial cooperation potential relates mostly to measures that help reduce territorial disparities, i.e. cooperation between leading and lagging regions in digitalisation and its deployment (Figure 3-4). Considered from a more horizontal perspective (see also chapters on other POs and analytical matrix), there may be other cooperation potential attracting different types of region.

Figure 3-4 SWOT on the transition to digital economies and societies

Strengths	Weaknesses
• NWE countries are generally progressing well to transform to digital economies and societies, in particular NL, UK and IE. • The cooperation area includes regions with many SMEs that introduce new products and processes for manufacturing activities, supporting a technological transition. Moreover, regional differences are diminishing implying a more balanced distribution of technological innovations.	• Disparities in the degree of digital technology integration in businesses seem to be increasing.
Opportunities	**Threats**
• Different countries have different strengths in the transition to digital economies and societies. NL and IE are leading in connectivity, LU is leading in human capital, NL in the use of internet and BE in the integration of digital technologies in business and the use of digital public services. These differences can be a source of inspiration for transnational cooperation.	• Employment in knowledge intensive sectors concentrates in capital regions. Without levers to diffuse the knowledge and development of new technologies, more rural regions may become left behind. • SMEs that create and diffuse technologies increasingly cluster in a few regions in the cooperation area, especially in BE and the UK. The concentration of these enterprises in certain regions risks leaving other regions behind in their transition to digital economies and societies.
Territorial cooperation needs	
• Cooperation between players in places where digital technology is developed and where it can bring an added value to economic, social or environmental development.	

3.1.5 Niches and comparative advantages under PO 1

The following table summarises the assessment and recommendations related to comparative advantages for the SOs under PO 1.

Table 3-3 Assessment of NWE comparative advantages of PO 1 for 2021-2027

PO and SO	Available Niches	Potential added value of NWE	Coverage by alternative funding programmes	Comparative Advantage
PO1				
SO1.1	++	+ (+)	very high	o (+)
SO1.2	++	++	medium	+
SO1.3	+	+	very high	o
SO1.4	++	+++	high	+

Transnational cooperation provides specific opportunities for a smarter Europe complementing other European programmes. Within the variety of other European programmes supporting a smarter Europe the Interreg NWE Programme must define its specific comparative advantages that often lie in its cooperation opportunities. Other **cross-border and transnational Interreg programmes**[16] might offer similar thematic opportunities to stakeholders, their selection of SOs within PO 1 remains to be seen. Across SOs the competitive advantage of the Interreg NWE Programme compared to cross-border programmes lies in transferring and scaling-up pilot activities and new solutions across the territory.

The following presents tentative ideas on possible niches or comparative strengths for transnational cooperation in NWE to be further specified in the programming process.

SO 1.1 Enhancing research and innovation capacities and the uptake of advanced technologies

The territorial analysis illustrates possibilities for facilitating and stimulating innovation including links to RIS3 based on similar policy objectives, scientific domains and economic sectors addressed by these. Thus, the variety of potential actions is high, especially when considering innovation as a horizontal theme that can induce innovation for a greener, a more connected, more social Europe or a Europe closer to its citizens. In this sense, innovation activities may also target stakeholders beyond research institutions, business associations and companies.

The potential added value may be limited in view of the innovation focus of previous NWE programmes. A higher potential value added may be achieved if previous policy learning and pilot actions can be used to scale up innovation activities in the cooperation area.

Coverage by other programmes is very high. Cooperation for innovation is typically not limited to transnational cooperation areas. Thus, **Horizon Europe** will be particularly important for excellent research and innovation in Europe offering very different sizes for projects and is based on cooperation. Similarly, the new EU instrument for **Interregional Innovation Investments** will offer an added value through partnerships with stakeholders from outside NWE. In addition, current programmes such as **Interreg Europe, URBACT, Urban Innovative Actions (UIA) and the Vanguard initiative**[17] also

[16] References to other Interreg programmes always refer to the programmes either within or with overlaps with the NWE cooperation area.

[17] The Vanguard initiative is a partnership of European regions focusing on growth opportunities through smart specialisation, bottom-up entrepreneurial innovation and industrial renewal. This partnership includes various partner regions from the

address innovation capacities that could stimulate cooperation in the NWE cooperation area. The NWE programme has advantages in terms of higher success rates for applicants e.g. compared to Horizon Europe and offers more diverse cooperation opportunities for stakeholders other than research institutions and SMEs with the possibility to include a territorial focus covering specific local and regional needs.

Transnational cooperation has an added value in complementing mainstream ERDF and national funding, as well as other European programmes. Given these limitations SO 1.1 is not recommended if considered in the usual sense. If, however, it is considered as a **horizontal objective** as outlined above, e.g. if PO 5 is not pursued, and if **focusing on scaling up** previous NWE and other programme activities and aiming to improve innovation capacities in **lagging regions** in NWE, it can be recommended. In such an approach, overlaps with interregional innovation investments under Interreg Component 5 (Interregional Innovation Investments) activities need to be avoided by emphasising a territorial approach.

SO 1.2 Reaping the benefits of digitalisation for citizens, companies and governments

The territorial analysis illustrates various cooperation possibilities. Cooperation could provide added value by developing solutions for public service provision or adopting digital solutions from a transnational perspective or with a territorial implication. If considered horizontally, addressing benefits of digitisation in various sectors and relations could increase the number of potential actions, creating high added value for this SO.

Compared to national/regional programmes and other EU funding there are specific niches for NWE. The main EU programmes in this field are the digital section of the **Connecting Europe Facility (CEF)** and the proposed **Digital Europe programme 2021-2027**. The former focuses on infrastructure and the latter aims to build strategic digital capacities and to facilitate digital technology deployment.[18] There will be a networking component under the European Digital Innovation Hubs that have a specific territorial focus. Transnational cooperation can complement this by offering cooperation beyond these hubs and with a focus on overcoming territorial disparities visible in the thematic analysis.

Thus, especially if addressed as a **horizontal topic**, SO 1.2 can be recommended for the future Interreg NWE Programme. The niches are in **territories not addressed by the Digital Europe programme** and with a focus on benefits from **cooperation activities**, where digitalisation benefits can be brought to more regions, e.g. through scaling up. For this, synergies with non-cooperative activities of Digital Europe may also be sought.

SO 1.3 Enhancing growth and competitiveness of SMEs

The territorial analysis illustrates possibilities for cooperation although the variety of joint challenges is lower than for the first two SOs under PO 1. The value added of transnational cooperation may be relatively low due to existing domestic and other European programmes encouraging growth and

cooperation area, namely Baden-Württemberg, East Netherlands, Flanders; North Rhine-Westphalia; Pays de la Loire; Randstad; Scotland; South Netherlands, Wales, and Wallonie.

[18] https://ec.europa.eu/digital-single-market/en/news/digital-europe-programme-proposed-eu92-billion-funding-2021-2027

competitiveness of SMEs. Transnational cooperation should avoid business support measures that can be provided by other programmes. A potential cooperation focus may be to support regional and transnational value chains requiring the collaboration of business associations and businesses across NWE regions and countries. However, similar to innovation, these value chains (if not regionally rooted) do not depend on transnational functional links.

Many EU programmes provide different types of business support. The main ones are:

- **Single Market Programme** 2021-2027 supporting economic development, digitisation and SMEs,
- **InvestEU Fund** offering financial instruments to boost private investments;
- **Just Transition Fund** to support regions in industrial transition;[19]
- **ERDF mainstream programmes** that in the past often offered a variety of SME support tailored to national or regional needs.

Niches with comparative advantage for the Interreg NWE programmes may be limited. SO 1.3 is thus not recommended for the Interreg NWE Programme 2021-2027.

SO 1.4 Developing skills for smart specialisation, industrial transition and entrepreneurship

Skills under this SO can be considered horizontally as they are directly connected to innovation capacities (SO 1.1), training (SO 4.2) and labour markets (SO 4.1). The similarities in RIS3 and smart specialisation industrial transition challenges across the NWE cooperation area pose opportunities for enhancing skills development to tackle these through cooperation. Addressing these challenges jointly may create high added value not achieved by regional programmes to the same degree.

There is a considerable variety of EU programmes that address skills. This includes the new **ESF+ programme** which will tackle the promotion of employment and labour markets, **ERASMUS+** will address education and training, the **European Globalisation Adjustment Fund** (EGF) and the **Just Transition Fund** focus on industrial transition. Also, domestic programmes support these regions, for example the French initiative for 'Bassin Minier'[20] in Northern France. Compared to these programmes there are specific niches for NWE due to the focus on cooperation that is less developed or does not exist in the other programmes, apart from ERASMUS+.

Thus SO 1.4 can contribute to enhancing skills by providing extra access points to skills development than other EU programmes. Against this consideration SO 1.4 can be recommended. **Scaling up individual approaches** across the NWE cooperation area and addressing **regional and local development challenges rather than general skills** development may provide specific niches and comparative advantages for the NWE programme.

[19] For support of industrial transition see Alessandrini et al. (2020)) and European Commission (2018a).

[20] See for example : http://www.pas-de-calais.gouv.fr/Actualites/Actualites/L-Engagement-pour-le-renouveau-du-bassin-minier

3.1.6 Analytical matrices for all SOs under PO 1

PO	SO	Specific needs in NWE	(Transnational) functional links	Potential for cooperation	Challenges for transnational cooperation	Common Challenges – Joint investment needs	Stakeholder mapping	Niches/comparative strengths of NWE (Complementarities)
PO 1: A smarter Europe by promoting innovative and smart economic transformation	SO 1.1 Enhancing research and innovation capacities and the uptake of advanced technologies	Increasing innovation capacities in mostly rural regions, notably in FR, NL and the UK.	Similar approaches and measures to promote and encourage innovation can be found throughout the cooperation area. Similar global policy objectives, scientific domains and economic domains across the cooperation area to enhance innovation through smart specialisation.	Sharing practices and learning from each other's measures to promote and stimulate innovation. Linking RIS3 across the cooperation area to offer opportunities for cooperation among key innovation players, among which research centres, cluster organisations and enterprises (in the same value chain).	Similarities among RIS3 are mainly identifiable at a global level; the details of policy objectives, scientific domains and economic domains differ largely, limiting cooperation and coordination opportunities in value chains. Budget limitations make Interreg projects generally focus on exchange of experiences and policy learning. Investments or specific schemes to enhance regional innovation capacities require more territorially specific approaches. The draft regulations proposed a new component 5 for the Interreg programme that focuses exclusively on interregional innovation investments . Other European programmes, such as Horizon Europe specifically target fundamental research and the development of innovation. Budget limitations make Interreg projects generally focus on testing and applying innovations.	- Better coordination of innovation policies and measures to stimulate innovation. - Studies on different value chains and flows in the cooperation area, key challenges and opportunities to enhance innovation capacities (e.g. circular, low carbon, digital, social etc.) . - Feasibility studies to link value chains and stimulate innovation from development until production and delivery. - Testing and applying new products or processes in different value chains - Testing and applying new technologies for public service provision.	- Chambers of Commerce, Artisan Chambers, economic development agencies, regional development agencies, local development agencies. - Technology parks, Business Innovation Centres, Incubators, Accelerators. - Technology-Platforms, Cluster - SMEs and large enterprises - business and sectoral associations - Lobby organisations, networks, - Local/Regional Public Authorities - National Authorities - Universities, public research centres, private research units, schools, training institutions.	If considered as a horizontal topic: Territorial approach to targeting innovation capacities in rural areas. Scaling up previous NWE innovation investments to other NWE territories. Creating synergies with other programmes through scaling up and transferring innovation experience from other programmes to NWE regions, particularly to those lagging in innovation. Complementing other European programmes to encourage innovation in specific value chains, particularly with a territorial focus.

PO	SO	Specific needs in NWE	(Transnational) functional links	Potential for cooperation	Challenges for transnational cooperation	Common Challenges – Joint investment needs	Stakeholder mapping	Niches/comparative strengths of NWE (Complementarities)
PO 1: A smarter Europe by promoting innovative and smart economic transformation	SO 1.2 Reaping the benefits of digitalisation for citizens, companies and governments	Diffusion of technology and application of technologies in product and process development and for the delivery of services from current frontrunners in the transformation of technological transition (NL, UK, IE and capital regions) to other areas (FR and rural regions). Territorial imbalance of innovation performance with South East England, southern Dutch and southern German regions as innovation leaders.	Flows of information and ideas are generally at global level (diffusion of tested technologies) or local level (development of technologies).	Encouraging innovation, developing knowledge & new technologies. Digitisation of public service provision. Application / testing of technologies in less densely populated places. Strengthening digital integration by SMEs to reduce gaps across territories.	Budget limitation makes Interreg projects generally focusing on testing, sharing of ideas and applications etc. Other proposed EU programmes for 2021-2027 on digitalisation have a cooperation component, including H2020, Invest EU, EU digital programme. However, few focus on diffusing technologies. Knowledge flows on developing new technologies are generally global among research institutes. Some knowledge and technological advancements are not easily shared if they are still in fundamental innovation stages.	- Studies on different value chains and flows in the cooperation area, key challenges and opportunities to transform to an aspired economy… (e.g. circular, low carbon, digital, social etc.) . - Feasibility studies on ways to diffuse and apply new technology in all territories. - Testing and applying new products or processes in different value chains. - Testing and apply new technologies for public service provision. - Exchange of experience on policy instruments to address SME development needs (scaling up, entrepreneurship, innovative support schemes) . -Exchange of experience on policy instruments facilitate economic transitions (low carbon, industrial transitions, CE, social economy etc.) .	- Chambers of Commerce, economic development agencies, regional development agencies, local development agencies. - Technology parks, Business Innovation Centres, Incubators, Accelerators. - Technology-Platforms, Cluster - SMEs and large enterprises - business/sectoral associations - lobby organisations, networks, - Local/Regional Public Authorities - National Authorities - Universities, public research centres, private research units, - Schools - Sectoral Agencies (on IT, data, health care, social services.	Focus on territorial disparities in the deployment of digitisation and filling territorial gaps (i.e. outside hubs) not covered by other programmes and across sectors including public services and education. Bringing digitisation experience from advanced to lagging regions through urban-rural and rural-rural cooperation. Creating synergies with Digital Europe activities (European Digital Innovation Hubs) and results by fostering implementation in other NWE territories.

PO	SO	Specific needs in NWE	(Transnational) functional links	Potential for cooperation	Challenges for transnational cooperation	Common Challenges – Joint investment needs	Stakeholder mapping	Niches/comparative strengths of NWE (Complementarities)
PO 1: A smarter Europe by promoting innovative and smart economic transformation	SO 1.3 Enhancing growth and competitiveness of SMEs	Unbalanced attractiveness and sustainable environments for firms in the cooperation area, expressed by levels of regional competitiveness. SMEs contribute increasingly to overall regional economies.	Enterprises, including SMEs benefit from the European internal market as well as their trade and relations in value chain functional links. These same links and interrelations help explain relations and interaction between regional growth, e.g. economic growth in one region can imply growth or decline in other regions, depending on the interrelations.	Support for SMEs in value chains which generally cross several territories. Sharing practices and learning from each other's measures to facilitate the development of SMEs. Studies that provide more information and detail of value chains.	Territories compete with each other providing different environments for enterprise development (including SMEs) A variety of other European programmes support SME development, most notably regional operational programmes for ERDF, Single Market Programme, Invest EU and Horizon Europe. Other programmes targeting SMEs, include LIFE, ESF, EMFF and EAFRD. Some of these have a cooperation component, such as the European Enterprise Network supported through the Single Market Programme, Horizon Europe and InvestEU. Lack of comparable knowledge on the needs of SMEs by territory, as well as a lack of knowledge and evidence on SME development and their relations.	- Studies providing comparable information on SMEs and entrepreneurship at subnational levels to better assess specific needs of SMEs. - Feasibility studies to link value chains and stimulate competitiveness and growth in these value chains. - Better coordination of economic and SME policies and measures to facilitate entrepreneurship and SME development.	- Chambers of Commerce, Artisan Chambers, economic development agencies, regional development agencies, local development agencies. - Technology parks, Business Innovation Centres, Incubators, Accelerators. - Technology-Platforms, Cluster - SMEs and large enterprises - business and sectoral associations - Lobby organisations, networks, - Local/Regional Public Authorities - National Authorities - Universities, public research centres, private research units, schools, training institutions.	Low comparative advantage – not recommended

PO	SO	Specific needs in NWE	(Transnational) functional links	Potential for cooperation	Challenges for transnational cooperation	Common Challenges – Joint investment needs	Stakeholder mapping	Niches/comparative strengths of NWE (Complementarities)
PO 1: A smarter Europe by promoting innovative and smart economic transformation	SO 1.4 Developing skills for smart specialisation, industrial transition and entrepreneurship	Lack of knowledge on current links between RIS3 in the cooperation area. A need for industrial transition is shared among various territories across the area, notably regions with an overrepresentation of coal, steel or other heavy or mining industry, e.g. northern France, Wallonia, Northern England, southern Wales, the Ruhr area or Saarland. Variety of development components for digitalisation provide different opportunities across the cooperation area.	RIS3 in all territories of the cooperation area. RIS3 policy objectives, scientific domains and economic domains are similar across the cooperation area at a global scale. Territories with large shares of industries in a transformation process share similar challenges.	Linking RIS3 across the cooperation area to offer opportunities for cooperation among key innovation players, among which research centres, cluster organisations and enterprises (in the same value chain) . Studies or projects that enable comparison and learning from other practices to deal with industrial transition. Studies that provide more detail and information on the level of entrepreneurship and levers that facilitate it.	Similarities among RIS3 are mainly identifiable at a global level; the details of policy objectives, scientific domains and economic domains differ significantly, limiting cooperation and coordination in value chains. The draft regulations proposed a new component 5 type of Interreg programme that focuses exclusively on interregional innovation investments. The ESF as well as mainstream ERDF programmes may invest in skills that could also benefit smart specialisation, industrial transition and entrepreneurship. The proposed Just Transition Fund from the European Commission targets regions that face challenges from industrial transformation. The proposal does not consider any cooperation among these regions.	- Coordination among smart specialisation strategies and other policies to facilitate the development of skills. - Testing and applying new measures or instruments that facilitate skills development for smart specialisation, industrial transition or entrepreneurship. - Specific measures to limit the challenges of territories with a large share of industry in transition and promote opportunities in these regions.	- Chambers of Commerce, Artisan Chambers, economic development agencies, regional development agencies, local development agencies. - Technology parks, Business Innovation Centres, Incubators, Accelerators. - Technology-Platforms, Cluster - SMEs and large enterprises - business and sectoral associations - Lobby organisations, networks, - Local/Regional Public Authorities - National Authorities - Universities, public research centres, private research units, schools, training institutions.	Skills development with regional and local development challenges as a starting point rather than individual skills development supported by other programmes. Using similar challenges to enhance skills jointly in NWE (RIS3 and industrial transition). Scaling up individual approaches to tackle skills gaps.

3.2 PO 2 – A greener, carbon free Europe

The regulatory framework defines seven SOs under the second policy objective, addressing energy efficiency, renewable energies, smart energy systems, climate change adaptation and resilience, water abstraction, a CE and GI (Table 3-4).

To assess the challenges and needs for the SOs under PO 2 requires an understanding of energy systems and means to achieve energy related EU targets, environmental conditions related to air and water quality, natural assets and GI, climate change impacts and environmental risks as well as the current state of achievements regarding a CE. The table below shows the main links between the territorial analysis themes and SOs.

Table 3-4 Overview of relations between PO 2 SOs and territorial analysis themes

Theme \ SO	2.1 Promoting energy efficiency measures	2.2 Promoting renewable energy	2.3 Developing smart energy systems, grids and storage at local level	2.4 Promoting climate change adaptation, risk prevention and disaster resilience	2.5 Promo-ting sus-tainable water manage-ment	2.6 Promoting the transition to a circular economy	2.7 Enhancing biodiverse-ty, green infrastruc-ture in the urban environ-ment, and reducing pollution
Energy	**X**	**X**	**X**	X			
Climate change adaptation, flooding and environment-tal risks				**X**	X		
Greenhouse gas emissions & air quality	X	X		**X**			
Green infrastructure					X	X	**X**
Water abstraction				X	**X**		X
Circular economy						**X**	X

3.2.1 Energy

Becoming the world's first climate-neutral continent by 2050 is the objective of European Green Deal (COM (2019) 640 final), the most ambitious package of measures that should enable European citizens and businesses to benefit from sustainable green transition. The energy related territorial analysis addresses energy production, demand and systems for electricity and heating and cooling respectively.

In addition to progress in the territorial development of energy demand and supply, developing appropriate multi-level governance systems is crucial, since the transition to a low carbon economy requires the involvement of various stakeholders, which vary depending on national frameworks.

Examples from NWE regions show how stable partnerships, networks and new institutions support this transition.[21]

3.2.1.1 Renewable energy investments and carbon storage

Using renewable energy has many potential benefits, including a reduction in greenhouse gas emissions, diversification of energy supplies and a reduced dependency on fossil fuel markets (in particular, oil and gas), stimulating employment through jobs in new 'green' technologies and improving the security of the energy supply. From a territorial perspective renewable energy production may contribute to rural economic development. Targets for deploying renewable energy sources (RES) differ considerably between NWE countries, for both the anticipated quantitative targets and their definition.

RES include wind, solar (thermal, photovoltaic, and concentrated), hydro and tidal power, geothermal energy, ambient heat captured by heat pumps, biofuels and the renewable part of waste. Energy consumption from renewables is lower in this area than the EU average, ranging from 7.4% in the Netherlands to above 16% in France and Germany.[22] The share of renewable sources in electricity is the highest and has significantly increased in recent years as detailed in the in-depth thematic report (Section 2.1.1). The analysis reveals that the share of renewables for transport remains very low. Despite the uptake of renewables for transport fuel and for heating and cooling the variation in NWE countries is the largest, indicating further potential.

Wind energy accounts for nearly half the RES in NWE, which is mainly due to on- and off-shore installations in Germany, France and the UK. Installed wind power capacity is well above the EU average in several NWE regions with capacities above 1,000 MW (Map 3-5). Comparing this with the potential for onshore wind electricity generation, reveals that the NWE areas with the highest potential are mostly those with the most existing capacity. However, untapped potentials may exist especially along NWE coastal areas (ESPON, 2018c) but further installations are also subject to networks and submission infrastructure (see next section).

Hydro power is the second most important RES in NWE (18% of total RES in 2018), most of which is in French regions with little potential in other NWE areas. Solar power, including solar photovoltaics and solar thermal generation comes third (16%), which is mainly related to installations in Germany as well as in the UK and in France. There is further considerable potential in regions of several NWE countries.[23] Biomass accounted for less than 10% of NWE RES production in 2018 and is concentrated in the UK (54.1%), and Germany (24.9%), while the potential for energy production from biomass is also high in many other parts of the NWE cooperation area. All other renewables are currently of minor importance in the NWE cooperation area.

This focus on a shift towards RES comes together with decommissioning coal production. Twenty-two NUTS 2 regions host coal-fired power stations and 13 regions have coal mines. Apart from the UK the power stations are in Germany, France, the Netherlands and one in Ireland. In consequence, the NUTS 2 regions in the NWE cooperation area hit hardest by the industrial transition due to decommissioning

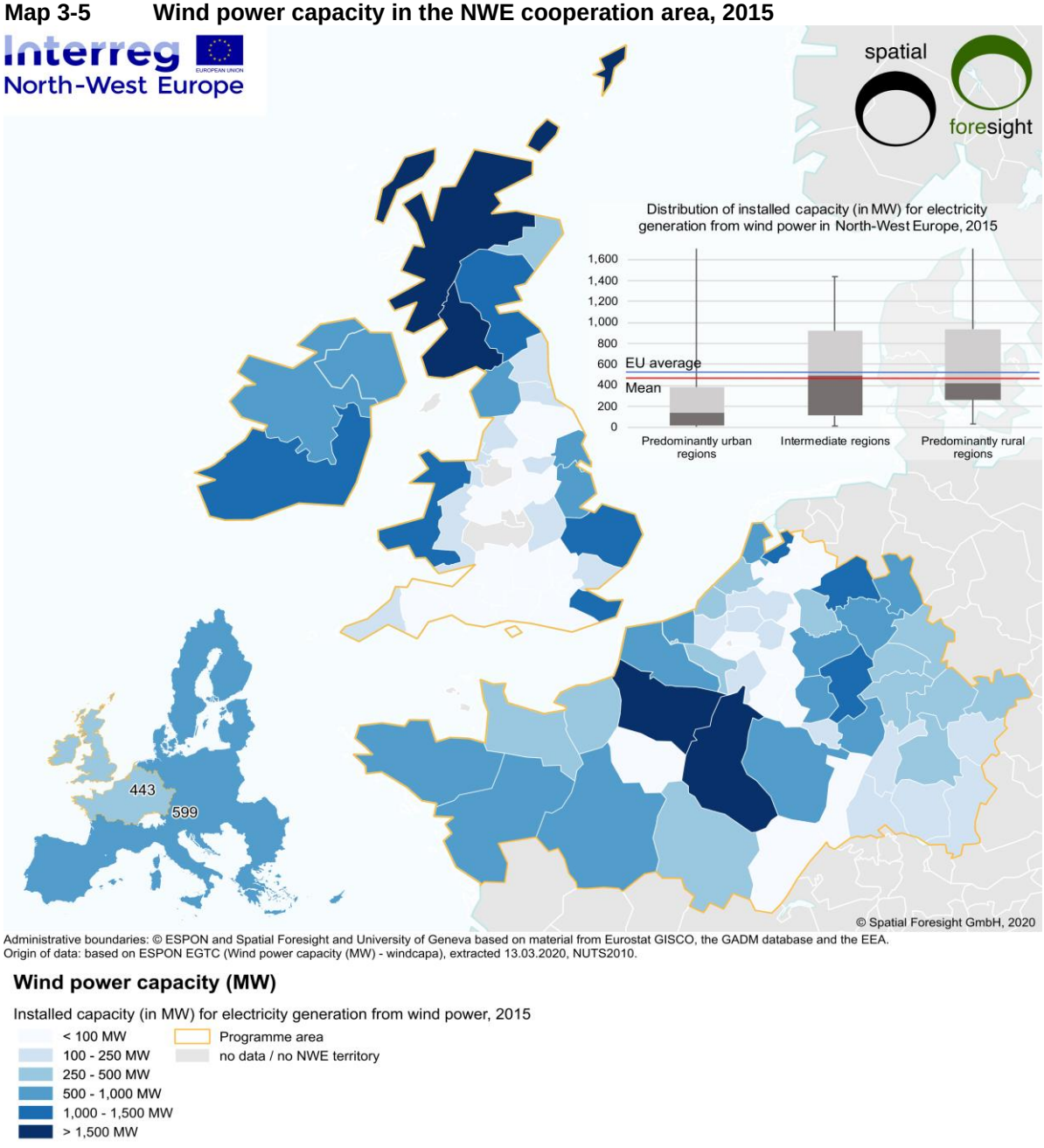
[21] See ESPON (2017a, 2018c).

[22] See SHARES 2017 Summary Results, Eurostat, February 2019.

[23] https://ec.europa.eu/commission/sites/beta-political/files/study-residential-prosumers-energy-union_en.pdf and for details see also ESPON (2018c) and Section 2.1.1.5 of the in-depth thematic report.

coal production are likely to be in the UK (Derbyshire and Nottinghamshire) and Germany (Köln and Düsseldorf) (Alves Dias, Patricia et al., 2018).

Map 3-5 Wind power capacity in the NWE cooperation area, 2015



Source: own representation, 2020

Estimated CO_2-storage capacity in onshore and offshore locations in the EU is mainly in the NWE cooperation area, including areas in Germany, the Netherlands, Belgium, France and especially the UK

(Alves Dias, Patricia et al., 2018). However, both the storage (CCS) as well as carbon capture and utilisation (CCU) are technologies that still need further development and acceptance.[24]

3.2.1.2 Energy storage and smart energy systems

Energy storage, smart energy systems and networks play a key role in the transition towards a carbon-neutral economy. Storage is needed to balance power grids, contributing to improving energy efficiency and integrating more RES in the energy system. For storage and networks this requires a fundamental shift from a centralised energy system to distributed generation supported by flexible solutions, which necessitate significant investments.

Apart from the leading roles of Germany and the UK, many regions in the NWE cooperation area are active in various fields and alternatives for energy storage research. This may inspire further action in the NWE cooperation area, not least in view of common challenges such as a lack of harmonisation of grid charges, taxes and fees applied to energy storage technologies and a lack of clarity for existing technical, safety and environmental standards (European Commission, 2013a).

More flexible and smarter energy grids are required (Directive (EU) 2019/944 2019) to address challenges in terms of grid management, price volatility and congestion and to cover peak loads both locally and trans-regionally. This also requires interconnectors, digitalised distribution grids and optimised network operations as detailed in the in-depth report (Section 2.1.5). France, Luxembourg, the Netherlands and the UK committed to deploy 80% of smart meters by 2020. Belgium, Germany and Ireland have a lower commitment level (Tractebel Impact, 2019). Corresponding CEF projects in the NWE cooperation area may inspire further investments and implementation.

Electricity and gas interconnections need to be improved along the relevant Trans-European Networks for Energy (TEN-E). Relevant corridors are the North Seas Offshore Grid ('NSOG') and related interconnectors in the North Sea, Irish Sea, English Channel, Baltic Sea and neighbouring waters and the North-South gas interconnections in Western Europe ('NSI West Gas') to further diversify supply routes and increase short-term gas deliverability.[25]

3.2.1.3 Energy efficiency and poverty

The EU has formulated a binding target for increasing energy efficiency by at least 32.5% by 2030 (Directive (EU) 2018/2002 2018). Member States express their contributions in terms of absolute primary and final energy consumption. The level of ambition and the level of achievement differ between NWE countries. National targets often focus on energy efficiency measures in existing building stock but some also mention other options such as the transport sector, digitalisation and innovation.

Energy intensity measures the energy needs of an economy and is often used as an approximation of energy efficiency. Energy intensity is calculated as units of energy consumed per unit of GDP. In NWE,

[24] See e.g. https://en.acatech.de/project/ccu-and-ccs-contributing-to-climate-protection-in-industry/

[25] https://ec.europa.eu/energy/topics/infrastructure/projects-common-interest/regional-groups-and-their-role-pci-process/gas-regional-groups_en?redir=1.

the level of energy intensity is highest in Belgium, moderate in France, Germany and the Netherlands, and lowest in Ireland, Luxembourg and in the UK as described in the in-depth report in Section 2.1.6.2.

As one of the most dynamic and prosperous areas in the EU, households in some NWE regions still face severe difficulties in affording their energy bills or suffer from a lack of adequate energy services at home. This is often generated by low energy performance in buildings. It is a common challenge for almost all NWE urban areas. However, in overall terms, the share of the population unable to keep their homes adequately warm is below the EU average in all NWE countries.[26]

Territorial cooperation needs arise for different territories and encourage different territorial cooperation patterns depending on common RES potential and challenges. For cross-border, functional area entities and regions decommissioning coal, additional cooperation potential has been identified (see Figure 3-5).

Figure 3-5 SWOT on energy

Strengths	Weaknesses
• Most NWE countries are on track with the achievement of specific targets for RES deployment (i.e. DE, FR, LU, NL). • NWE countries lead the development of energy storage technologies in the EU. • Most NWE countries committed to deploy smart meters (i.e. FR, LU, NL and the UK). • Some NWE countries are on track with energy efficiency targets (i.e. LU, NL and - close to it - the UK). • High or moderate level of energy intensity in most NWE countries (i.e. BE, FR, DE, and NL). • Energy poverty levels are well below EU average. • Several regions in NWE have developed an advanced governance system supporting the transition to a low carbon economy (e.g. Rhineland-Palatinate, Scotland, Manchester city region).	• Some NWE countries are not on track with the achievement of the specific targets for RES deployment (BE, IE and the UK). • No NWE country is above the EU average for share of overall energy from RES. • Most NWE countries are well below the EU average for using RES for heating and cooling (apart from FR). • Long time taken to issue permits, legal challenges and increased planning adversely affecting RES deployment (i.e. wind power). • 21 NWE regions affected by coal dependency (power plants or mines) (10 of them in the UK). • Very limited flexibility in the NWE through interconnectors. • Low commitment to deploy smart meters in some NWE countries (i.e. BE, DE and IE). • Lack of appropriate grid infrastructure causing congestion management issues. • Overall modest ambition for energy decoupling in most NWE countries (i.e. BE, FR, DE, and IE). • Low energy intensity in a few NWE countries (i.e. IE, LU and UK).

[26] https://ec.europa.eu/eurostat/web/products-datasets/product?code=ilc_mdes01

Opportunities	Threats
• Targeted actions of regulatory simplification, awareness raising, and community engagement might contribute to accelerate the penetration of RES (i.e. wind power, as well as heating and cooling sector). • Potential for more wind, solar and biomass power. • Potential for Carbon capture, storage and transport, as a complement to RES (i.e. BE, FR, NE, DE). • Further decentralisation of energy production and promotion of demand-response approaches. • Opportunities provided by TEN-E (i.e. electricity, natural gas and CO2 transport) and CEF. • Further development of integrated energy system technologies might increase the flexibility of both energy supply and demand. • Implementing governance systems supporting the transition to a low carbon economy through learning from existing examples.	• Unemployment caused by missed investments, delayed projects, phasing out transition of coal regions. • Persistence of barriers, including a lack of investment to increase the share of RES in the power generation system, energy storage, interconnections, and smart grids.

Territorial cooperation needs
• Cooperation needs for RES development and deployment for wind power, solar power and solid biofuels (biomass), awareness-raising and community engagement and alternative business opportunities to maintain or increase regional employment can be addressed through different territorial cooperation approaches, including urban-urban, urban-rural, rural-rural, coastal and cross-border and functional area entities (e.g. Greater Region, Lille-Kortrijk-Tournai). The appropriate cooperation structure depends on commonalities, e.g. in endowments and challenges. • For cross-border and functional area entities there is also a need for cooperation on regulatory differences regarding wind power installations. • Regions in the transition out of coal face specific cooperation need to support economic and energy restructuring.

3.2.2 Climate change adaptation, risk prevention and disaster resilience

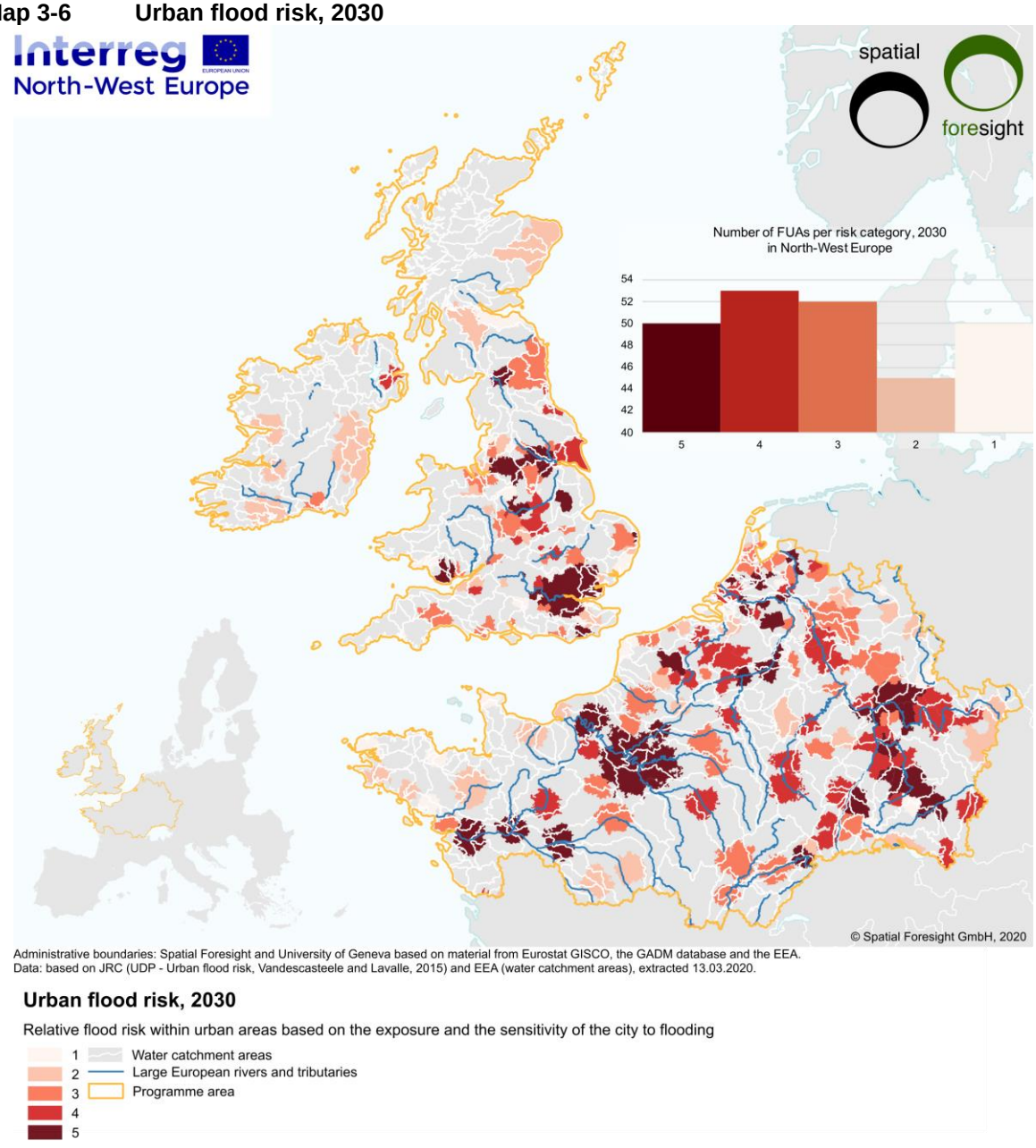
The territorial analysis differentiates heat stress, flooding, forest fires and impacts of extreme weather and climate related events as detailed in the in-depth report (Chapter 2.2). The following highlights only the most relevant risks and impacts.

The spatial distribution of heat stress is expected to have the highest impact in German NWE regions, parts of Belgium, and Southern UK. Highly urbanised regions, such as Amsterdam, Brussels, and London, stand out with particularly high impacts compared to their neighbouring regions (Lung, Tobias et al., 2013).

Except for Ireland, Scotland and Wales, river flood risks are homogeneous throughout most regions in the NWE cooperation area. The risk pattern reflects the interaction between human settlements and the hydro-geographical setting of major river catchment areas. These imply territorial clusters of high or very high risk e.g. along the rivers Scheldt, Meuse, Seine and Rhine (Lung, Tobias et al., 2013;

Vandecasteele, Ine and Lavalle, Carlo, 2015).[27] Map 3-6 links exposure and sensitivity of flood risks in urban areas and shows that risks are highest in Paris and London and high in several urban areas in all NWE countries except for Luxembourg.

Map 3-6 Urban flood risk, 2030



Source: own representation, 2020

Between 1980 and 2017 extreme weather and climate related events have induced considerable economic impacts in NWE cooperation area countries with average loss per capita of almost EUR 1,000.

[27] Op. cit. And: Vandecasteele, Ine; Lavalle, Carlo (2015): UDP - Urban flood risk, 2010 - 2050 (JRC LUISA Reference Scenario 2016). European Commission, Joint Research Centre (JRC) [Dataset] PID: http://data.europa.eu/89h/jrc-luisa-udp-floodrisk-reference-2016.

Germany had the highest monetary loss with by far the highest number of fatalities, Luxembourg had the highest loss per capita and per square km.[28]

Territorial cooperation needs in the field of climate change adaptation are mainly for flood risks and heat stress. For the latter there is a clear urban focus whereas for floods different territorial cooperation patterns may be relevant (Figure 3-6).

Figure 3-6 SWOT climate change adaptation

Strengths	Weaknesses
• NWE countries most exposed to risk of flooding (i.e. NL) already have highly sophisticated climate adaptation infrastructure. • Some of the investment requirements for flood-proofing are already enshrined in law (e.g. in the NL, under the Water Act). • The NWE cooperation area is mostly at relatively low risk of forest fires.	• High or very high heat stress risk vulnerability visible in some parts of the NWE cooperation area (i.e. major parts of DE, parts of BE, and southern UK) and high impact in highly urbanised regions (e.g. Amsterdam, Brussels, and London). • High risk for flooding in NL, BE and parts of UK (i.e. Scheldt in FR, BE and NL, Moselle in LU, FR and DE, and regions along the Rhine from south-western DE to NL). • Impact of extreme weather is relatively high in the NWE countries compared to the EU average.
Opportunities	**Threats**
• The NWE countries most exposed to a risk of flooding (i.e. NL) are open to further investment and strengthening climate adaptation infrastructure.	• Heat stress tends to aggravate with time due to climate change (i.e. DE, FR and NL). • Flood- riskvulnerability tends to gradually increase, due to climate change and is linked to rising sea levels, higher seasonal discharge through the river delta and more frequent extreme weather events.
Territorial cooperation needs	
• For flood risks there are cooperation needs along river basement and coastal areas, which partly also cover cross-border areas, namely interventions targeting flooding on the Scheldt in FR, BE and NL, the Moselle in LU, FR and DE, and regions along the Rhine from south-western DE to NL. These may be realised through urban-urban, urban-rural and rural-rural cooperation depending on common challenges for adaptation to flood risks and spatial links of implemented adaptation measures. • Dealing with heat stress and implementing and transferring innovative approaches require urban-urban cooperation between multiple urban areas in the NWE cooperation area (i.e. major parts of DE, parts of BE, and Southern UK and high impact in highly urbanised regions as Amsterdam, Brussels, and London).	

3.2.3 Greenhouse gas emissions and air quality

The EU is committed to reduce greenhouse gas emissions by at least 40% by 2030 (COM(2014) 015 final 2014). Targets of National Energy and Climate Plans' (NECP) in the NWE cooperation area vary

[28] https://www.eea.europa.eu/data-and-maps/daviz/impacts-of-extreme-weather-and-1#tab-chart_2

by a few percentage points. While greenhouse gas emissions decreased between 1990 and 2017 in all NWE countries but Ireland, most of them are not on track for achieving national targets in 2030.[29]

The in-depth thematic territorial analysis (Section 2.3.2) outlines the performance for a variety of pollutants and shows that no NWE country performs well regarding all pollutants. Some countries and regions meet the ceilings for most pollutants except for certain sectors (e.g. NH_3). In others there is an accumulation of poor air quality. Some urban centres in the NWE cooperation area suffer from annual concentrations of NO_2 exceeding the ceiling. This includes Köln and Stuttgart (DE), Paris (FR), London, Birmingham, Leeds, and Glasgow (UK).

Transnational territorial cooperation needs to curb greenhouse gas emissions are mainly for urban-urban cooperation including functional urban areas and urban cross-border areas. These primarily refer to energy related investments. Rural-rural cooperation matters for sector specific emissions (Figure 3-7).

Figure 3-7 SWOT on greenhouse gas emissions and air quality

Strengths	Weaknesses
• Availability of state-of-the-art capacity and knowledge about environmental technology in the NWE cooperation area • Highly effective emission control systems in the NWE cooperation area	• Most NWE countries are not on track to achieve greenhouse gas emissions targets for 2030. (DE, FR, IE, LU, UK). • Both NL and IE are not on track to meet NH_3 emission targets mainly due to agriculture-related emissions. • Most NWE countries are failing to meet air quality limit values for NO_2 (i.e. DE, FR and UK). • Even countries meeting air quality ceilings for many pollutants face some concentrations beyond EU standards (i.e. BE, LU, NL and UK).
Opportunities	**Threats**
• Ongoing investments in RES and smart energy systems might contribute to curb emissions.	• Costs of not respecting emission targets and the obligation to buy EU-emission rights to bridge the gap. • Faster than predicted climate change (i.e. temperature rise, long-lasting heatwaves, wildfires, rising sea level, cyclones, floods) might make current emissions targets obsolete and require more drastic cuts.

[29] National emissions sent to UNFCCC and to the EU Greenhouse Gas Monitoring Mechanism, https://www.eea.europa.eu/data-and-maps/data/data-viewers/greenhouse-gases-viewer.

Territorial cooperation needs

- Urban-urban cooperation needs aiming at GHG emission reductions may include investments in RES and smart energy systems, energy efficiency measures for buildings and in urban transport (materials, technologies, digitalisation, skills of building professionals, etc.), energy efficiency support mechanisms (e.g. financing, procurement, etc.) and solutions for cogeneration (CHP) and consumer engagement. Cross-border urban areas and functional area entities (e.g. Greater Region, Lille-Kortrijk-Tournai) may also engage in such cooperation.
- Mainly rural-rural cooperation may support the development of new solutions to curb emissions (i.e. NH_3) from cattle farms, pig farms, poultry farms and supporting investment in RES and smart energy systems adequate for rural regions.

3.2.4 Green infrastructure

Developing GI is key for success of the EU 2020 Biodiversity Strategy (COM(2011) 244 final 2011).

GI can be defined as a 'strategically planned network of natural and semi-natural areas with other environmental features designed and managed to deliver a wide range of ecosystem services. It incorporates green spaces … and other physical features in terrestrial (including coastal) and marine areas. On land, GI is present in rural and urban settings' (COM(2013) 249 final 2013b, p. 3). Although biodiversity remains at the core of GI, it is more than a biodiversity conservation instrument. The underlying principle is that the same area of land can simultaneously offer environmental, social, cultural, and economic benefits, provided the ecosystem is healthy.

The GI potential in most regions of the NWE cooperation area is relatively low in comparison due to intense land-use and fragmented natural ecosystems (ESPON, 2018d). In consequence, maintenance of existing GIs, improved connectivity between protected areas and restoration of natural and semi-natural areas is particularly important for these areas (Trinomics B.V., 2016).

The in-depth thematic analysis report (Chapter 2.4) shows that green spaces are not only sparse in core cities but in outer parts of FUAs of several NWE regions. This implies higher average travel times from many NWE city centres to access GI in peri-urban areas (ESPON, 2019a).

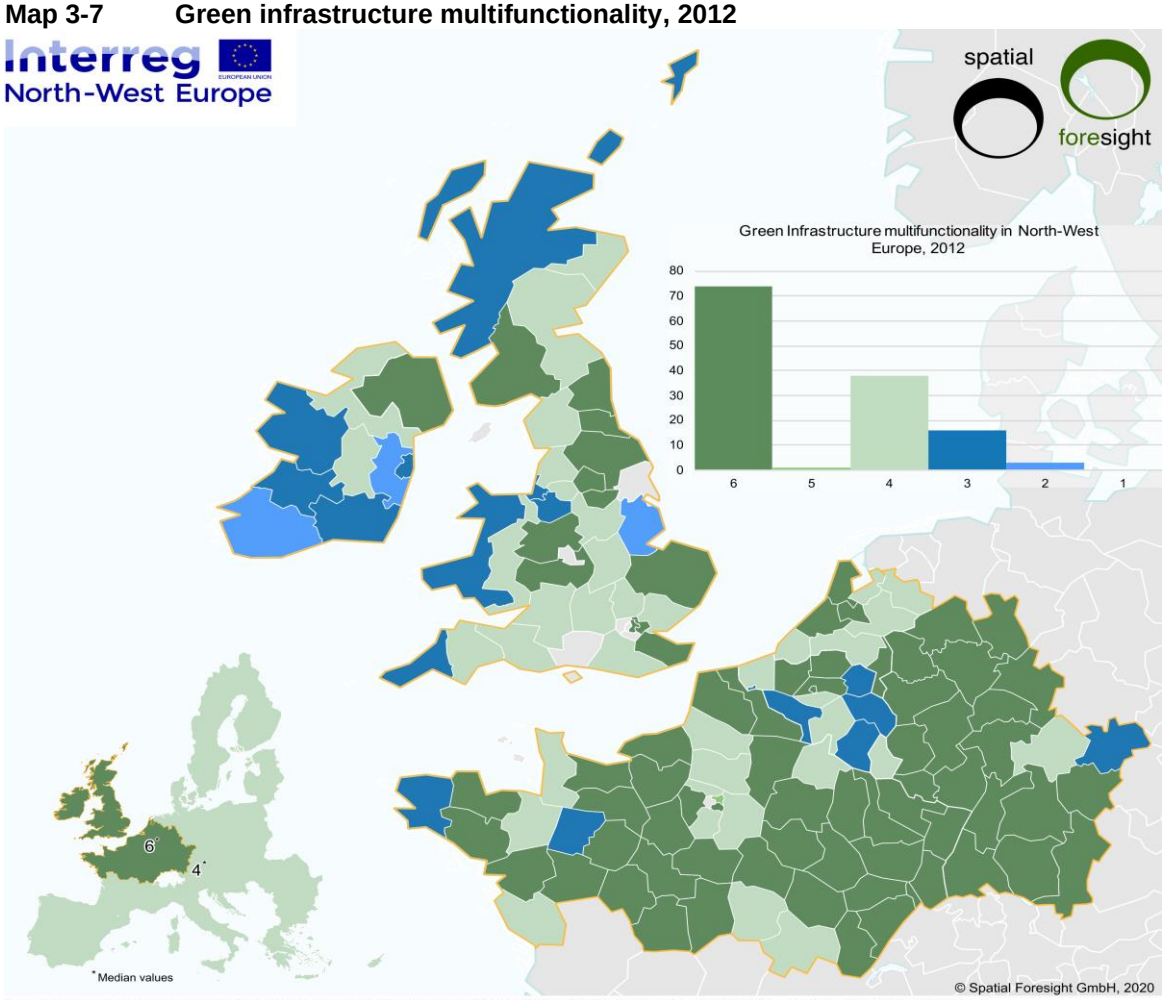
Nevertheless, the overall multifunctionality of GIs is high in many NWE regions (Map 3-7). This means that the services delivered simultaneously by GIs in these areas and the number of policies benefiting from them are high.

Germany is the only Member State that has so far adopted a 'national green infrastructure concept'[30] aiming to implement the EU's GI strategy. But other policies and legislative instruments are in place that at least implicitly address the concept of GI as defined by the EU's GI strategy. Indeed, GI and ecosystem services may be more frequently addressed strategically at regional or local level as highlighted by an ESPON study (ESPON, 2019a). There is a variety of examples with different approaches in the NWE cooperation area. For instance, the example of Randstad builds on combinations of approaches addressing a regional vision, the Irish Dún Laoghaire-Rathdown examples implemented a GI Strategy and in Central Scotland GI development is embedded as a work stream

[30] https://www.bfn.de/themen/planung/bundeskonzept-gruene-infrastruktur.html

within an institutionalised network working more generally on implementation of an environmental vision.[31]

Map 3-7 Green infrastructure multifunctionality, 2012



Administrative boundaries: © ESPON and Spatial Foresight and University of Geneva based on material from Eurostat GISCO, the GADM database and the EEA.
Origin of data: based on ESPON EGTC (Green Infrastructure multifunctionality - mfGI_ind), extracted 13.03.2020. FR, UK and IE: NUTS3, LU, BE, NL: NUTS2.

Green Infrastructure multifunctionality

Green Infrastructure multifunctionality, representing the number of ecosystem services with a substantial added value, 2012

- 1 = Monofunctional GI supporting a single policy
- 2 = Bifunctional supporting a single policy
- 3 = Multifunctional supporting a single policy
- 4 = Monofunctional supporting multiple policies
- 5 = Bifunctional supporting multiple policies
- 6 = Multifunctional supporting multiple policies
- Programme area
- no data / no NWE territory

Source: own representation, 2020

Territorial cooperation needs to enhance GI in the NWE cooperation area are mainly urban-rural and rural-rural, which includes, for instance, cross-border and functional areas (Figure 3-8).

[31] For these examples see case study reports: ESPON (2019b, 2019c, 2019d).

Figure 3-8 SWOT on green infrastructure

Strengths	Weaknesses
• Up to now in the EU only DE, NL and the region of Flanders (BE) have developed and submitted Restoration Prioritisation Frameworks (RPF). • There has been progress in the designation of protected areas, including NATURA 2000, the Emerald network and other national designations: protected areas now cover 29% of the NWE cooperation area (EU coverage 26%). • High level of multifunctionality for GIs, i.e. for biodiversity, climate and disaster risk reduction, and water policies.	• The lowest percentage cover of potential GI network can be found in NWE (i.e. north-western FR, BE, IE, NL and south-eastern UK), where land-use is the most intense and natural ecosystems are fragmented. • Insufficient mainstreaming of GI across relevant sectors (particularly in spatial planning). • Lack of clarity (general rule) regarding which governance level (local, regional, national, transnational, EU) should lead the process of GI implementation. • Lack of long-term practical experience that could serve to systematically guide stakeholders through the planning, implementation, and maintenance process of GI. • Insufficient understanding among stakeholders of how natural ecosystems function.
Opportunities	**Threats**
• Local initiatives are in place, despite general lack of specific national or regional policies. • GI in the urban environment and enhancing biodiversity have been included in SOs for ERDF; and the sustainable and integrated development of urban areas is among the new POs of the common provisions regulation (CPR). • Recognition of the value of GI is growing (e.g. for improving the sustainability of land use in the wider environment to maintain soil carbon stocks and improve water quality). • Implementation of GI might result in benefits or have a neutral effect for other MS in some NWE areas (i.e. FR, LU, NL, BE, parts of the UK).	• Eco-gentrification and the increase of inequalities, risk of vandalism in parks and open spaces, disagreement over stakeholder priorities, fear of natural spaces, increased sources of allergies, high levels of heavy metals and other pollutants in agricultural products from community gardens. • Higher costs to initiate and maintain GI and higher costs for purchasing or leasing land and properties. • Invasion by alien species, water pollution from fertilisers and other chemical inputs, or higher levels of water consumption. • Implementation of GI might result in a degradation of other MS in some NWE areas (i.e. mainly IE and parts of UK).
Territorial cooperation needs	
• Urban-rural and rural-rural cooperation in general, along the coasts and in cross-border areas and for functional areas may concentrate on the maintenance of existing GIs, improving connectivity between protected areas and restoration of natural and semi-natural areas. • Cross-border areas and functional area entities (e.g. Greater region, Lille-Kortrijk-Tournai) may also benefit from cooperation to enhance embedding the GI concept into spatial planning across policies and measures.	

3.2.5 Water abstraction

Water abstraction considers different water management and resource aspects, including qualitative and quantitative status and territorial differences in the availability and use of water as outlined in detail in Chapter 2.5 of the in-depth report.

The large majority of water bodies in the NWE cooperation area are not in good ecological status or potential.[32] Diffuse sources and atmospheric deposits are the main pressures on surface water bodies in NWE. Diffuse sources are particularly caused by agriculture and discharges not connected to sewage treatment plants. Hydromorphological pressure caused by dams, barriers and locks are another important source of surface water body pressure in the NWE cooperation area.

The Water Framework Directive (2000/60/EC 2000) requires Member States to promote the sustainable use of water resources based on the long-term protection of water resources, and to ensure a balance between abstraction and the recharge of groundwater. The NWE cooperation area is relatively rich in annual renewable freshwater resources, which have a good quantitative status, except for two river basin districts (RBD) in the UK (Anglian and Thames). However, in some densely populated parts of the NWE cooperation area freshwater resources are at the limit of sustainability creating all-year water availability challenges (EEA, 2019).

The chemical status is defined by environmental quality standards (EQS) on the concentration of certain pollutants found across the EU, known as priority substances. Despite some progress in comparison to the report of 2012 (COM(2012) 670 final 2012), the NWE cooperation area fails to achieve a good chemical status with considerable shares of different surface water bodies having concentrations above EQS limits. This particularly concerns water bodies in Luxembourg, Germany and Belgium and is mainly due to metals, polyaromatic hydrocarbons, phosphate fertilizers, pesticides, and biocide agents for ships and boats.[33]

The status of groundwater across NWE is generally better than that for surface water. The main pressures on the quality of NWE groundwater bodies are in most regions in England and Wales and Belgium, and to a lesser extent in Luxembourg and parts of France and Germany.

The treatment of urban wastewater is fundamental to ensuring public health and environmental protection. Over the past few decades, clear progress has been made through improved wastewater treatment. In the Netherlands and in Germany almost the whole population is connected to sewage collection systems applying stringent treatment, followed by Belgium, Luxembourg, France and the UK. Despite considerable progress, in Ireland less than 20% of the population is connected to tertiary treatment systems.[34]

Territorial cooperation needs for improving water quality and quantity in the NWE cooperation area arise at different territorial cooperation relations with a focus on different causes for pollution (Figure 3-9).

[32] https://www.eea.europa.eu
[33] See WISE-SoW database.
[34] https://www.eea.europa.eu

Figure 3-9 SWOT on water abstraction

Strengths	Weaknesses
• Renewable freshwater resources are relatively abundant. • Overall, relatively good chemical status of groundwater bodies • More than 70% of the population in the NWE cooperation area is connected to wastewater treatment, which for 80% includes tertiary treatment.	• Poor ecological status of surface and groundwater bodies, mainly due to agriculture and discharges not connected to sewage treatment plants, hydromorphology, urban wastewater treatment, storm overflows, and water abstraction (i.e. a few RBDs in UK, BE, FR and NL). • Poor chemical status of surface waters due to pollution from metals, polyaromatic hydrocarbons, phosphate fertilizers, pesticides, and biocide agents for ships and boats. • Poor chemical quality of some groundwater bodies in most parts of the UK and BE, and to a lesser extent in parts of FR, DE and LU, mainly due to agriculture, discharges not connected to the sewage network and mining, water abstraction, contaminated sites or abandoned industrial sites, and IED plants*. • In IE the share of population connected to at least secondary wastewater treatment is among the lowest in Europe and just 42% of the wastewater generated by large urban areas was treated at plants complying with the requirements of the Urban Waste Water Treatment Directive. • Continuing biodiversity loss due to intensive agriculture, high nitrogen inputs and landscape fragmentation (i.e. DE).
Opportunities	**Threats**
• Ongoing initiatives (2019-2024-BE) to reduce nitrate and phosphate concentrations in ground water and rivers regarding the use of Common Agricultural Policy funds to promote circular agriculture and ecological programmes. • Effects of recent reforms encouraging the repair of water leaks and rational water usage, combined with investment in water and wastewater facilities. • In IE legislation allowing from 2021 for extra charges for excessive domestic water use can help reduce water leaks and excessive consumption.	• Negative effects of climate change on water quantity and quality (i.e. LU) • Rising costs for purifying excess nitrates from drinking water, which are mainly supported by households and public authorities.

Territorial cooperation needs
• Improving the ecological and chemical status of surface and groundwater bodies, mainly addressing pollution and discharges may be addressed through urban-urban, urban-rural and rural-rural cooperation including across borders and functional areas, in particular along specific river basements. Differences between the types of territorial cooperation lie with the causes for pollution, i.e. for - urban-urban cooperation, discharges caused by industry and poor urban wastewater treatment; - urban-rural and rural-rural cooperation, discharges caused by agriculture, industry, mining, other sites not connected or poorly connected to sewage treatment plants, poor urban wastewater treatment and storm overflows. • The river basements with such need are in the UK, BE, FR and NL: Northumbria, Humber, Anglian, South-East and Dee as well as Maas.

* industrial emissions covered by the Industrial Emissions Directive (Directive 2010/75/EU

3.2.6 Circular economy

The new Circular Economy Action Plan 'For a cleaner and more competitive Europe' (COM(2020) 98 final 2020b) emphasises that the EU alone cannot deliver the ambition of the European Green Deal (COM(2019) 640 final 2019b) for a climate-neutral, resource-efficient and CE. Ambitions and performance in waste management and recycling, promotion of a CE and anti-waste promotion vary from country to country in the NWE cooperation area.

Overall, NWE countries can obtain many social and economic benefits from treating waste as a resource ranging from reduced environmental pressures to creating jobs and boosting competitiveness. As in all transition processes, benefits of the transition to a CE will not be evenly distributed across industrial sectors, businesses, regions, and societal groups but require policies absorbing these effects.

In NWE the number of persons employed in circular business model (CBM) sectors in relation to total inhabitants is above the EU average, which is mostly due to corresponding employment in urban regions (Map 3-8).

In a more CE, the economic value of products, materials and resources is maintained for as long as possible and waste generation is to reduced. One regionally available indicator[35] for the assessment of material use is per capita domestic material consumption. Most NWE regions have relatively low per capita material consumption despite their high economic performance. Only a few regions in NWE are among those with the highest per capita consumption in Europe, e.g. Scotland, north-western Ireland, Luxembourg and the Belgium region Luxembourg and Trier in Germany (ESPON, 2019e, p. 21).

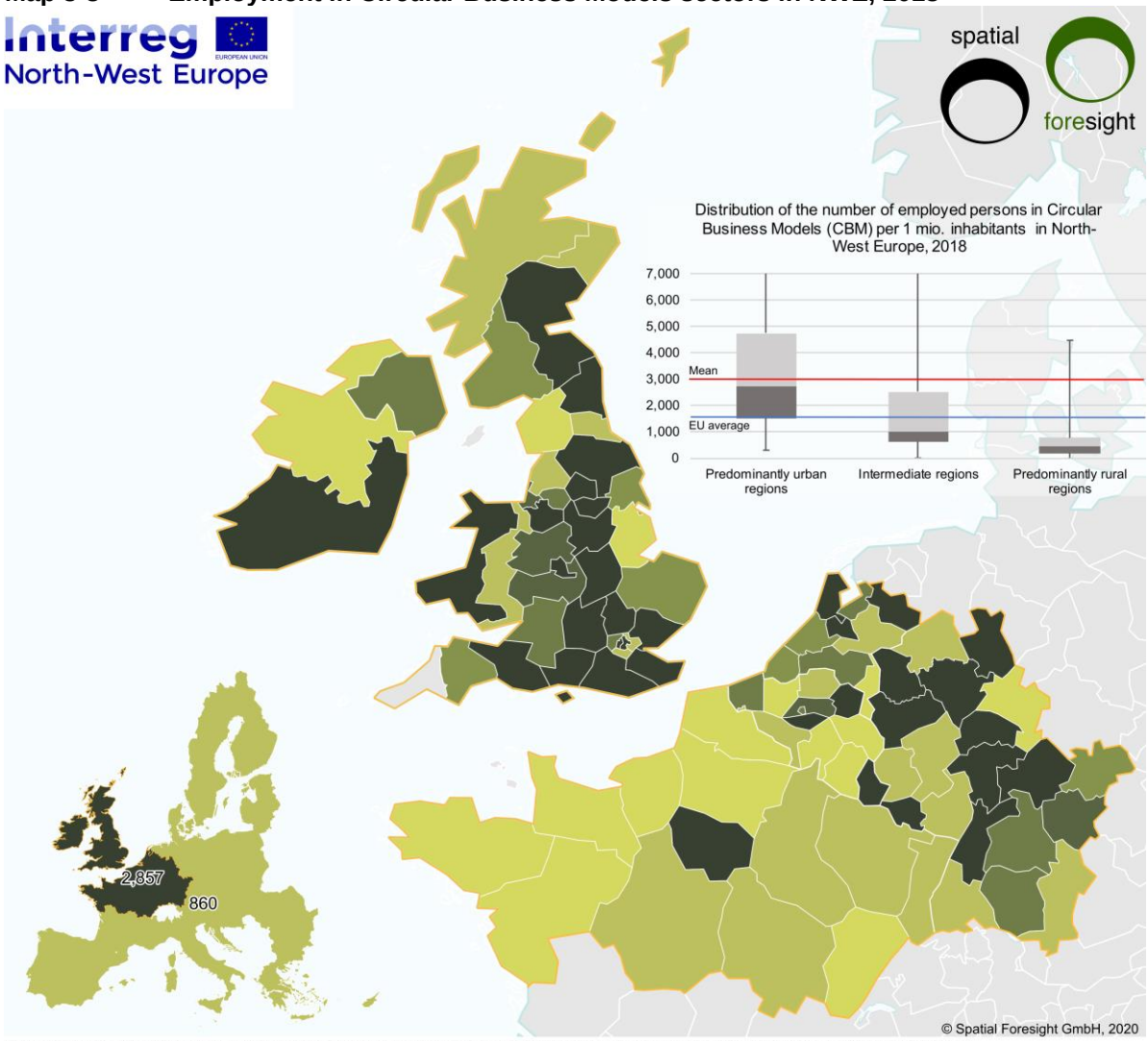
Other measures for assessing material use are the ratio of waste generated per domestic material consumption, the recycling rate of waste, the circular (secondary) material use rate and the use of critical raw materials, detailed in Chapter 2.6 the in-depth report.

Apart from economic activities engaging in CBM, development and implementation of a CE strongly builds on local and regional strategies, plans and approaches. They take very different forms of

[35] Regional data is based on model estimations of the ESPON CIRCTER project and only available for selected years. See ESPON (2019e).

leadership, governance and public-private collaboration (ESPON, 2019e, pp. 40–41). They exist in numerous regions and cities across the NWE cooperation area, as examples from Belgium, France, the Netherlands and the UK illustrate (EESC, 2019; ESPON, 2019f). Scenario development for the transition highlights several centres in the cooperation area as leading in CE innovation and frontrunners in the sharing economy (Böhme et al., 2017). Both, the existence of strategies and the scenario assessment support the overall potential of NWE regions to enhance the CE.

Map 3-8 Employment in Circular Business Models sectors in NWE, 2018



Administrative boundaries: © ESPON and Spatial Foresight and University of Geneva based on material from Eurostat GISCO, the GADM database and the EEA.
Origin of data: based on ESPON EGTC (Circular economy business models (employment - CBM_EMP) and Eurostat [demo_r_d2jan], extracted 13.03.2020. No values for UKK3 reported.

Employment in Circular Business Models (CBM) sectors

Employment in Circular Business Models (CBM) sectors by 1 million inhabitants, 2018

- < 300
- 500 - 1,000
- 1,000 - 1,500
- 1,500 - 2,000
- 2,000 - 2,500
- > 2,500
- Programme area
- no data / no NWE territory

Source: own representation, 2020

Territorial cooperation needs in support of a CE can be identified for basically all types of territories. They can build on both, common challenges and differences (Figure 3-10).

Figure 3-10 SWOT on circular economy

Strengths	Weaknesses
• Circular and waste recycling indicators generally better than EU average in most NWE countries • Above EU-average productivity for CE-related sectors in several countries (DE, FR, and UK). • Examples of good practice in several NWE countries.	• No overarching strategy for CE in DE yet. • Waste recycling rate below EU average in some countries (i.e. FR, DE, and IE). • Waste generation above EU average in some countries (i.e. BE, NL and UK). • Circular material use rate below EU average for some countries (ie. IE and LU). • Below EU average share of persons employed in CE.
Opportunities	**Threats**
• Favourable EU policy framework with many access points • Circular Economy in DE initiative (CEID) expected for 2021 could create opportunities for cooperation and exchange of good practices. • Rising demand for critical raw materials might increase investments in their recycling, e.g. in mining, landfills, electrical and electronic equipment, batteries, automotive sector, renewable energy, defence industry, chemicals and fertilisers.	• The benefits of the transition to a CE will not be evenly distributed. • Sectorial analysis of flows of critical raw materials including circularity aspects might reveal the lack of potential investment in some specific solutions.
Territorial cooperation needs	
• All types of territorial cooperation between similar and different types of territories can enhance the improvement of processes, products, technologies, and strategies regarding CE, waste and resource efficiency, notably targeting more waste recycling in FR, DE, and IE; less waste generation per capita in FR, IE, LU and DE; and measures to improve circular material use in IE and LU. Public awareness raising and community engagement in support of circular practices may also benefit from such cooperation. • Urban-rural, rural-rural cooperation and cooperation between territories with geographic specificities (e.g. coastal or sparsely populated areas) may additionally benefit from joint activities aiming to ensure that the transition towards a CE in NWE is just and that the benefits of the transition are as evenly distributed as possible. • For cross-border areas cooperation may also support firms' capacity to internalise external knowledge, spill-overs in innovation and new technologies to facilitate global value chain participation; and to enhance sectorial analysis of critical raw material flows including circularity aspects to direct investment for specific solutions.	

3.2.7 Niches and comparative advantages under PO 2

The following table summarises the assessment and recommendations related to comparative advantages for the SOs under PO 2.

Table 3-5 Assessment of NWE comparative advantages of PO 2 for 2021-2027

PO and SO	Available Niches	Potential added value of NWE	Coverage by alternative funding programmes	Comparative Advantage
PO2				
SO2.1	+	+	very high	o
SO2.2	+	+	very high	o
SO2.3	++	+	high	o
SO2.4	+	+	medium - high	o
SO2.5	+	++	medium	+
SO2.6	++	+++	medium	+
SO2.7	+	+	high	o

The evidence shows there are several common needs and funding opportunities under PO2 for the NWE cooperation area. At the same time several other EU programmes also offer funding opportunities for challenges and needs identified for the NWE cooperation area. Most of these programmes will be relevant for several SOs under PO 2:

- The new **LIFE+** programme will cover the full variety of PO 2 topics and SOs and may pose the strongest competition for activities under the Interreg NWE Programme. The competition will depend, inter alia, on the degree of cooperation activities in LIFE+, which may be strengthened. For non-cooperative activities, NWE may search for synergies in scaling up individual measures and investments in other NWE regions.
- **Horizon Europe** is also an alternative funding source, particularly for research on energy and GHG related themes. However, the programme is not easily accessible and has a limited variety of applicants and beneficiaries.
- The **Just Transition Fund** with a focus on regions subject to decommissioning from coal and the **Next Generation EU Instrument** which offers support to green investments. However, neither of these instruments provide for cooperation.
- The **Urban Innovative Actions** and **URBACT** also offer cross-thematic support for various PO 2 themes, which are however focused on urban areas only with different degrees of cooperation. Like LIFE+, NWE may search for synergies by scaling up individual measures and investments in other regions in the NWE cooperation area.
- Finally, **ERDF mainstream programmes** will also include PO 2 objectives in view of the expected thematic concentration outlined in the ERDF regulation proposal (COM(2018) 372 final, 2018 Art. 3). These measures, however, usually do not allow for cooperation across borders. Building on past experience, especially energy, GHG emission and climate adaptation measures may be in the focus of these programmes.

Thus, within this variety of other European programmes supporting a greener Europe the comparative advantage of the Interreg NWE Programme is mostly in its cooperation opportunities. Other **cross-**

border and transnational Interreg programmes might offer similar thematic opportunities to stakeholders as the future NWE programme, their selection of SOs within PO 2 remains to be seen. Across SOs the competitive advantage of the Interreg NWE Programme compared to cross-border programmes lies in transferring and scaling-up pilot activities and new solutions across the transnational territory.

It seems therefore paramount to strategically position the new Interreg NWE Programme in key areas where it can address stakeholder needs and create added value. These niches reflect the territorial analysis and existing functional links based on common characteristics, challenges and development potentials outlined in above SWOT analyses.

The following presents tentative ideas on possible niches or comparative strengths for transnational cooperation in NWE to be further specified in the programming process.

SO 2.1 Promoting energy efficiency measures

Added value compared to national and other EU funding can be offered in projects with a transnational and territorial focus which touch on energy efficiency measures that are not widely applied. Given the frequent national focus, existing buildings and a lagging performance in other areas, the Interreg NWE Programme could aim at other options for energy efficiency, e.g. in the transport sector or through digitalisation and innovation. This may be done by testing and scaling up innovative solutions in more NWE regions. The added value for these activities may be limited if potential applicants do not envisage such energy efficiency measures.

Given these limitations and the variety of other funding sources available for energy efficiency measures, SO 2.1 is not recommended. If SO 1.1 and SO 1.2 are considered as horizontal themes as outlined above, this may provide opportunities for high value added energy efficiency measures by the Interreg NWE Programme.

SO 2.2 Promoting renewable energy

Projects with a transnational and territorial focus can be of added value compared to national and other EU funding. Focus should be on improving cooperation between different governance levels and stakeholders by creating a favourable environment for deploying RES, including addressing barriers such as time taken to issue permits, legal challenges and increased planning adversely affecting RES deployment (i.e. wind power). In addition, awareness raising and community engagement are needed to facilitate RES deployment, notably to untap the existing potential for wind power, solar power and solid biofuels (biomass). Likewise, there is potential for joint actions to develop alternative business opportunities to maintain or increase regional employment and support economic growth in regions transitioning out of coal (coal power plants and/or coal mines).

SO 2.2 may however not be a high priority because of the availability of other EU funding instruments to strengthen RES deployment and because of the need to simultaneously enhance smart energy systems to make better use of RES instalments. If selected, the focus should be on soft measures as detailed in the previous paragraph.

SO 2.3 Developing smart energy systems, grids and storage at local level

This is a relatively new and complex area with less support from mainstream ESIF programmes, but probably support from LIFE+ and Horizon Europe. Examples for possible foci are measures to improve energy distribution and transmission, increase energy supply and demand flexibility through further decentralisation of energy production and the promotion of demand-response approaches.

However, given the state of development and the need to focus on innovation in this field, including testing and scaling up innovative solutions, for transnational cooperation SO 2.3 may not be recommended but could be part of SO 1.1.

SO 2.4 Promoting climate change adaptation, risk prevention and disaster resilience

Climate change activities are covered by most EU programmes. The degree these will address adaptation measures and risk prevention is not clear for the 2021-2027 programming period. Different needs can be identified for the NWE cooperation area that would benefit from transnational cooperation. The main needs relate to urban areas subject to heat stress, heat and drought pressure on agriculture and forestry and flood-proneness.

Previous experience of the Interreg NWE Programme indicates limited success with flood protection measures despite the transnational relevance of river basins in NWE and the effects of measures between different river segments. Thus, heat stress related climate adaptation measures may be more relevant for the Interreg NWE Programme with different territorial foci. Within the different heat pressures, stakeholder knowledge about transnational cooperation may mainly exist in urban areas. In consequence, there may not be a critical mass for implementing SO 2.4 in the future Interreg NWE Programme but innovative measures and their adaptation to other cities could possibly be considered under SO 1.1.

Note in view of above considerations on SO 2.1 to SO 2.4:

Implementing innovative measures linked to energy and climate change adaptation under SO 1.1 may help to tackle these in a more integrated way than if addressed separately under PO 2 objectives. For instance, strategies considering RES and energy network development or smart meters may be possible to consider jointly.

SO 2.5 Promoting sustainable water management

Many regions in the NWE cooperation area share the need to improve the ecological and chemical status of surface and groundwater bodies, mainly addressing pollution and discharges caused by agriculture, industry, mining, other sites not connected or poorly connected to sewage treatment plants, hydromorphology, poor urban wastewater treatment, storm overflows and water abstraction. Differences between regions are related to the types of discharges and pollutants, which require cooperation among regions with similar challenges in reducing their pollutants. In addition, the availability of freshwater resources may become an issue particularly in some densely populated areas, for which new solutions

may be sought. Thus, SO 2.5 aspects are also closely linked to climate change adaptation and risk prevention including the seasonal availability of water and pollution (see SO 2.4 and SO 2.5).

The transnational nature of several river basins in NWE puts transnational cooperation in a favourable position compared to other EU programmes, including cross-border Interreg programmes. Measures for improving water quality and quantity may be more effective and efficient when considering larger parts of the respective river basins, creating higher value added for the measures. Thus, although measures are also implemented by other programmes such as LIFE+, SO 2.5 can be recommended particularly in view of the cooperative nature of transnational cooperation. Furthermore, the Interreg NWE Programme may seek synergies with individual activities under other programmes.

SO 2.6 Promoting the transition to a circular economy

Measures to move to a CE are important for all regions and countries in the NWE cooperation area. Cooperation and coordinated responses have high added value, especially for functional areas, e.g. urban-rural or across borders. Investments could be supported to improve waste recycling, circular material use and waste generation by implementing adequate processes, products and technologies. Ensuring that the transition towards a CE in NWE is just and the benefits are as evenly distributed as possible requires a territorial perspective not typically offered by other EU programmes.

Thus, although measures also implemented by other programmes such as LIFE+, SO 2.6 can be recommended particularly in view of the cooperative nature of transnational projects. Furthermore, the Interreg NWE Programme may seek synergies with individual activities under other programmes to scale up investments to more regions in the NWE cooperation area.

SO 2.7 Enhancing biodiversity, green infrastructure in the urban environment, and reducing pollution

The need to improve biodiversity and GI has been identified for core city areas as well as some outer parts of FUAs. Given this focus on urban areas, GI investments may be most beneficial if implemented under local and regional territorial strategies, e.g. through PO 5 measures. While funding from other EU programmes may be similar as with most other SOs under PO 2, this could limit the added value of transnational activities and the critical mass of potential applicants (i.e. only urban areas).

As far as GI measures benefit from territorial cooperation a focus may be on connectivity between protected areas and their restoration, especially in cross-border and functional areas such as cross-border FUAs. These measures may, however, be better addressed by cross-border Interreg programmes. In view of these limitations, SO 2.7 is not recommended for the future Interreg NWE Programme. If selected, the focus should be on soft measures e.g. related to concepts of pay and use for ecosystem services and better including GI in spatial planning policies and processes.

3.2.8 Analytical matrices for all SOs under PO 2

PO	SO	Specific needs in NWE	(Transnational) functional links	Potential for cooperation	Challenges for transnational cooperation	Common Challenges – Joint investment needs	Stakeholder mapping	Niches/comparative strengths of NWE (Complementarities)
PO 2: a greener, low-carbon Europe by promoting clean and fair energy transition, green and blue investment, the circular economy, climate adaptation and risk prevention and management	SO 2.1 Promoting energy efficiency measures	Although energy poverty levels are well below the EU average, and energy intensity is low or moderate in most of the NWE area, only a few NWE countries are on track for EU energy efficiency targets and more efforts are required on energy decoupling (i.e. in BE, FR, DE and IE), in particular to renovate the existing public/residential building stock.	The NWE area shows clear functional links regarding energy efficiency and the challenge of decoupling economic growth from energy consumption, notably with regard to retrofitting public and residential buildings.	Design and test solutions for improving the energy performance of buildings (materials, technologies, skills of building professionals, etc.). Design and test energy efficiency support mechanisms (e.g. financing, procurement, etc.). Design and test solutions for cogeneration (CHP). Design and test solutions for consumer engagement.	Competition from H2020 (Horizon Europe) and overlapping INTERREG programmes. The LIFE programme 2021-2027 will support energy projects.	Design and test: - building materials/technologies to improve energy performance of buildings. - scalable and replicable solutions to improve technical training and qualification schemes to ensure that worker qualifications keep pace with the technical complexity of buildings and building components. - support mechanisms (i.e. in cooperation with national, regional and local authorities with ESCO and other key stakeholders) to efficiently bundle buildings, flexibly approach risk sharing, develop capacity to support multiple Energy Performance Contracting (EPC) cycles for a specific building and possibly effective and up-to-date benchmarking. - small scale CHP based on RES which reduce CO2 emissions (rather than biomass, which increases them). - Design and test scalable and replicable solutions regarding consumer engagement and acceptance to deliver energy savings by behavioural change.	- Chambers of Commerce, regional /local development agencies, local development agencies. - Technology parks, Business Innovation Centres. - Technology-Platforms, Cluster - SMEs and large enterprises - business and sectoral associations - NGOs, Lobby organisations, networks, - Local/Regional Public Authorities - National Authorities - Universities, public research centres, private research units - Sectoral agencies on energy, buildings, planning. IT, data, - Energy service providers, energy generators	To achieve a critical mass of relevant measures and with common challenges in different types of territories, possibly better under SO 1.1 and SO 1.2: Testing and scaling up innovative solutions to enhance energy efficiency in areas beyond the building stock (e.g. with a focus on functional areas for transport in urban areas and functional areas). Enhancing digitalisation solutions for energy efficiency through dissemination and scaling-up digital deployment.

PO	SO	Specific needs in NWE	(Transnational) functional links	Potential for cooperation	Challenges for transnational cooperation	Common Challenges – Joint investment needs	Stakeholder mapping	Niches/comparative strengths of NWE (Complementarities)
PO 2: a greener, low-carbon Europe by promoting clean and fair energy transition, green and blue investment, the circular economy, climate adaptation and risk prevention and management	SO 2.2 Promoting renewable energy	Most NWE countries are on track with the achievement of EU specific targets for RES deployment, although no NWE country is above the EU average for the overall share of energy from RES, and there is a lack of certainty regarding future public investments for renewables in some countries. Key areas where action is required (e.g. to improve cooperation between different governance levels and stakeholders) include time taken to issue permits, legal challenges and increased planning adversely affecting RES deployment (i.e. wind power). In addition, awareness raising and community engagement are needed to facilitate RES deployment, notably to untap the existing potential for wind power, solar power and solid biofuels (biomass). Also needed are alternative business opportunities to maintain or increase regional employment and support economic growth in regions transitioning out of coal (coal power plants and/or coal mines).	The NWE area shares functional links in the area of RES development and deployment (i.e. wind, solar and solid biofuels). Moreover, in the NWE there are 22 NUTS 2 coal-intensive regions, most of which are facing the challenge of transitioning out of coal. Clear opportunities (and a competitive advantage against almost any other EU area) exist in the field of CSS.	Design and test solutions to facilitate the uptake of wind, solar, biomass power. Design and test solutions to shift to RES for energy generation in NWE areas transitioning out of coal. Design and test solutions for carbon capture and storage.	Competition from H2020 (Horizon Europe) and overlapping INTERREG programmes. In some countries, efficiency issues relate to the interaction between different level of governance (and other stakeholders) involved. The LIFE programme 2021-2027 will support energy projects.	Design and test scalable and replicable solutions: - to facilitate the uptake of renewables in the heating and cooling sector. - regarding public awareness and acceptance based on the benefits of RES (i.e. Wind power, solar, biomass). - to create/expand new RES value-chains. - to shift to RES for energy generation in NWE NUTS 2 regions transitioning out of coal (coal power plants and/or mines). - Design and test scalable and replicable carbon capture and storage solutions in support of energy transition strategies.	- Local/Regional Public Authorities - National Authorities - Universities, public research centres, private research units, - SME as service providers (consultancies, engineers, laboratories, IT) - sectoral associations, NGOs, Lobby organisations, networks, Energy-generating cooperatives and associations, local energy networks - Sectoral agencies on energy, buildings, planning. IT, data, - Energy service providers, Energy generation companies, Energy distribution.	In view of other funding opportunities and the need for suitable networks, the focus may be limited to soft measures: Cooperation on regulatory differences regarding wind power installations and developing solutions to overcome administrative hurdles for further RES deployment. Developing alternative business models (e.g. with benefits for local communities) to increase acceptance for further RES installations. Developing opportunities for RES deployment in coal regions to support their transition process.

PO	SO	Specific needs in NWE	(Transnational) functional links	Potential for cooperation	Challenges for transnational cooperation	Common Challenges – Joint investment needs	Stakeholder mapping	Niches/comparative strengths of NWE (Complementarities)
PO 2: a greener, low-carbon Europe by promoting clean and fair energy transition, green and blue investment, the circular economy, climate adaptation and risk prevention and management	SO 2.3 Developing smart energy systems, grids and storage at local level	NWE countries show an overall need to improve energy distribution and transmission, as well as to increase the flexibility of both energy supply and demand. They have a relatively low deployment of smart meters (i.e. BE, DE and IE), and need to address the lack of grid infrastructure causing congestion management issues. Development of cooperation with direct stakeholder projects seems relevant, as well as progress towards further decentralisation of energy production and the promotion of demand-response approaches.	NWE countries are at the centre of several key TEN-E corridors and related initiatives and share a clear need for investment in additional distribution and transmission capacity. They lead the development of energy storage technologies in the EU, and collectively have a large potential capacity for carbon storage.	Design and test solutions to improve development and deployment of smart energy systems. Design and test energy storage solutions. Design and test solutions regarding public awareness raising and consumer engagement.	Volume of investments needed. Competition from H2020 (Horizon Europe) and overlapping INTERREG programmes, as well as specific opportunities provided by TEN-E (i.e. electricity, natural gas and CO2 transport) and CEF. The LIFE programme 2021-2027 will support energy projects.	Design and test scalable and replicable solutions: - to overcome various barriers, e.g in funding and legislation, to increase the share of RES. -to digitalise distribution grids and optimise network operations. - to achieve further integration of the electricity, gas, heat and transport sectors. -for various storage technologies. - more active involvement of consumers through demand response. Design and test solutions focusing on: -developing and assessing visions for the role of storage in integrating variable renewable electricity generation. - supporting the development of consumer-based energy storage services. - mapping storage potential, etc. - grid integration of relatively mature energy storage technologies. - the identification of possible market models/use cases. - system integration. -expansion of electric vehicles (EV). -assessing the relative merits of services from stationary vs mobile (aggregated EV) storage facilities and identify opportunities for mutual learning.	- Local/Regional Public Authorities - National Authorities - Universities, public research centres, private research units, - SME as service providers (consultancies, engineers, laboratories, IT) - sectoral associations, NGOs, Lobby organisations, networks, Energy-generating cooperatives and associations, local energy networks - Sectoral agencies on energy, buildings, planning. IT, data, - Energy service providers, Energy generation companies, Energy distribution.	To achieve a critical mass with an innovative character and given common challenges in different types of territories, possibly better under SO 1.1: Testing and scaling up innovative solutions to enhance the deployment of smart energy systems and energy storage solutions (e.g. urban-rural links between RES demand and supply).

PO	SO	Specific needs in NWE	(Transnational) functional links	Potential for cooperation	Challenges for transnational cooperation	Common Challenges – Joint investment needs	Stakeholder mapping	Niches/comparative strengths of NWE (Complementarities)
PO 2: a greener, low-carbon Europe by promoting clean and fair energy transition, green and blue investment, the circular economy, climate adaptation and risk prevention and management	SO 2.4 Promoting climate change adaptation, risk prevention and disaster resilience	Some parts of the NWE area have to deal with high or very high heat stress vulnerability, (i.e. major parts of DE, parts of BE, and Southern UK) with a high impact in highly urbanised regions (e.g. Amsterdam, Brussels, and London). Action is also needed to deal with the area's flood risk tending to gradually increase due to climate change causing rising sea levels, higher seasonal discharge through the river delta and more frequent extreme weather events. For forest fire, the NWE area appears to be mostly at very low or low risk.	The NWE area shows clear functional links for climate adaptation targeting flooding (i.e. Scheldt in FR, BE and NL, Moselle in LU, FR and DE, and regions along the Rhine from south-western DE to NL, as well as in parts of the UK) and targeting heat stress (i.e. in highly urbanised regions). For forest fire, some functional links may be identified in parts of BE, DE and FR, whose sensitivity shows signs of worsening in the medium-term.	Design and test solutions for climate adaptation against flooding and heat stress. Design and test solutions for climate adaptation against forest fire. Design and test solutions regarding public awareness raising and engagement.	Volume of investments needed. Competition from LIFE Climate action, and initiatives similar to NER 300, as well as from overlapping INTERREG (i.e. CBC) programmes, or specific H2020 (Horizon Europe) opportunities.	Design and test scalable and replicable solutions: - for jointly responding to flooding, heat stress and forest fires (e.g. cooperation in emergency and awareness forecasting, planning - incl. spatial planning, response, recovery). - regarding public awareness, engagement and acceptance of air quality measures and behavioural change.	- Local/Regional Public Authorities - National Authorities - Universities, public research centres, private research units, - SME as service providers (consultancies, engineers, laboratories, IT) - sectoral associations, NGOs, Lobby organisations, networks, River basin management associations. - Agencies on Rivers, Environment, natural protection, public green, planning. IT, data, communication, climate change. - Water and wastewater service providers.	To achieve a critical mass consider including only innovative climate adaptation measures under SO 1.1: Implementing and transferring innovative approaches through urban-urban cooperation in NWE cooperation area cities prone to heat stress.

PO	SO	Specific needs in NWE	(Transnational) functional links	Potential for cooperation	Challenges for transnational cooperation	Common Challenges – Joint investment needs	Stakeholder mapping	Niches/comparative strengths of NWE (Complementarities)
PO 2: a greener, low-carbon Europe by promoting clean and fair energy transition, green and blue investment, the circular economy, climate adaptation and risk prevention and management	SO 2.5 Promoting sustainable water management	Improve ecological and chemical status of surface and groundwater bodies, mainly addressing pollution and discharges caused by agriculture, industry, mining, other sites not connected or poorly connected to sewage treatment plants, hydromorphology, poor urban wastewater treatment, storm overflows, and water abstraction (i.e. a few RBDs in UK, BE, FR and NL).	The NWE cooperation area shows clear functional links regarding water management (ecological, chemical, quantitative), including for wastewater treatment.	Design and test solutions for improving the ecological and chemical status of surface and groundwater bodies in the NWE area.	Competition from H2020 (Horizon Europe), LIFE, and overlapping INTERREG programmes, i.e. Cross-Border Programmes.	Design and test scalable and replicable solutions for improving the ecological and chemical status of surface and groundwater bodies in the NWE area, specifically addressing diffuse and point sources of pollution from metals, polyaromatic hydrocarbons, phosphate fertilizers, pesticides, and biocide agents for ships and boats, as well as discharges caused by agriculture, industry, mining, other sites not connected or poorly connected to sewage treatment plants, hydromorphology, poor urban wastewater treatment, storm overflows, and water abstraction (i.e. a few RBDs in UK, BE, FR and NL: Maas, Northumbria, Humber, Anglian, South-East and Dee).	- Local/Regional Public Authorities - National Authorities - Universities, public research centres, private research units, - SME as service providers (consultancies, engineers, laboratories, IT) - Sectoral associations, NGOs, Lobby organisations, networks, River basin management associations - Agencies on Rivers, Environment, natural protection, public green, planning. IT, data, communication. - Water and wastewater service providers.	Coordinated investments to improve freshwater quality and quantity along NWE river basins and across borders. Cooperation can address different types of territories with a focus on different causes for pollution, e.g. - discharges caused by industry and poor urban wastewater treatment; - discharges caused by agriculture, industry, mining; - discharges from other sites not connected or poorly connected to sewage treatment.

PO	SO	Specific needs in NWE	(Transnational) functional links	Potential for cooperation	Challenges for transnational cooperation	Common Challenges – Joint investment needs	Stakeholder mapping	Niches/comparative strengths of NWE (Complementarities)
PO 2: a greener, low-carbon Europe by promoting clean and fair energy transition, green and blue investment, the circular economy, climate adaptation and risk prevention and management	SO 2.6 Promoting the transition to a circular economy	The NWE area generally performs above the EU average in CE and waste recycling. The productivity of CE related sectors is also relatively higher than the EU average in several NWE countries, although the share of persons employed in the sector is below EU average. Several NWE countries need to improve the waste recycling rate (i.e. FR, DE, and IE), make efforts to reduce the waste generation per capita (i.e. FR, IE, LU and DE), and take measures to improve the circular material use rate (i.e. IE and LU). There is a shared need to support NWE firms' capacity to internalise external knowledge, spill-overs in innovation and new technologies in order to participate at a higher level in global value chains; enhancing cooperation and exchange of experience; linking regional research and innovation actors to industrial stakeholders from different NWE countries. Actions are needed to ensure that the transition towards a CE in the NWE is just and that the benefits of the transition are as evenly distributed as possible. If the opportunities related to the exploitation of critical raw material are identified and seized, sectorial analysis of flows of critical raw materials including circularity aspects is needed to orient investment in specific solutions.	Functional links can be identified in the collective commitment of NWE countries to more from a linear to a CE model and by the joint development potential already manifesting itself through the exchange of best practices and cooperation related to the improvement of processes, products, technologies, and strategies regarding CE, waste and resource efficiency.	Design and test solutions to improve processes, products, technologies, and strategies regarding CE, waste and resource efficiency, also capitalising on examples of good practice. Design and test solutions to support NWE firms' capacity to internalise external knowledge, spill-overs in innovation and new technologies to participate at a higher level in global value chains; enhancing cooperation and exchange of experience; linking regional research and innovation actors to industrial stakeholders from different NWE countries. Design and test solutions regarding public awareness raising and engagement.	Competition from national and regional funding, mainstream ESIF programmes, Invest EU, EIB, and other overlapping INTERREG programmes. The Single Market Programme and Horizon Europe might offer funding for innovative CE projects with business participation.	Design and test scalable and replicable solutions: - to improve business model innovation (e.g. Service- and function-based business models, Collaborative consumption, Waste-as-a-resource business models, Finance mechanisms for innovative business models), waste prevention, reuse and repair. - to recycle critical raw materials from mining, landfills, electrical and electronic equipment, batteries, automotive sector, renewable energy, defence industry, chemicals and fertilizers. - to create new value-chains related to CE. - regarding public awareness, engagement and acceptance regarding air quality measures and behavioural change.	- Chambers of Commerce, regional /local development agencies, local development agencies. - Technology parks, Business Innovation Centres. - Technology-Platforms, Cluster - SMEs and large enterprises - business and sectoral associations - NGOs, Lobby organisations, networks, - Local/Regional Public Authorities - National Authorities - Universities, public research centres, private research units - Agencies on waste, recycling, water, wastewater, planning. IT, data, - Waste management and wastewater service providers.	Targeting CE measures with a territorial approach by using similarities of regions e.g.: Territorial approach to improve processes, products, technologies, and strategies concerning e.g. waste recycling, waste generation per capita and circular material use rates. Scaling up previous NWE resource and material efficiency investments to other NWE territories. Creating synergies with other programmes through scaling up and transferring CE actions experience from other programmes to NWE regions. In addition, with a focus on territorial (often urban-rural) disparities, measures aiming to balance benefits from CE investments in functional areas.

PO	SO	Specific needs in NWE	(Transnational) functional links	Potential for cooperation	Challenges for transnational cooperation	Common Challenges – Joint investment needs	Stakeholder mapping	Niches/comparative strengths of NWE (Complementarities)
PO 2: a greener, low-carbon Europe by promoting clean and fair energy transition, green and blue investment, the circular economy, climate adaptation and risk prevention and management	SO 2.7 Enhancing biodiversity, green infrastructure in the urban environment, and reducing pollution	Maintenance of existing GIs, improve connectivity between protected areas and restore natural and semi-natural areas	For GI, the functional links mainly concern cross-border areas. At transnational level there is potential for cooperation to further embed the GI concept into spatial planning across policies and measures.	Design and test solutions to embed GI concept into spatial planning frameworks and enhance connections between and/or within sites.	Overlapping INTERREG programmes, national / regional / local funding are in principle better suited to address GI-related needs. Cross-border ETC programmes might offer funding. LIFE might offer EU funding.	Design and test scalable and replicable solutions: - to embed GI concept into spatial planning frameworks in policies and measures through a strategic, ecosystem-based approach, which includes involving expertise and stakeholders at local, regional, national and international levels, as appropriate. - to enhance connections between, or join up, sites, either through physical corridors, or 'stepping stones' Design and test platforms for conceiving and implementing infrastructure projects that embed the concept of GI.	- Local/Regional Public Authorities - National Authorities - Universities, public research centres, private research units, - SMEs as service providers: laboratories, environmental quality control. - Sectoral associations, NGOs, Lobby organisations, networks, - Agencies on Environment, Rivers, natural protection, public green, planning. IT, data, communication, climate change. - Water and wastewater service providers.	Low comparative advantage – not recommended

3.3 PO 3 – A more connected Europe

The regulatory framework defines four SOs under the third policy objective, addressing digital connectivity and three transport objectives. The latter focus on different levels of sustainable, climate resilient, intelligent, secure and intermodal mobility and connectivity, namely along Trans-European Transport Network (TEN-T) corridors, at regional and local level including TEN-T access and across borders and multimodal urban mobility (Table 3-6).

Assessing the challenges and needs for SOs under PO 3 requires an understanding of the digital economy and integration of digital technologies, mobility and connectivity at different territorial levels and the use and availability of multimodal transport infrastructure. The table below indicates the main links between the themes of the territorial analysis and the SOs.

Table 3-6 Overview of relations between PO 3 SOs and territorial analysis themes

SO / Theme	3.1 Enhancing digital connectivity	3.2 Developing a sustainable, climate resilient, intelligent, secure and intermodal TEN-T	3.3 Developing sustainable, … intermodal national, regional and local mobility, including improved access to TEN-T and cross-border mobility	3.4 Promoting sustainable multimodal urban mobility
Integration of digital technologies	**X**	X	X	
Mobility and connectivity at different scales (local to TEN-T)		**X**	**X**	X
Multimodal infrastructure and use of intermodal transport		X	X	**X**

3.3.1 Integration of digital technologies[36]

The overall positive digital performance of NWE regions[37] is due to simultaneous availability of fast fixed and mobile broadband networks, improved digital skills and the economic and service digitisation as outlined in more detail in Chapter 3.1 of the in-depth thematic report. Apart from some differences between NWE countries divides persist between urban and rural areas.

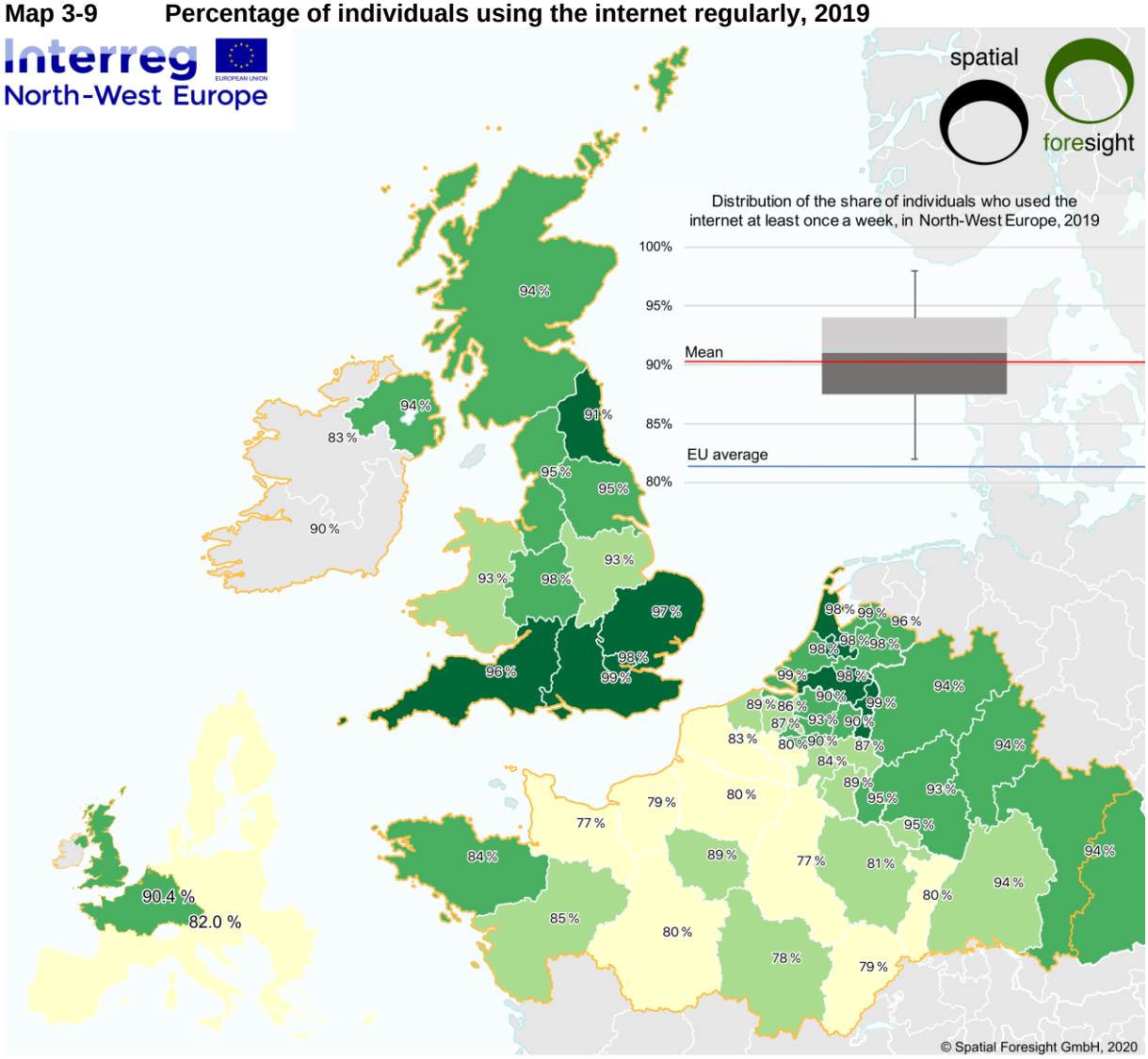
Digital connectivity is homogeneous and above the EU average for fixed broadband and 4G network coverage throughout the NWE cooperation area. In contrast, variations are considerable for fast broadband (next-generation access (NGA)) and ultra-fast broadband coverage. For both networks coverage is particularly high in the Netherlands, Luxembourg and Belgium, whereas French regions

[36] The following is closely linked to Section 3.1.4 related to PO 1 due to the focus on digitalisation in both sections. Insights are however complementary.

[37] See Section 3.1.4 on DESI

have on average the lowest coverage of all regions in the NWE cooperation area and are even below the EU average.[38]

Map 3-9 Percentage of individuals using the internet regularly, 2019



Administrative boundaries: Spatial Foresight and University of Geneva based on material from Eurostat GISCO, the GADM database and the EEA.
Data: based on Eurostat [isoc_r_iuse_i] and [isoc_r_broad], extracted 13.03.2020. Figures for IE (internet use) not available and excluded from calculation, figures for UK and DE: NUTS1.

Individuals who used the internet and broadband access

Individuals who used the internet at least once a week, share of total individuals and share of households with access to broadband, 2019

- < 85 %
- 85 - 90 %
- 90 - 95 %
- > 95 %
- 94 % Share of households with broadband access
- Programme area
- no data / no NWE territory

Source: own representation, 2020

The availability of fast and ultra-fast broadband networks enabled digital skills and the use of web-based services. In 2019, about 90% of individuals living in the NWE cooperation area regularly used the

[38] See DESI 2019: https://ec.europa.eu/digital-single-market/en/news/digital-economy-and-society-index-desi-2019

internet at least once a week (Map 3-9). Variations in use are stronger between countries than between urban and rural regions. The correlation between use of the internet by individuals and the availability of broadband access[39] is highly significant (correlation coefficient 0.9).

There is still a need to raise awareness on the relevance of digitisation among SMEs, which lag behind in the use of innovative digital technologies. While the percentage of enterprises employing ICT specialists to develop their business is generally above the EU average, SMEs less frequently employ ICT specialists but make efforts to exploit internet potentials, especially by increasing their online sales. Enterprises integrate digital technologies mostly by taking advantage of electronic information sharing and social media to promote their businesses.

All countries in the NWE cooperation area tackle digital divides through national or regional digitisation strategies and by participating in strategic EU programmes, which may provide examples and experience for further disseminating digitisation across the cooperation area.

Territorial cooperation needs arise from the digital divide between urban and rural areas in the NWE cooperation area as well as from country specific patterns. The former call for cooperation between urban and rural areas and the latter may benefit from cooperation when facing the same challenges (Figure 3-11).

Figure 3-11 SWOT on the integration of digital technologies

Strengths	Weaknesses
• Availability and good rates of uptake of fixed and mobile broadband networks with higher percentage of coverage than EU average • High percentage of people regularly using the internet (at least once a week) • Good proportion of individuals with basic and above basic digital skills • Good proportion of large enterprises employing ICT specialists • Good proportion of enterprises using digital technologies • Good level of digitisation of public services in most NWE countries	• Divide between urban and rural areas in access to broadband networks, especially fast and ultra-fast coverage • SMEs lagging behind in the employment of ICT specialists • SMEs lagging behind in the use of digital technologies

[39] Broadband as defined by EUROSTAT, refers to lines or connections 'transporting data at high speeds, with a speed of data transfer for uploading and downloading data (also called capacity) equal to or higher than 144 kbit/s (kilobits per second)' (EUROSTAT Statistics Explained, Glossary: https://ec.europa.eu/eurostat/statistics-explained/index.php/Glossary:Broadband).

Opportunities	Threats
• Promotion, at national level, of digitisation strategies and initiatives to improve connectivity (in terms of speed and coverage) and cyber-security • Implementation of national initiative addressing SMEs to raise awareness on digitisation opportunities Not available to UK: • Commitment of NWE countries to develop innovative digital technologies by means of strategic programmes coordinated at EU level • Possible synergies with other ESI funds, particularly EARDF, for investments in broadband networks in rural areas • Synergies and complementarities with EU funded programmes (Horizon and other Interreg initiatives)	• Possible delays in the extension of broadband network, especially in rural areas • Possible uncertainties and delays in developing 5G technologies

Territorial cooperation needs
• Functional area cooperation (mostly urban-rural) to overcome the digital divide between urban and rural areas in access to fast and ultrafast broadband. • Raising awareness on the relevance of digitalisation among SMEs and fostering the integration of innovative technologies in business sectors especially through cooperation between regions of countries where SMEs are lagging behind in employing ICT specialists compared to the EU average, such as DE and FR. • Investing in R&D to promote ICT measures (technology and models) for the digitalisation of public services particularly between regions from countries lagging behind in providing digital public services (e.g. DE and LU).

3.3.2 Mobility and connectivity at different scales (local to TEN-T)

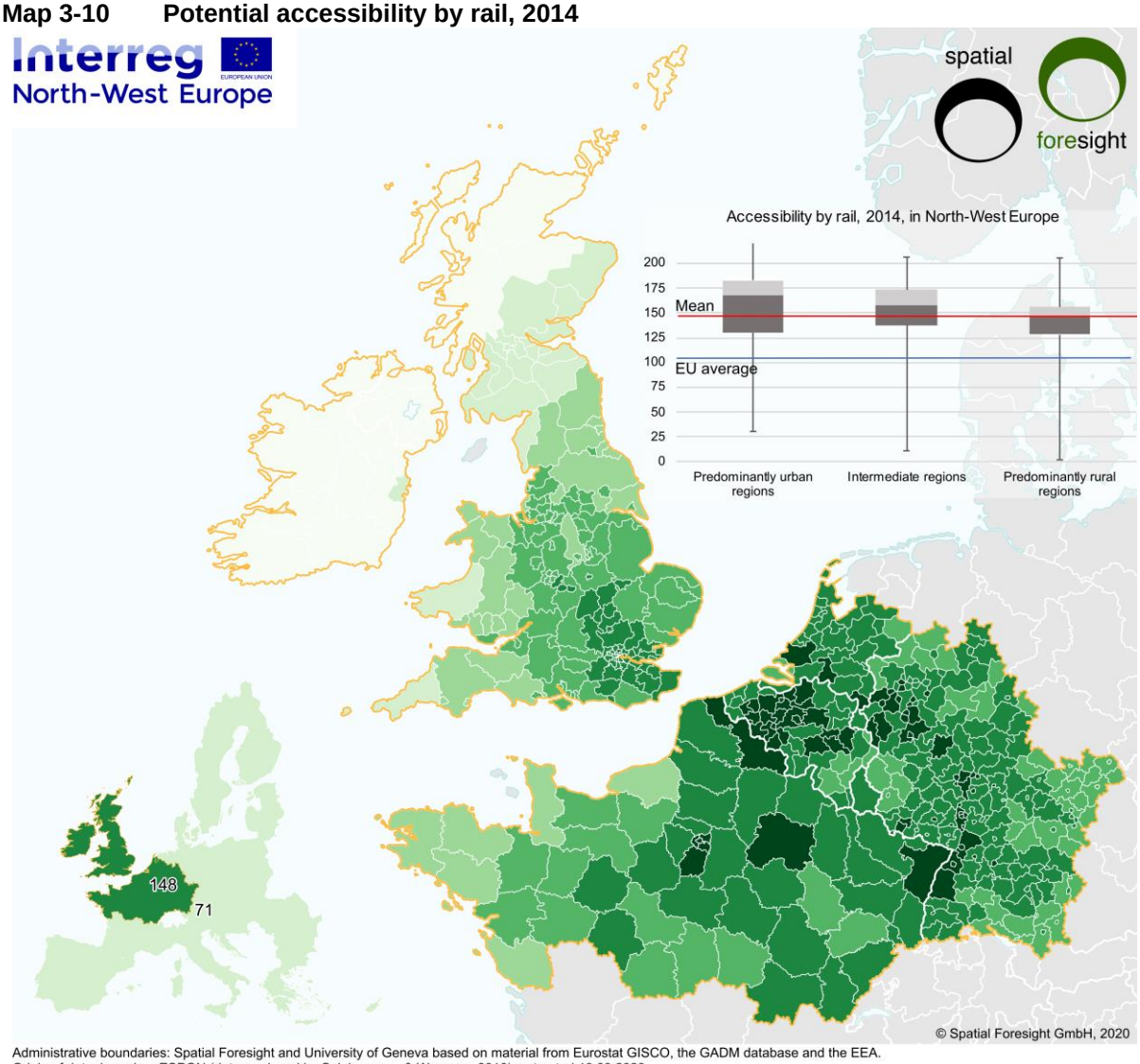
Seven TEN-T core network corridors[40] cross the NWE cooperation area, which encompasses some of the best-connected areas in the EU. There are well-developed road and railway connections as well as ports and international airports of pivotal importance for cargo and passenger transport linking the area to the main European and global destinations. While the NWE cooperation area is among the most advanced regions in the EU for transport facilities, considerable differences persist between urban agglomerations and rural regions with access challenges for a few rural regions (European Commission, 2020a).

The well-developed road infrastructure with dense motorway networks in densely populated areas of the NWE cooperation area implies the highest road accessibility potential in Europe (Kluge and Spiekermann, 2017). Furthermore, nearly all regions in the NWE cooperation area are above the EU average in terms of road accessibility potential[41]. The potential rail accessibility pattern is similar but there are more differences between urban centres and rural areas that are less well connected by rail.

[40] See https://ec.europa.eu/transport/infrastructure/tentec/tentec-portal/map/maps.html

[41] The indicator "potential accessibility" combines opportunities to be reached (in terms of population) and time or distance to reach an opportunity. 100 is the EU average value. In other words, the higher the potential accessibility value for one transport

Map 3-10 Potential accessibility by rail, 2014



Administrative boundaries: Spatial Foresight and University of Geneva based on material from Eurostat GISCO, the GADM database and the EEA.
Origin of data: based on ESPON (data produced by Spiekermann & Wegener, 2016), extracted 13.03.2020.

Potential accessibility by rail, 2014

- < 40
- 40 - 76
- 76 - 112
- 112 - 148
- 148 - 184
- > 184
- Programme area

Source: own representation, 2020

Road networks contribute to air pollution and road congestion, which are major problems in the NWE cooperation area. This is particularly true for Belgium, which has the most congested roads in Europe, the Netherlands, Germany, Luxembourg and Ireland where greenhouse gas emissions from road transport have increased over the last years.

mode, the higher is the number of population that may be reached from a certain territory. For the methodology of the accessibility potential measure see Kluge and Spiekermann (2017).

These negative side-effects are particularly evident in urban areas where population and business opportunities concentrate. Road congestion affects travel time, air quality and access to jobs, services and resources. Following the EU Transport White Paper, in 2011, and the publication of the first guidelines for developing and implementing the Sustainable Urban Mobility Plans (SUMPs), in 2013, the EC has been supporting the uptake of integrated urban mobility by EU urban areas, taking into consideration that the transport of goods and people through TEN-T networks starts and ends in cities and increasingly considering synergies from different transport means including car sharing, bike paths and renting.

Cities that adopted SUMPs have experienced an increasing engagement of local authorities and stakeholders, using participatory methods. Several cities in the NWE cooperation area represent good practice examples in the implementation of SUMPs. These include examples on the management of SUMPs and regional mobility plans for efficient transport planning beyond city boundaries.[42]

Transnational territorial cooperation can provide value added mostly in addressing road congestion and air pollution in urban areas and tackling the urban-rural divide in access to TEN-T by adapting and transferring traffic solutions to different urban and functional urban areas in the NWE cooperation area (Figure 3-12).

Figure 3-12 SWOT on mobility and connectivity at different scales

Strengths	Weaknesses
• High proximity to TEN-T core network corridors, less intensive in the UK • Mostly availability of good road, rail (apart from IE and parts of UK) and air connections • Overall accessibility rates higher than the EU average	• Divide between urban ande rural areas in the access to strategic infrastructures (i.e. high-speed railways and international airports) • Disparities among countries in terms of overall accessibility (i.e. FR and IE lagging behind) • Increase in greenhouse gas emissions and road congestion
Opportunities	**Threats**
• Possible synergies with other ESIF mainstream and Interreg programmes for improving transport infrastructure, spatial planning, promotion of sustainable transport systems and digitisation • Synergies and complementarities with EU funded framework programmes (CEF and Horizon) and other initiatives at European level	• Possible delays in planning and implementing investments in sustainable transport modes and upgrading infrastructure

[42] See European Platform on Sustainable Urban Mobility Plans, Annex to the guidelines for developing and implementing a SUMP (2nd edition)

Territorial cooperation needs

- Cooperation in urban agglomerations including their FUAs e.g. on intermodality, green mobility and traffic management or other IT solutions to improve accessibility and avoid road congestion and air pollution and tackling the divide between urban and rural areas in the access to TEN-T.
- Promoting modes of transport other than road connections to improve intermediate and rural area accessibility and overcome low connectivity of specific areas.

3.3.3 Multimodal infrastructure and use of intermodal transport

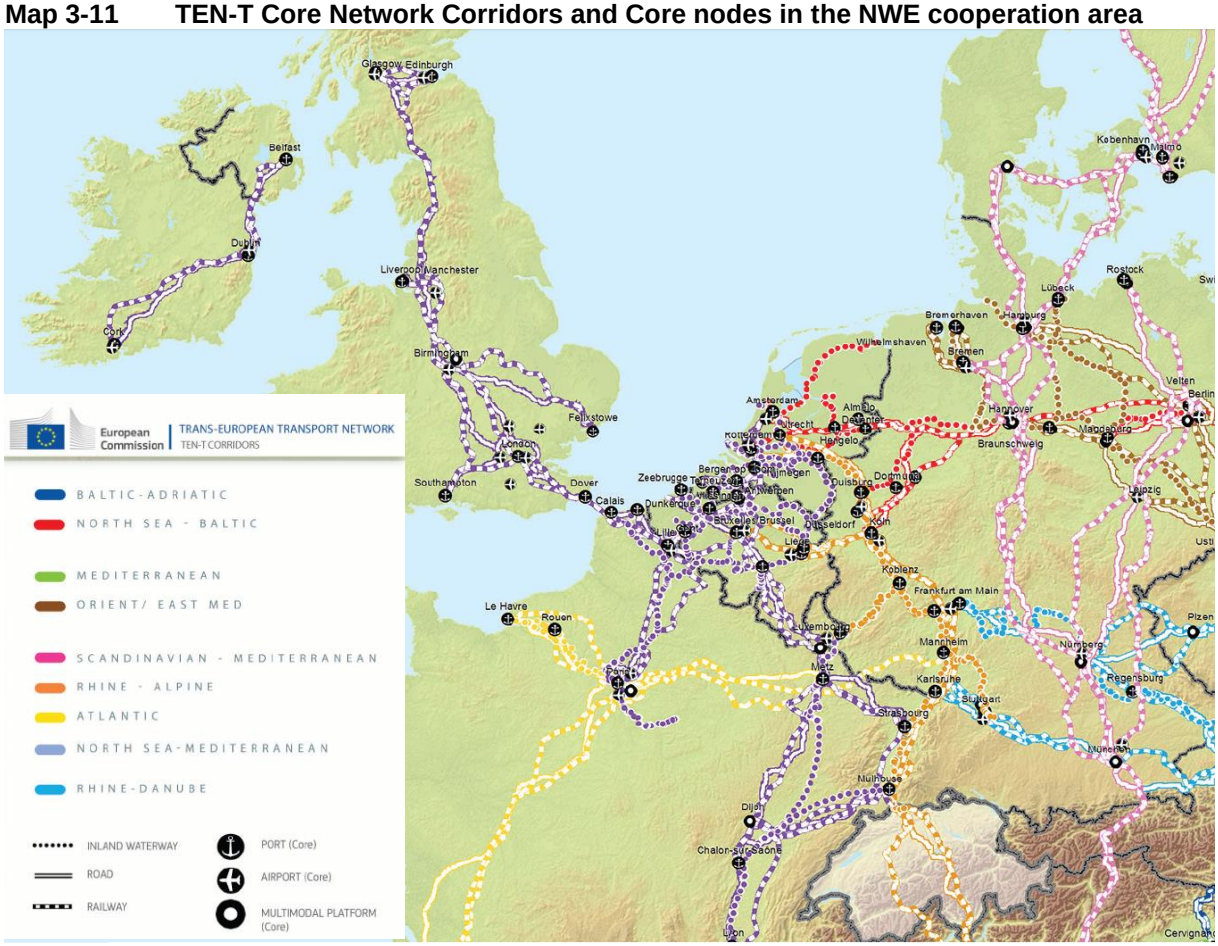
The proximity to European TEN-T corridors and core network corridors in the NWE cooperation area contributes to a large variety of transport modes for the transport of passengers and goods, although with some differences between countries and regions. Intermodal transport systems also aim to reduce the road leg of freight transportation to limit negative side effects on traffic flows and the environment. Apart from network infrastructure this requires multimodal nodes to provide for changes between modes for goods and passengers. The NWE cooperation area is among the areas in Europe with the highest density of nodes, including so-called multimodal core network platforms in Paris, Dijon, Luxembourg and Birmingham (Map 3-11) and many rail-road terminals[43].

The in-depth report (Section 3.2.1) shows the dominance of air transport for the transport of goods in the NWE cooperation area and highlights considerable differences between the cooperation area countries for all other modes.

Scenarios on multimodality development until 2030 expect the highest rates for urban regions and the lowest for rural areas (Kluge and Spiekermann, 2017, p. 23). Transport of passengers is characterised by persistent intensive use of cars compared to public transport, which is due to a lack of efficient transport lines (between urban and rural areas), toll-free roads and low environmental taxation. Together with findings from the implementation of SUMPs (see previous section) this shows that more sustainable urban mobility requires better integration of different transport means (public transport, car-sharing, cycling, etc.) and more efficient planning (including monitoring and assessment) for transport systems.

[43] See https://ec.europa.eu/transport/infrastructure/tentec/tentec-portal/site/maps_upload/annexes/annex1/Annex%20I%20-%20VOL%2007.pdf and https://ec.europa.eu/transport/infrastructure/tentec/tentec-portal/site/maps_upload/annexes/annex1/Annex%20I%20-%20VOL%2009.pdf

Map 3-11 TEN-T Core Network Corridors and Core nodes in the NWE cooperation area



Source: Extract from https://ec.europa.eu/transport/infrastructure/tentec/tentec-portal/site/maps_upload/corridors_png/Europe_Corridors_ALL_web19_05_2017.pdf

Territorial cooperation needs exist along the TEN-T corridors to improve intermodality to reduce air and road traffic and at local and regional level in urban and urban-rural context (Figure 3-13).

Figure 3-13 SWOT on multimodality

Strengths	Weaknesses
• Good road, rail, air, sea and inland waters connections with many multimodal nodes	• High road congestion • Increase in greenhouse gas emissions • Lack of urban-rural public transport links • Poor incentives to use environment friendly transport

Opportunities	Threats
• Promotion of initiatives at national and regional levels to improve public transport and discourage the use of cars • Possible synergies with other ESI mainstream and Interreg programmes for investments in transport infrastructure improvements, spatial planning, promotion of sustainable transport systems and digitisation • Synergies and complementarities with EU funded framework programmes (Connecting Europe Facility and Horizon) and other initiatives at European level	• Possible delays in planning and implementing investments in sustainable transport modes and upgrading infrastructure • Persistent lack of environmental taxation and other disincentives to use the car for frequent travel • Persistent lack of alternatives to the use of cars for frequent travel (especially at cross-border level)

Territorial cooperation needs
• Urban-rural cooperation to enhance public transport, car-sharing and the use of bicycles, push scooters and means reducing the use of private cars (especially in urban and cross-border areas). • Urban-urban and (cross-border) functional area cooperation to promote and implement successful experiences in more cities in the NWE cooperation area to enhance sustainable urban mobility. This may also include IT solutions for traffic management and logistics and SUMPs at different levels. • To reduce road and especially air transport of goods requires cooperation along transport corridors to address logistic chains.

3.3.4 Niches and comparative advantages under PO 3

The following table summarises the assessment and recommendations related to comparative advantages for the SOs under PO 3.

Table 3-7 Assessment of NWE comparative advantages of PO 3 for 2021-2027

PO and SO	Available Niches	Potential added value of NWE	Coverage by alternative funding programmes	Comparative Advantage
PO3				
SO3.1	+	+	high	o
SO3.2	+	o	very high	-
SO3.3	+	++	medium	+
SO3.4	+	++	high	+

The evidence shows several common needs and funding opportunities under PO3 for the NWE cooperation area. Within the variety of other European programmes supporting a more connected Europe the Interreg NWE Programme must define its specific comparative advantages that often lie in its cooperation opportunities. Other **cross-border and transnational Interreg programmes** might offer similar thematic opportunities to stakeholders as the future NWE programme, their selection of SOs within PO 3 remains to be seen. Across SOs the competitive advantage of the Interreg NWE Programme compared to cross-border programmes lies in transferring and scaling-up pilot activities and new

solutions across the transnational territory, or if PO 3 is not considered by cross-border programmes in tackling similar cross-border connection challenges in several territories of the NWE cooperation area.

The following presents tentative ideas on possible niches or comparative strengths for transnational cooperation in NWE to be further specified in the programming process.

While PO 3 may be covered by **mainstream national and regional ERDF programmes**, the uptake of this PO is expected to be limited in NWE cooperation area countries, since it is not a priority for thematic concentration relevant in the respective Member States. For the connectivity of rural areas, however, **EAFRD** programmes may provide for investments to improve these.

SO 3.1 Enhancing digital connectivity

In general, all NWE countries and regions are committed to invest in adequate digital connection and innovative digital technologies by means of national strategies on smart specialisation and strategic programmes coordinated at EU level (European High-Performance Computing Joint Undertaking, European Blockchain Partnership Declaration and Declaration of Cooperation on Artificial Intelligence).

The main EU programmes supporting digital connectivity will be **Digital Europe** and the **CEF** sector support for cross-border digital infrastructure and its deployment. Further investments under these programmes are expected for 2021-2027. In addition, **Horizon Europe** will support digital connectivity through R&D and innovation measures. Apart from Horizon Europe cooperation is not widely used by these alternative funding sources.

Potential transnational added value exists in the possibility to identify clusters for digital integration (e.g. SMEs), supporting links between research and business sectors and the exchange of experiences and networking. However, these measures may be more suitable for SO 1.2 and may not require an additional SO on digitisation under transnational cooperation. Finally, cooperation to overcome the digital divide across borders and between urban and rural areas requires investments that may create added value in the NWE cooperation area. National strategies and plans for digital connectivity may limit the value added by transnational cooperation projects. Thus, demand for these projects may not be sufficient for a separate SO. Therefore, SO 3.1 is not recommended.

SO 3.2 Developing a sustainable, climate resilient, intelligent, secure and intermodal TEN-T

All TEN-T core network corridors receive funding from **CEF** transport sector support. Major transport infrastructure investments, especially along TEN-T corridors, are defined in national transport plans, limiting the added value and influence of territorial cooperation within the fixed framework of such plans. Not least the feasible size for projects means CEF may be the most important funding source for TEN-T development apart from **national and regional funding programmes** for transport infrastructure. As a result of the corridor approach applied by CEF transport projects, cooperation is ensured through corridor coordination if not cooperative projects. The cross-border approach oriented along functional links is, for instance, visible in CEF transport projects addressing rail interoperability, cross-border rail

sections, transport information management or when covering several nodes of a corridor.[44] Consequently, the added value of the Interreg NWE Programmes is low and SO 3.2 is not recommended.

SO 3.3 Developing sustainable, climate resilient, intelligent and intermodal national, regional and local mobility, including improved access to TEN-T and cross-border mobility

In the NWE cooperation area there is a need for improving connectedness in and of specific territories, such as rural areas or coastal areas, cross-border areas, inner peripheries and islands. Measures can address specific themes such as transport connection and sustainable mobility across borders (road, railways, inland waterways, public transport, freight transport, cycling pathways) as well as intermodal links and interoperability with a focus on accessibility beyond TEN-T corridors. These themes require cooperative approaches that are not as well covered by **CEF and national and regional funding programmes** as the TEN-T (core) network itself.

Cooperation in this field could address accessibility and mobility from different starting points. This may include new ways of organising transport regarding the sharing economy and different ways of providing public transport as well as IT solutions for traffic management and investments in green mobility and intermodality infrastructure. As far as cross-border areas are concerned this may also be tackled by **cross-border Interreg programmes**. A niche within transnational cooperation would then be in scaling up individual cross-border solutions to other cross-border areas in the NWE cooperation area. Given the variety of territories that may benefit from better accessibility and mobility, SO 3.3 can be recommended for the future Interreg NWE Programme.

SO 3.4 Promoting sustainable multimodal urban mobility

There is a need in the NWE cooperation area to strengthen sustainable urban mobility and to scale up solutions beyond the pilot project status. Pollution and congestion represent significant challenges for many urban and functional urban areas that require territorial approaches either at urban or urban-rural or (wider) FUA level depending on the spatial extent of the challenges and existing functional links and their likely development. To achieve sustainable urban mobility, transport of goods and people needs to be considered equally.

However, there are also **national funding**, **mainstream ERDF funding** and other urban EU programmes (**URBACT, UIA**) available to address this need. Within mainstream ERDF programmes sustainable urban mobility is frequently addressed within wider urban development strategies but without foreseeing cooperation. UIA and URBACT offer support for urban projects on many themes and challenges of these areas, including sustainable urban transport. URBACT builds on networks of cities without a geographic focus within the EU. UIA are implemented in individual cities building on local networks rather than EU or transnational networks. While the type of support from URBACT, UIA and transnational territorial cooperation could be similar, the Interreg NWE Programme may create considerable value added through cooperation with the missing territorial focus. This can be realised, for instance, through projects building on successful examples and supporting their wider territorial

[44] See e.g. the lists of actions of TEN-T core network corridors: https://ec.europa.eu/inea/connecting-europe-facility/cef-transport/projects-by-transport-corridor

implementation in cities and FUAs facing similar challenges and projects in which such cities and FUAs jointly develop, test and implement new urban mobility solutions.

Consequently, SO 3.4 can be recommended particularly in view of the cooperative nature of transnational cooperation. Furthermore, the Interreg NWE Programme may seek synergies with individual activities within the other programmes to scale up investments to more regions in the NWE cooperation area.

3.3.5 Analytical matrices for all SOs under PO 3

PO	SO	Specific needs in NWE	(Transnational) functional links	Potential for cooperation	Challenges for transnational cooperation	Common Challenges – Joint investment needs	Stakeholder mapping	Niches/comparative strengths of NWE (Complementarities)
PO 3: A more connected Europe by enhancing mobility and regional ICT connectivity	SO 3.1: Enhancing digital connectivity	Overcoming digital divide (fast and ultrafast broadband) between urban and rural areas; Fostering the integration of innovative technologies into business sectors by SMEs to enhance competitiveness; Enhancing public services digitisation (e.g. in DE and LU where DESI values on this topic are under the EU average).	Although digitalisation is a global theme, transnational functional links may be represented by the need to overcome the digital divide between urban and rural areas through investments in research and development of ICT soft measures (technologies and models) to be applied for the digitalisation of businesses and other strategic sectors (e.g. public services, transport systems and logistics).	Raising awareness on the relevance of digitisation among SMEs Enhancing the use of digital technologies in business sectors; Investing in R&D to foster the use of innovative models and technologies in different sectors (private and public) to overcome digital divides.	Possible overlaps with other mainstream programmes at national level. Likely overlap in 2021-2027 with Digital Europe and Horizon Europe Programmes. Transnational added value represented by the possibility to identify clusters for digital integration (e.g. SMEs), links between research and business sectors, exchange of experiences and networking.	Fostering digital integration by SMEs through pilot projects (e.g., developing and testing new technologies), training and links between research/high education centres and enterprises; Pilot initiatives applying/testing ICT tools in business and other strategic sectors like transport and logistics; Improving the digitalisation of public services through testing innovative organisational models, use of ICT tools and exchange of experiences.	- Chambers of Commerce, regional development agencies, local development agencies - Local/Regional Public Authorities - National Authorities - Universities, public research centres, private research units, - SMEs as service providers: IT, data, software. - Business and Sectoral associations, Cluster, NGOs, Lobby organisations, citizen networks, - Agencies on planning. IT, data, communication - IT service providers and network corporations.	Functional area cooperation (mostly urban-rural) to overcome the digital divide between urban and rural areas in the access to fast and ultrafast broadband. Other niches mostly relate to measures that may also be suitable for SO 1.2: Cooperation between regions lagging in digitalisation among SMEs, public services or other specific sectors by investing in digital tools and processes. Cooperation between research and business sectors in regions lagging in digitalisation addressing specific digitalisation problems of these regions.

PO	SO	Specific needs in NWE	(Transnational) functional links	Potential for cooperation	Challenges for transnational cooperation	Common Challenges – Joint investment needs	Stakeholder mapping	Niches/comparative strengths of NWE (Complementarities)
PO 3: A more connected Europe by enhancing mobility and regional ICT connectivity	SO 3.2: Developing a sustainable, climate resilient, intelligent, secure and intermodal TEN-T	Tackling the divide between urban and rural areas in the access to TEN-T core network corridors; Strengthen intermodality.	Transnational functional links may concern the need to improve the links between intermediate/rural areas with TEN-T networks in a sustainable way (IT solutions and intermodal transport).	Investing in R&D and innovative IT solutions to improve accessibility to TEN-T core networks (e.g. traffic management systems).	Possible overlaps with other mainstream programmes at national level, as well as with ERDF funding and EU programmes especially with the Connecting Europe Facility (CEF). Transnational added value represented by the possibility to promote research and innovation to develop digital solutions to be applied in the transport and logistics sectors to improve links to TEN-T networks in a more sustainable, secure and smart way.	Drafting feasibility studies and analysis on possible developments of connections with TEN-T core networks; Development of ICT tools for traffic management.	- Local/Regional Public Authorities - National Authorities - Universities, public research centres, private research units, - SMEs as service providers: IT, data, software. - Business and Sectoral associations, Cluster, NGOs, Lobby organisations, citizen networks, - Agencies on Roads, Railways, public transport, traffic management, planning. IT, data, communication - Transport service providers, Transport companies	No visible comparative advantage – not recommended

PO	SO	Specific needs in NWE	(Transnational) functional links	Potential for cooperation	Challenges for transnational cooperation	Common Challenges – Joint investment needs	Stakeholder mapping	Niches/comparative strengths of NWE (Complementarities)
PO 3: A more connected Europe by enhancing mobility and regional ICT connectivity	SO 3.3: Developing sustainable, climate resilient, intelligent and intermodal national, regional and local mobility, including improved access to TEN-T and cross-border mobility	Promoting alternative modes of transport other than road connections to improve intermediate and rural areas accessibility (especially public transport); Improving freight transport through intermodal and more sustainable ways of transport; Fighting road congestion and high levels of greenhouse gas emissions.	Enhancing accessibility and overcoming transport negative effects (road congestion and air pollution) through the promotion of multimodal transport systems and the development and use of new technologies.	Investing in R&D and innovative IT solutions to improve traffic management and multimodal transport; Deploy new technologies to tackle road congestion and air pollution.	Possible overlaps with other mainstream programmes at national level, as well as with ERDF funding and EU programmes especially with the CEF. Transnational added value represented by the possibility to promote research and innovation to develop digital solutions to be applied in transport and logistics sectors.	Development of ICT tools for traffic management and mitigation of road congestion effects; Development of ICT instruments to strengthen multimodal transport and improve sustainable logistics; Elaborating feasibility studies and IT technologies to digitise transport systems and promote more sustainable technologies (e.g. alternative fuels infrastructures).	- Local/Regional Public Authorities - National Authorities - Universities, public research centres, private research units, - SMEs as service providers: IT, data, software. - Business and Sectoral associations, Cluster, NGOs, Lobby organisations, citizen networks, - Agencies on Roads, Railways, public transport, traffic management, planning. IT, data, communication - Transport service providers, Transport companies	Cooperation between similar territories facing accessibility challenges (e.g. inner peripheries, coastal or rural areas) with a focus on intermodality, green mobility and traffic management and alternative modes of transport including on demand public transport and car sharing. Cooperation between cross-border areas to scale up individual cross-border solutions to other cross-border areas in the NWE cooperation area.

PO	SO	Specific needs in NWE	(Transnational) functional links	Potential for cooperation	Challenges for transnational cooperation	Common Challenges – Joint investment needs	Stakeholder mapping	Niches/comparative strengths of NWE (Complementarities)
PO 3: A more connected Europe by enhancing mobility and regional ICT connectivity	SO 3.4: Promoting sustainable multimodal urban mobility	Enhance public transport and limit the use of private cars (especially in urban and cross-border areas).	Promotion of multimodal urban mobility through the use of IT solutions and the development of new technologies to improve accessibility and mitigate road congestion and pollution effects.	Promote urban planning aiming to improve public transport and alternative modes of transport (e.g., bike and car-sharing).	Possible overlaps with other mainstream programmes at national level, as well as with ERDF funding and EU programmes (LIFE). Overlaps with other Interreg programmes and with specific EU funding for urban areas (URBACT etc.) Transnational added value represented by the possibility to exchange experiences on urban planning and networking.	Pilot projects on sustainable urban mobility planning; Development of ICT tools for analysing traffic flows and mitigate road congestion effects.	- Local/Regional Public Authorities - National Authorities - Universities, public research centres, private research units, - SMEs as service providers: IT, data, software. - Business and Sectoral associations, Cluster, NGOs, Lobby organisations, citizen networks, - Agencies on Roads, Railways, public transport, traffic management, planning. IT, data, communication - Transport service providers, Transport companies	Urban-rural cooperation to enhance public transport, car-sharing and the use of bicycles, push scooters etc. to reduce the use of private cars (especially in urban and cross-border areas and wider areas of FUAs for the benefit of the outer parts of FUAs). Scaling up of successful experience from the Interreg NWE Programme and other programmes to implement these in more cities in the NWE cooperation area. Cooperation in both fields may include IT solutions for traffic management, urban logistics and SUMPs at different levels.

3.4 PO 4 – A more social Europe

The regulatory framework defines four SOs and five Interreg specific SOs under the fourth policy objective. Each generally applicable SO is mirrored in at least one Interreg specific SO. To avoid duplication, the following focuses on the five Interreg specific SOs. These address labour markets, education, skills and training, access to healthcare and resilience of healthcare systems as well as social inclusion. All Interreg SOs under PO 4 include the perspective across borders (Table 3-7).

To assess the challenges and needs for SOs under PO 4 requires an understanding of overall population development, the state of the labour market, healthcare and social inclusion. For healthcare the analysis also includes some reflections in view of COVID-19 and the analysis of social inclusion covers several sub-themes related to indicators of the corresponding EU2020 targets, such as young people not in education or employment, early school leavers and people at risk of poverty or social exclusion. The table below indicates the main links between the themes of the territorial analysis and the SOs.

Table 3-8 Overview of relations between PO 4 SOs and territorial analysis themes

Theme \ SO	4.1 Enhancing the effectiveness of labour markets and access to quality employment	4.2 Improving access to inclusive and quality services in education, training and lifelong learning	4.3 Increasing the socio-economic integration of marginalised communities, migrants and disadvantaged groups	4.4 Ensuring equal access to health care
Population		**X**	**X**	X
Labour market	**X**	X		
Healthcare				**X**
Social inclusion	**X**	**X**	**X**	X

3.4.1 Population

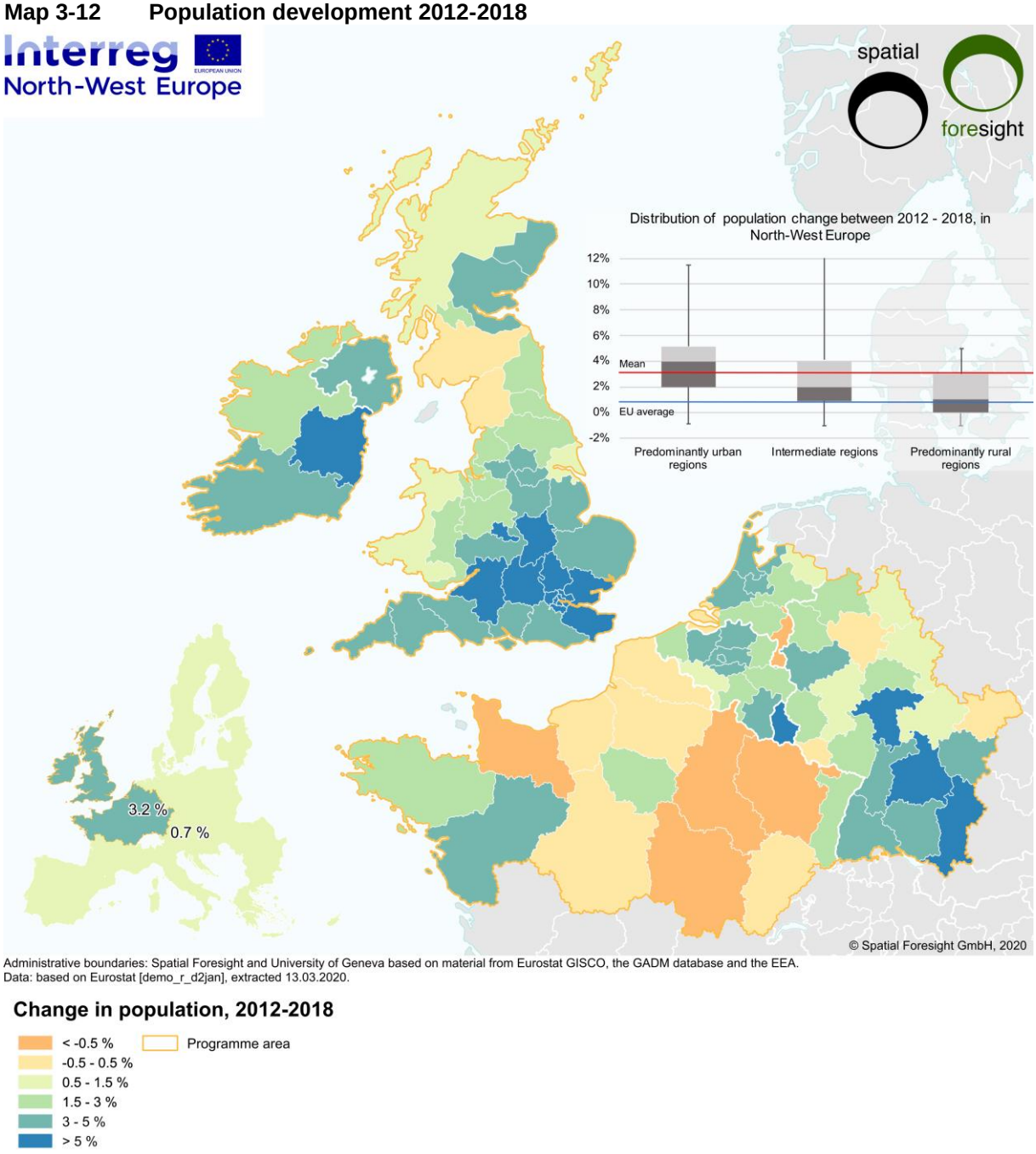
Population development is central not only in view of a more social Europe but also affects many other regional development potentials, e.g. the labour force, achieving critical mass or cost-efficiency of public services. In 2019, the population in the NWE cooperation area with and without the UK was about 185 and 118 million inhabitants, respectively. This is more than one third or one quarter respectively of the corresponding EU population.[45] In the NWE cooperation area population development has been above EU average. However, the territorial picture is very diverse with regions gaining population by several percentage points (up to nearly 15%) and other regions experiencing shrinkage of up to 1% (Map 3-12).

This pattern is driven by national differences among NWE countries as well as urban-rural patterns. Hit most by shrinkage are French predominantly rural regions and the Dutch Province of Limburg which is the only predominantly urban region in the NWE cooperation area with a shrinkage of more than 0.5%. Overall, population shrinkage and stagnation concentrate in the French regions of the NWE cooperation area. In all other NWE countries population growth is more frequent in all types of territories from predominantly urban to rural, though it is more pronounced in predominantly urban areas. An

[45] The share of the NWE population with the UK based on EU28 and the share of the NWE population without the UK based on EU27.

outstanding exception is Luxembourg as a predominantly intermediate area with the highest population growth of all regions in the NWE cooperation area.

Map 3-12 Population development 2012-2018



Administrative boundaries: Spatial Foresight and University of Geneva based on material from Eurostat GISCO, the GADM database and the EEA.
Data: based on Eurostat [demo_r_d2jan], extracted 13.03.2020.

Source: own representation, 2020

Population development in the NWE cooperation area is driven by ageing and migration. Population development and migration rates between 2010 and 2018 are highly correlated. Except for Île de France, no region in the NWE cooperation area experienced simultaneously significant population growth and

high net out-migration during this period. This exception can be explained by a high share of young population (below 35 years of age) and high fertility rates of young migrant families, which outweighs the out-migration of elder inhabitants from Île de France to other French regions. Chapter 4.1 in the in-depth report reveals further relations between migration GDP per capita illustrating the economic attractiveness of the NWE cooperation area.

The population in the NWE cooperation area is ageing. While the average median age is still about 1.5 years below the EU average, this increased between 2010 and 2019 in nearly all NWE regions. A few British regions are the sole exceptions, with a slightly decreasing median age. Regional differences are considerable in most NWE countries other than Ireland, where the median age is well below the NWE average, but ageing is relatively strong. Country specific patterns tend to dominate territorial patterns. Only predominantly urban regions have a lower median age than other regions in the NWE cooperation area. However, regions with population growth are more often among the regions – within their country – with a lower median age and slower ageing than regions with stable or shrinking populations.

Territorial cooperation needs resulting from recent population development in the NWE cooperation area are related to ageing and different attractiveness of the types of territories. They require different types of territorial cooperation mainly to support territorial cohesion e.g. in terms of SGI provision (Figure 3-14).

Figure 3-14 SWOT on population development

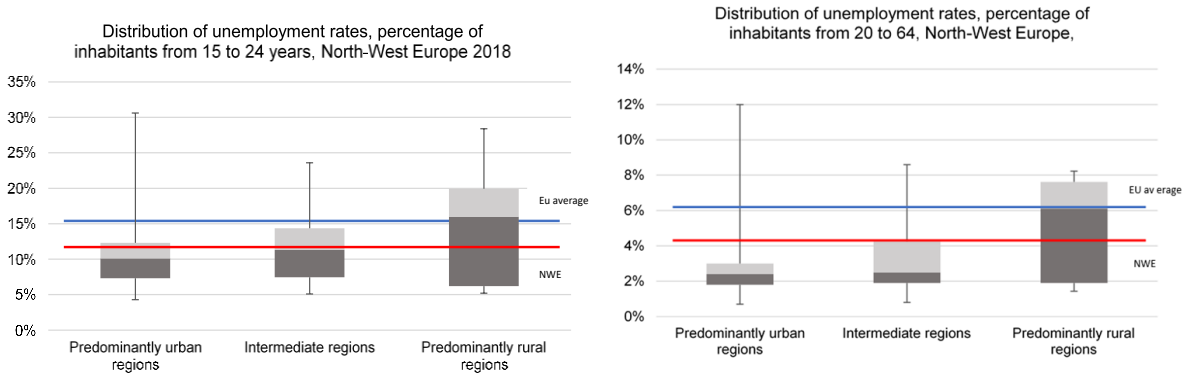
Strengths	Weaknesses
• Population growth above EU average. • Less ageing in UK than in most other NWE countries (except for IE, LU and parts of BE and NL).	• Diverging population development patterns from shrinking to strongly growing regions. • Highly diverging patterns of ageing across regions and between countries.
Opportunities	**Threats**
• Attractive regions may benefit from migration to counterbalance ageing.	• Slow or insufficient adjustments of social services in view of ageing population.
Territorial cooperation needs	
• Rural-rural and urban-rural cooperation to offset the mismatch between supply and demand of services, especially in rural areas, where the share of ageing population tends to be higher. Functional cross-border area cooperation using existing cross-border entities can support better service provision. • Rural-rural cooperation and cooperation among sparsely populated, peripheral areas etc. to address rural demographic challenges with a view to the needs of young people regarding job opportunities and attractive living conditions. • Urban cooperation (including e.g. coastal cities) for integrated sustainable urban development approaches based on the participation of key local stakeholders in policy-making to meet the increasing and changing demand and needs of growing population in cities of the NWE cooperation area and in the densely populated metropolitan agglomerations.	

3.4.2 Labour market

Prior to the COVID-19 pandemic, labour market conditions in the NWE cooperation area could be considered positive in terms of both activity and low levels of unemployment. As detailed in Chapter 4.2

in the in-depth report, NWE cooperation area unemployment is below the EU average and only above the EU average in some Belgium and French regions. The situation is homogeneous in many NWE regions, especially in predominantly urban and intermediate regions. Although some rural regions, e.g. in Scotland and Germany, achieve similarly low unemployment rates as predominantly urban regions, the rates vary much more across predominantly rural regions. Thus, in terms of unemployment, urban and intermediate areas perform generally better than rural areas in the NWE cooperation area (Figure 3-15).

Figure 3-15 Unemployment by age groups in the NWE cooperation area by type of regions, 2018



Source: own presentation based on EUROSTAT, 2020

Since 2010 average unemployment has decreased in the NWE cooperation area, showing the capacity of the area to recover from the crisis. Since 2013, the decrease was most significant in Ireland, mainly due to reforms to reinforce the Irish labour market (COM(2019) 507 final 2019c). Only in Luxembourg has unemployment increased, although at an overall low level.

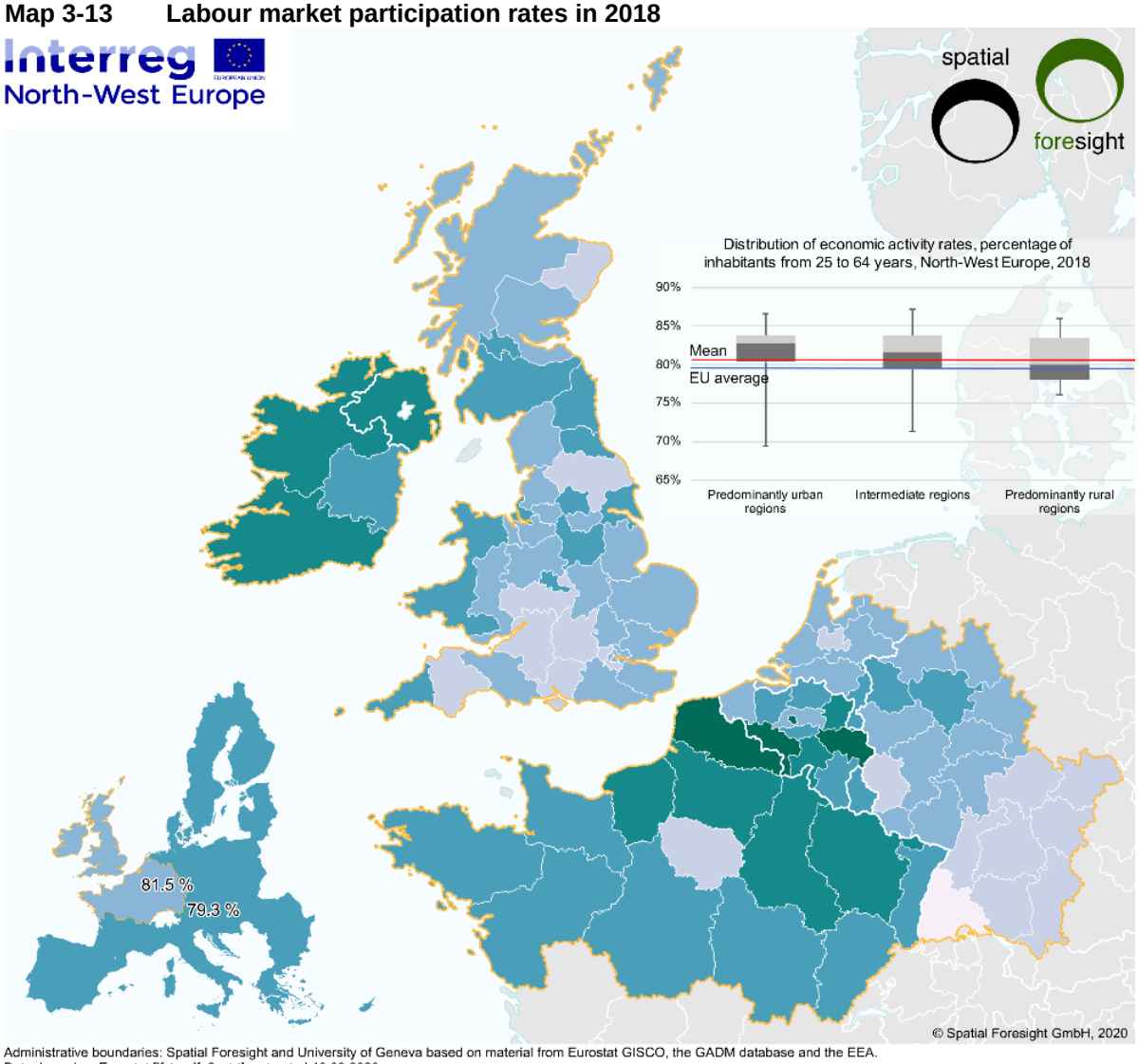
Participation in the labour market is about 2%-points higher in the NWE cooperation area than the EU average. The pattern of labour market participation is driven more by differences between countries in the NWE cooperation area than by types of territories, e.g. predominantly urban regions are among those with the highest as well as lowest participation rates (Map 2-13). Nevertheless, urban regions show a mean participation rate that is about 3%-points higher on average than predominantly rural regions.

Between 2010 and 2018 labour market participation increased by 3% in the NWE cooperation area with only small variations between regions and countries. Despite these mostly favourable labour market developments in the NWE cooperation area, there are considerable risks for future perspectives due to the COVID-19 crisis, which is expected to heavily impact the labour market. Preliminary forecasts indicate homogeneous increases of unemployment across NWE countries.[46] However, given the differing economic structures of the regions and the varying vulnerability of sectors due to different degrees of lock-down, labour market impacts may vary more strongly across the NWE cooperation area (Böhme and Besana, 2020).

[46] https://www.statista.com/statistics/1115276/coronavirus-european-unemployment/

Given that UK unemployment and labour market participation rates have developed similarly to many other NWE countries, including or excluding the UK does not affect the SWOT assessment.

Map 3-13 Labour market participation rates in 2018



Administrative boundaries: Spatial Foresight and University of Geneva based on material from Eurostat GISCO, the GADM database and the EEA.
Data: based on Eurostat [lfst_r_lfp2actrt], extracted 13.03.2020.

Economic activity rates, 2018

Economic activity rates, percentage of inhabitants from 25 to 64 years, 2018

- < 75 %
- 75 - 78 %
- 78 - 81 %
- 81 - 84 %
- 84 - 87 %
- > 87 %
- Programme area

Source: own representation, 2020

Territorial cooperation needs arise mainly from urban-rural disparities in labour markets that may be addressed through functional area cooperation as well as cooperation between rural areas, including neighbouring rural areas to join forces (Figure 3-16).

Figure 3-16 SWOT on labour market

Strengths	Weaknesses
• High participation in the labour market in most regions of the programme area. • Low unemployment in most regions of the programme area.	• In some NWE countries rural regions have higher unemployment and lower activity than urban regions. • Rural regions show higher labour market disparities than other regions in NWE.
Opportunities	**Threats**
• Strong capacity to recover from the effects of the crisis.	• The COVID-19 crisis will negatively impact the economy of the area in particular in terms of unemployment.
Territorial cooperation needs	
• Rural-rural and functional labour market area cooperation to create attractive employment opportunities in rural areas with lower labour market participation rates, e.g. by addressing worker skills. • Promoting rural-rural cooperation to enhance joint efforts for the provision of SGI addressing the shortage of public services in some areas, which may also impact positively on labour market opportunities. • Urban-rural partnerships based on complementarities, for instance through participatory mechanisms (like Local Action Groups) to better focus on sub-regional areas to combine urban and rural dimensions and develop the local capacity for change. • Cooperation on economic diversification strategies to promote local resilience in more remote areas.	

3.4.3 Health care

Generally speaking, the NWE cooperation area has a good level of access to healthcare services and facilities, although some disparities can be observed between urban and rural areas.

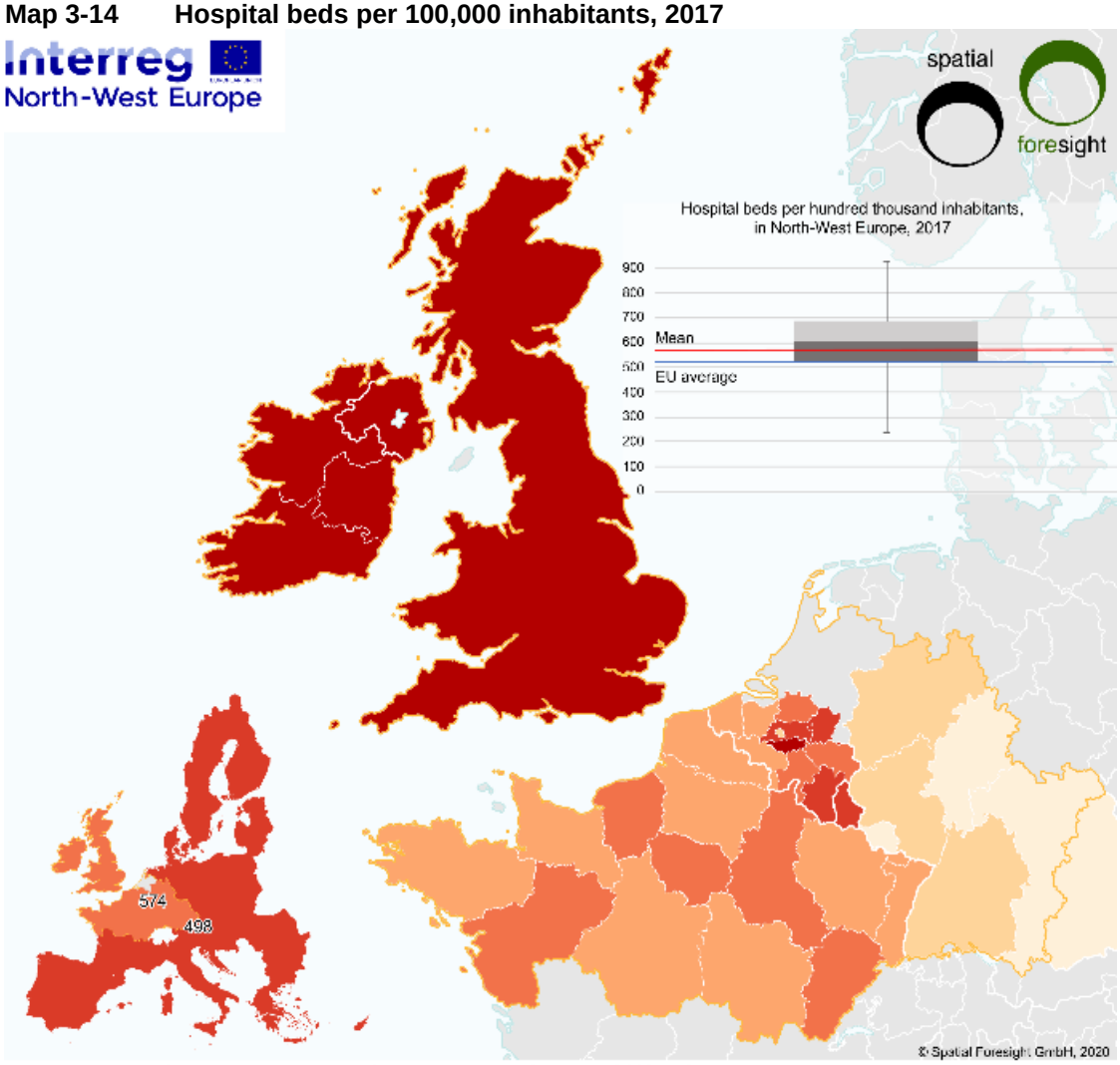
The European Commission study 'Inequalities in access to healthcare' from 2018 identifies a variety of inequalities in access to healthcare (European Commission, 2018b, p. 6). While not all inequalities matter similarly for NWE cooperation area regions, the study identifies some regional disparities. For instance, the supply of health services varies considerably between French urban and rural regions. But also disadvantaged urban areas in France and Germany experience a shortage of medical professionals and human resource challenges are expected in some regions in Belgium.[47] In addition, to availability, the quality of healthcare varies e.g. in the UK (European Commission, 2018b, pp. 27–28).

The analysis detailed in Chapter 4.3 in the in-depth report allows for more insights in regional disparities across the NWE cooperation area, e.g. for the number of hospital beds in relation to inhabitants. The high average number of hospital beds across the NWE cooperation area is the result of considerable differences between countries (Map 3-14). Regional disparities in the availability of hospital beds seem to be strongest in Belgium.[48] Due to a decreasing number of hospital beds in most NWE countries between 2015 and 2017, except for Ireland and the UK, overall disparities across the NWE cooperation

[47] See e.g. SWD (2019) 1004 final (2019d).
[48] For UK only national data is available.

area have slightly decreased. Ongoing efforts by different countries and governments in the NWE cooperation area will contribute to better provision in underserved regions.[49]

Map 3-14 Hospital beds per 100,000 inhabitants, 2017



Source: own representation, 2020

However, the COVID-19 crisis is strongly affecting the healthcare systems of all countries in the NWE cooperation area. In particular, local pandemic hot spots have illustrated the varying ability of regional healthcare systems to cope with the challenges. This may inspire changes in the organisation and

[49] See e.g. https://www.gouvernement.fr/en/health-system-transformation-strategy and COM(2019) 507 final (2019c)

distribution of healthcare services in the future, both within countries and across borders. In view of these recent developments the above analysis on the access of healthcare services only partially reflects the future needs of territories in the NWE cooperation area. Despite the likely focus on cross-border cooperation, transnational needs may be identified in relation to improving the resilience of healthcare systems in NWE.

Territorial cooperation may address health care disparities at different levels of functional links including improving provision in sparsely populated and peripheral areas and across borders (Figure 3-17).

Figure 3-17 SWOT analysis for Access to healthcare

Strengths	Weaknesses
• High availability of hospital beds compared to the EU average (except for the UK and IE). • Good degree of health coverage in the programme area.	• Peripheral areas have more difficulties accessing healthcare services when concentrated in urban areas. • Population growth in the NWE area may overburden the healthcare system and affect the capacity to meet the care demand.
Opportunities	**Threats**
• The mostly good healthcare performance in the NWE area maybe beneficial for the capacity of the health systems to meet the future needs driven by the COVID-19 crisis.	• Decrease in hospital beds over the last years (except for the UK and IE). • COVID-19 emergency may modify the overall approach to organise and manage healthcare services.
Territorial cooperation needs	
• Functional area cooperation for a shift from hospital-centred towards a more territorial health system to improve health care provision in less covered rural areas and aiming to detect early and reduce overburden of healthcare infrastructure (especially in big cities). • Urban-rural cooperation to facilitate the transfer of digital technologies and tools in care services. • Cooperation in cross-border health care provision facilitating better access e.g. through administrative simplification. • Focus of cities on functional areas beyond their administrative boundaries, including their peri-urban neighbourhoods, to strengthen territorial care networks (private social sector, third sector private entities (from corporate welfare to health and socio-sanitary structures) which can best recognise the needs of their territories and develop solutions. • Build rural-urban partnerships to use resources more efficiently in the implementation of integrated strategies in healthcare provision.	

3.4.4 Social inclusion

The European Commission NWE border orientation paper points out that the NWE cooperation area ranks above the EU 28 average regarding social inclusion, measured by the social progress index. Nevertheless, there is a divide between less performing regions (in France and the south of Belgium) and more developed regions (in the Netherlands). Several indicators describing different dimensions of social inclusion confirm this pattern as outlined in Chapter 4.4 of the in-depth report. This includes the young population not in education, employment or training (NEET), early school leavers, people at risk of poverty or social exclusion and people suffering from material deprivation.

In 2018, the average NEET share was significantly lower in the NWE cooperation area than the EU average. Since 2010, this share has decreased in the EU in general and in the NWE cooperation area. This decrease was most pronounced in Ireland and reduced by about a quarter in the UK and German NWE regions. Within the NWE cooperation area Dutch and a few German regions perform best in terms of NEET with low regional disparities. In contrast, French, Belgium and British regions show considerable differences (Map 3-15). Variations in NEET shares is higher in urban and intermediate regions than in rural regions but without a significant difference between these.

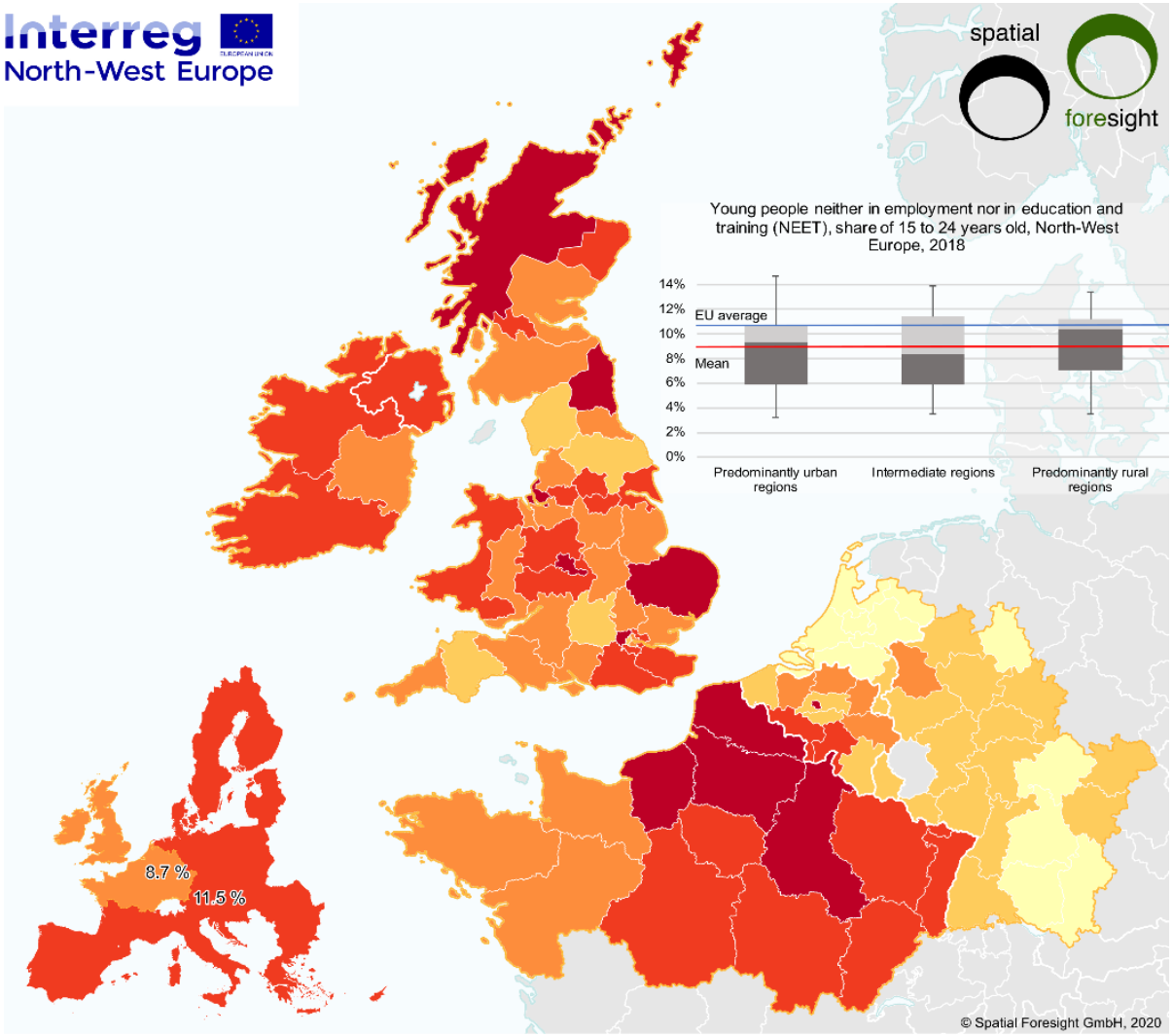
Young people leaving education and training early tend to face considerable difficulties accessing the labour market and therefore a higher risk of poverty or social exclusion[50]. In NWE the share of early school leavers from 15 to 24 years is slightly below the EU average, with only the UK at about the EU average and the German regions only 1%-point below. Between 2010 and 2018 the share of early school leavers has dropped significantly in all NWE countries. The variation of early school leavers is highest in urban regions.

Social exclusion, measured in terms of people at risk of poverty, severely materially deprived or living in a household with a very low work intensity is about 5%-points lower in the NWE cooperation area than the EU average. However, disparities within the area are significant with considerably higher risks of poverty and social exclusion in the urban areas of most NWE countries. In Luxembourg and the UK, the share of the population subject to social exclusion increased between 2016 and 2018 but remained unchanged or decreased in the other parts of the NWE cooperation area. Also, the share of people suffering from material deprivation has decreased in NWE in recent years so all NWE countries have corresponding shares below the EU average.

Impacts of the COVID-19 pandemic may challenge the capacity of the NWE cooperation area to maintain low levels of social inequalities and to reduce the existing disparities.

[50] Eurostat Glossary: https://ec.europa.eu/eurostat/statistics

Map 3-15 Young people between 15 and 24 years of age not in employment, education or training, 2018



Administrative boundaries: Spatial Foresight and University of Geneva based on material from Eurostat GISCO, the GADM database and the EEA.
Data: based on Eurostat [edat_lfse_22], extracted 13.03.2020. Value for UKM6 from 2014.

Young people neither in employment nor in education and training (NEET), 2018

Young people neither in employment nor in education and training (NEET), share of 15 to 24 years old, 2018

- < 5 %
- 5 - 7.5 %
- 7.5 - 10 %
- 10 - 12.5 %
- > 12.5 %
- Programme area
- no data / no NWE territory

Source: own representation, 2020

Territorial cooperation tackling poverty and social inclusion needs to differentiate different spatial levels of these challenges, e.g. differing between urban and rural areas or neighbourhoods within urban areas or parts of FUAs (Figure 3-18).

Figure 3-18 SWOT analysis for social inclusion

Strengths	Weaknesses
• High degree of social inclusion in most parts of the NWE area (probably to a lower degree in the UK)[51]. • Broad participation of young people in education, employment and training opportunities, no significant differences between urban and rural areas. • Low dropout rate of young people from education and training.	• Weaker social inclusion in some countries (LU, IE and UK). • Different social challenges at national/regional level (social housing, in-work poverty…). • Greater risk of poverty and social exclusion risk in urbanised areas (BE and UK) • Young population in some countries (NL and LU) more exposed to poverty risk.
Opportunities	**Threats**
• Decreasing percentage of people at risk of poverty in recent years. • Rising attention by national governments on social issues.	• The COVID-19 pandemic may increase social inequalities and limit the effects of national social policies.
Territorial cooperation needs	
• Cooperation with a focus on the development of deprived areas rather than the inclusion of deprived people (LEADER approach). • Promote integrated approaches, inter-departmental coordination, involvement of local stakeholders to balance 'hard' investments (such as new social housing units), and 'soft' investments (such as business support, training and cultural activities) in urbanised regions where the social performance is lower. • Mitigate the risk of social exclusion in urban areas (especially in BE) taking advantage of high economic opportunities (employment opportunities, infrastructures, greater availability of public services). • Urban-urban cooperation for solutions to shared social challenges (e.g. local strategies and their implementation to make cities more attractive to live, work and visit). • Urban cooperation between cities facing urban poverty and empower local communities (especially young people) to elaborate local development strategy for areas of priority intervention (as deprived urban areas). • Urban-rural cooperation schemes to transfer innovative services and technologies to more remote areas.	

3.4.5 Niches and comparative advantages under PO 4

The following table summarises the assessment and recommendations related to comparative advantages for the SOs under PO 4.

[51] Due to a lack of regional data on social exclusion for the UK and considering the regional disparities in the UK with regard to other indicators such as NEET or unemployment, while the UK has an overall high share of people at risk of poverty, the degree of social inclusion may be somewhat lower in parts of the UK than in most other parts of the NWE cooperation area.

Table 3-9 Assessment of NWE comparative advantages of PO 4 for 2021-2027

PO and SO	Available Niches	Potential added value of NWE	Coverage by alternative funding programmes	Comparative Advantage
PO4				
SO4.1	++	+	high	o
SO4.2	++	+	very high	o
SO4.3	++	+	high	o
SO4.4	++	++	medium	+

The analysis identifies several common needs in the NWE cooperation area under PO4. Social topics have been addressed less in the previous Interreg NWE Programmes. However, recent developments (COVID-19 crisis and the subsequent economic crisis) and the demand for more just and inclusive development makes the relevance of social topics such as labour market efficiency, equal access to quality health systems and the fight against poverty more important. Despite the overall advantageous position of most territories in the NWE cooperation area, this asks for innovative solutions and new partnerships.

Other European programmes will also support a more social Europe. Compared to most programmes the advantage of the Interreg NWE Programme is its cooperation opportunity. Compared to **cross-border Interreg programmes** it can offer opportunities to tackle similar cross-border social challenges in several territories of the NWE cooperation area.

EU programmes funding all or most SOs under PO 4 are

- **ESF+** with both its EU level implemented components and the mainstream programmes under shared management. These address all policy areas subject to the European Pillar of Social Rights. Given the widened scope of ESF+ it will also integrate programmes on youth employment, social innovation and health that were previously separate. So far, not much is known about the new EU4 Health programme, including whether there will be a cooperation component.
- **UIA** and **URBACT** offer support for urban projects on many themes and challenges in these areas. Both have a social pillar with a focus on jobs and skills, education, integration, poverty and specific social urban topics such as housing that also affect poverty. Due to the character of URBACT and UIA projects described under PO 3, the Interreg NWE Programme may create considerable value added through cooperation. This can be, for instance, through projects building on successful examples and supporting their wider territorial implementation in cities and FUAs facing similar challenges and projects. Such cities and FUAs could jointly develop, test and implement new urban solutions for education, employment and social inclusion.

The following presents tentative ideas on possible niches or comparative strengths for transnational cooperation in NWE to be further specified in the programming process.

SO 4.1 Enhancing the effectiveness of labour markets and access to quality employment

Economic sectors suffering the effects of the COVID-19 lock-down and other restriction measures might ask for specific transnational solutions to boost employment and to better match the workforce and open positions. Different degrees of lockdown across countries and sectors may have created labour market imbalances, which need to be addressed across regions and countries. The increased number of people working from home or under new conditions (e.g. masks, social distancing), might also require innovative answers.

In addition to above mentioned funding sources, **EURES** and **job-placement services** of various Euregios provide important information and support for integrating labour markets of cross-border areas. These services also exist at many borders of the NWE cooperation area.[52] They differ however in their services and capacities depending on their resources and the degree of integration, which could be improved through exchanges between these service providers. Urban-rural areas more generally may benefit from new partnerships focusing on attractive employment opportunities in rural areas and actively searching for territorial complementarities.

While there are niches for territorial cooperation, many of these measures do not have a transnational perspective. They may not be easy to transfer and adapt for other regions in the NWE cooperation area but require individual local activity which may be better provided by ESF+ and other national or regional initiatives or cross-border programmes. SO 4.1 is thus not recommended. If required, more specific support for skills and employment might be included under SO 1.4.

SO 4.2 Improving access to inclusive and quality services in education, training and lifelong learning

Education and training are based on national or regional approaches and systems. However, European integration of labour markets and employment schemes impact strongly on the need to improve education and training, in particular in relation to continuous training, life-long-learning and retraining. Transnational solutions can add to existing national and regional support schemes.

For this SO more funding alternatives are available than for other SOs under PO 4. **ERASMUS+** is an international instrument that covers education and training building. There is cooperation, though without a territorial focus as it primarily addresses skills development and modernising vocational training.

While there are niches for territorial cooperation, these usually do not have a transnational functional area but build on local, regional and cross-border area links. Other cooperation needs do not have a territorial dimension at all but depend on skills and jobs across Europe. These needs require individual regional, cross-border and EU-wide activities without a transnational focus and may be better provided by ESF+ and cross-border programmes and EU-wide programmes. SO 4.2 is thus not recommended.

SO 4.3 Increasing the socioeconomic integration of marginalised communities, migrants and disadvantaged groups

Despite the overall economic wealth in NWE, social fragmentation and vulnerability of certain groups to fall into certain forms of poverty (child, energy, etc.) is increasing. National and regional programmes

[52] See e.g. https://ec.europa.eu/eures/public/en/eures-in-cross-border-regions#/list

might not tackle the territorial perspective of such challenges. While there are niches for territorial cooperation, many measures do not have a transnational perspective. Measures to tackle social exclusion and poverty may differ as they depend on national frameworks. They may not be easy to transfer and adapt for other regions in the NWE cooperation area but require individual local activity which may be better provided by ESF+ cooperation programmes, ESF regional and national programmes, other national or regional initiatives or cross-border programmes. SO 4.3 is thus not recommended as a priority.

SO 4.4 Ensuring equal access to health care

Health care services across borders become increasingly important as cross-border integration proceeds. At the same time health care services are often underdeveloped e.g. in rural or particularly sparsely populated areas, or do not exploit the existing potential for telemedical or digital health services. Both phenomena require territorial cooperation to achieve a balanced provision and availability of health care services. At the same time, information and access to these services differ between countries and are subject to national rules and funding schemes. Along some borders, the NWE cooperation area shows the highest degree of health care integration in the whole EU (ESPON, 2018e). The Organised Zones for Cross-Border Access to Healthcare (ZOAST) established along the French-Belgian border are an example for other cross-border areas. Their solutions and other cross-border health care approaches could be scaled up through transnational cooperation in the NWE cooperation area. Transferring and implementing such approaches more widely can create considerable value added in NWE.

Furthermore, demographic change and ageing indicate an increasing need for long-term care services and new solutions in health care systems in the NWE cooperation area. This calls for innovative solutions by changing systems and offering new services. Simultaneously the COVID-19 pandemic shows the need for better cross-border and even transnational cooperation to ensure sufficient health care services for all EU citizens. Large scale health risks may arise not only from pandemics but from other unexpected events. Better preparation for such emergencies requires adequate governance structures and planning across borders. While this directly addresses health care it may give rise to measures for better Interreg governance. At the same time, the opportunities for digital transformation of health and care through robotics, artificial intelligence, digital platforms and administration are only exploited in pilot actions so far. These require significant upscaling as well as specific solutions and support activities (e.g. training).

Funding from other programmes generally invests in health care services but there is little funding that enables transfers of successful approaches to wider areas in the NWE cooperation area. Furthermore, existing funding from other programmes investing in health care systems (e.g. eHealth initiative under Digital Europe and Horizon Europe, ESF+ with EU4Health, ERDF) might not include a cooperation component or look for transnational action. SO 4.4 can thus be recommended for the future Interreg NWE Programme, although it may require some pre-analysis to identify sufficient stakeholder demand and awareness. Alternatively, these niches could be tackled under PO 1 to cover e-health innovation or health care systems under the Interreg SO ‘A better Interreg Governance’.

3.4.6 Analytical matrices for all SOs under PO 4

PO	SO	Specific needs in NWE	(Transnational) functional links	Potential for cooperation	Challenges for transnational cooperation	Common Challenges – Joint investment needs	Stakeholder mapping	Niches/comparative strengths of NWE (Complementarities)
PO 4: A more social Europe implementing the European Pillar of Social Rights	SO 4.1. Enhancing the effectiveness of labour markets and access to quality employment	Mismatches in the labour market in partner countries but also within countries (especially in BE). In rural areas (mainly in south BE and FR regions) young unemployment remains high. Lower economic activity in certain regions (Nord-Pas-de-Calais and Hainaut) Negative impacts on unemployment are expected due to the Covid19 crisis.	- Important destination countries (esp. DE & UK) with the highest numbers of workers in EU. - Labour market access is more limited in rural and/or coastal areas of the NWE (mainly in IE, BE, FR & DE) - Intense labour force participation in recent years suggests growing work opportunities in most NWE regions. - Good innovation performance & favourable economic conditions in the programme area are a further comparative advantage which may generate spill over effects in the labour market.	Improving governance and territorial policy coordination (also with ESIF programmes) to promote labour force mobility and integrated labour markets, through common development strategies Exchange of experiences and schemes focused on themes (e.g. new services addressing a certain sector) or specific types of territories (e.g. areas affected by outward migration, deprived urban neighbourhoods, rural or remote areas) Consolidating and diversifying specific economic activities to reinforce mutual solidarity between rural and urban areas	So far, the NWE programme does not intervene in the labour market and its contribution towards territorial needs (young unemployment in rural areas, low economic performance in certain areas) may only be indirect. Likely overlap with national and regional funding, national and regional ESF programmes, specific ESF+ instruments, and ERASMUS+ for the 2021-2027 period.	Networks with an issue-specific focus on actions involving wider range of actors. Promotion of dialogues and systematic exchange of information between the main actors in the labour market (trade unions, employers' associations and governments). Developing transnational tools (portals and platforms) for recruitment to match jobseekers and job changers (for instance promoting occupation-specific language training) Training schemes helping labour mobility and responding to fast economic changes and rapidly changing needs of companies.	- Chambers of Commerce, Artisan Chambers, economic development agencies, regional development agencies, local development agencies - Local/Regional Public Authorities - National Authorities - Universities, public research centres, private research units, - SMEs as service providers: consultancies. - Business and Sectoral associations, Cluster, NGOs, Lobby organisations, civil society networks, - social entreprises, social Economy organisations, - Employment Centres and Job Centres, - EURES	Low comparative advantage – not recommended On skills and employment, a possible coverage via SO 1.4 might be considered.

PO	SO	Specific needs in NWE	(Transnational) functional links	Potential for cooperation	Challenges for transnational cooperation	Common Challenges – Joint investment needs	Stakeholder mapping	Niches/comparative strengths of NWE (Complementarities)
PO 4: A more social Europe implementing the European Pillar of Social Rights	SO 4.2 Improving access to inclusive and quality services in education, training and lifelong learning	No particular needs to improve access to education and training could be identified. However, interventions to support mobility and lifelong learning may help to cope with labour market issues	No particular transnational functional link could be detected. However, the overall good innovation performance, as well as the favourable economic conditions of the programme area are a further comparative advantage which may generate spillover impacts improving access to education and training	Transnational exchange of experience of training, education and youth Coordination with other ESIF programmes and funds to facilitate the mobility of learners and workers to promote better governance for learning and education Raise awareness on the potential of lifelong learning Capitalising on the past experience at EU level in improving the quality of learning (Socrates, Leonardo da Vinci programmes...)	The NWE programme does not intervene directly in education and learning, however the high innovation potential of the area paves the way to improve education and training opportunities. Possible overlap with national and regional funding, national and regional ESF programmes, specific ESF+ instruments, and ERASMUS+ for the 2021-2027 period.	Adoption of a common framework based on learning outcomes to facilitate comparison among different territories Transnational tools (platform and portals) to gather the experiences of organisations and initiatives in the education and learning sector Promote active dialogues among relevant actors	- Chambers of Commerce, Artisan Chambers, economic development agencies, regional development agencies, local development agencies - Local/Regional Public Authorities - National Authorities - Universities, public research centres, private research units, - SMEs as service providers: consultancies. - Business and Sectoral associations, Cluster, NGOs, Lobby organisations, civil society networks, - social entreprises, social Economy organisations, - Employment Centres and Job Centres, - EURES - Education and Training Agencies, - Educational & training institutions, schools, colleges, academies.	Low comparative advantage – not recommended

PO	SO	Specific needs in NWE	(Transnational) functional links	Potential for cooperation	Challenges for transnational cooperation	Common Challenges – Joint investment needs	Stakeholder mapping	Niches/comparative strengths of NWE (Complementarities)
PO 4: A more social Europe implementing the European Pillar of Social Rights	SO 4.3 Increasing the socioeconomic integration of marginalised communities, migrants and disadvantaged groups	In most NWE countries poverty and social exclusion is visible in larger urban areas, less pronounced in rural regions. Certain regions in BE and FR show significant socio-economic disparities Different social challenges at national/regional level (social housing, in-work poverty…)	The NWE area presents many urbanised areas (also across the borders) and important urban centres (Dublin, London, Amsterdam, Brussels, Luxemburg, Stuttgart, Zurich). Functional links refer to the high economic opportunities of these areas and potential to counterbalance related social problems. Technological development and innovation performance in the NWE area can help to tackle social challenges.	Better territorial governance among existing policies and programmes and better cooperation in social services. Research and innovation cooperation to introduce innovative solutions (products, services, models, markets, processes etc.) to meet social needs. Creating transnational networks engaging a wide range of actors to promote innovative solutions addressed to people more at risk of social exclusion Exchange of experiences and schemes at transnational level to implement integrated and inclusive services for communities.	The NWE programme does not intervene directly in social inclusion themes, however the high innovation potential of the area paves the way to promote socio-economic integration. The social domain is cross-sectoral (education, unemployment, health etc) and its organisation is expressed in multi-level governance, this may increase the complexity for a transnational programme to plan joint strategies. National, regional or local interventions can more effectively impact social exclusion issues. Possible overlap with national and regional funding, national and regional ESF programmes, specific ESF+ instruments, for the 2021-2027 period.	Designing new public service delivery mechanisms based on the interaction between the private and public sector (for example, public-private partnerships) Developing and delivering joint services or financial tools that address challenges, especially in urban areas where socio-economic inequalities are more exacerbated; Supporting dialogue among the actors (state, civil society, social enterprises etc)	- Local Development Agencies, local Streetworker services, Neighbourhood managers, - Local/Regional Public Authorities - National Authorities - Universities, public research centres, private research units, - SMEs as service providers: consultancies. - Business and Sectoral associations, Cluster, NGOs, Lobby organisations, neighbourhood associations, local networks, civil society networks, - Social enterprises, social Economy organisations working with vulnerable groups, work integration, migration, refugees, social impact at local level - Public Agencies and service providers for Health, Family and children, Social services, Social Assistance, Employment, Migration, Social Inclusion	Low comparative advantage – not recommended

PO	SO	Specific needs in NWE	(Transnational) functional links	Potential for cooperation	Challenges for transnational cooperation	Common Challenges – Joint investment needs	Stakeholder mapping	Niches/comparative strengths of NWE (Complementarities)
PO 4: A more social Europe implementing the European Pillar of Social Rights	SO 4.4 Ensuring equal access to health care	Peripheral areas have more difficulties accessing healthcare services concentrated in urban areas. The population trend in the NWE area may overburden the healthcare system and affect the capacity to meet the demand for care Decrease in hospital beds in recent years Covid19 emergency may change the overall approach to organise and manage healthcare services Changing needs for care services in view of demographic change / ageing	Hospitals in urban centres suffer from overburden resulting from a hospital-centred system Technological development and innovation performance in the NWE area can promote equal opportunities for accessing health care and social services Covid19 crisis highlighted interdependencies among countries, showing how measures in one country may affect other territories Functional links refer to the overburden for hospitals in urban centres as a result of a hospital-centred system	R&I cooperation to introduce medical technology and equipment to save time and resources in hospitals and care structures. Support and develop new digital health technologies and innovation Exchange experiences and schemes for integrated healthcare and social services and improve conditions for vulnerable individuals to access social security Enhance knowledge to promote more community-based approach to healthcare and reduce avoidable admissions Share experiences and good practice to drive the transition from hospital-centre system toward a community-based structures Develop transnational standards/protocol to jointly face pandemics and other health emergencies	EU countries hold primary responsibility for organising and delivering health services and medical care. However, room for coordinating national policies to jointly respond to health emergencies are possible. Possible overlap with national and regional funding, national and regional ERDF and ESF programmes, for the 2021-2027 period.	Health technology innovation-driven initiatives and customer-oriented health services Collaboration and knowledge sharing among care organisations, entrepreneurs and knowledge institutions to stimulate healthcare innovations and e-health products Telemedicine service for patients to better self-manage their disease at home Unified information system for exchanging information between health units for emergency health cases Initiatives/tools/platform to collect health data to improve the capacity of doctors and scientists to predict, prevent, diagnose and treat Digital tools for citizen empowerment and person-centred care to promote community-based approaches	- Local/Regional Public Authorities - National Authorities - Universities, public research centres, private research units, - SMEs and large companies in the health sector (medical products, medical services, e-health, health IT, health services, pharmaceutical, consultancies). - Business and Sectoral associations, Cluster, NGOs, Lobby organisations, civil society networks, - Medical, Patient and Disease associations and networks, - Social entreprises, social Economy organisations, - Hospitals, nursing home, care centres, social service providers, nursing services - Public health agencies	Cooperation between similar territories facing similar health care access and avail-ability challenges (e.g. inner peripheries, coastal or rural areas) incl. IT solutions, sharing models, new information systems etc. Cooperation between cross-border areas to scale up individual solutions to other cross-border areas in the NWE cooperation area. Some niches refer to innovation, which may also be tackled under SO 1.1 or SO 1.2: Cooperation on innovation in health care systems Other niches may be considered under Interreg SO 'A better Interreg Governance': pre-pare for unexpected events affecting the population's health

3.5 PO 5 – A Europe closer to citizens

The regulatory framework defines two SOs under the fifth policy objective, addressing sustainable and integrated development in different territories and supporting local initiatives. The first SO under PO 5 focuses on integrated development in urban areas and the second on rural and coastal areas.

Whether and how transnational cooperation programmes may use PO 5 is under discussion. The following provides a few reflections. PO5 and its SOs do not explicitly mention 'integrated territorial development' as laid down in Art. 22 CPR (COM(2018) 375 final, 2018). Consequently, other means to foster sustainable and integrated development of urban, rural and coastal areas and local initiatives can be used to implement PO 5. Furthermore, the specifications for PO 5, do not explicitly require a link to a territorial strategy. This link rather comes when PO 5 is implemented through integrated territorial development as laid down in Art. 22 CPR and Art. 20 Interreg Regulation (COM(2018) 374 final, 2018):

Art. 22 CPR states 'The Member State shall support integrated territorial development through territorial and local development strategies in any of the following forms: (a) integrated territorial development, (b) community-led local development, (c) another territorial tool supporting initiatives designed by the Member State for investments programmed for the ERDF under the policy objective referred in Article 4(1)(e).'

Recent clarifications by DG Regio highlight that PO 5 needs to be based on multi-level governance including all competent levels with a fully-fledged partnership principle for the strategy with interconnected multi-sector actions to be implemented under this objective[53]. As discussions are not finalised, continued uncertainty may hamper the willingness of transnational cooperation programmes to select SOs under PO 5.

The same input by DG Regio further clarifies that PO 5 may not be limited to specific types of territories but can be applied to all types. In the following, this is addressed by including a wide variety of territories in the analysis with a focus on functional links between them.

Respecting the above and given the special nature of this PO, the thematic analysis is not structured along particular themes as the other POs but follows a territorial logic. Where relevant, the analysis includes topics that would be useful for cooperation in these types of territories. The chapter is structured along four themes that best represent this PO, namely urban-rural disparities and functional links, rural and coastal area development and territorial specificities, urban development and the EU set of the United Nations (UN) Sustainable Development Goals (SDGs). The table below indicates the main links between the territorial analysis themes and the SOs.

[53] See DG Regio presentation to the '10th meeting of Heads/MAs of TNC programmes – Programming process – Q&A PO5'.

Table 3-10 Overview of relations between PO 5 SOs and territorial analysis themes

Theme \ SO	5.1 Fostering integrated social, economic and environmental development, cultural heritage and security in urban areas	5.2 Fostering integrated social, economic and environmental local development, cultural heritage and security, including for rural and coastal areas also through community-led local development
Urban-rural disparities and functional links	X	X
Rural and coastal area development and geographic specificities		X
Urban development	X	
Sustainable Development Goals	X	X

3.5.1 Urban-rural disparities and functional links

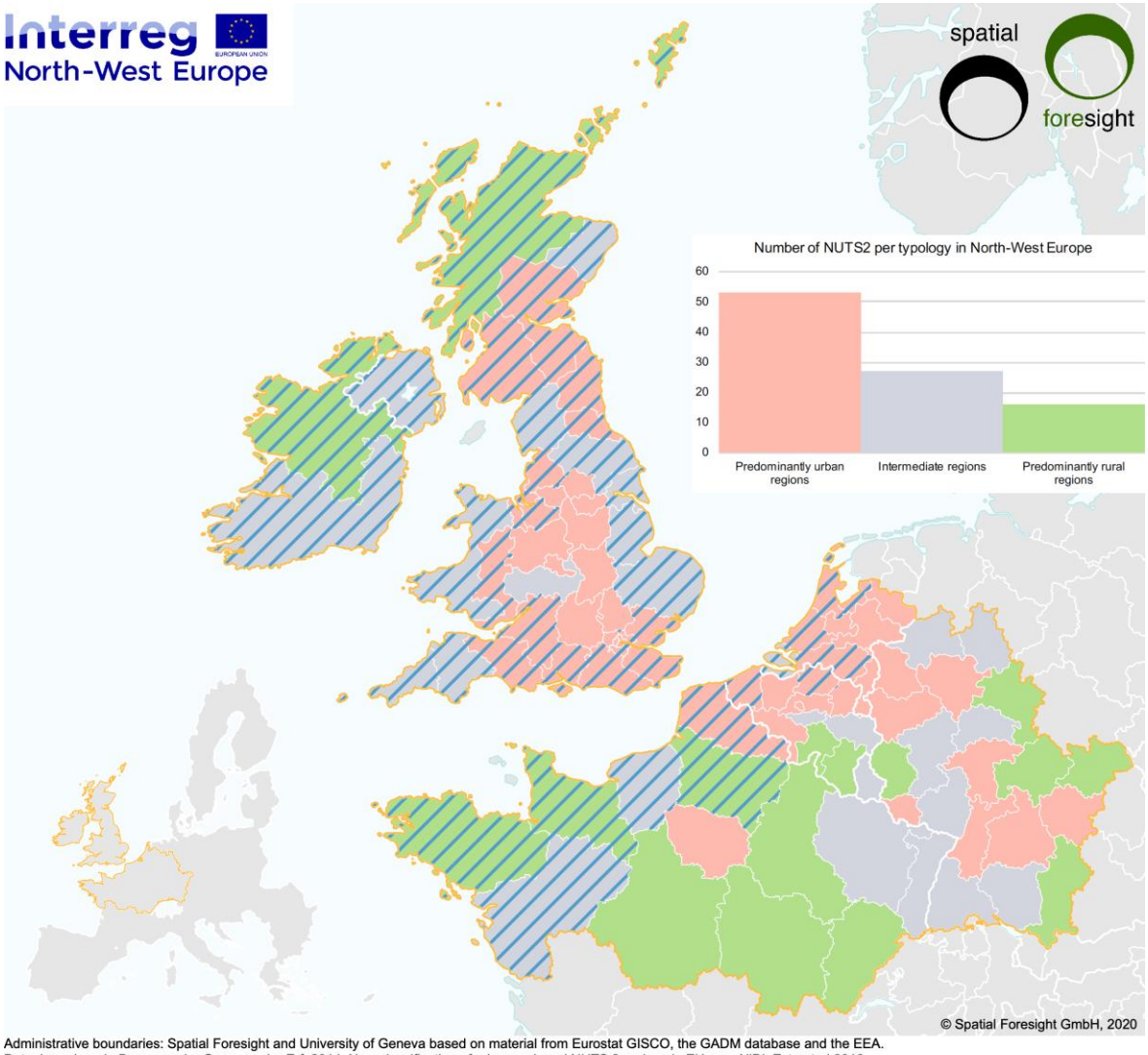
North-West Europe is a predominately urbanised region, home to the biggest urban areas in the EU. Urbanised areas include cross-border regions, e.g. Lille-Tournai and densely populated metropolitan agglomerations such as London and Paris (European Commission, 2020a). The region forms the largest part of Europe's 'blue banana', a set of metropoles in the area and some more remote rural areas, mainly in Belgium, France and Germany (European Commission, 2020a). Map 3-16 shows that at NUTS 2 level the majority of regions in the NWE cooperation area are predominately urban[54], covering most of the Netherlands, west Belgium, the Ruhr area in Germany, Île de France and most parts of the UK. The role of these areas is even more pronounced as the NWE cooperation area includes many of the economically strongest EU capital cities, with different gateway functions, characteristics and challenges which are sometimes shared. The urban pattern in North-West Europe is further fostered by many second-tier cities in all territories from predominantly urban to rural. Vast rural areas are mostly in France, beyond Île de France, and in Ireland, as well as Scotland and some areas in west Germany, where mostly small and medium-sized cities are located.

The high degree of urbanisation does not overcome persistent urban-rural divides and simultaneously provides ground for many urban-rural links. Divides are mainly in GDP and economic activities, GI, or transport connections and accessibility (see previous sections). While North-West Europe is one of the best connected regions by rail and air (European Commission, 2017), accessibility between urban and rural areas can be improved. Furthermore, CE potential or smart energy system can be supported by rural areas (European Commission, 2019). These and other indicators describe disparities between urban and rural regions in North-West Europe. In addition, other potential can inspire more balanced territorial development benefiting from complementarities and increasing the attractiveness of rural areas. Since many of these themes are covered in the above thematic analyses, this section focuses on disparities particularly relevant for PO 5.

Access to SGI shows an urban-rural divide in the NWE cooperation area. Travel times to the nearest secondary school, doctor, hospital and next shop can vary a lot. Access to these services is particularly limited in rural areas in the north of Scotland and along the west coast of Ireland and Northern Ireland. This divide is least visible in the German regions of the NWE cooperation area.

[54] This is also visible at NUTS 3 level as depicted further below in Map 3-18.

Map 3-16 Regional typology of the NWE cooperation area at NUTS 2 level



Administrative boundaries: Spatial Foresight and University of Geneva based on material from Eurostat GISCO, the GADM database and the EEA.
Data: based on de Beer, van der Gaag, an der Erf, 2014, New classification of urban and rural NUTS 2 regions in EUrope. NiDi. Extracted 2016.

Regional typology

Regional typologies at NUTS2 level for the Interreg North-West Europe Programme area

- Predominantly urban region
- Intermediate region
- Predominantly rural region
- Coastal region
- Programme area

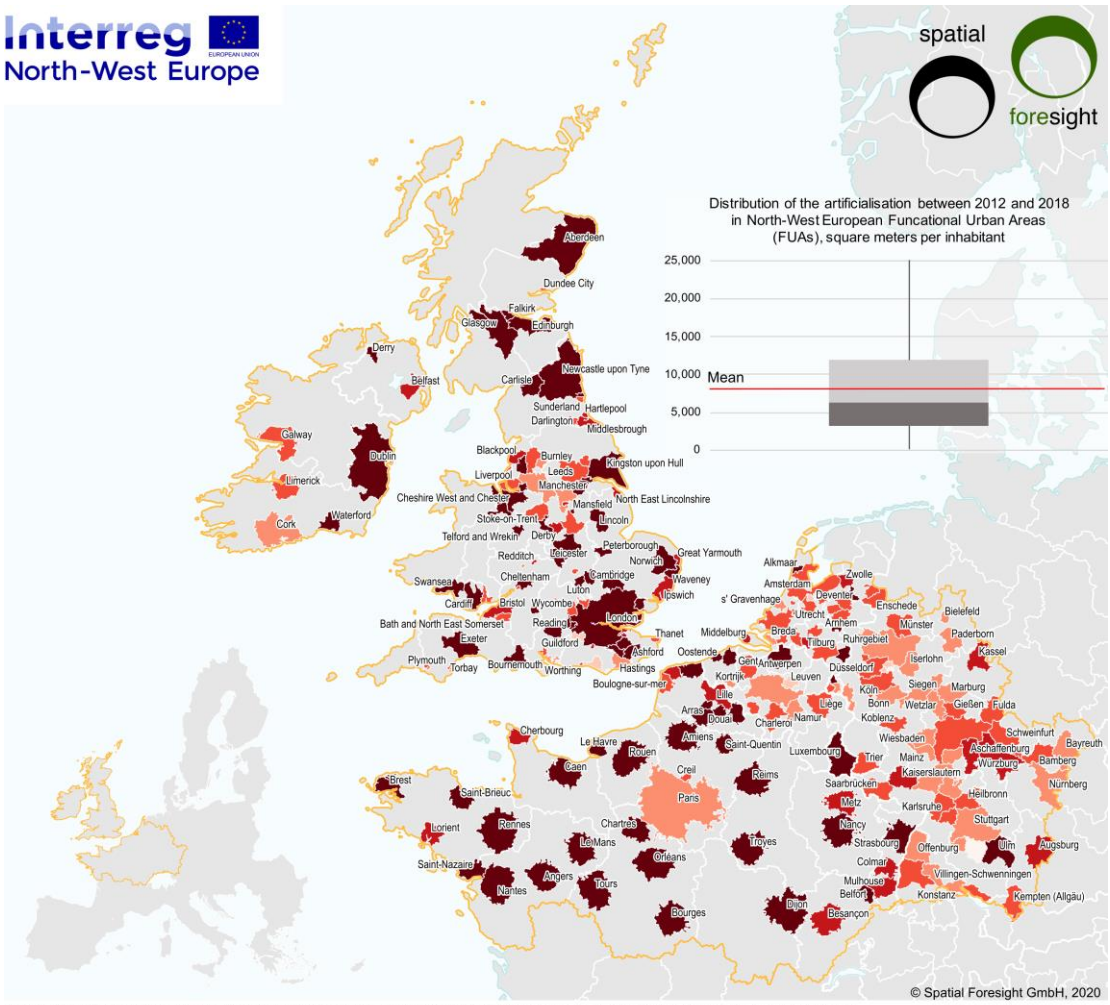
Source: own representation, 2020

As stressed by the orientation paper of the European Commission, there are different types of functional areas, e.g. urban areas, rural areas, urban-rural partnerships, potential cross-border areas, transnational urban and macro-regions (European Commission, 2020). Functionalities can also be found in transport related functional links, as for example in the French-Belgian cross-border area (European Commission, 2019) and TEN-T networks shaping flows of people and goods and rural-urban and cross-border commuter flows.[55] Most of these functionalities have either a distinct urban character or at least show some links to cities and are very intense in NWE compared to most other parts of the

[55] For the details of the territorial analysis of these linkages see Chapter 5.1 in the in-depth report.

EU. As depicted in Map 3-17, urban sprawl in terms of soil sealing in the FUAs was considerable between 2012-2018 in the cooperation area, particularly in the French FUAs beyond Île de France, Luxembourg and parts of Scotland and England.

Map 3-17 Urban sprawl in Functional Urban Areas, 2012-2018



Administrative boundaries: Spatial Foresight and University of Geneva based on material from Eurostat GISCO, the GADM database and the EEA.
Data: based on EEA (Corine Land Cover Change (CHA) 2012 - 2018, Version 20) and Eurostat [urb_lpop1], extracted 13.03.2020.

Urban sprawl in Functional Urban Areas, 2012-2018

Change in soil sealing towards artificial surfaces, square meters per 1,000 inhabitants between 2012-2018

- < 500 square meters
- 500 - 1,000 square meters
- 1,000 - 3,000 square meters
- 3,000 - 6,000 square meters
- 6,000 - 9,000 square meters
- > 9,000 square meters
- Programme area
- no data / no NWE territory

Source: own representation, 2020

Functional urban areas in the NWE cooperation area face partially different development trends. The challenges depend, inter alia, on national policy, regional development and economic prosperity of the urban area (Dembski, Sebastian et al., 2019). Some areas like the Greater Region or the Upper Rhine build on functional polycentricity and integration of complementarities within the region that serve to

counterbalance capital city growth poles while addressing common challenges. Immediate impacts of the COVID-19 pandemic have shown the vulnerability of these functional links, especially when established across borders.

Given the variety of functional links and divides between different types of territories territorial cooperation needs can be identified across all types of territories with different thematic access points (Figure 3-19). Many of these links can also be related to the analyses of other POs above.

Figure 3-19 SWOT analysis for urban-rural disparities and functional links

Strengths	Weaknesses
• Rich experience with functional areas. • One of the most well-connected regions by rail and air with numerous urbanised areas and high GDP. • Strong cooperation among metropoles in the territory, particularly in the Rhine and Meuse rivers catchment areas.	• Urban rural divides affect access to SGI with a challenge particularly in IE and FR and room for better urban-rural transport in BE. • A delimitation of the functional area could be defined as the centre of the 'blue-banana' area.
Opportunities	**Threats**
• A critical factor for future territorial development is revitalisation of the urban-rural partnership. • Different types of functional areas in the region provide for many functional links. • NWE could be a platform for jointly addressing challenges along sea / river basins. • Focus on challenges beyond administrative borders through cooperation. • Focus problem-solving on the functional areas, important to support the development of territorial strategies to tackle specific challenges in an integrated manner. • Cross-border cooperation potential may be extended, e.g. rural areas on the FR-BE border can be supported by smart energy systems, natural resource management in the Greater Region. • Tourism is a potential topic for functional cooperation. • Potential to develop innovative projects for culture and tourism in urban areas, in the frame of an integrated strategy and regeneration of urban deprived areas. • Urban-rural partnerships could be a horizontal cooperation objective to address fragmentation risks. • Cooperation among European institutions and stakeholders to improve efficiency and the provision of services at functional territorial level.	• NWE area has a high risk of river flooding in functional urban areas. • Certain more remote regions in FR and DE risk not benefitting from cooperation with more advanced regions of NWE. Without cooperation certain UK regions risk becoming more isolated. • Solutions for some functional topics need partners outside the programme area, e.g. national levels. • Exposure to globalisation, EU disintegration, demographic challenges, climate change and energy challenges, biodiversity loss

• The strong urban character to be used to create spill overs to rural areas and other places.	

Territorial cooperation needs
• Urban-urban cooperation is particularly useful at the level of smaller cities, second tier cities and towns to create a competitive critical mass, including cooperation on topics such as innovation. • Urban-rural cooperation to enhance efforts on SGI, particularly access to services and addressing demographic challenges, such as depopulation of rural areas. • Rural-rural cooperation to benefit from e-health support in the transnational area, to strengthen networks between rural areas, build on their competitive advantages, e.g. natural habitat, biodiversity, tourism. • Cooperation needs among territories with geographic specificities may focus on coastal areas with a focus on tourism, differentiating the challenges of urban coastal and rural coastal areas. • Cooperation of cross-border areas is needed e.g. for hospital services along borders to accommodate patients from neighbouring regions, e.g. COVID-19 pandemic and sustainable cross-border transport based on functionalities (see commuting). • Functional area entities (such as the Greater region, Lille-Kortrijk-Tournai) can create a critical mass to counterbalance capital cities. Topics like cross-border commuters can be a starting point. • Cooperation along river basements and TEN-T corridors, see Chapters on PO 2 and PO 3 respectively.

3.5.2 Rural and coastal area development and geographic specificities

Despite being highly urbanised, the NWE cooperation area comprises rural and coastal areas as well as other areas with geographic specificities[56]. These territories provide for specialisation in specific activities adequate for smaller workforces than urban areas (European Commission, 2017). Integrated strategies have supported rural development as they have improved the governance of functional areas and promoted urban-rural or cross-border links (European Commission, 2017) as outlined above.

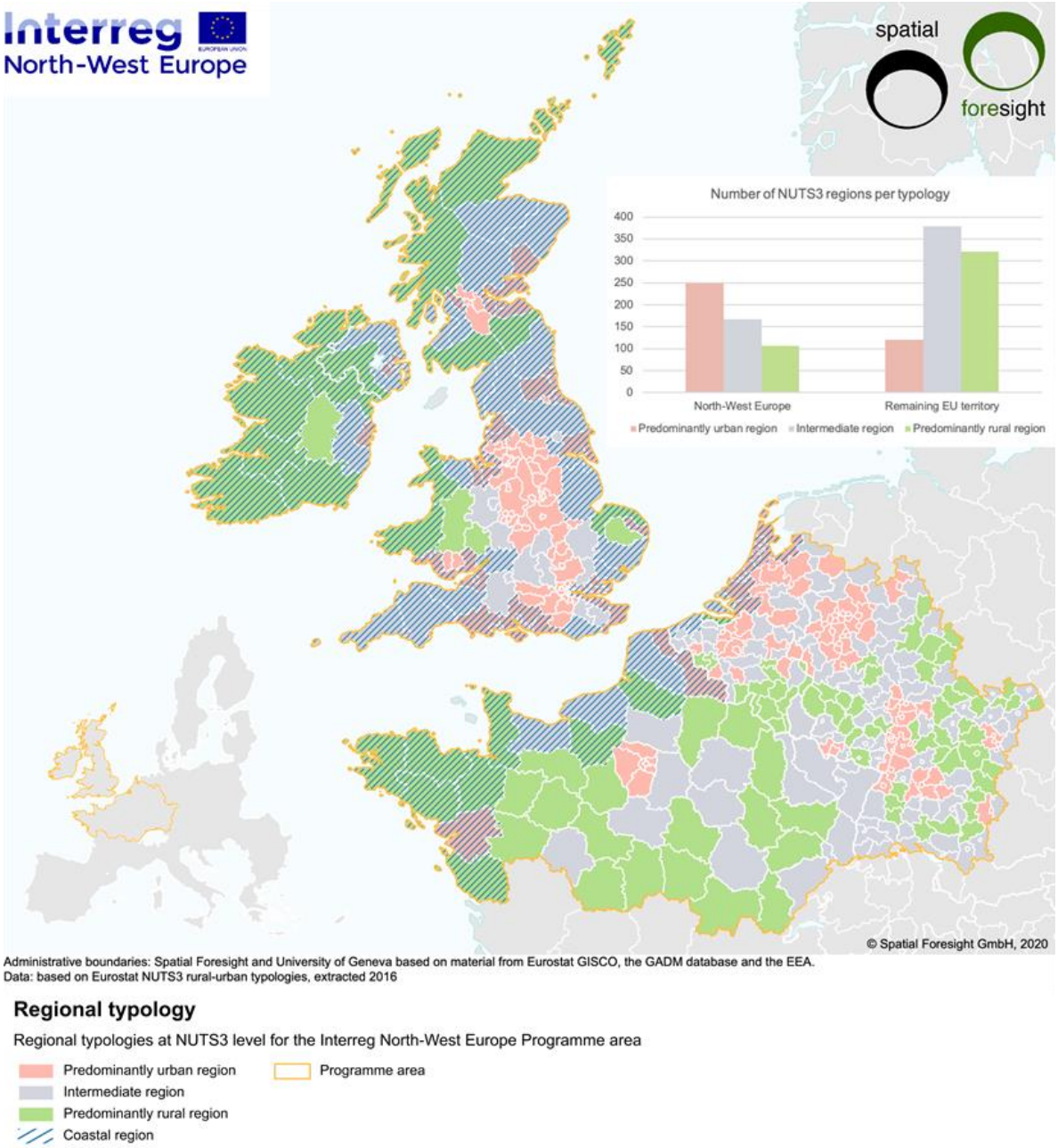
Map 3-18 shows that predominantly rural areas cluster mostly in France, Ireland, and the UK, some of them being coastal areas. Rural development in the rural areas of NWE is challenged by depopulation, unemployment, youth unemployment, GDP differences with urban areas and access challenges. Furthermore, coastal regions and rural counties in the UK that are far from UK centres suffer from declining tourism and fishing (ESPON, 2019g). At the same time, GI is a potential for rural areas in the region. An example is wind energy in coastal and rural regions (see Section 3.2.1.1).

Inner peripheries are a complex phenomenon combining various socio-economic processes leading to disconnection from other territories and networks. It is more disconnection rather than geographic position to core European areas that is decisive (ESPON, 2017b). Thus, inner peripheries exist in the NWE cooperation area due to a lack of access to centres and / or services and poor economic potential combined with a poor socio-economic situation. While both drivers may be found across the NWE cooperation area they rarely appear simultaneously as in other parts of Europe. As detailed in Chapter 5.2, the in-depth report shows that inner peripheries matter not only in rural areas but also in predominantly urban areas, especially for access to regional centres and SGI. These phenomena may

[56] Territories with geographic specificities are mountain areas, islands, sparsely populated areas and coastal areas (ESPON, 2019g, p. ix).

call for social innovation, governance reforms, better ICT deployment and enhancements of residential environment.

Map 3-18 Regional typology of the NWE cooperation area at NUTS 3 level



Source: own representation, 2020

The location and character of coastal areas is decisive for their development. More remote rural coastal areas are more vulnerable to unfavourable demographic developments. At the same time, coastal areas that are home to large cities and urban areas show a different picture of development. Coasts are

attractive poles for urban development and most populated cities tend to develop on the shoreline, including a number of EU capital cities (ESPON, 2019g). Some coastal regions are national economic hotspots while others lag behind (ESPON, 2019g). This variety is further broadened by the diversity of economic activities in coastal areas. These include ports, fisheries and sea-related tourism. Hence, urbanised and metropolitan coastal areas do not lack critical mass for population or economic activities. As with ecosystems, climate and climate change risks, accessibility and remoteness differ significantly between coastal areas in the NWE cooperation area. They may face particular challenges due to their coastal specifics but otherwise many challenges are similar other territories in the NWE cooperation area.

Without cooperation with the UK the NWE cooperation area loses its high potential for renewable energy, particularly wind power generation. Furthermore, rural areas with a potential for regional branding are also in the UK. Thus, cooperation without the UK may affect the development and interaction of coastal areas in the region and joint approaches that could tackle climate change consequences. In that sense mutual benefit from knowledge exchange on these issues and corresponding action would be lost for regions with these geographic specificities.

The analysis shows that territorial cooperation needs for rural and coastal area development is not limited to these areas but also requires cooperation beyond these territories (Figure 3-20).

Figure 3-20 SWOT analysis for rural and coastal area development and geographic specificities

Strengths	Weaknesses
• Some coastal regions are national economic hotspots. • Variety of economic activities related to ports, fisheries and sea-related tourism. • Western European coasts more accessible than UK coasts. • Norfolk-Suffolk in the UK is a region that contributed to the national renewable energy strategy and repositioned its role in the national and regional economy by becoming an offshore-energy leader.	• UK coastal regions are more remote than others. • Sustainable tourism might be a challenge for urbanised coastal regions. • Rural counties are at a relative distance from the UK's hotspot, and coastal regions have suffered from declining tourism and fishing.

Opportunities	Threats
• Coasts are attractive for urban development, and the NWE has two capitals located by the sea. • Urban policies are of immense importance for harbour cities. • Smart specialisation and blue growth are themes of high importance. • Ambitious goals by UK counties Norfolk and Suffolk regarding renewable energy as example for other regions. • Make more use of GI potential in rural and coastal regions. • Remote rural and coastal areas can improve the management of natural resources through integrated strategies.	• Remoteness of rural coastal areas, unfavourable demographic developments or depopulation can be a constraint. • Major seaside settlements will have limited growth due to the sea and therefore will need to develop inwards, often leading to long commuting. • Rural coastal areas with small settlements challenge service provision and public transport and may contribute to brain drain. • Low potential accessibility in a national context is a constraint on infrastructure related to connectivity, as well as access to energy grids and major markets, which constrains economic and social development. • Coastal regions are vulnerable to the impacts of climate change. • Areas with intense land-sea interaction increasingly need to develop climate change adaption strategies. • Cooperation along sea borders needs a new framework / new conditions.
Territorial cooperation needs	
• Urban-urban cooperation to reduce inner peripheral characteristics, improve the economic potential of lagging urban areas in the region and develop and implement strategies addressing these common challenges jointly. • Urban-rural cooperation to improve accessibility between urban and rural regions, enhance GI and strengthen the benefits for rural areas from functional links. • Rural-rural cooperation to increase local tourism and promote the local character of rural areas in the region and to address depopulation and brain drain. Rural areas can also be frontrunners in renewable energy, which may benefit from coordinated strategies in these fields. Bringing players together through local action groups for community-led local development to address issues of inner peripherality and disconnection from other centres. • For coastal areas cooperation on wind energy matters. Harbour cities may work together to strengthen their opportunities through joint strategies.	

3.5.3 Urban development

Due to the high degree of urbanisation, urban development is important for the NWE cooperation area. This matters for all types of cities and urban areas in North-West Europe, from small and medium-sized cities to capitals and metropolitan regions.

The UIA initiative and the URBACT programme support actions for urban areas to address existing urban challenges. Urban regions of the NWE cooperation area participate in UIA projects and URBACT

networks. A review of cities engaging in these programmes illustrates challenges of urban areas not visible in the above analyses and provides inspiration for potential transnational cooperation projects.

UIA currently supports 74 urban areas in Europe to test new solutions to address urban challenges, of which 24 are in the NWE cooperation area[57]. The Benelux participates in 14 UIA, with the Netherlands having the largest participation (8 in total). The other UIAs are in Belgium (6), France (6) and the UK (4). Some cities e.g. in Belgium, France and the Netherlands even participate in two UIAs with different themes, indicating the simultaneous occurrence of urban development needs.

The topics of cooperation in UIAs are diverse and cover many aspects of territorial development. Participation of NWE urban areas in UIAs show two things. First, despite the economic supremacy of urban areas they still face multiple challenges relevant for further policy development. Second, cooperation is useful to address these challenges not only between urban areas and their surroundings or functional areas, but also across larger territories. UIA experience can inspire further action among places that share the same needs and may have similar potential.

Urban areas of the NWE cooperation area participate in various URBACT networks. They are part of networks with partners within and beyond the area. URBACT supports networks of cities focusing on mobility, improving local strategies and developing partnerships between the private sector and relevant stakeholders, education and knowledge economy, health, social inclusion, sustainable energy, participatory democracy and local governance, urban security and others. These topics show the experience and cooperation of urban players in the area.

Such topics are relevant for PO 5 in transnational cooperation. Urban players can capitalise on existing experience, exchange learning and knowledge and transfer solutions in the NWE cooperation area for more integrated development. This experience shows the benefit of addressing these urban challenges through cooperation across larger territories with places sharing the same needs and similar potentials.

British cities participate in such actions and networks, so overall cooperation would suffer from a loss of experience of British cities without UK participation in the Interreg NWE Programme.

The analysis shows that territorial cooperation needs for urban areas should not be limited to these areas but may also benefit from cooperation with rural areas and follow other transnational functional links (Figure 3-21).

[57] https://uia-initiative.eu/en/uia-cities-map

Figure 3-21 SWOT analysis for urban development

Strengths	Weaknesses
• Cities in the area are experienced in many topics of UIAs and URBACT. • Many established networks in the NWE area under URBACT.	• Urban poverty and challenges in deprived urban areas, for people with a migrant background. • Not all NWE partner countries are experienced in UIA (LU, DE).
Opportunities	**Threats**
• Use experiences in cooperative actions for issues that challenge urban areas in NWE. • Enhance cooperative actions for issues challenging urban areas in NWE.	• Without the UK valuable experience may not be available for other cities in NWE. • Slower progress of networks in which UK cities participated so far.
Territorial cooperation needs	
• Urban-urban cooperation may strengthen mutual learning and solutions to integrate migrants, reduce urban poverty, improve urban mobility and provide accessible housing. CE plans at urban levels can be enhanced and urban areas may be inspired by themes addressed e.g. by URBACT. • Urban-rural cooperation may address CE approaches and other fields with clear complementarities between urban and rural territories by applying good practices. • Rural-rural cooperation may strengthen networks between rural areas to better build on their competitive advantages in relation to urban areas, e.g. natural habitat, biodiversity, tourism. • Cooperation of urban areas along river basements can focus on CE and climate adaptation to build more consistent approaches. • Cooperation of urban areas along TEN-T corridors can work on issues such as urban mobility and accessibility.	

3.5.4 United Nations Sustainable Development Goals

The UN SDGs address different aspects of global challenges. PO 5 offers the opportunity of bringing these global goals close to citizens. There are currently no regional data on SDG implementation in North-West Europe, but an overall EU picture is based on Eurostat indicators. Hence it is difficult to extract concrete information on the state of play of SDG implementation. Nevertheless, several goals are relevant for the NWE cooperation area in relation to PO5, in particular:

- SGD 7: Affordable and clean energy
- SDG 9: Industry, innovation and infrastructure
- SDG 10: Reduced inequalities
- SDG 13: Climate action
- SDG11: Sustainable cities and communities

All these topics are addressed by POs 1-4 in one way or the other. The thematic analysis at regional level is correspondingly covered above. For instance, PO 2 themes relate explicitly to SDG 7 and SDG 13. Industry, innovation and infrastructure are referred to under PO 1 through regional competitiveness, innovation capacity, employment and growth. POs 3 and 4 look at some disparities in the region, eventually aiming to reduce inequalities. All together these POs contribute to more sustainable cities and communities through cooperation. The particular potential of PO 5 lies in the fact that all these goals

can be tailored to specific territories as differentiated above (see especially Section 3.5.1)to achieve greater complementarities and integrated development.

Since one of the reasons for Brexit was the distance between policy makers and local levels, an important lesson may be that policies should be implemented in cooperation with local, regional, and other territorial players. PO 5 can bring global SDG goals closer to citizens by bridging the gap between objectives and their implementation. Coordinated actions through PO 5 can support local initiatives in all types of territories where cooperation would be of an added value.

The UN SDGs are relevant for all policy objectives possibly covered under future ESIF programmes as outlined in the draft regulations. Whatever territorial cooperation is beneficial for either of the themes outlined in the analyses of the respective POs applies here, too. Figure 3-22 highlights some cooperation logic in addition to the above.

Figure 3-22 SWOT analysis for EU SDG indicators

Strengths	Weaknesses
• Many aspects are addressed in other POs horizontally. • Topics that the region is already aware of.	• Lack of regional data on SDG implementation. • Less opportunities to put experience in different themes in a transnational context.
Opportunities	**Threats**
• Build on this potential through complementarities of all POs.	• Get lost in the variety of SDGs rather than focusing on those most important for NWE territories. • Lack of cooperation may lead to discontent and disintegration as experienced during Brexit.
Territorial cooperation needs	
• Urban-urban cooperation to localise SDGs and joint efforts to work on clean energy, innovation, climate change actions, sustainable cities and communities. • Urban-rural cooperation to improve infrastructure access and reduce inequalities, bringing citizens in rural areas closer into decisions. • Rural-rural cooperation to voice the needs of rural areas. • Cooperation along other functional links to support the development of coherent transnational strategies on SDG topics.	

3.5.5 Niches and comparative advantages under PO 5

The following table summarises the assessment and recommendations related to comparative advantages for the SOs under PO 5.

Table 3-11 Assessment of NWE comparative advantages of PO 5 for 2021-2027

PO and SO	Available Niches	Potential added value of NWE	Coverage by alternative funding programmes	Comparative Advantage
PO5				
SO5.1	++	++	medium	+
SO5.2	++	++	medium	+

Under PO 5, there are two SOs that differ according to the territorial space: Integrated development in urban areas and in rural and coastal areas, notwithstanding the latest wider formulation of PO 5 which includes all types of territories.[58]

Unlike the other POs with a specific thematic focus, the particularity of PO5 lies in the fact that it does not focus on a specific theme but is dedicated to different types of territories. Another important key element of PO 5 is the requirement of strong citizen involvement. PO 5 seems to be the 'most territorial' PO, where themes with high relevance and involvement of citizens are also relevant for transnational cooperation. This leads to ambivalence in the use of PO 5 in transnational cooperation as outlined above. PO 5 is a new policy objective for the 2021-2027 programming period with no pre-existing experience in transnational cooperation. For the purposes of PO 5, in addition to national authorities, local and regional authorities from all types of territories and areas are important stakeholders to be involved in transnational cooperation. Among the closest governance levels to citizens, they can support their citizens and engage them further in cooperation.

Integrated local development in different territories may also be supported by other EU programmes dedicated to the same objective, but of course not from a specific NWE cooperation area perspective. Many of these include no or little cooperation. PO 5 may be relevant particularly for **ERDF mainstream programmes, Local Action Groups (mainly under EAFRD), Integrated Territorial Investments (ITI)** of different programmes but also for other Interreg Programmes. Especially **cross-border Interreg Programmes** may find PO 5 a suitable option, especially if they can build this on existing local and regional cross-border governance structures and entities. In addition, the instruments with a focus on urban development (**URBACT** and **UIA**) offer support with a specific territorial focus but while covering many urban themes this is usually not done in an integrated effort. Given the uncertainty of PO 5 take-up by other programmes and the different territorial foci of these, PO 5 may not be strongly covered by other programmes. From a thematic point of view tackling different themes relevant for measures under PO 5, coverage by other programmes is similar to those identified under the POs described above.

[58] See DG Regio presentation to the '10th meeting of Heads/MAs of TNC programmes – Programming process – Q&A PO5'.

Note on PO 5 and links to other POs acknowledging the uncertainty for requirements of transnational cooperation programmes using PO 5:

The benefit of PO 5 is in the integrated approach that enables tackling various topics that belong to different SOs of the other POs. Selecting SO 5.2, for example, would open up the possibility to address different thematic topics that are specific challenges in rural areas, including SME skills support, digital connectivity, mobility, social services and health, education and training or inclusion. Under SO 5.2 the focus would be on integrated territorial concepts or strategies which could tackle one or more of these challenges that may otherwise not be possible to work on under transnational cooperation.

Another possibility to tackle different topics could be to focus on digitisation, innovation, skills (i.e. selecting SO 1.1, 1.2 or 1.4), but highlighting under those SO one or more prioritised thematic areas for innovation, e.g. certain sectors or territories. This would help to address these topics and territories without selecting a large variety of SOs. But this requires the inclusion of specific territorial foci in the SOs as tentatively indicated for all POs.

SO 5.1 Fostering integrated social, economic and environmental development, cultural heritage and security in urban areas

The Interreg NWE Programme area is highly urbanised, including the big European metropolitan areas as well as many second tier and small and medium-sized cities. Despite prosperity in the area, urban issues to be addressed remain such as urban poverty, climate adaptation, digital transition, urban mobility, integration of migrants and CE, that may be either tackled in an integrated way or through individual thematic action. Furthermore, as the area is home to large river catchment areas and urban coastal areas, flood protection and climate change adaptation actions are important. Functionalities exist in the region, particularly regarding FUAs that dominate in the region, as well as functionalities emerging from the large river catchment areas. Taking these into account, there is potential for cooperation at transnational level, which is of transnational relevance and close to citizens needs and benefits. This potential is observed in all fields of integrated and sustainable urban development.

Transnational cooperation can complement other programmes by taking wider transnational links into view when tackling integrated urban development and by providing experimental support for transferring and implementing successful experience to more urban areas in the NWE cooperation area. Thus, SO 5.1 can be recommended. If not selected, integrated urban development challenges may be explicitly included in the relevant thematic SOs under other POs.

SO 5.2 Fostering integrated social, economic and environmental local development, cultural heritage and security, including for rural and coastal areas also through community-led local development

The NWE cooperation area also includes considerable rural and coastal areas, which face partially diverging challenges leading to different needs for integrated development. Physical and digital accessibility remains to be improved. Access to SGI is particularly challenging for some areas. Furthermore, the physical environment of these regions is appealing for renewable energy, particularly

offshore wind energy, but also tourism and recreational activities. Cooperation can address these challenges along different cooperation patterns of territories.

Transnational cooperation can complement other programmes tackling challenges for these territories by taking wider transnational links into view and by providing experimental support for transferring and implementing successful experience to more rural and coastal areas in the NWE cooperation area. Thus, SO 5.2 can be recommended. If not selected, integrated rural and coastal areas' development challenges may be explicitly included in the relevant thematic SOs under other POs.

3.5.6 Analytical matrices for all SOs under PO 5

PO	SO	Specific needs in NWE	(Transnational) functional links	Potential for cooperation	Challenges for transnational cooperation	Common Challenges – Joint investment needs	Stakeholder mapping	Niches/comparative strengths of NWE (Complementarities)
PO 5: Europe closer to citizens by fostering the sustainable and integrated development of urban, rural and coastal areas and local initiatives	SO 5.1 Fostering integrated social, economic and environmental development, cultural heritage and security in urban areas	Highly urbanised area cooperation is a benefit - also to keep competitiveness high without the UK. Flood protection and climate change adaptation. Urban poverty, urban mobility, climate adaptation, integration, CE and digital transition are topics where urban areas benefit from cooperation.	Functional urban areas dominate in the region. Experience in the region of functional links, particularly among metropolitan areas on the river catchment area Rhine / Meuse Also functional urban areas in region / urban-rural partnerships.	Environment and climate change. Sustainable transport. Cultural heritage and tourism. Security. Integrated social, economic and environmental development. CE. Harbour city strategies.	URBACT and UIA, the urban agenda focus on urban areas. Design specific projects tailored to citizen needs / local needs, to avoid duplication of themes with other POs. Possible overlap with national and regional funding, national and regional ERDF and ESF programmes, for the 2021-2027 period.	Develop joint strategies / plans to reduce flood risk in the area. Coordination of CE strategies at transnational level. Engaging civil society organisations in projects, such as the 'Macro-regions for a stronger Europe' project. Harbour city strategies. Harbour city strategies to keep them up to date. Development of urban-rural partnerships. Platform for coordinating ITIs.	- Chambers of Commerce, economic development agencies, regional development agencies, local development agencies - Local/Regional Public Authorities - National Authorities - Universities, public research centres, private research units, - SMEs as service providers: consultancies. - Business and Sectoral associations, Cluster, NGOs, Lobby organisations, civil society networks, neighbourhood associations. - Social entreprises, social Economy organisations. - Agencies for Planning, Migration, Social Inclusion.	Addressing integrated territorial development for different types of urban areas (e.g. small and medium-sized cities to metropolitan areas) from two perspectives: following transnational functional links; transferring and scaling up individual solutions to more urban areas in the NWE cooperation area. If not addressed under PO 5, include a specific urban dimension in SOs as far as relevant.

PO	SO	Specific needs in NWE	(Transnational) functional links	Potential for cooperation	Challenges for transnational cooperation	Common Challenges – Joint investment needs	Stakeholder mapping	Niches/comparative strengths of NWE (Complementarities)
PO 5: Europe closer to citizens by fostering the sustainable and integrated development of urban, rural and coastal areas and local initiatives	5.2 Fostering integrated social, economic and environmental local development, cultural heritage and security, including for rural and coastal areas also through community-led local development	Access issues: Although urban areas are very well connected, it's not the same between urban and rural areas, particularly. Rural-urban connectivity / cooperation. Appealing environment for recreational activities / tourism. Renewable energy potential.	A lot of FUAs are in coastal areas.	Digitalisation and smart specialisation to connect rural areas. Rural-urban cooperation, e.g. on sustainable transport. Cultural heritage and tourism Renewable energy.	Design specific projects tailored to citizen needs / local needs, to avoid duplication of themes with other POs. Possible overlap with national and regional funding, national and regional ERDF and EAFRD programmes, for the 2021-2027 period.	Develop joint strategies _products made in NWE - reindustrialisation of EU, particularly to promote rural areas. Renewable energy projects for coastal areas. Sustainable transport projects connecting urban-rural areas and SGI. 'Smart villages' - digitalisation improvement, as in the Alpine Space. Platform for coordinating CLLD actions.	- Chambers of Commerce, regional development agencies, local development agencies - Local/Regional Public Authorities - National Authorities - Universities, public research centres, private research units, - SMEs as service providers: consultancies. - Business and Sectoral associations, Cluster, NGOs, Lobby organisations, civil society networks, farmer associations - LEADER Local Action Groups - Social entreprises, social Economy organisations. - Agencies for Rural development and Planning.	Addressing integrated territorial development of different types of rural and coastal areas (e.g. sparsely populated, remote, different economic profiles) from two perspectives: following transnational functional links; transferring and scaling up individual solutions to more rural and coastal areas facing similar development challenges in the NWE cooperation area. If not addressed under PO 5 include a specific territorial dimension, e.g. on rural and coastal areas in SOs, as far as relevant.

4 Stakeholder analysis

While defining the elements of the new programme, generating detailed knowledge on stakeholder needs is crucial. Identifying stakeholder groups and their main interests is a necessary input that feeds into an analysis of the appropriateness and relevance of potential programme objectives.

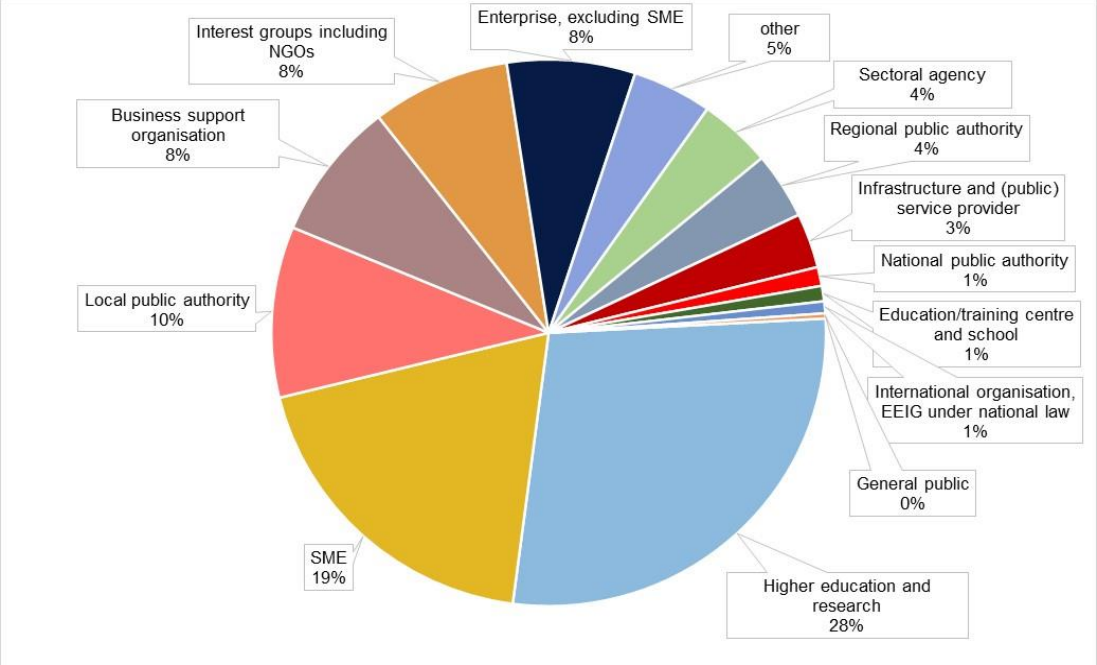
This chapter presents tentative insights covering thematic areas reflected by the 2021-2027 POs and SOs. This general analysis can be revisited and strengthened in certain SO areas once the programme drafting and overall programme intervention logic become more specified.

4.1 Lessons from stakeholder participation in NWE projects 2014-2020

As a first step in the analysis, stakeholder participation in 2014-2020 projects was examined to identify patterns in responses by different groups of beneficiaries to certain themes.

The analysis shows that higher education and research organisations are by far the most involved group of NWE project partners in 2014-2020, followed by SMEs, local public authorities and business support organisations. Enterprises excluding SMEs also constitute a substantial portion of project partners and together with the SME group account for over a quarter of all NWE project partners. Other stakeholder groups such as regional public authorities, infrastructure and service providers, national public authorities or sectoral agencies have a relatively low representation.

Figure 4-1 Type of project partners (lead partners & project partners) (in %), 2014-2020



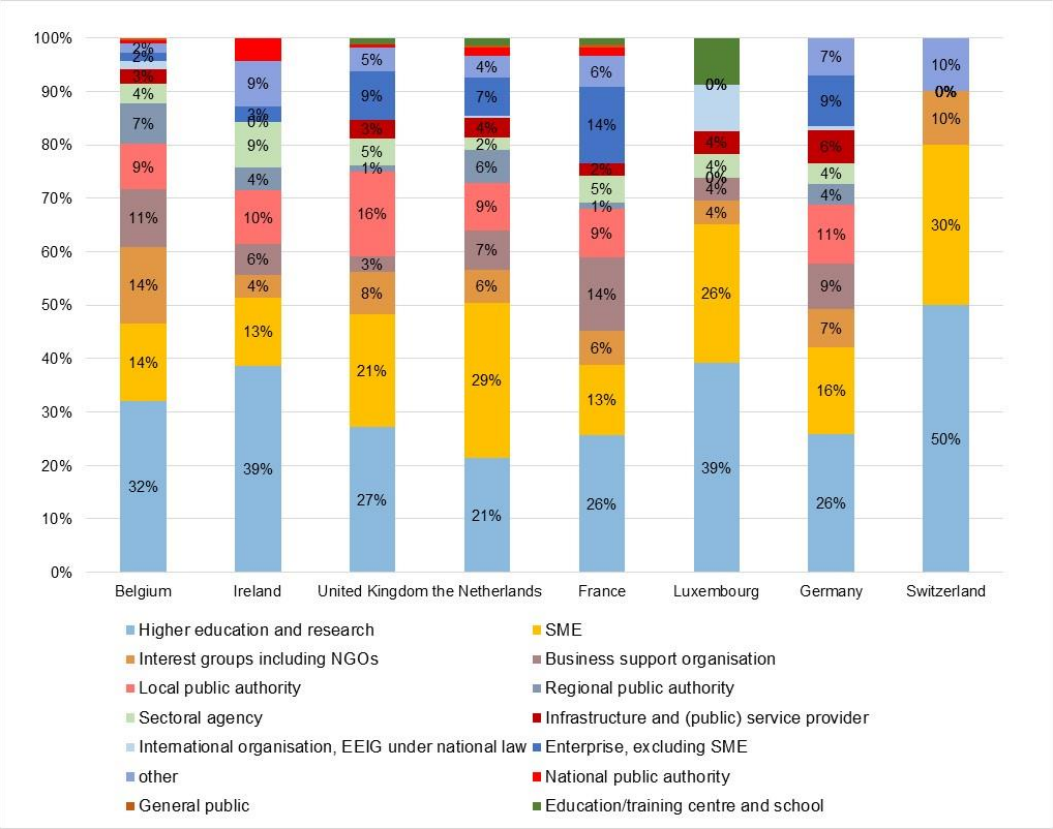
Source: own presentation based on Interreg NWE partner database 2014-2020 (March 2020) covering calls 1-8.

It should be noted that the enterprises being both partners and sub-partners of NWE funded projects (SMEs and enterprises excluding SMEs) have been allocated over 97.2 million EUR of the Programme's ERDF support in calls one to eight, which is over 26% of the total Programme budget. The Interreg NWE

Programme 2014-2020 has supported 3,200 companies both as direct partners and indirect end-users in the territory to the end of 2019. The corresponding business support takes very different forms ranging from micro-financing, matchmaking and access to testing sites to softer support for quality control and market and other enterprise environment developments.

The differentiation of participation per country involved in the programme highlights similar patterns but also slight differences. For instance, higher education and research partner participation is highest in Switzerland (given the low number of total participants), in Ireland and Luxembourg. SME participation is highest in the Netherlands, Switzerland and Luxembourg. Large enterprises participate most in France, Germany, UK and the Netherlands. Interest groups are mostly visible in Belgium, while local authority participation is highest in the UK, Germany and Ireland. Regional authority participation is very low, with most in Belgium and the Netherlands. National authority participation is most visible in Ireland. International organisations almost exclusively participate in Luxembourg and Belgium.

Figure 4-2 Type of project partners (lead partners & project partners) per country (in %), 2014-2020

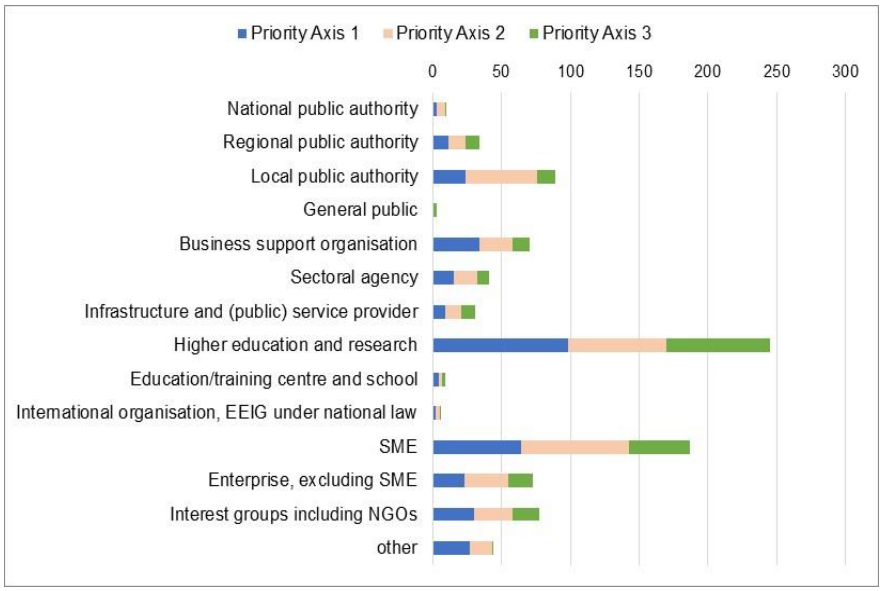


Source: own presentation based on Interreg NWE partner database 2014-2020 (March 2020)

Analysing the participation for different Priority Axes (PAs) reveals other differences. Higher education and research organisations are by far the most involved stakeholder group in projects in all three PAs. SMEs represent the second largest group among project partners, with a fair distribution among all three PAs. Local public authorities are more often involved under PA 2 than the others. Business support

organisations are more involved in PA 1 projects, but also significantly in PA 2 and less in PA 3. Apart from 'Other organisations' the other groups more equally involved in all three PAs.

Figure 4-3 Type of project partners (lead partners & project partners) per PA (total), 2014-2020



Source: own presentation based on Interreg NWE partner database 2014-2020 (March 2020)

In general, this indicates that stakeholder involvement mostly followed the same pattern in all three PAs during 2014-2020. This shows, furthermore, that NWE projects are mostly knowledge-driven and business-oriented, having a local focus.

The following analysis provides more detailed insights into the involvement of stakeholder groups by topic.

4.2 Stakeholder analysis in cluster development, SMEs and research and innovation

The analysis of project partners in 2014-2020 in this thematic field shows that the following stakeholder groups were involved:

Stakeholder groups involved in 2014-2020
Business Support Organisations: Cluster, Chambers of Commerce, Regional Development Agencies, Sectoral Development Agencies, Territorial Marketing Organisations
Higher Education and Research: Research centres, Universities
SMEs: Mostly start-ups or spin-offs from innovation or research centres or universities, consultancies or service providers for engineering, software, IT, etc.
Large enterprises: Research and development units of large enterprises, large consultancies, large technology providers, private Technology Centres
Regional public authorities: Innovation and Economic Departments, Research and Education Departments, Regional Development Agencies, Territorial Marketing Organisations

Interest Groups, NGOs: Clusters, Environmental NGOS, Social NGOs, Business associations, Professional associations, Lobby organisations Local public authorities: Innovation and Economic Departments, local development agencies

Stakeholder involvement in this area is quite straightforward. Interests of different stakeholders converge into common motivations, and interests of stakeholder groups are well-known to the other stakeholder groups. Involvement usually refers to one or more of the following motivations:

a) Establishing or strengthening a better business and innovation support ecosystem, better integrating existing services and infrastructure, research and innovation governance measures, creating NWE and regional networks and exchanges between players in a local, regional or NWE ecosystem. This includes actions related to cluster development. This kind of activity attracts all kind of stakeholder groups, but maybe less SMEs and large enterprises.

b) Promotion of business innovation and technological development of new products. This refers mainly to a specific product or value chain in early phases of R&D until prototyping and testing, before entering commercial development. Technology centres, SMEs and large enterprises might be more interested in this type of activity. However, many of them prefer other, more dedicated support programmes (H2020, COSME, national funding) or no public funding at all to avoid administrative burden, slow implementation and rigid funding rules.

c) Improving specific support measures or support infrastructure. Usually, these activities look for a public-private approach (joint investments) and a connection between different territories and regions to distribute investments between stakeholders and increase the performance and critical mass of support systems and specific infrastructure. Mostly public authorities and business support organisations participate in these kinds of activities.

4.3 Stakeholder analysis for social innovation, specifically health and social services

The analysis of project partners in 2014-2020 in this thematic field shows that the following stakeholder groups were involved:

Stakeholder groups involved in 2014-2020
Business Support Organisations: business support for social enterprises/entrepreneurs, co-working spaces or incubators (BIC) Higher Education and Research: Universities, university hospitals, health research centres, public research institutes SMEs: social enterprises, hospitals, service providers, laboratories, consultancies, training providers Large enterprises: Hospitals (private large companies), welfare organisations (if companies) private service providers, producers of health technology or software, pharmaceutics Regional public authorities: Social service, health, family and youth departments, less: other departments Interest Groups, NGOs: associations representing vulnerable groups or certain diseases, associations representing specific territories, environmental or social NGOs, associations representing citizens or consumers Local public authorities: Social service, health, family and youth departments, less: other departments

National public authorities: Ministries, national health or social agencies
Sectoral Agency: Local or regional welfare offices, youth or family offices, public health services, etc.
Infrastructure / (public) service provider: Hospitals, health institutions, social services providers
Other: European networks

Stakeholder involvement and motivations in this area are blurry. The first reason is that, despite the common denominator, the topics correspond to different areas, with very different stakeholder groups. Social innovation can refer to socio-political topics such as citizen engagement, participation, democratic public services, employability of vulnerable groups and youth engagement. It can also refer to innovation in public health systems, safety and health at work and prevention, mental health, and schemes against lifestyle diseases. A third field could be innovation in public administration and SGI (e.g. digitisation, big data, or smart cities), as well as new approaches to delivering and providing social services. These topics have been put together under the term social innovation, without addressing the same stakeholder groups or motivations. In addition, the transnational added value of projects is not always clear, as many topics have a specific local focus or refer to challenges that differ between Member States, e.g. efficiency in public health services or hospital routines.

It is recommended to better separate topics under the general heading of social innovation to better address specific stakeholder groups and their interests. It is also important to define the potential added value of NWE projects compared to local and nationally funded projects.

4.4 Stakeholder analysis for low carbon – energy

The analysis of project partners in 2014-2020 in this thematic field shows that the following stakeholder groups were involved:

Stakeholder groups involved in 2014-2020

Higher Education and Research: Universities and research centres
SMEs: Service providers, Engineers, architects, construction experts, construction companies, refurbishing experts, innovative energy providers (renewable energy)
Large enterprises: Service providers, engineers, architects, construction experts, construction companies, refurbishing experts, innovative energy providers (renewable energy)
Regional public authorities: Planning departments, public infrastructure departments (energy, land use, natural protection, networks)
Interest Groups, NGOs: Associations and networks representing the energy sector, environmental protection, climate change initiatives
Local public authorities: Planning departments, public infrastructure departments, adaptation to climate change offices.
National public authorities: Ministries, Federal institutes on energy
Sectoral Agency: Energy agencies, climate agencies
Infrastructure / (public) service provider: Energy generation, grids, energy distribution
Other:

Stakeholder involvement in this area is quite straightforward, even if different approaches prevail. In general, interests of different stakeholders converge into common motivations, and their interests are

well-known between the stakeholder groups. Involvement usually refers to one or more of the following motivations:

a) Promotion and development of new types of energy generation, mainly renewable or more efficient and less CO_2 intensive energies (geothermal, ocean wave energy, hydrogen, fuel cells, etc.). Application in different territorial settings or different sectors.

b) Elaboration of place-based integrated concepts at local/regional level to reduce CO_2 emissions or energy consumption in a territory.

c) Promotion of more efficient network systems (at local level, but also between countries). Empowerment of community-driven approaches to manage energy networks.

d) Promotion and consolidation of energy-efficient and energy-saving techniques, routines, instruments, technology, etc. in different economic sectors, housing and public administration (public buildings, public spaces, public infrastructure).

4.5 Stakeholder analysis for low carbon – transport

The analysis of project partners in 2014-2020 in this thematic field shows that the following stakeholder groups were involved:

Stakeholder groups involved in 2014-2020
Business Support Organisations: Innovation agencies, regional development agencies
Higher Education and Research: Universities, research centres
SMEs: Transport companies, service providers such as consultancies, engineers, software, start-ups in the transport sector
Large enterprises: Large transportation companies (private)
Regional public authorities: Transport and planning departments, innovation agencies
Interest Groups, NGOs: Associations of taxi drivers, association of cyclists, environmental NGOs, other associations
Local public authorities: Transport and planning departments
Sectoral Agency: Transport agencies, energy/climate agencies
Infrastructure / (public) service provider: Public transport companies
Other: Clusters

Stakeholder groups are clearly defined, even if different approaches are addressed. Relevant groups are transport and planning departments and transport companies, that can be private or public. In general, interests of different stakeholders converge into common motivations, and their interests are well-known between the stakeholder groups. Involvement usually refers to one or more of the following motivations:

a) Promoting innovative, low-carbon fuels (including storage of fuel or energy for transport).

b) Promoting and strengthening low carbon transportation modes (cycling, public transport).

c) Strengthening the interoperability of local/regional transport systems, giving preference to low-carbon transportation modes.

The ambiguity of public and private interests can be a challenge. Costly investments might be required to innovate on a wider scale. This might make the Interreg NWE Programme less interesting for large organisations or companies, looking for financial support for changes in their systems and fleets.

4.6 Stakeholder analysis for waste management

The analysis of project partners in 2014-2020 in this thematic field shows that the following stakeholder groups were involved:

Stakeholder groups involved in 2014-2020
Higher Education and Research: Universities and research centres SMEs: Technology providers, service providers such as consultancies, researchers, laboratories, engineers, experts Large enterprises: Waste management companies (private), technology centres (private) Regional public authorities: Planning departments, environmental department, regional development agencies Interest Groups, NGOs: Environmental NGOs, associations representing consumers, business associations Local public authorities: Planning departments, environmental departments National public authorities: Ministries, environmental agencies Sectoral Agency: Environment, Waste management, recycling, waterways, wastewater management, water provision Infrastructure / (public) service provider: Waste collection, recycling, waste management, wastewater management, water provision Other: Cluster

Different stakeholder groups are involved with similar motivations (‘to reduce amounts of waste’). Different sectors and materials (i.e. types of waste) are addressed. In general, interests of different stakeholders converge into common motivations, and their interests are well-known between the stakeholder groups. Involvement usually refers to one or more of the following motivations:

a) Promotion and development of reuse and recycling of specific materials or in specific territorial settings.

b) Effective use of new technologies and data to support CE approaches, recycling and reuse of materials and land.

c) Rehabilitation of specific areas used as waste or wastewater deposits.

Sometimes, project partnerships in this area do not differ from projects on resource-efficiency. Stakeholder groups working on ‘waste management’ and ‘resource efficiency’ are very similar.

4.7 Stakeholder analysis for resource-efficiency in SMEs

The analysis of project partners in 2014-2020 in this thematic field shows that the following stakeholder groups were involved:

Stakeholder groups involved in 2014-2020
Business Support Organisations: Chambers of Commerce, Higher Education and Research: Universities and research centres SMEs: technology providers, service providers such as consultancies, researchers, engineers, experts Large enterprises: Housing Corporations, Technology centres (private), environmental technology, chemical industry Regional public authorities: Planning departments, environmental departments, regional development agencies Interest Groups, NGOs: business associations, sectoral associations, welfare NGOs, associations representing vulnerable groups, lobby organisations for innovative techniques/materials, non-for-profit repair initiatives Education/Schools: Training centres Local public authorities: Planning department, environmental department National public authorities: Ministries, environmental agencies Sectoral Agency: Environment, resource efficiency, wastewater management, energy agency, waste agency Infrastructure / (public) service provider: Recycling, waste management, wastewater management, water provision Other: Cluster

Stakeholder involvement in this area is heterogeneous. It seems to mix SME and innovation-oriented approaches (with a focus on resource efficiency) with projects promoting resource efficiency through biobased materials and natural resources, as well as recycling materials in different industries and settings. The focus can be on eco-innovation in different economic sectors or on innovative approaches to territorial resource-efficiency. The complexity of this SO makes it difficult to define ‘typical’ stakeholder groups, or their potential link to resource-efficiency.

Involvement might refer to one or more of the following motivations:

a) Promotion and development of environmentally friendly products in different sectors.

b) Elaboration of sectoral resource-efficiency schemes and strategies for different sectors.

c) Promotion and development of reuse and recycling of specific materials or in specific territorial settings.

d) Effective use of new technologies and data to support CE approaches and recycling and reuse of materials and land.

e) Promotion of an efficient use of natural resources and materials.

For the 2021-2027 programming period it might be helpful to differentiate resource efficiency projects focused on research and innovation on new/re-used materials from other resource efficiency projects

(e.g. on broader concepts for specific economic sectors, on territorial approaches, public-private, local/regional schemes and concepts, waste management, technology support).

In general, in the Interreg NWE Programme 2014-2020 the boundaries between projects in PA 1 (innovation) and equally innovative projects in PA 2 and PA 3 were sometimes blurry. A project dedicated to research and innovation and new products related to algae illustrates this. This project implied innovation (PA 1) but could lead to more resource-efficiency (PA 3) or might even be a strategy to reduce CO_2 (PA 2). To make it easier for stakeholders to raise a specific interest in projects, it might be necessary to clarify the expected focus and result of projects under a certain PA and SO in the future programme.

4.8 Ex ante stakeholder analysis for 2021-2027

During the thematic analyses, different stakeholder groups were identified as potential beneficiaries of the Interreg NWE Programme 2021-2027. The analysis can only partially build on the 2014-2020 project partner analysis, since only a limited number of themes available for the 2021-2027 programming period, were included as SOs in the Interreg NWE Programme 2014-2020.

The analysis below shows stakeholder groups and their likely thematic interests, highlighting specific challenges for their participation in the Interreg NWE Programme. This analysis needs to be deepened, when the SOs have been selected for the new funding period.

Table 4-1 Stakeholder Groups and potential interests in the 2021-2027 period

Stakeholder group	Potential interests	Entrance barriers
Business Support Organisations		
Chambers of Commerce, Artisan Chambers, economic development agencies, regional development agencies, local development agencies	SO1.1 Enhancing research and innovation capacities and the uptake of advanced technologies SO1.2 Reaping the benefits of digitisation for citizens, companies and governments SO1.3 Enhancing growth and competitiveness of SMEs SO1.4 Developing skills for smart specialisation, industrial transition and entrepreneurship SO2.1 Promoting energy efficiency measures SO2.6 Promoting the transition to a CE SO3.1 Enhancing digital connectivity SO4.1 Enhancing the effectiveness of labour markets and access to quality employment SO4.2 Improving access to inclusive and quality services in education, training and lifelong learning SO 5.1 Fostering integrated social, economic and environmental development, cultural heritage and security in urban areas SO 5.2 Fostering integrated development, cultural heritage and security, including for rural and coastal areas	Might not be aware of the NWE Programme
Technology parks, Business Innovation Centres, Incubators, Accelerators	SO1.1 Enhancing research and innovation capacities and the uptake of advanced technologies SO1.2 Reaping the benefits of digitisation for citizens, companies and governments SO1.3 Enhancing growth and competitiveness of SMEs	Might not be aware of the NWE Programme

Stakeholder group	Potential interests	Entrance barriers
	SO1.4 Developing skills for smart specialisation, industrial transition and entrepreneurship SO2.1 Promoting energy efficiency measures SO2.6 Promoting the transition to a CE	
Technology-Platforms, Cluster (different types of organisations, public-sector-driven, triple-helix)	SO1.1 Enhancing research and innovation capacities and the uptake of advanced technologies SO1.2 Reaping the benefits of digitisation for citizens, companies and governments SO1.3 Enhancing growth and competitiveness of SMEs SO1.4 Developing skills for smart specialisation, industrial transition and entrepreneurship SO2.1 Promoting energy efficiency measures SO2.6 Promoting the transition to a CE	Might not be aware of the NWE Programme
SMEs and large enterprises, Private organisations		
SMEs: Start-ups or spin-offs from innovation or research centres or universities	SO1.1 Enhancing research and innovation capacities and the uptake of advanced technologies SO1.2 Reaping the benefits of digitisation for citizens, companies and governments SO1.3 Enhancing growth and competitiveness of SMEs SO1.4 Developing skills for smart specialisation, industrial transition and entrepreneurship SO2.1 Promoting energy efficiency measures SO2.3 Developing smart energy systems, grids and storage at local level SO2.4 Promoting climate change adaptation SO2.5 Promoting sustainable water management SO2.6 Promoting the transition to a CE SO3.1 Enhancing digital connectivity SO3.3 Developing sustainable, … mobility, including improved access to TEN-T and cross-border mobility SO3.4 Promoting sustainable multimodal urban mobility SO4.1 Enhancing the effectiveness of labour markets and access to quality employment SO4.2 Improving access to inclusive and quality services in education, training and lifelong learning	Might not be aware of the NWE Programme State aid Administrative Burden Expecting results earlier
SMEs: Service providers such as engineering, software, IT, research, co-working spaces		Might not be aware of the NWE Programme State aid Administrative Burden Expecting results earlier
SMEs: Consultancies		State aid Administrative Burden
SMEs: Manufacturing	SO1.1 Enhancing research and innovation capacities and the uptake of advanced technologies SO1.2 Reaping the benefits of digitisation for citizens, companies and governments SO1.3 Enhancing growth and competitiveness of SMEs SO1.4 Developing skills for smart specialisation, industrial transition and entrepreneurship SO2.1 Promoting energy efficiency measures SO2.6 Promoting the transition to a CE	Might not be aware of the NWE Programme State aid Administrative Burden Expecting results earlier
SMEs: Agriculture and Bioeconomy		Might not be aware of the NWE Programme State aid Administrative Burden Expecting results earlier
SMEs: Services		Might not be aware of the NWE Programme State aid Administrative Burden Expecting results earlier
Large enterprises	SO1.1 Enhancing research and innovation capacities and the uptake of advanced technologies	State aid Administrative Burden

Stakeholder group	Potential interests	Entrance barriers
	SO1.2 Reaping the benefits of digitisation for citizens, companies and governments SO1.3 Enhancing growth and competitiveness of SMEs SO1.4 Developing skills for smart specialisation, industrial transition and entrepreneurship SO2.1 Promoting energy efficiency measures SO2.6 Promoting the transition to a CE	Expecting results earlier
Social economy organisations: social enterprises, cooperatives etc.	Might be as interested as any other SME or large enterprises in SO 1.1-1.4 and 2.1 and 2.6 But in particular: SO4.1 Enhancing the effectiveness of labour markets and access to quality employment SO4.2 Improving access to inclusive and quality services in education, training and lifelong learning SO 4.3 Increasing the socioeconomic integration of marignalised communities, migrants and disadvantaged groups SO4.4 Ensuring equal access to health care SO 5.1 Fostering integrated social, economic and environmental development, cultural heritage and security in urban areas SO 5.2 Fostering integrated … development, cultural heritage and security, including for rural and coastal areas	Might not be aware of the NWE Programme State aid Administrative Burden
Other: business and sectoral associations, Cluster (mainly private companies)	SO1.1 Enhancing research and innovation capacities and the uptake of advanced technologies SO1.2 Reaping the benefits of digitisation for citizens, companies and governments SO1.3 Enhancing growth and competitiveness of SMEs SO1.4 Developing skills for smart specialisation, industrial transition and entrepreneurship SO2.1 Promoting energy efficiency measures SO2.6 Promoting the transition to a CE SO3.1 Enhancing digital connectivity SO3.3 Developing sustainable, … mobility, including improved access to TEN-T and cross-border mobility SO3.4 Promoting sustainable multimodal urban mobility SO4.1 Enhancing the effectiveness of labour markets and access to quality employment SO4.2 Improving access to inclusive and quality services in education, training and lifelong learning	Might not be aware of the NWE Programme
Other: Interest Groups, environmental and other NGO, Lobby organisations, networks, local/ neighbourhood associations, citizen associations	SO1.1 Enhancing research and innovation capacities and the uptake of advanced technologies SO1.2 Reaping the benefits of digitisation for citizens, companies and governments SO1.3 Enhancing growth and competitiveness of SMEs SO1.4 Developing skills for smart specialisation, industrial transition and entrepreneurship SO2.1 Promoting energy efficiency measures SO2.6 Promoting the transition to a CE SO3.1 Enhancing digital connectivity SO3.3 Developing sustainable, … mobility, including improved access to TEN-T and cross-border mobility SO3.4 Promoting sustainable multimodal urban mobility SO4.1 Enhancing the effectiveness of labour markets and access to quality employment	Might not be aware of the NWE Programme. High expectations and results and impact. Maybe less experience with Interreg/ERDF funding.

Stakeholder group	Potential interests	Entrance barriers
	SO4.2 Improving access to inclusive and quality services in education, training and lifelong learning SO 5.1 Fostering integrated social, economic and environmental development, cultural heritage and security in urban areas SO 5.2 Fostering integrated … development, cultural heritage and security, including for rural and coastal areas	
LEADER Local Action Groups	SO 5.2 Integrated development for rural and coastal areas	Might not be aware of the NWE programme.
Public authorities		
National public authorities	All SOs. Depending on the topic and the Ministry/Department interested The main interest might be territorial development, regional/local marketing, knowledge-generation or articulating and strengthening transnational value chains	Even if the Authority has participated, staff might have changed: new need to inform about NWE and Objectives. Local authorities: Might not be aware of the NWE programme. Limited resources to participate. Administrative burden.
Regional public authorities		
Local public authorities		
Education and Research		
Universities	All SOs. Depending on the topic and the Ministry/Department how would be interested The main interest is knowledge-generation, knowledge-transfer, education, training and the creation and maintenances of transnational networks.	--
Training centre /School		Might not be aware of the NWE Programme
Research Centres (public)		--
Research Centres (private, not-for profit)		Might not be aware of the NWE Programme State aid Expecting results earlier
Research Centres/Units (private, company-related)		Might not be aware of the NWE Programme State aid Expecting results earlier
Knowledge Transfer Centres		Might not be aware of the NWE Programme
Cluster (mainly research)		Might not be aware of the NWE Programme Administrative Burden Expecting results earlier
Sectoral Agency or Infrastructure/ (public) service provider		
Hospitals, Care centres, social services Agencies for Public Health	SO1.2 Reaping the benefits of digitisation for citizens, companies and governments SO 4.3 Increasing the socioeconomic integration of marignalised communities, migrants and disadvantaged groups SO4.4 Ensuring equal access to health care	Might not be aware of the NWE programme. Might not be aware of potential benefits of transnational projects. Limited resources to participate. Administrative burden.

Stakeholder group	Potential interests	Entrance barriers
Job Centres Employment Agencies	SO1.2 Reaping the benefits of digitisation for citizens, companies and governments SO4.1 Enhancing the effectiveness of labour markets and access to quality employment SO4.2 Improving access to inclusive and quality services in education, training and lifelong learning	Might not be aware of the NWE programme. Might not be aware of potential benefits of transnational projects. Limited resources to participate. Administrative burden.
Migration, Integration, Social Services, Family and Children	SO4.5 Promoting social inclusion and tackling poverty across border SO 5.1 Fostering integrated social, economic and environmental development, cultural heritage and security in urban areas	Might not be aware of the NWE programme. Might not be aware of potential benefits of transnational projects. Limited resources to participate. Administrative burden.
Public transport, transport infrastructure	SO1.2 Reaping the benefits of digitisation for citizens, companies and governments SO3.3 Developing sustainable, … mobility, including improved access to TEN-T and cross-border mobility SO3.4 Promoting sustainable multimodal urban mobility	Might not be aware of the NWE programme. Might not be aware of potential benefits of transnational projects.
Rivers, gardening, public green, natural protection	SO2.4 Promoting climate change adaptation, risk prevention and disaster resilience SO2.5 Promoting sustainable water management SO2.7 Enhancing biodiversity, green infrastructure in the urban environment, and reducing pollution	Might not be aware of the NWE programme. Might not be aware of potential benefits of transnational projects.
Planning Agencies	SO2.3 Developing smart energy systems, grids and storage at local level SO2.4 Promoting climate change adaptation, risk prevention and disaster resilience SO2.5 Promoting sustainable water management SO2.6 Promoting the transition to a CE SO2.7 Enhancing biodiversity, green infrastructure in the urban environment, and reducing pollution SO3.1 Enhancing digital connectivity SO3.3 Developing sustainable, … mobility, including improved access to TEN-T and cross-border mobility SO3.4 Promoting sustainable multimodal urban mobility SO 5.1 Fostering integrated social, economic and environmental development, cultural heritage and security in urban areas SO 5.2 Fostering integrated … development, cultural heritage and security, including for rural and coastal areas	Might not be aware of the NWE programme. Might not be aware of potential benefits of transnational projects.
IT, data, communication	SO1.2 Reaping the benefits of digitisation for citizens, companies and governments SO2.4 Promoting climate change adaptation, risk prevention and disaster resilience SO2.5 Promoting sustainable water management SO2.6 Promoting the transition to a CE SO2.7 Enhancing biodiversity, green infrastructure in the urban environment, and reducing pollution SO3.1 Enhancing digital connectivity SO3.3 Developing sustainable, … mobility, including improved access to TEN-T and cross-border mobility SO3.4 Promoting sustainable multimodal urban mobility	Might not be aware of the NWE programme. Might not be aware of potential benefits of transnational projects.
Energy generation, distribution, networks, providers	SO2.1 Promoting energy efficiency measures SO2.2 Promoting renewable energy	Might not be aware of the NWE programme.

Stakeholder group	Potential interests	Entrance barriers
	SO2.3 Developing smart energy systems, grids and storage at local level	Might not be aware of potential benefits of transnational projects
Water and wastewater	SO2.4 Promoting climate change adaptation, risk prevention and disaster resilience SO2.5 Promoting sustainable water management SO2.6 Promoting the transition to a CE SO2.7 Enhancing biodiversity, green infrastructure in the urban environment, and reducing pollution	Might not be aware of the NWE programme. Might not be aware of potential benefits of transnational projects
Waste and recycling	SO2.6 Promoting the transition to a CE	Might not be aware of the NWE programme. Might not be aware of potential benefits of transnational projects

The stakeholder analysis shows a wide range of potential beneficiaries with specific interests and entrance barriers. In defining the programme objectives and the communication strategy for 2021-2027, it might be necessary to develop targeted dissemination strategies.

Two issues seem to be particularly relevant:

- First, innovation is more and more a horizontal theme that appears in almost all SOs. This means that stakeholder groups interested in innovation are no longer bound to only one or two SOs. While some years ago projects for only one SO referred to innovation activities and support, today innovation is relevant in many different contexts and for many different stakeholders, e.g. innovation for innovative SMEs, in the health sector, social services, resource efficiency, or digital connectivity.
- Second, the number of stakeholders has multiplied. The diversity today goes far beyond the classic public, private and research stakeholder groups. In particular, the non-profit sector covers many different profiles with diverse interests, while sectoral agencies and service providers are becoming cornerstones in certain thematic areas. In addition, given the increasing variety of stakeholders, it becomes worthwhile to differentiate more sub-groups.

BIBLIOGRAPHY

Alessandrini, M., Celotti, P., Nespecy, G., Haarich, S., Lüer, C., Dallhammer, E., Derszniak-Noirjean, M., Prasilova, M., Tarantino, S., 2020. Assess the need for a modification of the state aid rule for phasing-out of coal.

Alves Dias, Patricia, Kanellopoulos, Konstantinos, Medarac, Hrvoje, Kapteaki, Zoi, Miranda Barbosa, Edesio, Shortall, Ruth, Czako, Veronika, 2018. EU coal regions: opportunities and challenges ahead (No. EUR 29292 EN), JRC Science for Policy Report. Luxembourg.

Annoni, P., Dijkstra, L., 2019. The EU regional competitiveness index 2019.

Annoni, P., Dijkstra, L., 2013. The EU regional competitiveness Index RCI 2013 (JRC Scientific and Policy Reports). Joint Research Centre, Luxembourg.

Annoni, P., Dijkstra, L., Kozovska, Kornelia, 2011. A New Regional Competitiveness Index: Theory, Methods and Findings (Working Papers by the Directorate-General for Regional Policy No. 02/2011). European Union.

Böhme, K., Besana, F., 2020. Understanding the territorially diverse implications of COVID-19 policy responses (Spatial Foresight Brief No. 2020:13). Spatial Foresight, Luxembourg.

Böhme, K., Holstein, F., Wergles, N., Ulied, A., Biosca, O., Nogera, L., Guevara, M., Kruljac, D., Spiekermann, Klaus, Kluge, Lina, Sessa, C., Enei, R., Faberi, S., 2017. Possible European Territorial Futures. Volume D – Place Based Circular Economy. ESPON, Luxembourg.

Borzaga, C., Galera, G., Franchini, B., Chiomento, S., Carini, C., 2020. Social enterprises and their ecosystems in Europe.

Bristow, G., Healy, A., Norris, L., Kafkalas, G., Kakderi, C., Wink, R., Kirchner, L., Koch, F., Speda, D., Swash, A., Carey, H., Sensier, M., McGregor, A., Sagna, I., Masik, G., Espenberg, K., Sepp, V., Varblane, U., 2014. ESPON ECR2. Economic Crisis: Resilience of Regions (Final Report). ESPON, Luxembourg.

COM(2018) 372 final, 2018. Proposal for a regulation of the European Parliament and of the European Council on the European Regional Development Fund and on the Cohesion Fund.

COM(2018) 374 final, 2018. Proposal for a regulation of the European Parliament and of the European Council on specific provisions for the European territorial cooperation goal (Interreg) supported by the European Regional Development Fund and external financing instruments.

COM(2018) 375 final, 2018. Proposal for a regulation of the European Parliament and of the Council lay laying down common provisions on the European Regional Development Fund, the European Social Fund Plus, the Cohesion Fund, and the European Maritime and Fisheries Fund and financial rules for those and for the Asylum and Migration Fund, the Internal Security Fund and the Border Management and Visa Instrument.

Commission Européenne, 2019. Border Orientation Paper France Belgium.

Dembski, Sebastian, Sykes, Olivier, Couch, Chris, Desjardins, Xavier, Evers, David, Osterhage, Frank, Siedentop, Stefan, Zimmermann, Karsten, 2019. Reurbanisation and suburbia in Northwest Europe: A comparativeperspective on spatial trends and policy approaches. Prog. Plan. 48.

Directive 2019/944/EC of the European Parliament and of the Council of 05 June 2019 on the internal market for electricity on common rules for the internal market in electricity, 2019.

EEA, 2019. Use of freshwater resources in Europe.

EESC, 2019. Circular economy strategies and roadmaps in Europe: Identifying synergies and the potential for cooperation and alliance building (Study No. QE-01-19-425-EN-N). European Economic and Social Committee.

ESPON, 2019a. GRETA - GReen infrastructure: Enhancing biodiversity and ecosysTem services for territoriAl development. Final Report. ESPON EGTC, Luxembourg.

ESPON, 2019b. GRETA - GReen infrastructure: Enhancing biodiversity and ecosysTem services for territoriAl development. Central Scotland Green Network. ESPON EGTC, Luxembourg.

ESPON, 2019c. GRETA - GReen infrastructure: Enhancing biodiversity and ecosysTem services for territoriAl development. Dún Laoghaire-Rathdown Ireland. ESPON EGTC, Luxembourg.

ESPON, 2019d. GRETA - GReen infrastructure: Enhancing biodiversity and ecosysTem services for territoriAl development. Randstad. ESPON EGTC, Luxembourg.

ESPON, 2019e. CIRCTER - Circular Economy and Territorial Consequences. Final Report. ESPON EGTC, Luxembourg.
ESPON, 2019f. CIRCTER - Circular Economy and Territorial Consequences. Final Report. Annex 6. Individual case study reports. ESPON EGTC, Luxembourg.
ESPON, 2019g. BRIDGES - Balanced Regional Development in areas with Geographic Specificities. ESPON EGTC, Luxembourg.
ESPON, 2018a. Possible European Territorial Futures. Volume B - The European Territory Today and Tomorrow. ESPON EGTC, Luxembourg.
ESPON, 2018b. Small and Medium-Sized Enterprises in European Regions and Cities - Final Report.
ESPON, 2018c. Territories and low-carbon economy (ESPON Locate). Final Report. ESPON EGTC, Luxembourg.
ESPON, 2018d. Territorial potentials for green infrastructure, ESPON Working paper. ESPON EGTC, Luxembourg.
ESPON, 2018e. Cross-border Public Services (CPS), Scientific Report - Annex I Detailed EU-wide analysis of CPS (Final Report), Targeted Analysis. ESPON EGTC, Luxembourg.
ESPON, 2017a. Territories and low-carbon economy (ESPON Locate). Greater Manchester, United Kindom. Case Study Report. ESPON EGTC, Luxembourg.
ESPON, 2017b. PROFECY - Processes, Features and Cycles of Inner Peripheries in Europe (Final Report). ESPON EGTC, Luxembourg.
European Commission, 2020a. Draft Orientation Paper. Transnaitonal Cooperation Programme North-West Europe 2021-2027.
European Commission, 2020b. Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee adn the Committee of the Regions. A new Circular Economy Action Plan. For a cleaner and more competitive Europe.
European Commission, 2019a. Regional Innovation Scoreboard [WWW Document]. URL https://ec.europa.eu/growth/industry/innovation/facts-figures/regional_en
European Commission, 2019b. Communication from The Commission to The European Parliament, The European Council, The Council, The European Economic And Social Committee and The Committee Of The Regions. The European Green Deal (Text No. COM(2019) 640 final). Brussels.
European Commission, 2019c. (COM(2019) 507 final. Council Recommendation on the 2019 National Reform Programme of Ireland and delivering a Council opinion on the 2019 Stability Programme of Ireland.
European Commission, 2019d. Commission Staff Working Document. Country Report Germany 2019. Including an In-Depth Review on the prevention and correction of macroeconomic imbalances.
European Commission, 2018a. Structural support action for Coal and carbon intensive regions.
European Commission, 2018b. Inequalities in access to healthcare. A study of national policies.
European Commission, 2017. My region, my Europe, our future: seventh report on economic, social and territorial cohesion. Publications Office of the European Union, Luxembourg.
European Commission, 2014. European Commission Communication - A policy framework for climate and energy in the period from 2020 to 2030 (No. COM(2014) 015 final).
European Commission, 2013a. The future role and challenges of Energy Storage.
European Commission, 2013b. Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions. Green infrastructure (GI) — Enhancing Europe's natural capital.
European Commission, 2012. Report from the Commission to the European Parliament and the Council on the Implementation of teh Water Framework Directive (2000/60/EC). River Basin Management Plans.
European Commission, 2011. Communication from the Commission to the European Parliament, the Council the European Economic and Social Committee and the Committee of the Regions. Our life insurance, our natural capital: an EU biodiversity strategy to 2020.
European Commission, DG REGIO, 2019. Regions in industrial transition - No region left behind.
European Parliament, Council of the European Union, 2000. Directive 2000/60/EC of the European Parliament and the Council of 23 October 2000 establishing a framework for Community action in the field of water policy. (2000) OJ L 327/1.

European Parliament, the Council of the European Union, 2018. Directive (EU) 2018/2002 of the European Parliament and of the Council of 11 December 2018 amending Directive 2012/27/EU on energy efficiency.

Kluge, L., Spiekermann, K., 2017. Scenarios for accessibility by the sea, road, rail, air and multimodal (No. D2- Interim Report). ESPON & Spiekermann & Wegener, Urban and Regional Research (S&W).

Lung, Tobias, Lavalle, Carlo, Hiederer, Roland, Dosio, Alessandro, Bouwer, Laurens M., 2013. A multi-hazard regional level impact assessment for Europe combining indicators of climatic and non-climatic change. Glob. Environ. Change 23, 522–536.

Tractebel Impact, 2019. Benchmarking smart metering deployment in the EU-28. Final Report. European Commission.

Trinomics B.V., 2016. Supporting the Implementation of Green Infrastructure. Final Report. European Commission.

Vandecasteele, Ine, I., Lavalle, Carlo, 2015. UDP - Urban flood risk, 2010 - 2050 (JRC LUISA Reference Scenario 2016). European Commission, Joint Research Centre.

Walenndowski, J., Roman, L., Mariakianidou, P., Otte, S., Kroll, H., 2017. Regional Innovation Monitor Plus 2015-2016.

ANNEX I Overview of pre-agreed statistical data sources and references

Table A-1 Overview of pre-agreed statistical data sources

PO	SOs	Themes (key words for coverage)	SOs	Database provider	Relevant resources (non-exhaustive)	Comment / limitation	Dataset source
General	All SOs	Population development	n.a.	EUROSTAT	Population on 1 January by age, sex and NUTS 2 region [demo_r_d2jan]	NUTS2, 2012-2018	Population on 1 January by age, sex and NUTS 2 region [demo_r_d2jan]
PO 1: a smarter Europe by promoting innovative and smart economic transformation	1.1 Enhancing research and innovation capacities and the uptake of advanced technologies 1.2 Reaping the benefits of digitisation for citizens, companies and governments 1.3 Enhancing growth and competitiveness of SMEs 1.4 Developing skills for smart specialisation, industrial transition and entrepreneurship	Socio-economic disparities, Economic & firm structures, Competitiveness & smart specialisation, Innovation, Social economy and innovation, Digital infrastructure availability and use	1.2 / 3.1	EUROSTAT	Individuals who used the internet, frequency of use and activities (isoc_r_iuse_i)	NUTS2, 2019	Individuals who used the internet, frequency of use and activities (isoc_r_iuse_i)
			1.1	EUROSTAT	Employment in technology and knowledge-intensive sectors by NUTS 2 regions and sex (from 2008 onwards, NACE Rev. 2)	NUTS2, 2018	Employment in technology and knowledge-intensive sectors by NUTS 2 regions and sex (from 2008 onwards, NACE Rev. 2)
			1.1	EUROSTAT	Intramural R&D expenditure (GERD) by sectors of performance and NUTS 2 regions (rd_e_gerdreg)	NUTS2 with some data gaps: use NUTS1, if not, 2013 values, latest figures: 2017	Intramural R&D expenditure (GERD) by sectors of performance and NUTS 2 regions / Share of GDP
			1.2	EUROSTAT	Income of households by NUTS 2 regions [nama_10r_2hhinc]	NUTS2, 2018 values	Income of households by NUTS 2 regions
			1.3	EUROSTAT	Gross domestic product (GDP) at current market prices by NUTS 2 regions [nama_10r_2gdp]	NUTS2, 2017 values, limited time series for FR	Development of GDP, current GDP values in relation to EU averages, PPS

PO	SOs	Themes (key words for coverage)	SOs	Database provider	Relevant resources (non-exhaustive)	Comment / limitation	Dataset source
PO 2: a greener, low-carbon Europe by promoting clean and fair energy transition, green and blue investment, the circular economy, climate adaptation and risk prevention and management	2.1 Promoting energy efficiency measures 2.2 Promoting renewable energy 2.3 Developing smart energy systems, grids and storage at local level 2.4 Promoting climate change adaptation, risk prevention and disaster resilience 2.5 Promoting sustainable water management 2.6 Promoting the transition to a circular economy 2.7 Enhancing biodiversity, green infrastructure in the urban environment and reduced pollution	Environmental quality and risks, Flooding, Water, Natural assets, Climate change threats, Energy production and use, Energy poverty, Energy storage, Energy efficiency, CE	2.4	JRC	JRC: UDP - Urban flood risk, 2010 - 2050 (JRC LUISA Reference Scenario 2016)	Table by FUA, datasets available on projected flood risks until 2050 (and 2030)	https://data.jrc.ec.europa.eu/dataset/jrc-luisa-udp-floodrisk-reference-2016
			2.6	ESPON DB II	CE business models / material providers	NUTS2, 2010, 2015, 2018.	Employment or turnover of CE business models Employment or turnover of CE material providers
			2.7	ESPON DB II	GI multifunctionality, NUTS2/3, 2012.	Different NUTS and 2012 but GI tend to change slowly, therefore 2012 data still has its legitimation	GI functionality, describing the functions the GI provide on a level from 1 (poor functionality/single functionality) to 6 (good functionality/multiple functionality), allowing for conclusions on the health of the GI. Services provided are e.g. air and water purification, etc.
			2.4	EEA	River basement districts, EEA, simple mapping of river catchment areas	River catchment districts	eea_v_3035_250_k_wise-water-accounts-spatial-units_p_2012_v01_r00
			2.2	ESPON DB II	Wind power capacity (MW), 2015	NUTS2, 2015	Installed wind power capacity, 2015
PO 3: a more connected Europe by enhancing mobility and regional ICT connectivity	3.1 Enhancing digital connectivity 3.2 Developing a sustainable, climate resilient, intelligent, secure and intermodal TEN-T 3.3 Developing sustainable, … mobility, including improved access to TEN-T and cross-border mobility 3.4 Promoting sustainable multimodal urban mobility	Mobility and connectivity at different scales (local to TEN-T), Digital Economy and Society Index, Integration of digital technology, Multimodal infrastructure & use of intermodal transport	1.2 / 3.1	EUROSTAT	Individuals who used the internet, frequency of use and activities (isoc_r_iuse_i)	NUTS2, 2019	Individuals who used the internet, frequency of use and activities (isoc_r_iuse_i)
			3.2	ESPON	Carsten Schürmann's data on accessibility / dev of accessibility, see ESPON TRACC project with good data	NUTS3, 2014	Accessibility potential by Road, Air and Rail, 2014 values

PO	SOs	Themes (key words for coverage)	SOs	Database provider	Relevant resources (non-exhaustive)	Comment / limitation	Dataset source
PO 4: a more social Europe implementing the European Pillar of Social Rights	4.1. Enhancing the effectiveness of labour markets and access to quality employment 4.2 Improving access to inclusive and quality services in education, training and lifelong learning 4.3 Increasing the socioeconomic integration of marginalised communities, migrants and disadvantaged groups 4.4 Ensuring equal access to health care	Population development, Poverty, Employment, Social policy indicators	4.4	EUROSTAT	EUROSTAT – health/healthcare – e.g. physicians and doctors by NUTS II regions, hospital beds – demonstrating the access/capacity of the healthcare system	NUTS2, 2018, 2017 some data gaps for FR (2016)	Hospital beds by NUTS 2 regions [hlth_rs_bdsrg], per 1 000 inhabitants
			4.3	EUROSTAT	EUROSTAT – social inclusion portfolio – people at risk of poverty and household cost overburden (secondary indicators), people at risk of poverty or social exclusion by NUTS II regions ('Tables by themes/population and social conditions/income and living conditions/people at risk of poverty or social exclusion').	NUTS2, different time series, mostly 2017-2018	People at risk of poverty or social exclusion by NUTS 2 regions [TGS00107]
			4.4 / 5.2	ESPON DB II	Travel time to the next SGI point (grid), 2016	Grid, boxes km2, 2016	Grid information allowing for conclusions on access to doctors and hospitals / regions with poor access to health services or other SGI
			4.3 / 6.2	EUROSTAT	EUROSTAT – migrant integration statistics difficult to find, however some data available at NUTS I level: Recent immigrants by sex, age and citizenship, Employed recent immigrants by sex, age and citizenship (section: Cross-cutting topics/Migrant integration and children in migration/Migration integration/Recent immigrants – LFS series)	NUTS2, 2018 data	Activity rates by sex, age, educational attainment level, citizenship and NUTS 2 regions, share of foreign citizens in active employment
			4.1	EUROSTAT	Young people neither in employment nor in education and training by sex and NUTS 2 regions (NEET rates) [edat_lfse_22]	NUTS2, 2018	Young people neither in employment nor in education and training by sex and NUTS 2 regions (NEET rates) [edat_lfse_22], 15-24 years old. Percentage

PO	SOs	Themes (key words for coverage)	SOs	Database provider	Relevant resources (non-exhaustive)	Comment / limitation	Dataset source
PO 5: a Europe closer to citizens by fostering the sustainable and integrated development of urban, rural and coastal areas and local initiatives	5.1 Fostering integrated social, economic, cultural and environmental development and security in urban areas 5.2 Fostering integrated social, economic and environmental local development, cultural heritage and security, including for rural and coastal areas also through community-led local development	Geographic specificities, EU SDG indicator set, Urban development (UIA & URBACT in NWE), Rural-urban disparities, Rural and coastal area development, Functional links	4.4 / 5.2	ESPON DB II	Travel time to the next SGI point (grid), 2016	Grid, XxX km2, 2016	Grid information allowing for conclusions on access to doctors and hospitals / regions with poor access to health services or other SGI No calculations as many missing information for FR e.g. Map data and only overlay with typologies, not to provide distorted information
			5.1	EEA / Eurostat	Change in land-use based on Corine Land Cover 2018	By FUA, population	clc-change12/18 by inhabitant, by total size of FUA? See when mapping what is sensible
			5.1 / 5.2	Eurostat	Typology of NUTS 2 regions (urban regions, intermediate regions, rural regions) and intersections with other indicators: household income, GDP development, employment, etc. --> also see coastal areas!	NUTS2	Eurostat old NUTS2 typology file

Table A-2 Overview of pre-agreed references and reports for the territorial analysis

PO	Themes (key words for coverage)	Report/dataset provider	Relevant resources (non-exhaustive)
PO 1: a smarter Europe by promoting innovative and smart economic transformation	Socio-economic disparities, Economic & firm structures, Competitiveness & smart specialisation, Innovation, Social economy and innovation, Digital infrastructure availability and use	European Commission	Digital Entrepreneurship Monitor
		Fraunhofer ISI / JRC	Policy Brief on Smart Specialisation, Fraunhofer ISI
		European Commission	Regional Competitiveness Index 2013
		European Commission	Regional Innovation Monitor Plus
PO 2: a greener, low-carbon Europe by promoting clean and fair energy transition, green and blue investment, the circular economy, climate adaptation and risk prevention and management	Environmental quality and risks, Flooding, Water, Natural assets, Climate change threats, Energy production and use, Energy poverty, Energy storage, Energy efficiency, CE	EU Energy Poverty Observatory	Energy expenditure of households, inability to keep households warm in winter, EU Building Stock Observatory (for public building data)
		National Renewable Energy Plans	Bioenergy capacity, wind energy capacity, solar capacity, GHG emissions – main energy and climate indicators, renewable energy share trajectory
		ESPON	ESPON CIRCTER project report (based on Eco-Innovation Observatory and EEA work) – for circular economy (ESPON (2018) Possible Territorial Futures, Final Report Volume D – Place Based Circular Economy, https://www.espon.eu/territorial-futures, EEA (2016). Circular economy in Europe: Developing the knowledge base. EEA Report No 2/2016).
		ESPON	Balancing Supply and Demand for Flood Regulation by regions (NUTS3) – ESPON Working paper Territorial potentials for green infrastructure
		Energy efficiency watch (www.energy-efficiency-watch.org)	Report: How to make Europe Number 1 in Energy Efficiency Key results from the Energy–Efficiency–Watch–Project, country reports, in particular the data table 'Most important gaps in energy efficiency policies' – per country and sector
		JRC	JRC Science for Policy Report – Smart Grid Projects outlook 2017
PO 3: a more connected Europe by enhancing mobility and regional ICT connectivity	Mobility and connectivity at different scales (local to TEN-T), Digital Economy and Society Index, Integration of digital technology, Multimodal infrastructure & use of intermodal transport	European Commission	Digital Economy and Society Index (DESI) Report 2018, also integration of digital technology
		European Commission	TEN-T maps – roads, railway and waterways – maps available from the TenTec public portal - TENtec portal
PO 4: Interreg-specific (Art. 14 Interreg Regulation)	Infrastructure and service provision (access to services) – in particular, health/healthcare, Unemployment, Education and skills	ESPON	ESPON CPS: number of cross-border services per border segment, map 2.2
PO 5: a Europe closer to citizens by fostering the sustainable and integrated development of urban, rural and coastal areas and local initiatives	Geographic specificities, EU SDG indicator set, Urban development (UIA & URBACT in NWE), Rural-urban disparities, Rural and coastal area development, Functional links	ESPON	In general - EU SDG (Sustainable Development Goals) Indicator set 2019 – a very broad set at NUTS I level only– covering the indicators used in PO1 to PO5, but also clean water and sanitation, quality education, good health and well-being
		ESPON	Urban development indicators – ESPON: Sustainable Development Indicator set for goal 11 – sustainable cities and communities (e.g. exposure to air pollution, recycling rate)
		Rodriguez Pose	Places left behind (articles)

ANNEX II – Analysis of other EU funding programmes

To assess the comparative advantage of the Interreg NWE Programme other EU funding programmes have been reviewed regarding their main features. This includes particularly project sizes, the existence of a cooperation component, knowledge of these programmes by potential NWE project partners, difficulties in accessing these programmes and their attractiveness regarding co-funding rates.

EU Programme or Fund	Description and Topics	Main Target Groups	Average project size	Average co-funding rate	Availability for stakeholders	Cooperation component	Territorial Focus (specific, local/regional)	Potential competition or synergies?
Single Market Programme 2021-2027	To support a favourable business environment, in particular for SMEs.	In general: business support organisations, social economy intermediaries, financial intermediaries, public authorities, consultancies, universities and research centres, aiming at SMEs.	Depends on call.	Depends on call.	Available for intermediaries and support organisations, especially for short-term support and networking. More difficult to get for larger projects.	Depends. Usually stimulates European partnerships or networking.	No, only indirectly.	High competition in the field of SME support, digitisation and skills. Synergies are possible but different perspectives.
InvestEU 2021-2027	Financial instruments to boost private investments 4 policy areas ('windows'): 1) sustainable infra-structure, 2) research, innovation and digitisation, 3) SMEs, and 4) social investment and skills.	In general: business support organisations, social economy intermediaries, financial intermediaries, public authorities.	Depends on call.	Depends on call.	Indirectly available via EIB and EU financial instruments	Depends. Usually stimulates European partnerships or networking.	No, only indirectly.	There might be competition in the field of SME support and social investments. Synergies are possible but different perspectives.
Digital Europe 2021-2027	Programme focused on building the strategic digital capacities of the EU and on facilitating the wide deployment of digital technologies.	Possibly: business support organisations, technology intermediaries, NGO and interest groups, public authorities,	Not known. EDIH: 0,5 – 1 M€ per year per EDIH	Not known. EDIH: 50%	Not known.	Generally, not. EDIH will have a cooperation/ networking component	Generally, not. EDIH will have a local/regional focus	Competition for funding the use of digital technologies across the economy and society. For

EU Programme or Fund	Description and Topics	Main Target Groups	Average project size	Average co-funding rate	Availability for stakeholders	Cooperation component	Territorial Focus (specific, local/regional)	Potential competition or synergies?
	Specific programme for European Digital Innovation Hubs (EDIH)	consultancies, existing DIH.						EDIH there can be synergies with NWE.
LIFE+ 2021-2027	4 future LIFE sub-programmes: 1) Nature and biodiversity, 2) Circular economy and quality of life, 3) Mitigation and adaptation to climate change, 4) Transition to clean energies	NGO and interest groups, public authorities, consultancies, SMEs and large companies, service providers.	Not known.	Not known, probably 50%. For research projects might be higher (80%)	Rather available.	Not so much but might become more important in the new programme.	Probably a local/regional focus in energy, climate change and CE projects.	High competition for NWE in areas related to nature, clean energies, CE and climate change.
Connecting Europe Facility (CEF)	Funding programme that supports trans-European networks (TEN) and infrastructures in the sectors of transport, telecommunications and energy.	Public authorities, transport service providers, digital service providers, universities, research, consultancies.	Not known.	Not known.	Rather available.	No, rather connecting territories across Europe.	Yes, but focus on core and densely populated territories	High competition for NWE in areas related to transport, energy, and telecommunication infrastructure.
Horizon Europe 2021-2027	EU's research and innovation programme to succeed Horizon 2020	Consultancies, universities and research centres, SMEs and large companies	Depends, normally between 3 and 20	Depends, can be close to 100% or 50%.	Difficult to get funding. Aims at excellence.	Yes, projects can have 20 partners or more.	Generally, not.	Competition for research and innovation projects. NWE can be complementary.
ERASMUS+	EU's programme to support education, training, youth and sport	NGOs and interest groups, universities, education and training providers, think-tanks, research organisations, and private businesses.	Depends.	From 75-100% or lumpsum, depends on type of activity.	Easily available for smaller grants and projects.	Yes. Connects stakeholders.	Most project have a local focus.	Competition in the field of education, training, youth.
EU4Health	New programme to strengthen health security and prepare for	Public authorities, public health institutions, hospitals, research centres.	Not known.	Not known.	Not known.	Maybe yes, for health /disease control institutions	Maybe yes, for health /disease control institutions	Competition in the field of public health and health innovation, eHealth.

EU Programme or Fund	Description and Topics	Main Target Groups	Average project size	Average co-funding rate	Availability for stakeholders	Cooperation component	Territorial Focus (specific, local/regional)	Potential competition or synergies?
	future health crises (maybe under ESF+)							
ESF+	EU instrument to strengthen Europe's social dimension ESF as in 2014-2020 and also Employment and Social Innovation strand and Youth Employment Initiative.	Public authorities, indirectly other stakeholders	Depends.	Depends. Usually 50% or 75%	Yes, depending on Regional and National Programmes.	No.	Yes.	Competition for local/regional projects on social inclusion, education, skills.
ERDF mainstream	European Fund for Regional Development	Public authorities, indirectly other stakeholders	Depends.	Depends. Usually 50% or 75%	Yes, depending on Regional and National Programmes.	No.	Yes.	Competition for funding for regional development, skills, SMEs, training, innovation, climate change, energy, environment etc.
EAFRD mainstream	Support to rural areas in making the structural changes necessary in line with the European Green Deal and achieving the ambitious targets in line with the new biodiversity and Farm to Fork strategies	Public authorities, Local Action Groups (LEADER)	Depends.	Depends. Usually 50% or 75%	Yes, depending on Regional and National Programmes.	No.	Yes.	Competition for funding for rural development, innovation in agriculture, agri-foods SMEs, agri-food value chains.
Just Transition Fund	Top-up of the cohesion policy programmes, accelerating the transition towards climate neutrality	Public authorities, indirectly other stakeholders	Same as for ERDF, EAFRD, ESF	Same as for ERDF, EAFRD, ESF	Yes, depending on Regional and National Programmes.	No.	Yes.	Same as for ERDF, EAFRD, ESF
Next Generation EU Instrument	Top-up of the cohesion policy programmes	Public authorities, indirectly other stakeholders	Same as for ERDF, EAFRD, ESF	Same as for ERDF, EAFRD, ESF	Yes, depending on Regional and	No.	Yes.	Same as for ERDF, EAFRD, ESF

EU Programme or Fund	Description and Topics	Main Target Groups	Average project size	Average co-funding rate	Availability for stakeholders	Cooperation component	Territorial Focus (specific, local/regional)	Potential competition or synergies?
					National Programmes.			
Interreg Europe – ERDF	European Interregional Cooperation	Business support organisations, NGO and interest groups, public authorities, consultancies, universities and research centres, SMEs and large companies, service providers.	Not known. Last period: Usually between 5 and 15 partners.	Not known. Last period: Usually 50% or 75%	Available, but maybe less than Interreg B and C projects.	Yes	Normally not.	Competition for NWE, depending on the priorities.
Interregional Innovation Investments – ERDF	New instrument for Interregional cooperation on innovation investments (Component 5 under Interreg)	Business support organisations, NGO and interest groups, public authorities, consultancies, universities and research centres, SMEs and large companies	Not known.	Not known.	Not known, might be easily available.	Yes	Normally not.	Possibly high competition in relation to innovation in specific value chains and related investments.
Other Interreg B – ERDF	Transnational Cooperation in Europe and partner countries	Business support organisations, NGO and interest groups, public authorities, consultancies, universities and research centres, SMEs and large companies, service providers.	Not known. Last period: Usually between 5 and 15 partners.	Not known. Last period: Usually 50% or 75%	Easily available	Yes.	Maybe.	Possibly competition for NWE, depending on the priorities.
Interreg A – ERDF	Cross-border Cooperation in Europe and partner countries	Business support organisations, NGO and interest groups,	Not known. Last period: Usually	Not known. Last period:	Easily available	Yes.	Yes. Cross-border focus.	Less competition for NWE, only in border territories.

EU Programme or Fund	Description and Topics	Main Target Groups	Average project size	Average co-funding rate	Availability for stakeholders	Cooperation component	Territorial Focus (specific, local/regional)	Potential competition or synergies?
		public authorities, consultancies, universities and research centres, SMEs and large companies, service providers.	between 3 and 10 partners.	Usually 50% or 75%				
Urban Innovative Actions (UIA) – ERDF	EU Initiative to address urban challenges (climate change, mobility, CE, employment, poverty, inclusion)	Local and regional authorities (and local/sectoral delivery partners)	In 2014-2020: max. EUR 5 Million (ERDF)	In 2014-2020: max. 80%	Available but only relevant for larger cities in 2014-2020.	A little bit (cooperation between stakeholders, with EU thematic experts and with other cities)	Yes, specific on urban areas.	Competition for projects focusing on urban challenges in larger cities. Synergies with NWE on urban projects.
URBACT – ERDF	URBACT is a European exchange and learning programme promoting sustainable urban development.	Local and regional authorities, intermediaries and NGOs working for urban integrated development, service providers. Local and regional authorities (and local/sectoral delivery partners)	In 2014-2020: up to 750.000 EUR for networks	In 2014-2020: usually 70- 85%	Available but only for learning and exchange.	Yes, focus on transnational learning networks between cities.	Yes, specific on urban areas.	Competition for projects focusing on urban challenges. Synergies with NWE on urban projects.

Note: This summary is based on assumptions from past and current programmes as well as EU Regulations. It is valid only for this specific analysis. Details of programmes might change with the final approval of relevant EU Regulations and requirements.

The review of different EU funding instruments and programmes for the 2021-2027 programming period shows that several programmes have a specific thematic focus (e.g. SME, health, energy, climate and environment), while others offer EU funding for a specific territory without a cooperation component (e.g. ERDF, ESF+, EAFRD). On the other hand, there are specific instruments that have cooperation as a prerequisite, e.g. the Interreg programmes, URBACT or the new instrument for interregional innovation.

Among the alternative public funding programmes, several can be considered as potential competition for Interreg NWE, even if there are differences between target groups, objectives and funding conditions. Other programmes would be complementary to the Interreg NWE funding, as the look for synergies with a clear territorial focus (e.g. InvestEU when combining social investments with a project on innovation in the social sector, combined funding for the European Digital Innovation Hubs or synergies between an project on urban challenges with an UIA or URABCT network).

Per Policy Objective, the situation of potential competition by other EU funding programmes and instruments is as follows:

PO1: Horizon Europe will again be important for excellent research and innovation in Europe but can be complementary to research and innovation projects with a focus on the NWE programme area. The new EU instrument for Interregional Innovation Investments will offer added value through partnerships with stakeholders from outside NWE and with a clear investment component. The proposed Digital Europe programme 2021-2027 aims at ensuring digitisation and advanced digital skills, among others through European wide cooperation. In the field of SME support, NWE faces competition from the Single Market Programme 2021-2027, the InvestEU Fund, and also from mainstream ERDF programmes. The new ESF+ programme will tackle the promotion of skills, whereas ERASMUS+ will address education and training. Other cross-border and transnational Interreg Programmes might offer comparable opportunities in the fields of innovation, SME support, digitisation and skills for smart specialisation to stakeholders, but this will depend on the priorities they eventually select.

PO2: Some potential overlaps with other EU programmes have been identified. With regard to clean energy, CE, climate change adaptation and mitigation as well as nature and GI the new LIFE+ programme will offer potential competition to Interreg NWE, even if it is not yet clear how accessible LIFE+ funding will be and which actions will have a cooperation component. Moreover, for research on energy or greenhouse gas emissions, the future Horizon Europe will be relevant competition, at least for high-level stakeholders. Finally, other ERDF mainstream programmes (boosted by the Just Transition Fund and Next Generation EU measures) and other Interreg programmes are potential competition. It seems therefore paramount to strategically position the new NWE programme on key areas where it can effectively address stakeholder needs.

PO3: In this area, some other EU instruments and funding programmes can be potential competition with Interreg NWE. Most important is the Connecting Europe Facility 2021-2027 that supports the creation and connection (interoperability) of energy, digital and transport networks and infrastructure. For research in these fields, Horizon Europe might an important competition, even if NWE funding is more accessible. Moreover, mainstream national and regional ESIF programmes, particularly ERDF and EARDF, can be relevant with investments, e.g. broadband networks in rural areas, improved transport-related spatial planning, and promoting sustainable transport systems. Finally, urban mobility can be also funded in cities under the UIAs with support for exchange and learning from URBACT support networks.

PO4: Important EU support for projects in the labour market, employment, training and skills will come from the new ESF+ programme, both through national and regional ESF programmes, as well as direct EU instruments. Also, ERASMUS+ projects tackle training and skills, however without clear cooperation or a territorial focus. The new EUHealth programme will tackle health-related issues. It is not yet clear how far this will be done with cooperation or partnerships. Support for innovation in health and care systems might also be offered via Horizon Europe and Digital Europe. ESF+ has a social investments window in InvestEU that will address social inclusion and support the social economy However, the need to tackle social issues in post-COVID times will increase in all regions and countries, requiring new innovative solutions and partnerships. The transnational labour market, training and health system integration can be niches for NWE and other ETC programmes. Synergies might be possible in all areas within Interreg NWE that can add a territorial focus and cooperation.

PO5: For territorially integrated development in urban and rural areas, there might be competition from mainstream ERDF, ESF+ and EAFRD programmes but without a cooperation component. In urban areas, UIA and URBACT might offer alternative opportunities for specific cities facing urban challenges. The networking element of the URBACT Programme might work directly with other cities in Europe. Other Interreg programmes might also address these topics.