

Framework Contract: Implementation of an integrated evaluation approach within the framework of a robust North-West Europe evaluation system (Reference 16B007)

Annex 1: Evolution of cohesion indicators in the NWE programme area 2014-2020

FINAL IMPACT EVALUATION

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1 Introduction

This annex updates cohesion indicators for the NWE programme area as presented in Task 4 of the 2017 framework contract report. This annex offers a revision of the measurement framework for territorial cohesion in NWE defined in collaboration with the programme in 2016. The indicators are based on available statistical information and defined to reflect NWE Programme 'competitiveness' and 'balanced development'. This annex complements the impact evaluation interim report to assess the Programme's contribution to territorial cohesion.

2 Identification of strategic areas of importance/interest for the Programme

In this chapter, the territorial cohesion indicators are analysed for both the NWE area (to demonstrate potential disparities within the Programme territory) and in comparison to the rest of the EU (to show the NWEs position in the EU). The analysis looks into the latest available data and changes since 2014. Not all indicator values were available for the same NUTS level, or the same NUTS year, which hampers some analysis of regional disparities.

2.1 Shortcomings to consider and possible solutions

There are limitations regarding data availability, especially at regional level. The following shortcomings and possible solutions have been highlighted during the update of this database:

The NWE Interreg Programme covers a few countries entirely and other countries only partially, therefore using national data could prompt misleading conclusions. As mentioned in the previous report, published in August 2017, there is a need for more regional data covering energy consumption/production, renewable energy and energy efficiency, GHG emissions, waste recycling and environmental management systems (e.g. ISO 14001). To avoid misinterpretation, some indicators only available at national level have been removed from the database, these are: B6 'Change of Final Energy Consumption in the transport sector in percentage', B9 'Relative gross avoided GHG emissions', B10 'Change of energy intensity in industry in percentage', C5 'Recycling rate of electronic waste in %' and C6 'ISO 14001 registered organisations/per capita'. At the moment, there is no equivalent data available at regional level, nor simplified versions of these indicators.

Another limitation was the complete lack of updates on multi-modal accessibility potential data. This is why indicator B5 'Multi-modal Accessibility Potential' has been removed from the database. Other datasets have been updated only partially, notably updates that do not include Switzerland and/or the UK. The solution was to analyse the indicators using the latest data for each region, as specified in the notes for the respective maps.

The lack of harmonised coverage was also a limitation. An example is data on people at-risk-of-poverty, which covered different NUTS levels. Indicators with this limitation were still analysed and mapped, as indicated in the notes for the respective maps.

The table below provides an overview of implications for this report. Indicators not affected have been updated and presented as in the 2018 report.

Table 2.1 Revision of Territorial Cohesion Indicators

Indicator	Territorial Dimension	Replaced	Removed	Details
B1. Employment rate	Balanced Development	yes	no	Previous indicator covered 15 to 54 year-olds and has been replaced by 25 to 64 year-olds. Differences in the year across different regions.
B2. Population change - crude net migration 2014	Balanced Development	no	no	Differences in the year across different regions.
B3. Population at-risk-of-poverty or social exclusion	Balanced Development	yes	no	Dataset replaced by ESPON, 'Indicator: People at-risk-of-poverty rate'. There are differences in the NUTS levels of the data.
B4. Life expectancy	Balanced Development	yes	no	Previous indicator presented data about males less than 1 year old and has been replaced by all population (male and female) less than 1 year old.
B5. Multi-modal Accessibility Potential	Balanced Development	no	yes	Indicator removed due to lack of updates.
B6. Change of Final Energy Consumption (FEC) in the transport sector in %	Balanced Development	no	yes	Indicator removed due to lack of regional data.
B7. Individuals who used the internet for interaction with public authorities	Balanced Development	no	no	Differences in the NUTS levels of the data.
B8. Urban population with existing low carbon strategies	Balanced Development	yes	no	The previous indicator covered national level only. Replaced by 'GCoM – MyCovenant:Signatories 2021, second release'.
B9. Relative gross avoided GHG emissions	Balanced Development	no	yes	Indicator removed due to lack of regional data.
B10. Change of energy intensity in industry in %	Balanced Development	no	yes	Indicator removed due to lack of regional data.
B11. Change in land-use per capita	Balanced Development	no	no	No constraints for this indicator.
B12. Annual road freight transport	Balanced Development	no	no	Differences in the year across different regions.
C1. Intramural R&D expenditure (% of GDP)	Competitiveness	yes	no	Previous indicator based on Eurostat data, due to lack of coverage, it was replaced by 'Indicator: Intramural and R&D expenditure (GERD)', from ESPON. Differences in NUTS levels.
C2. Well-educated economically active population	Competitiveness	no	no	Differences in the year across different regions.
C3. Innovative SMEs collaborating with others	Competitiveness	no	no	Differences in NUTS levels.
C4. Employment in technology and knowledge-intensive sectors	Competitiveness	no	no	Differences in the year across different regions. Lack of spatial coverage.
C5. Recycling rate of e electronic waste in %	Competitiveness	no	yes	Indicator removed due to lack of regional data.
C6. ISO 14001 registered organisations/per capita	Competitiveness	proposal	yes	Indicator removed due to lack of regional data. The 'technological readiness' category of the Regional Competitiveness Index could replace businesses environmental management responses.

2.2 Territorial analysis

In this section the updated data available for the ‘Competitiveness’ and ‘Balanced Development’ indicators is presented and briefly described for the NWE regions compared to the EU regions average, and regions within the NWE itself.

For each indicator, we look first at the change between 2014 and 2020 (or the latest available data), then at the current situation.

Indicator: C1. Intramural R&D expenditure

The change in NWE regional R&D expenditure share of GDP compared to other EU regions is minimal, approximately 0.1%, very similar to the difference of approximately 0.5%-points in 2014, when R&D expenditure share of the NWE regions was 2%, and 1.5% in the rest of the EU regions.

The regions with the highest positive change between 2014 and 2020 were Brabant Wallon (2.1%-points) in Belgium, the two UK regions of East Anglia (2%-points), and Herefordshire, Worcestershire and Warwickshire (1.3%-points), Stuttgart (1.3%-points) in Germany.

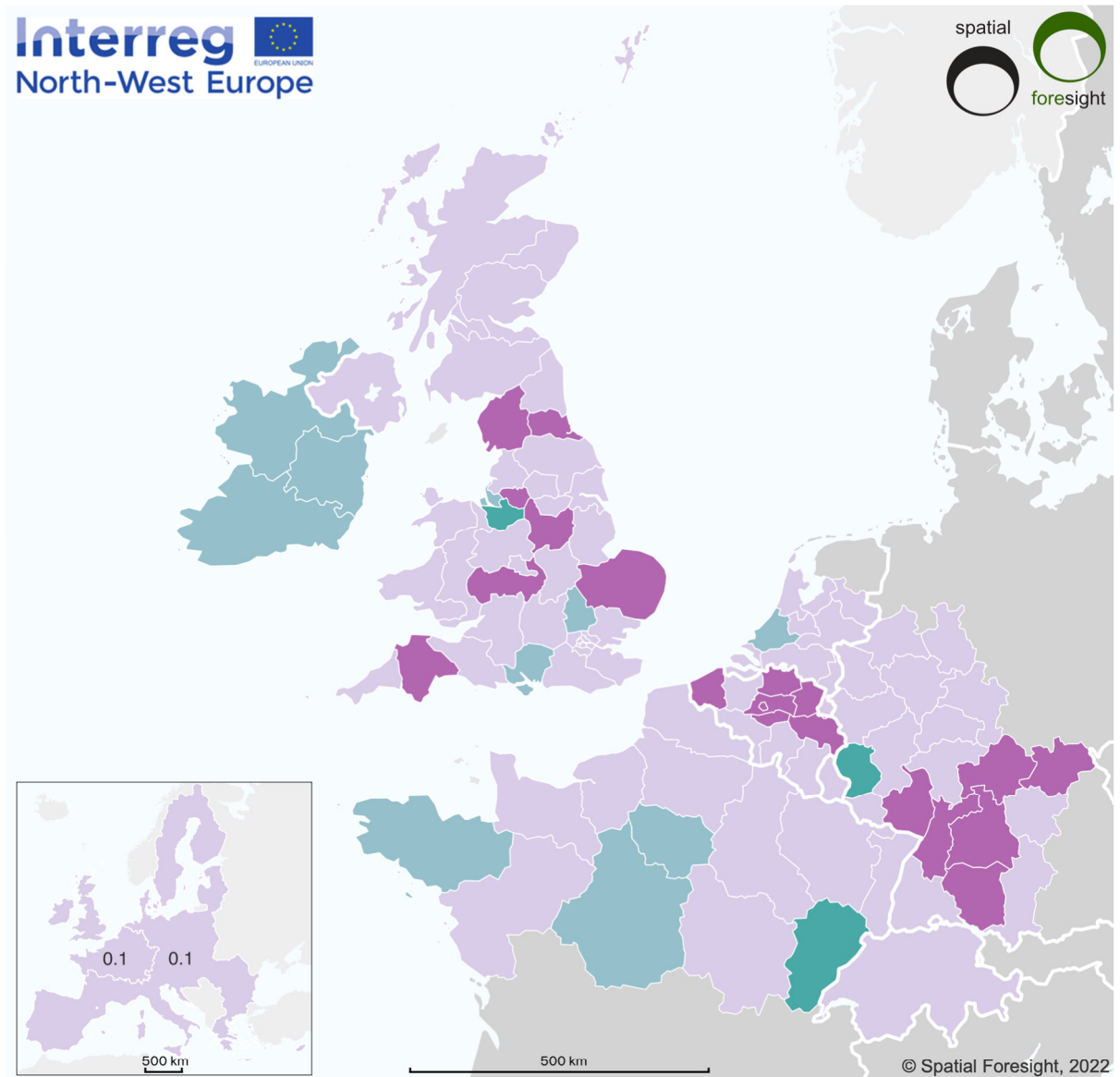
Brabant Wallon, East Anglia and Stuttgart already had the highest R&D expenditure in 2014 and remained the highest in 2020 (8.7%, 7.1%, and 7.3%, respectively).

The regions with the largest reduction in R&D expenditure are Trier (-2.2%-points) in Germany, Cheshire (-2.1%-points) in the UK, and Franche-Comté (-1.7%points) in France. Among these regions, two are predominantly rural, and all three had higher R&D expenditure than the Programme average in 2014 of some 2.7%.

In 2020, the lowest share of R&D expenditure was in Ireland, Eastern and Midland, and Northern and Western (both 0.1%), a result of the strong expenditure decline in both regions since 2014. The highest R&D expenditure was generally observed in predominantly urban or intermediate regions, with a few exceptions in rural regions.

Most developments indicate increasing disparities in R&D expenditure as a share of GDP in NWE, with most growth in previously strong R&D regions and more double the number of regions with less than 0.5% of R&D expenditure (rising from four to eleven regions). However, the strong decline in R&D expenditure in regions which were previously above average indicates less disparity.

Map 2.1 Change in R&D expenditure between 2014 and 2020, NUTS2, in %-points



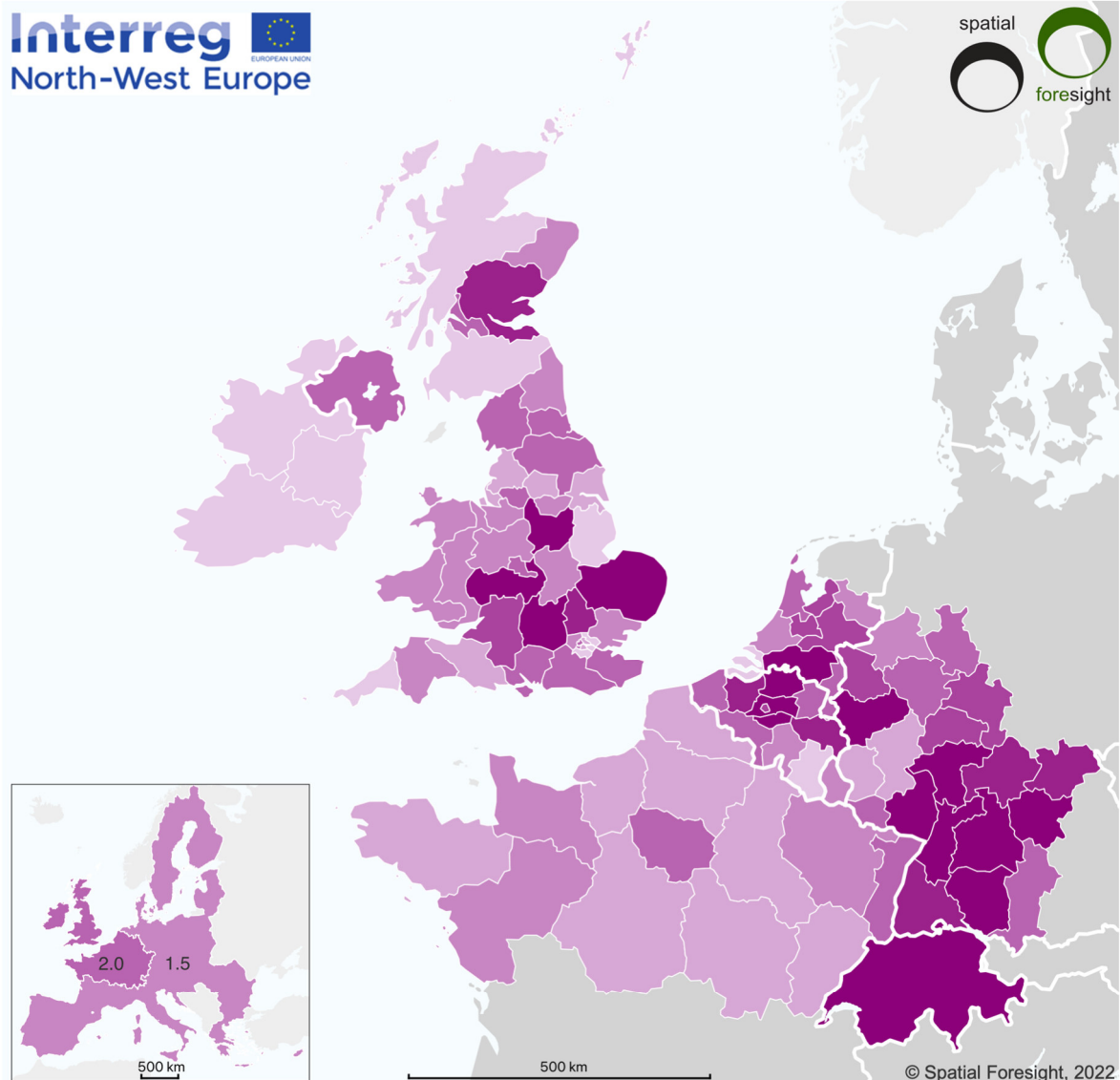
Change in total intramural R&D expenditure, at percentage of gross domestic product (GDP), between 2014 and 2020

- < -1.5 %
- 0.5 - 0.5 %
- > 0.5 %
- 1.5 - -0.5 %

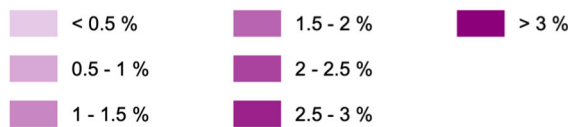
Source: own elaboration based on ESPON [INTRAMUR], Intramural and R&D expenditure (GERD) in 2014 and 2020. Administrative boundaries: Eurostat GISCO, NUTS 0 and NUTS 2 (2016)

Note: Values for CH are presented at national level, due to lack of data availability at regional level. The average of the percentage of other European regions refer to all EU regions except for those of the NWE Programme 2014-2020, and those for which there is no data available. The NWE average of the percentage refers to all NWE Programme 2014-2020 regions.

Map 2.2 Intramural R&D expenditure in 2020



Total intramural R&D expenditure, at percentage of gross domestic product (GDP), in 2020



Source: own elaboration based on ESPON [INTRAMUR], Intramural and R&D expenditure (GERD) in 2020. Administrative boundaries: Eurostat GISCO, NUTS 0 and NUTS 2 (2016)

Note: Values for CH are presented at national level, due to lack of data availability at regional level. The average of the percentage of other European regions refer to all EU regions except for those of the NWE Programme 2014-2020, and those for which there is no data available. The NWE average of the percentage refers to all NWE Programme 2014-2020 regions.

Indicator: C2. Well-educated economically active population

This indicator covers people with tertiary education (levels 5-8) in relation to economically active 25 to 64 year-olds, at NUTS 2 level.

The change in the share of well-educated economically active people is positively higher in the NWE Programme area (2.8%-points) when compared to the rest of the EU (2.6%-points). This means that in 2022, the NWE Programme regions' average (19.1%) was still higher than the rest of the EU regions (15.1%), when compared to 2014.

The highest positive changes were seen in Oost-Vlaanderen (6.7%-points), and Limburg (5.8%-points) in Belgium; Northern and Western (5.8%-points) in Ireland, and Utrecht (5.7%-points) in the Netherlands. The highest positive changes were in predominantly urban regions, and across Ireland.

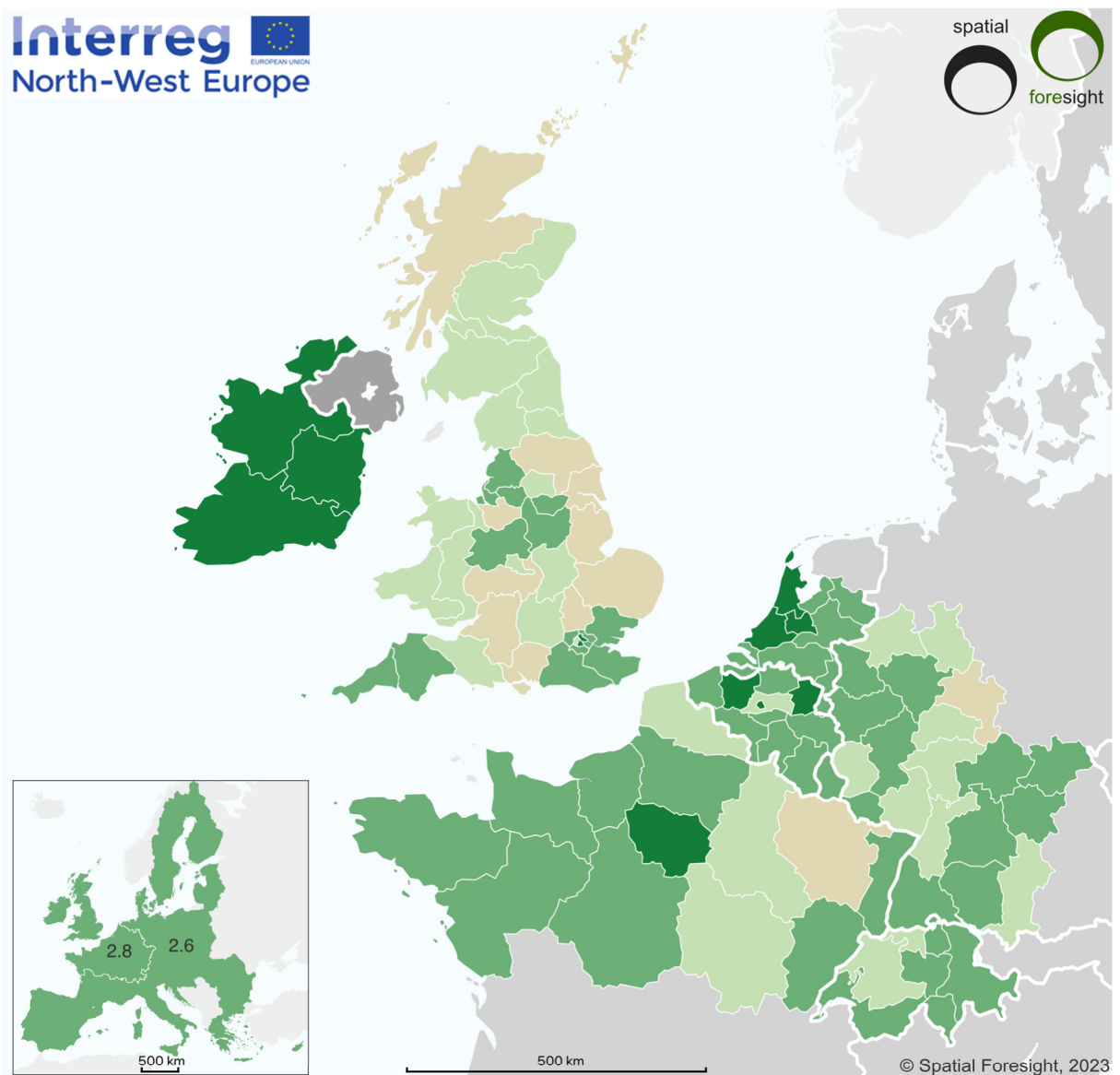
A reduction was seen only in the UK, in New Yorkshire (-0.9%-points), Cheshire (-0.4%-points), Highlands and Islands (-0.2%-points), and Lincolnshire (-0.2%-points).

Even after these reductions, the UK had the highest values for this indicator in the NWE Programme area. These are in Inner London West (37.9%) and East (35.6%), which did not see a fall in share but an increase.

Programme regions with the lowest share of well-educated economically active people in 2022, are in Germany, Kassel (11.8%), Detmold (12.5%), and Saarland (12.9%), and France, Champagne-Ardenne (12.3). Most of the rural areas were below the Programme area average (19.1%). The only rural regions above average are in Belgium, Luxembourg (19.3%) and Namur (20), and Ireland, Northern and Western (22.1%) and Southern (22.7%).

This highlights nationally driven development (e.g. Ireland, Germany and the UK). The fewer regions in the lowest category (<12%) indicates some cohesion, while also the number in the highest category (>20%) has increased and may contribute to increasing disparities. In 2014 the values ranged from 9.6% to 35.5%. And in 2022, the values ranged from 11.8% to 37.9%. This indicates little increase in the degree of disparities but a shift towards higher education, which should benefit competitiveness.

Map 2.3 Change in the % of well-educated economically active people, 2014 – 2022, NUTS 2, in %-points



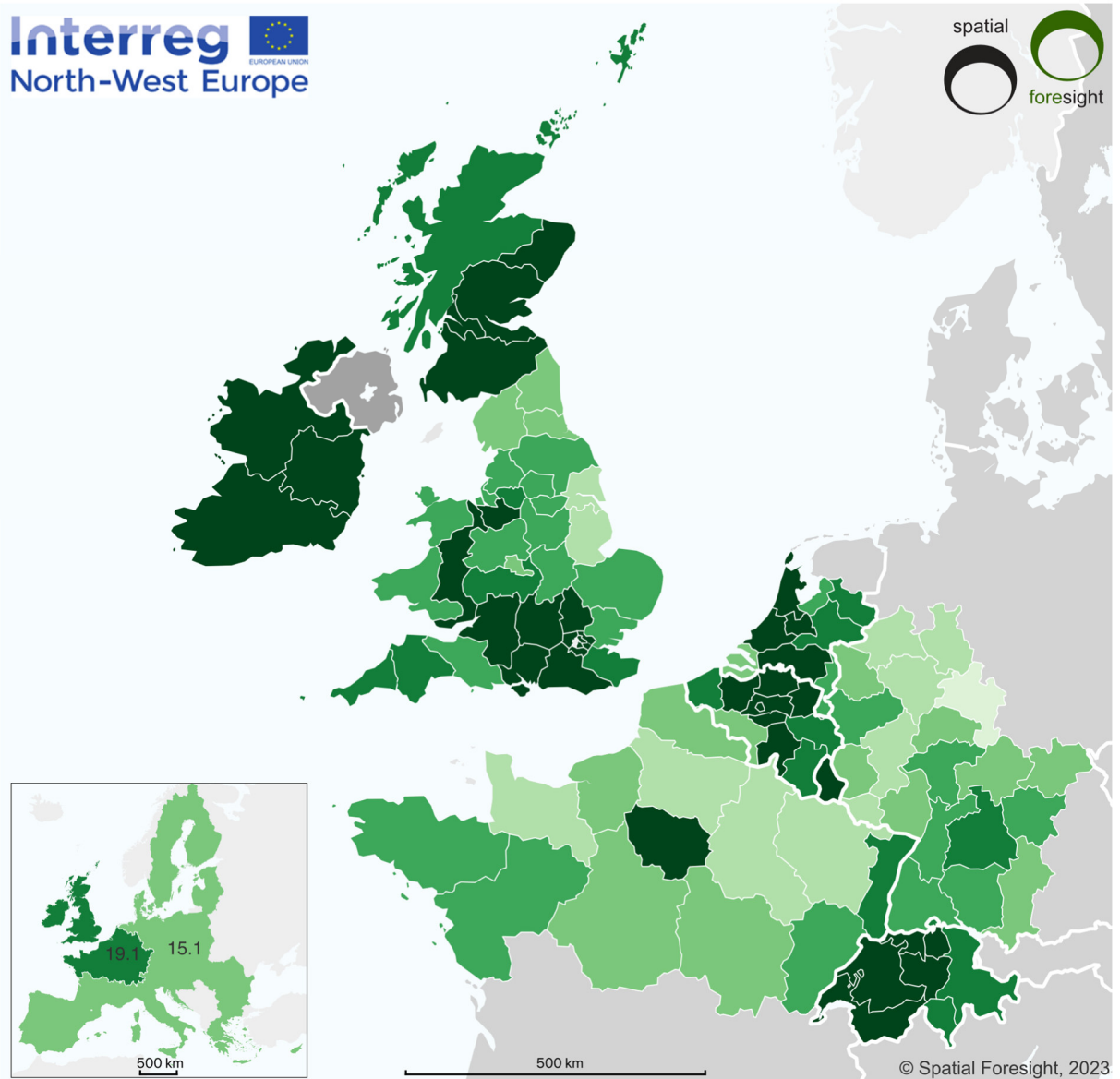
Change in the share of well educated (ISCED11 levels 5-8, tertiary education) economically active population (25 - 64 years old), between 2014 and 2022*



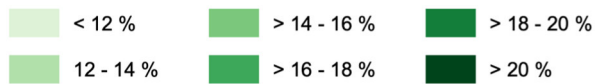
Source: own elaboration based on Eurostat [LFST_R_LFP2AGEDU], and [DEMO_R_D2JAN]. Administrative boundaries: Eurostat GISCO, NUTS 2 (2016)

Note: *Values for all UK regions refer to change between 2014 and 2019. The average of the percentage of other European regions refer to all EU regions except for those of the NWE Programme 2014-2020, and those for which there is no data available. The average of the percentage of the NWE regions refer to all NWE Programme 2014-2020 regions, except those for which there is no data.

Map 2.4 Well-educated economically active population in 2022*, NUTS 2



Share of well educated (ISCED11 levels 5-8, tertiary education) economically active population (25 - 64 years old), in 2022*



Source: own elaboration based on Eurostat [LFST_R_LFP2AGEDU], and [DEMO_R_D2JAN]. Administrative boundaries: Eurostat GISCO, NUTS 2 (2016)

Note: *Values for all UK regions refer to year 2019. The average of the percentage of other European regions refer to all EU regions except for those of the NWE Programme 2014-2020, and those for which there is no data available. The average of the percentage of the NWE regions refer to all NWE Programme 2014-2020 regions, except those for which there is no data.

Indicator: C3. Innovative SMEs collaborating with others

This indicator is part of the Regional Innovation Scoreboard (RIS) database. The ‘Innovative SMEs collaborating with others’ indicator measures how much these enterprises are involved in innovation cooperation. It measures the flow of knowledge between public and private sectors, including research institutions and firms. The scoreboard normalised the indicator from 0 to 1.

As in 2014, the share of innovative SMEs that collaborate with others in 2023 is higher in the NWE Programme area (0.61), than in the rest of the EU (0.45). The rest of EU, however, had a more positive change (0.13), than the programme area (0.05) between 2014 and 2023.

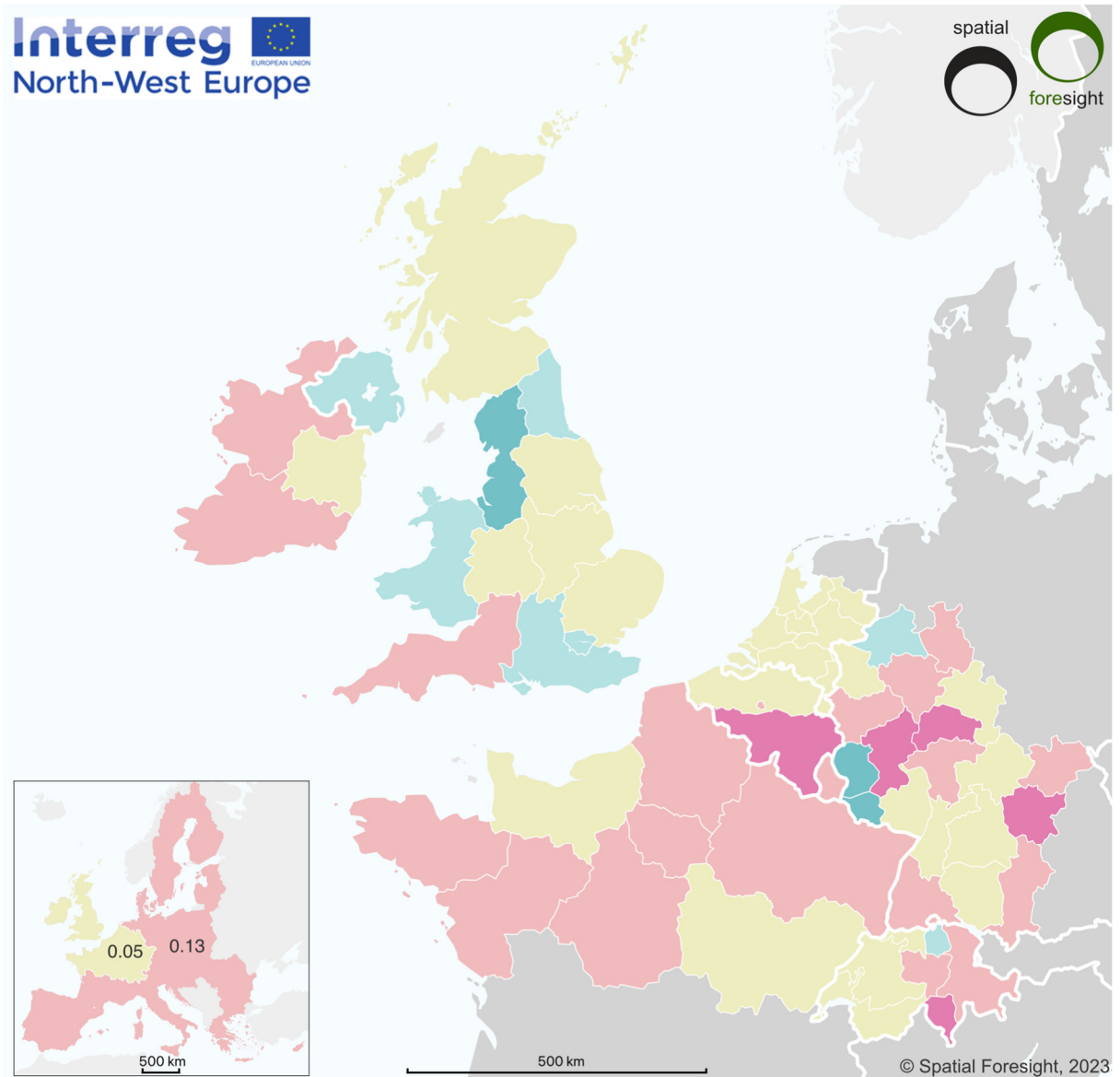
The highest positive changes¹ were in Gießen (0.45), Koblenz (0.4) and Mittelfranken (0.26), in Germany as well as Ticino (0.34) in Switzerland, and Région Wallonne (0.32) in Belgium. The biggest negative changes were in Germany, Trier (-0.4), and Saarland (-0.32), followed by four British regions, North West England (-0.28), Wales and North East England (both -0.24), and London (-0.2).

Even though these British regions saw much lower scores between 2014 and 2023, all UK regions had higher scores for SMEs collaborating with others in 2023 due to their outstanding values in 2014. In 2023, the top ten regions were exclusively British or Belgian, with scores between 0.77 and 1. The regions with the lowest values are Nordwestschweiz in Switzerland, and Trier in Germany (both 0.18).

The results do not seem to relate to the type of region, however, considering the overall level of SME cooperation, it seems to be influenced by national business structures. Even though change was not even across most countries, there were strong national patterns in 2023, especially across the UK, Ireland, the Netherlands and Belgium. The overall change was positive and reduced disparities within the Programme Region. Disparity was also reduced in relation to other EU regions which improved more.

¹ Measured as absolute difference in points of the normalised score between the two years.

Map 2.5 Change in innovative SMEs collaborating with others, 2014 - 2023, NUTS 2



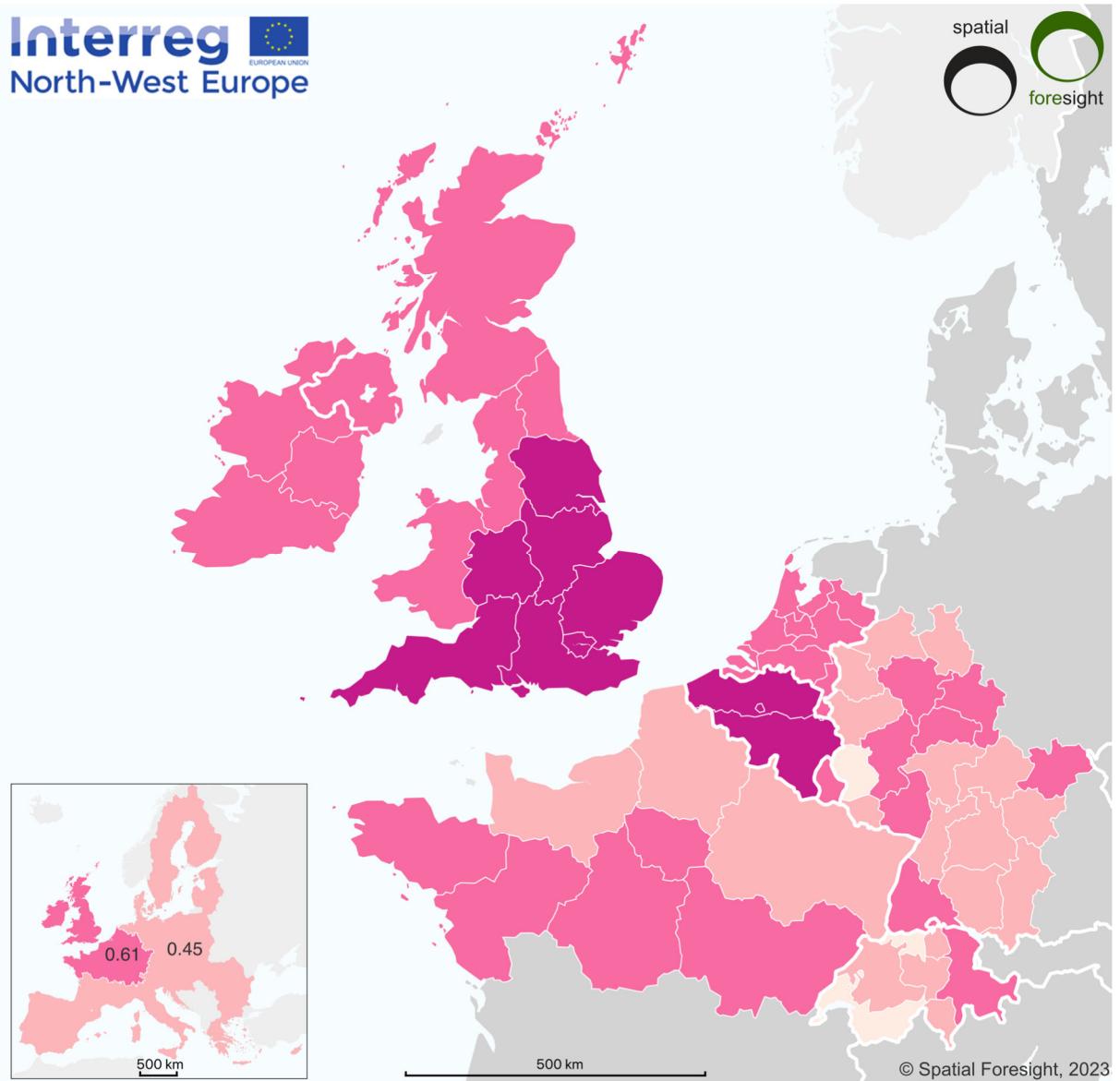
Linkages - Change in Innovative SMEs collaborating with others (normalised values), between 2014 and 2023*

- > 0.1 - 0.25
- > -0.25 - -0.1
- > -0.1 - 0.1
- -0.5 - -0.25

Source: own elaboration based on the Regional Innovation Scoreboard 2023 (RIS). Administrative boundaries: Eurostat GISCO, NUTS 2 and NUTS 1 (2016)

Note: *Values for BE (BE1, BE2, and BE3), DEC, FR (FR1, FRB, FRC, FRD, FRE, FRF, FRG, and FRH), and the UK (UKC, UKD, UKE, UKF, UKG, UKH, UKI, UKJ, UKK, UKL, UKM, and UKN) are represented at NUTS 1 level, due to lack of data availability at NUTS 2 level. The value for LU refers to the difference between year 2016 and 2023, and has been estimated based on the national score, due to lack of data availability. The average of other European regions' values refer to all EU regions except for those of the NWE Programme 2014-2020, and those for which there is no data available. The average of the NWE regions' values refers to all NWE Programme 2014-2020 regions.

Map 2.6 Innovative SMEs collaborating with others, 2023



Linkages - Innovative SMEs collaborating with others (normalised values), in 2023*

- > 0.75 - 1
- > 0.5 - 0.75
- > 0.25 - 0.5
- 0 - 0.25

Source: own elaboration based on the Regional Innovation Scoreboard 2023 (RIS). Administrative boundaries: Eurostat GISCO, NUTS 2 and NUTS 1 (2016)

Note: *Values for BE (BE1, BE2, and BE3), DEC, FR (FR1, FRB, FRC, FRD, FRE, FRF, FRG, and FRH), and the UK (UKC, UKD, UKE, UKF, UKG, UKH, UKI, UKJ, UKK, UKL, UKM, and UKN) are represented at NUTS 1 level, due to lack of data availability at NUTS 2 level. The value for LU has been estimated based on the national score, due to lack of normalized data. The average of other European regions' values refer to all EU regions except for those of the NWE Programme 2014-2020, and those for which there is no data available. The average of the NWE regions' values refers to all NWE Programme 2014-2020 regions.

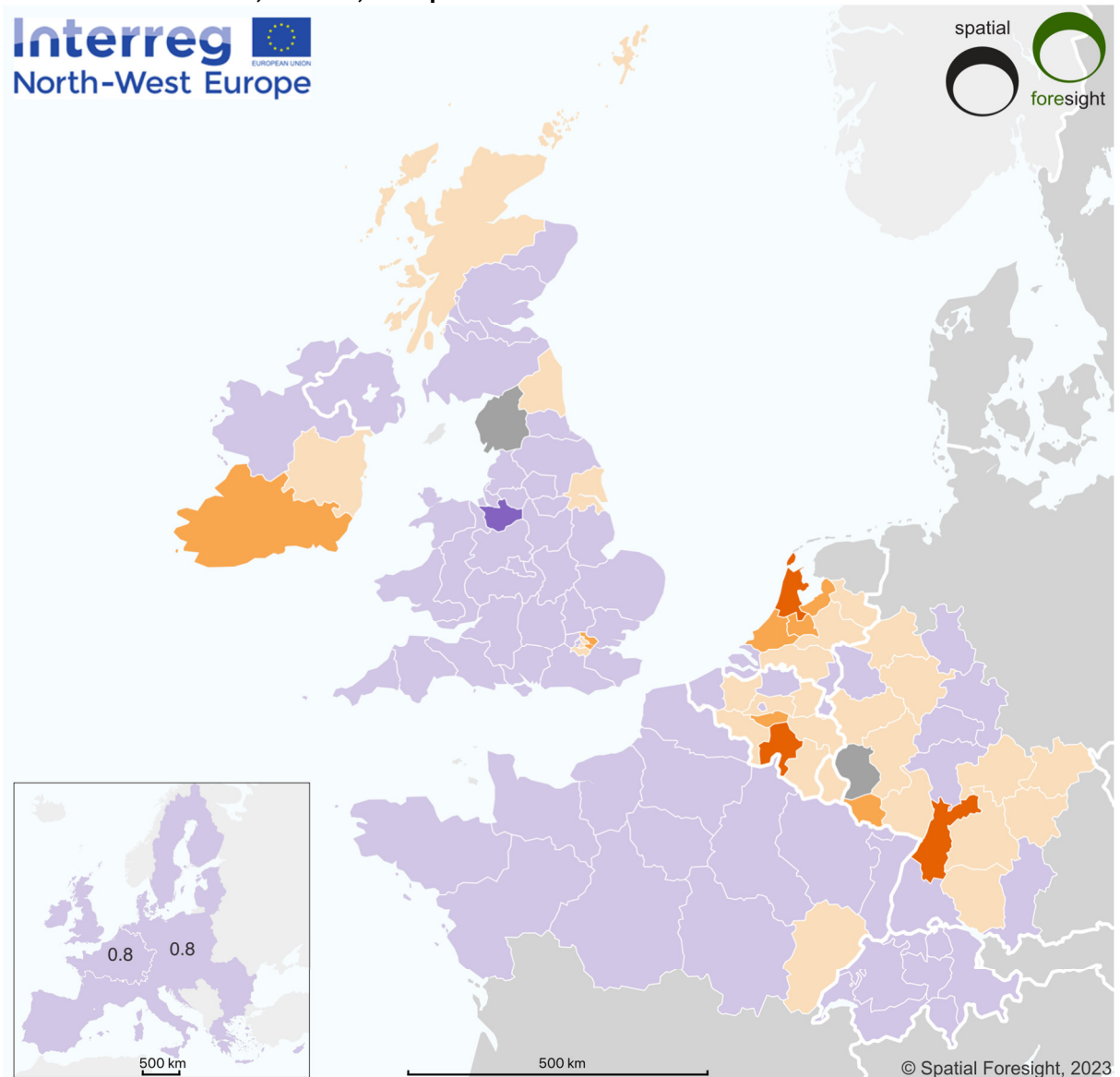
Indicator: C4. Employment rate in technology and knowledge-intensive sector

The rate of change in the average of the shares of employment in high-technology manufacturing and knowledge-intensive high-technology services (HTC) between 2014 and 2022 in the NWE Programme regions is equivalent to the other EU regions, of 0.8%. In 2022, the average of the NWE Programme regions was of 5%, still higher than the other EU countries average of 4.1%.

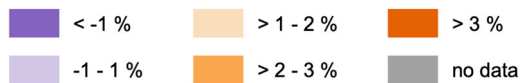
The highest increase was in Namur (3.5%-points), in Belgium. The most negative change was in Cheshire (-1.2%-points), in the UK, however this region still has a higher share of HTC employment than the Programme and EU averages. Berkshire, Buckinghamshire and Oxfordshire (11.9%), in the UK, Eastern and Midland Ireland (11.7%), and the Brabant Wallon (11.1%), in Belgium, had much higher HTC employment than the Programme average. The regions with the lowest share of HTC employment are Champagne-Ardenne (1.1%) and Lorraine (1.6%), in France, and Lincolnshire (1.8%), in the UK. Except for Southern Ireland and Namur in Belgium, the 25 highest shares of HTC employment were in capitals and other predominantly urban or intermediate regions, as many of these activities tend to be hosted by agglomerations or create them.

The territorial pattern has changed little with a slight increase of the number of regions with more than 6% HTC employment. The changes are uneven, resulting in higher disparities in the area. Apart from the national pattern in Ireland, the rest of the NWE Programme area seems to have a pattern matching land use typology (urban, rural).

Map 2.7 Change in employment rate in technology and knowledge-intensive sector, 2014 - 2022*, NUTS 2, in %-points



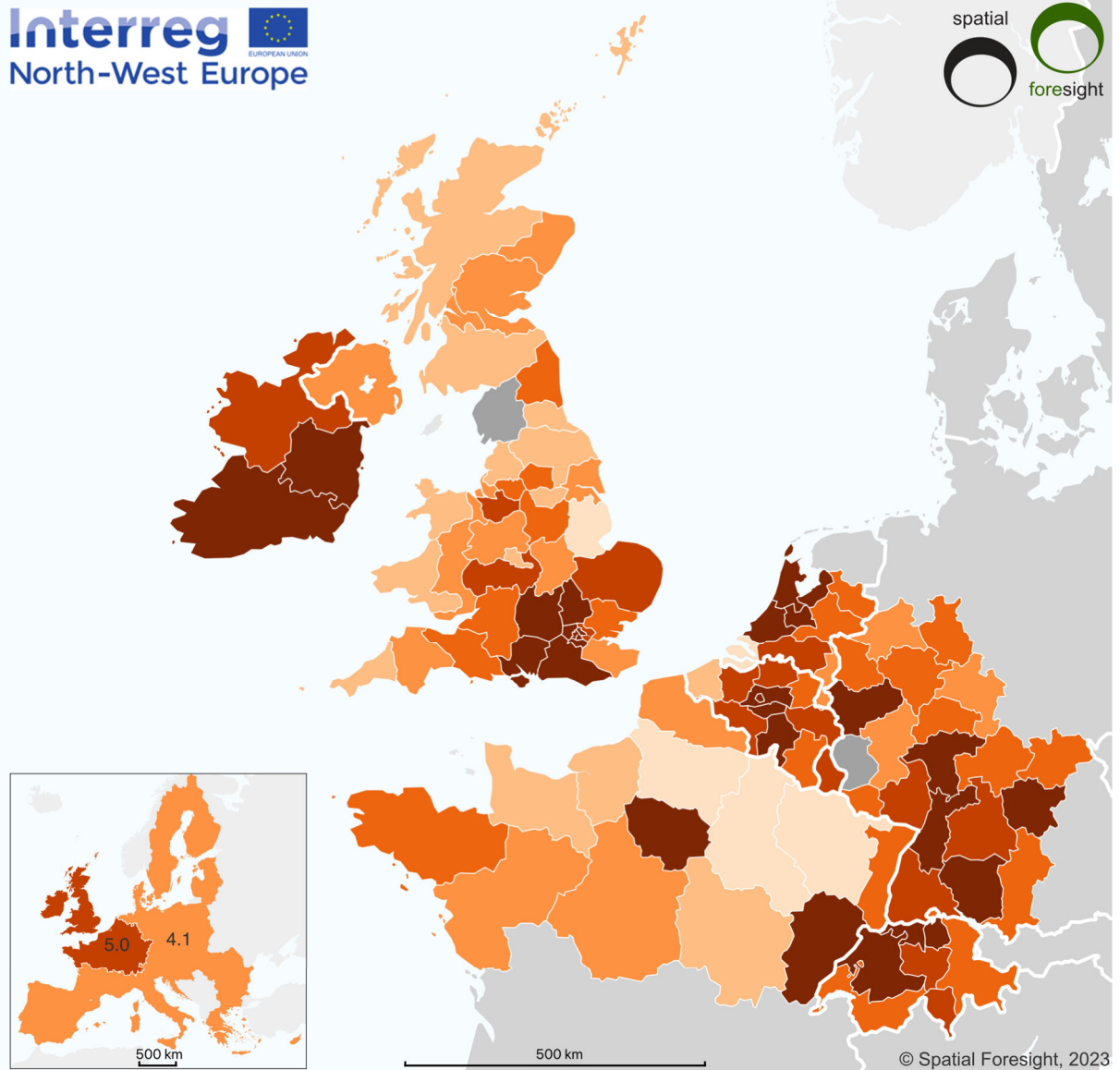
Change in share of total employment in high-technology manufacturing and knowledge-intensive high-technology services, between 2014 and 2022*



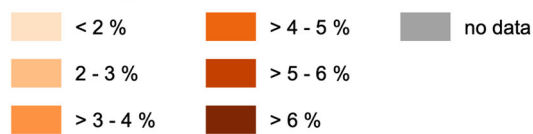
Source: own elaboration based on Eurostat [HTEC_EMP_REG2]. Administrative boundaries: Eurostat GISCO, NUTS 2 (2016)

Note: *Values for all UK regions refer to change between 2014 and 2019. The average of other European regions' values refer to all EU regions except for those of the NWE Programme 2014-2020, and those for which there is no data available. The average of the NWE regions' values refers to all NWE Programme 2014-2020 regions, except those for which there is no data.

Map 2.8 Employment in technology and knowledge-intensive sector, 2022*



Share of total employment in high-technology manufacturing and knowledge-intensive high-technology services, 2022*



Source: own elaboration based on Eurostat [HTEC_EMP_REG2]. Administrative boundaries: Eurostat GISCO, NUTS 2 (2016)

Note: *Values for all UK regions refer to year 2019. The average of other European regions' values refer to all EU regions except for those of the NWE Programme 2014-2020, and those for which there is no data available. The average of the NWE regions' values refers to all NWE Programme 2014-2020 regions, except those for which there is no data.

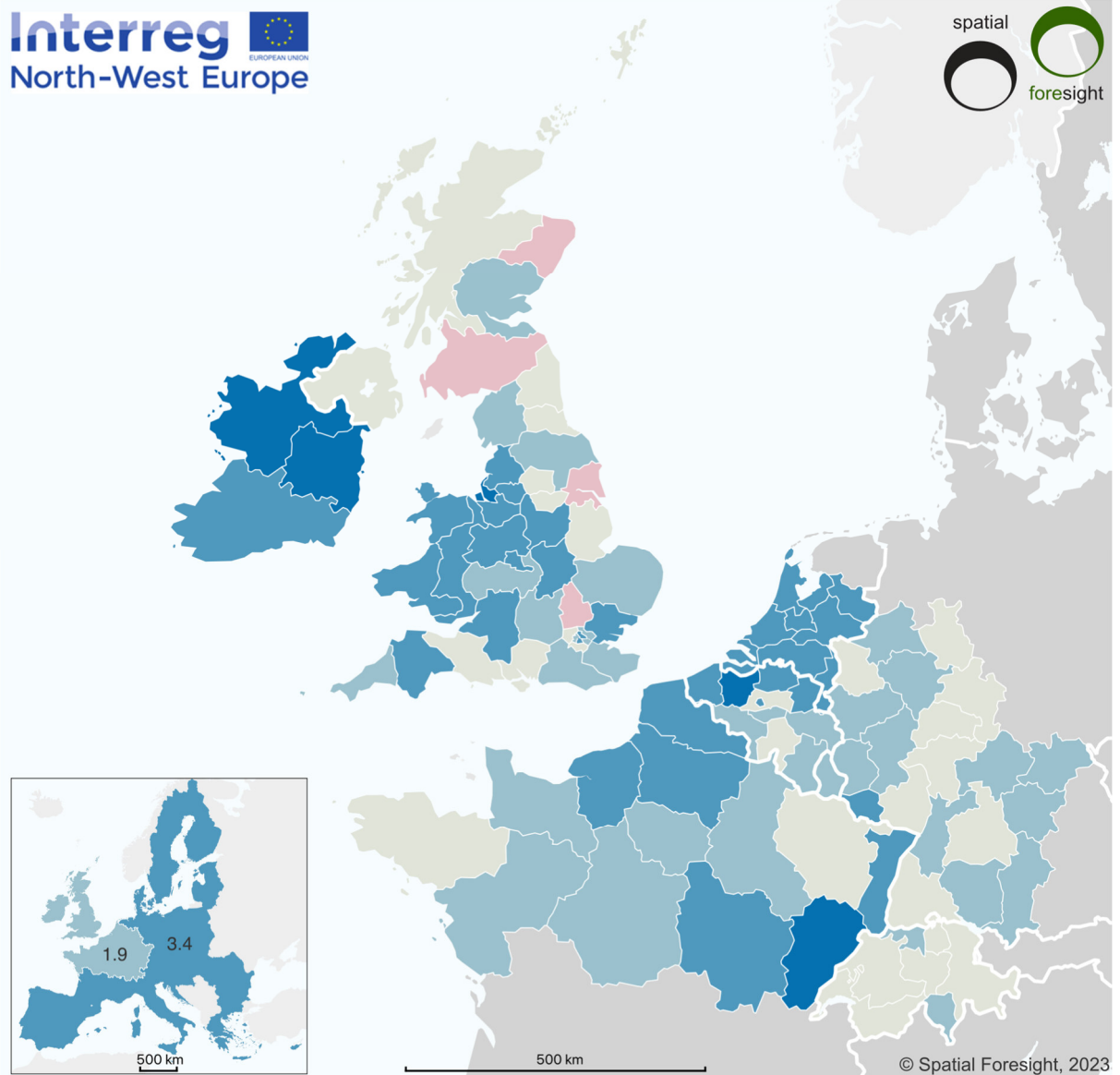
Indicator: B1. Employment rate

The increase in the employment between 2014 and 2022 was smaller in NWE Programme regions (1.9%-points), than the rest of the EU (3.4%-points). In 2022 the average of NWE regions was a little higher (83%) than other EU regions (81%).

The largest employment growth was in Ireland, in Eastern and Midland as well as Northern and Western regions (both 5.9%-points), followed by Franche-Comté (5.5%-points) in France. The largest declines were in the UK, in Southern Scotland (-2.4%-points), Bedfordshire and Hertfordshire (-2.3%-points), and North and Eastern Scotland (-2.2%-points). However, there is a general increase in the economically active population across the entire Programme region. Switzerland had the highest values in 2022, where five of its seven regions were above 85%. Most of these regions are predominantly urban or intermediate. Within the 30 regions above 85 %, only three are predominantly rural, all in Germany: Schwaben (87.4%), Trier (85.6%) and Oberfranken (85.4%). The regions with the lowest economically active population are in Belgium, Hainaut (71.2%), Liège (74.1%), and Namur (76.1%). This indicator tends to correlate with economic and business activities found generally in predominantly urban regions.

The change in employment was generally positive within NWE regions between 2014 and 2022, moving towards cohesion. Employment seems to be higher in predominantly urban regions, some exceptions in German with predominantly rural regions. In addition to fewer disparities within the NWE Programme area the difference with the EU average also decreased.

Map 2.9 Change in employment rate, 2014 - 2022*, NUTS 2, in %-points



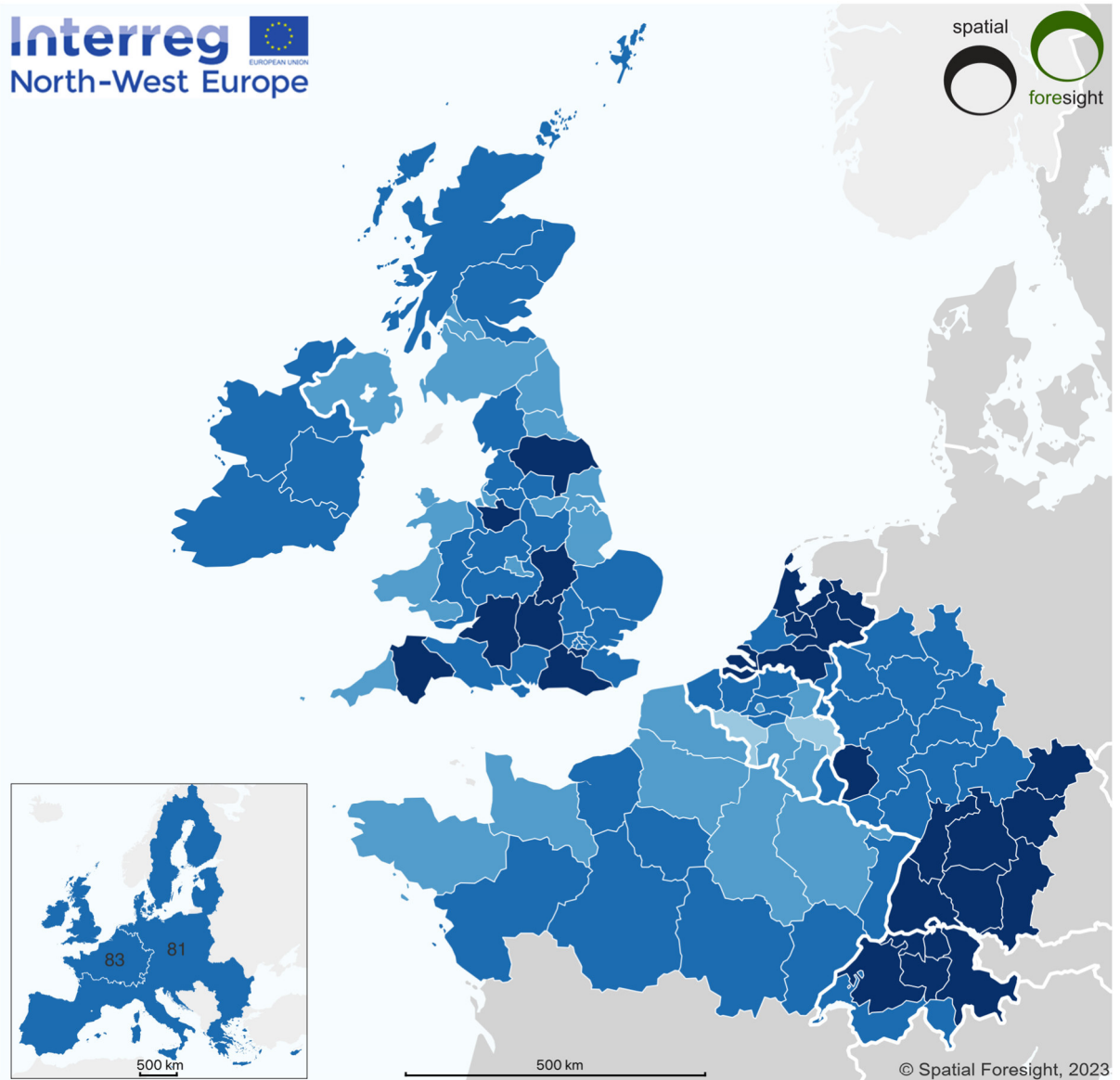
Change in economically active population between 2014 and 2022*

- > 5 %
- > 2.5 - 5 %
- > 1 - 2.5 %
- > -1 - 1 %
- -2.5 - -1 %

Source: own elaboration based on Eurostat [lfst_r_lfp2actrt]. Difference between the share of 25 - 64 years old population economically active in 2014 and in 2021. Administrative boundaries: Eurostat GISCO, NUTS 2 (2016).

Note: Values for NUTS 2 regions in the UK refer to the difference between population economically active in 2014 and in 2019, due to data availability. The average of other European regions' values refer to all EU regions except for those of the NWE Programme 2014-2020, and those for which there is no data available. The average of the NWE regions' values refers to all NWE Programme 2014-2020 regions, except those for which there is no data.

Map 2.10 Employment rate in 2022, at NUTS 2



Economically active population, 2022*



Source: own elaboration based on Eurostat [lfst_r_lfp2actrl], share of 25 - 64 years old population economically active in 2022. Administrative boundaries: Eurostat GISCO, NUTS 2 (2016)

Note: Values for NUTS 2 regions in the UK refer to year 2019, due to data availability. The average of other European regions' values refer to all EU regions except for those of the NWE Programme 2014-2020, and those for which there is no data available. The average of the NWE regions' values refers to all NWE Programme 2014-2020 regions, except those for which there is no data.

Indicator: B2. Population change – crude net migration

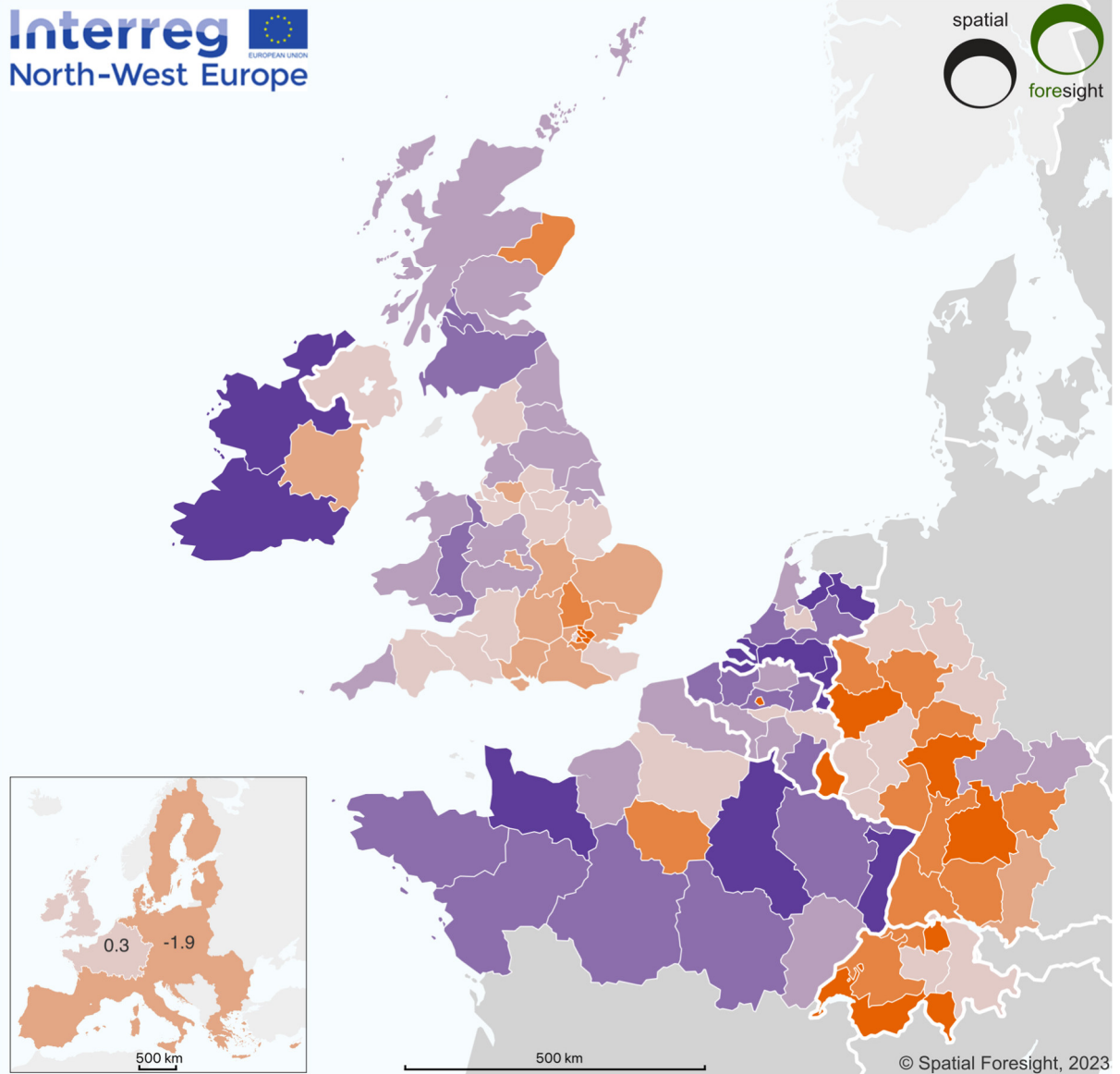
The average of NWE Programme regions' net migration rose between 2014 and 2021 (0.3%-points) but fell (-1.9%-points) in other EU regions. In 2021, the NWE Programme average (4.3%) was positive increasing the difference with the EU average (-0.5%).

Differences in net migration changes within the NWE Programme area are considerable, from about -10%-points to more than +10%-points. The largest reductions were in Darmstadt (-10.2%-points) and Stuttgart (-9%-points), in Germany, and Inner London (-7.1%-points) in the UK. Luxembourg, the country, had the fourth biggest reduction (-6.7%-points), however it still had the highest rate of migration in 2021, of 13.2%. Along with regions in Germany, the UK also experienced considerably lower net migration. In Switzerland, as in Luxembourg, net migration has reduced considerably since 2014, but the country still experienced positive migration in 2021.

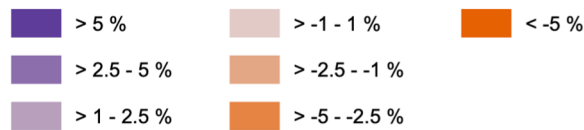
The highest increases between 2014 and 2021 were in Northern and Western (13.2%-points), and Southern (10%-points) Ireland, and in the Netherlands, Flevoland (12.2%-points), Zeeland (6.5%-points), and Limburg (6.2%-points). In 2021, out-migration was seen largely in capital regions, in Ile-de-France (-8.4%), and Région de Bruxelles-Capitale (-3.7%), and Outer London – West and Northwest (-1.2%).

Predominantly urban regions had larger reductions in net migration. Along with COVID-19 restrictions, another possible cause for out-migration in the capitals is the strong increase in the cost of living, especially housing. There are national patterns, especially in Germany and Switzerland, but a more balanced distribution across the NWE Programme region; however the disparity remains high in relation to other EU countries.

Map 2.11 Difference in population change - crude net migration, 2014 - 2021*, NUTS2, in %-points



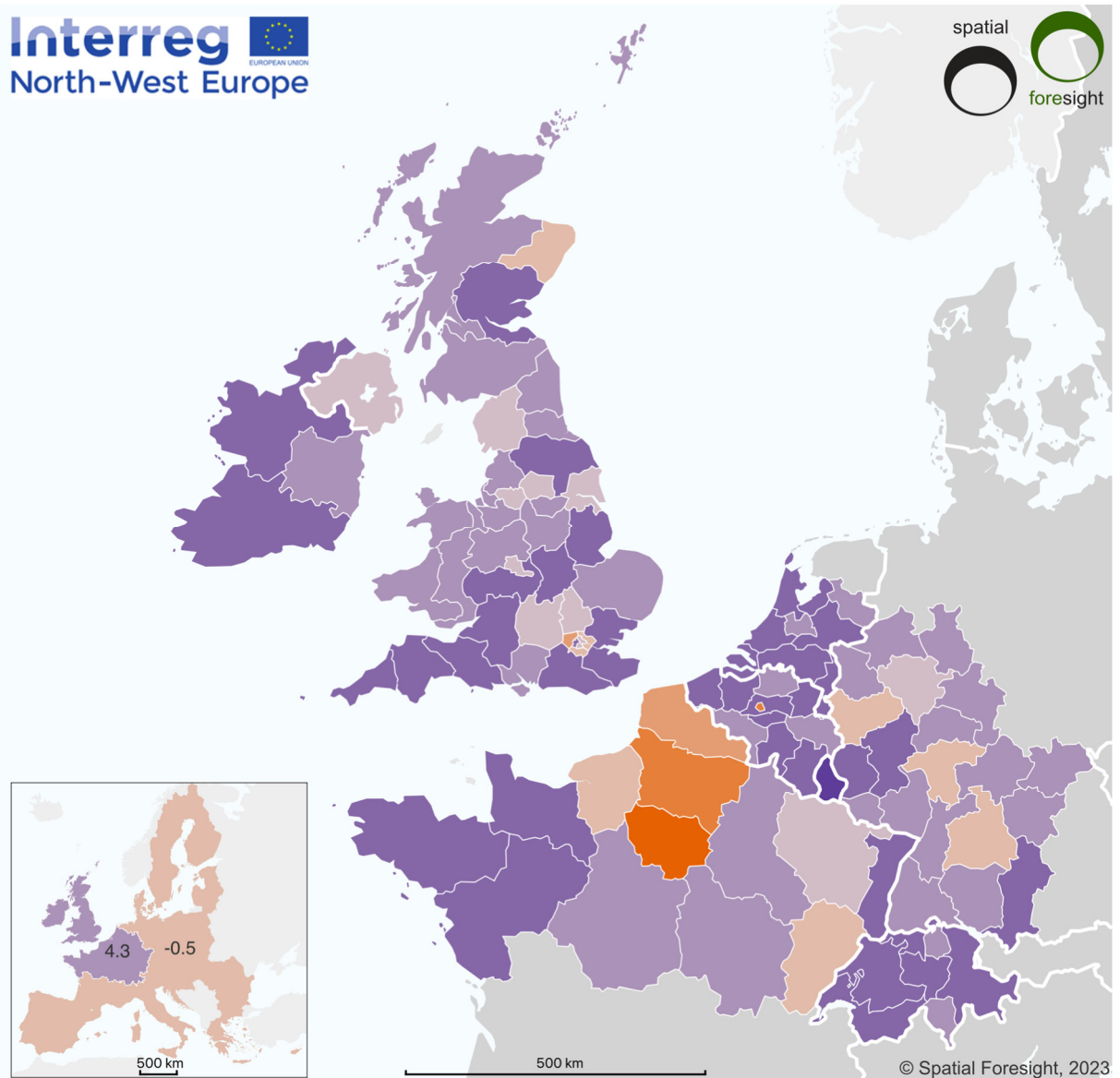
Difference in population change - crude net rate migration, between 2014 and 2021*



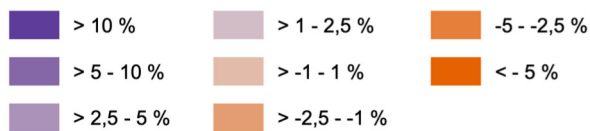
Source: own elaboration based on Eurostat [demo_r_gind3].
Administrative boundaries: Eurostat GISCO, NUTS 2 (2016).

Note: *Values for NUTS 2 regions UKM7, UKM8, and UKM9, refer to the difference in population change between 2012 and 2018. Values for all other regions in the UK refer to the difference in population change between 2014 and 2019, due to lack of data availability. The average of other EU regions' values refer to all EU regions except for those of the NWE Programme 2014-2020, and those for which there is no data available. The average of the NWE regions' values refers to all NWE Programme 2014-2020 regions, except those for which there is no data.

Map 2.12 Population change - crude net migration, 2021*



Population change - crude net rate migration, 2021*



Source: own elaboration based on Eurostat [demo_r_gind3].
Administrative boundaries: Eurostat GISCO, NUTS 2 (2016).

Note: *Values for NUTS 2 regions in the UK refer to year 2018, due to lack of data availability. The average of other European regions' values refer to all EU regions except for those of the NWE Programme 2014-2020, and those for which there is no data available. The average of the NWE regions' values refers to all NWE Programme 2014-2020 regions, except those for which there is no data.

Indicator: B3. Population at-risk-of-poverty

The NWE Programme average share of people at-risk-of-poverty increased (0.2%-points), but decreased (-0.7%-points) in the other EU regions between 2014 and 2020. In 2020, the NWE region average of 15.6%, was approximately 1.4%-points lower than EU average of 17%. Thus, the gap between NWE Programme regions and other regions in Europe decreased slightly.

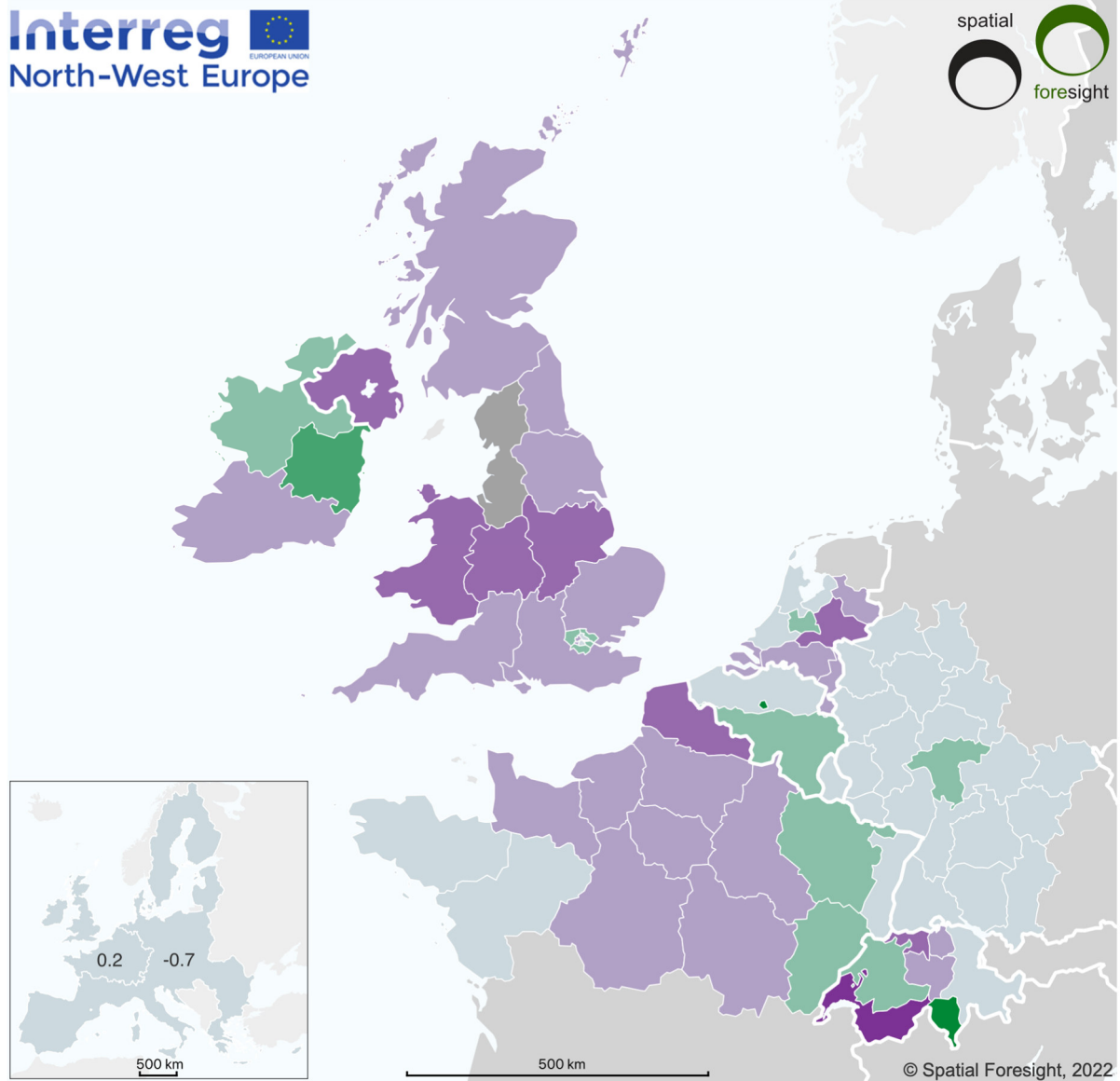
The change in NWE indicates more national than territorial influence. The regions with the greatest increase are Région lémanique (6.2%-points) and Nordwestschweiz (4.4%-points), in Switzerland. The largest reductions were in Région de Bruxelles-Capitale (-6.3%-points), in Belgium and Ticino (-5.8%-points) in Switzerland. However, both regions were still above the Programme average in 2020. Another region with a considerable reduction was Eastern and Midland Ireland (-5%-points), which was below NWE average in 2020.

In 2020, the regions with the largest share of population at-risk-of-poverty were Région de Bruxelles-Capitale (27.8%) in Belgium, and the West Midlands (27.7%), North East (26%) and Wales (25.2%) in the UK. Most regions with high rates of population at-risk of poverty are predominantly urban, some are intermediate. The high rates of population at-risk-of-poverty across the UK might be partially explained by the withdrawal from the EU. Nevertheless, the lowest rates of people at risk of poverty were also in the UK, in several regions of London, namely South (5.5%), East and North East (7.1%), and West and North West (8.3%), as well as in Flanders in Belgium (9.3%).

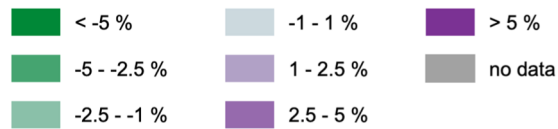
The range of values for this indicator reduced in the NWE region between 2014 and 2020, indicating decreased social disparities. While the lowest rates changed by only 1.1%-points, the highest decreased by more than 6%-points. However, in some parts of the NWE region the share increased, especially across most of the UK, large parts of France and the Netherlands. These developments contributed to the overall slight rise in the average share of people at-risk-of-poverty rate in the NWE region.

The rate and its change seem to be influenced by national conditions with similar changes in countries like Germany and Belgium and similar shares of people at-risk-of-poverty in French and Dutch regions.

Map 2.13 Change in population at-risk-of-poverty, 2014 – 2020, NUTS2, in %-points



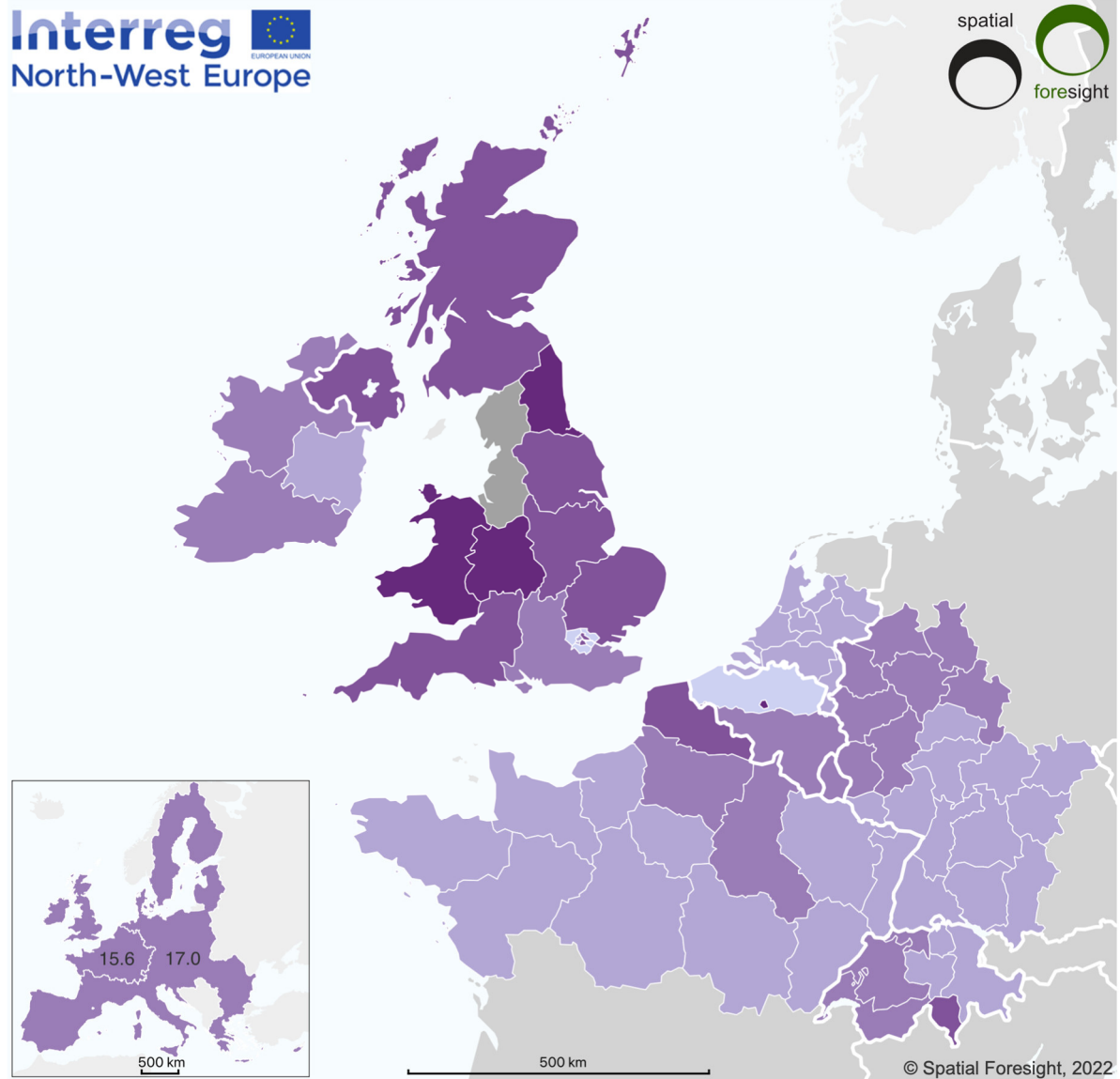
Change in people at-risk-of-poverty between 2014 and 2020



Source: own elaboration based on ESPON, "At-risk-of-poverty rate". Administrative boundaries: Eurostat GISCO, NUTS 2 and NUTS 1 (2016).

Note: Values for BE (BE1, BE2, BE3) and UK (UKC, UKE, UKF, UKG, UKH, UKI3, UKI4, UKI5, UKI6, UKI7, UKJ, UKK, UKL, UKM), are represented at NUTS 1 level, due to lack of data availability at NUTS 2 level. The average of other EU regions' values refer to all EU regions except for those of the NWE Programme 2014-2020, and those for which there is no data available. The average of the NWE regions' values refers to all NWE Programme 2014-2020 regions, except those for which there is no data.

Map 2.14 Population at-risk-of-poverty in 2020



People at-risk-of-poverty in 2020

- 5 - 10 %
- 15 - 20 %
- > 25 %
- 10 - 15 %
- 20 - 25 %
- no data

Source: own elaboration based on ESPON, "At-risk-of-poverty rate". Administrative boundaries: Eurostat GISCO, NUTS 2 and NUTS 1 (2016).

Note: Values for BE (BE1, BE2, BE3) and UK (UKC, UKE, UKF, UKG, UKH, UKI3, UKI4, UKI5, UKI6, UKI7, UKJ, UKK, UKL, UKM), are represented at NUTS 1 level, due to lack of data availability at NUTS 2 level. The average of other EU regions' values refer to all EU regions except for those of the NWE Programme 2014-2020, and those for which there is no data available. The average of the NWE regions' values refers to all NWE Programme 2014-2020 regions, except those for which there is no data.

Indicator: B4. Life expectancy

Life expectancy indicates the number of years a person might live to considering the current mortality conditions (age-specific probabilities of dying).

The NWE Programme region life expectancy average fell (-0.1 years) between 2014 and 2021, there was a bigger reduction in other EU regions (-0.8 years). This is most likely due to the COVID-19 pandemic. Even so, in 2021, life expectancy in the NWE regions (81.6 years) was approximately two years higher than in the other EU regions (79.5 years).

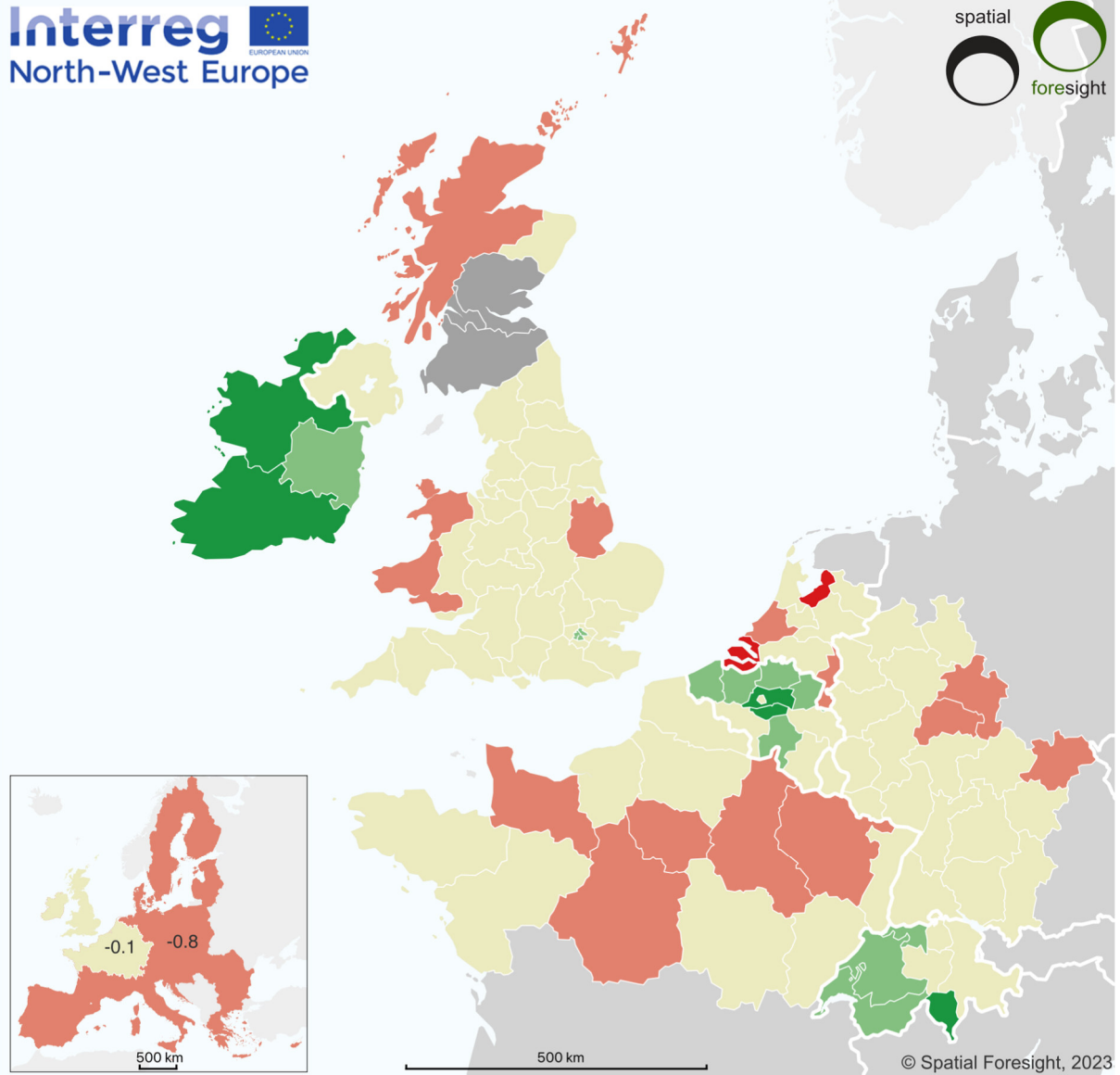
Contrary to most regions, between 2014 and 2021, Ireland experienced an increase in life expectancy, especially in Southern and in the Northern and Western regions, which are both predominantly rural, with an increase of 1.1 years each. Increases in life expectancy of one year or more were also seen in Belgium, in Brabant Wallon (1.4 years) and in Vlaams-Brabant (1 year) and in Switzerland, Ticino (1.1 years). The regions with the largest reductions in life expectancy are Zeeland (-1.5 years), and Flevoland (-1.2 years) in the Netherlands, and Lincolnshire (-1 year) and Highlands and Islands (-1 year) in the UK.

In 2021, the regions with the longest life expectancy in the NWE Programme area were Ticino (85.7 years), Région lémanique (84.8 years), and Zentralschweiz (83.9 years) in Switzerland, and Inner London – West (84.7 years) in the UK.

The regions with the shortest life expectancy were West Central Scotland (77.9 years), and Southern Scotland (79.2 years), in the UK; and Hainaut (79 years), in Belgium.

Life expectancy seems to be partially nationally driven, especially in Ireland, Switzerland and Belgium. The change between 2014 and 2021 increased disparities between the NWE Programme area and other EU regions. For the NWE Programme area the disparities in the overall variation of life expectancy seem to have slightly increased.

Map 2.15 Change in life expectancy of population less than one years old, 2014 - 2021*, NUTS 2



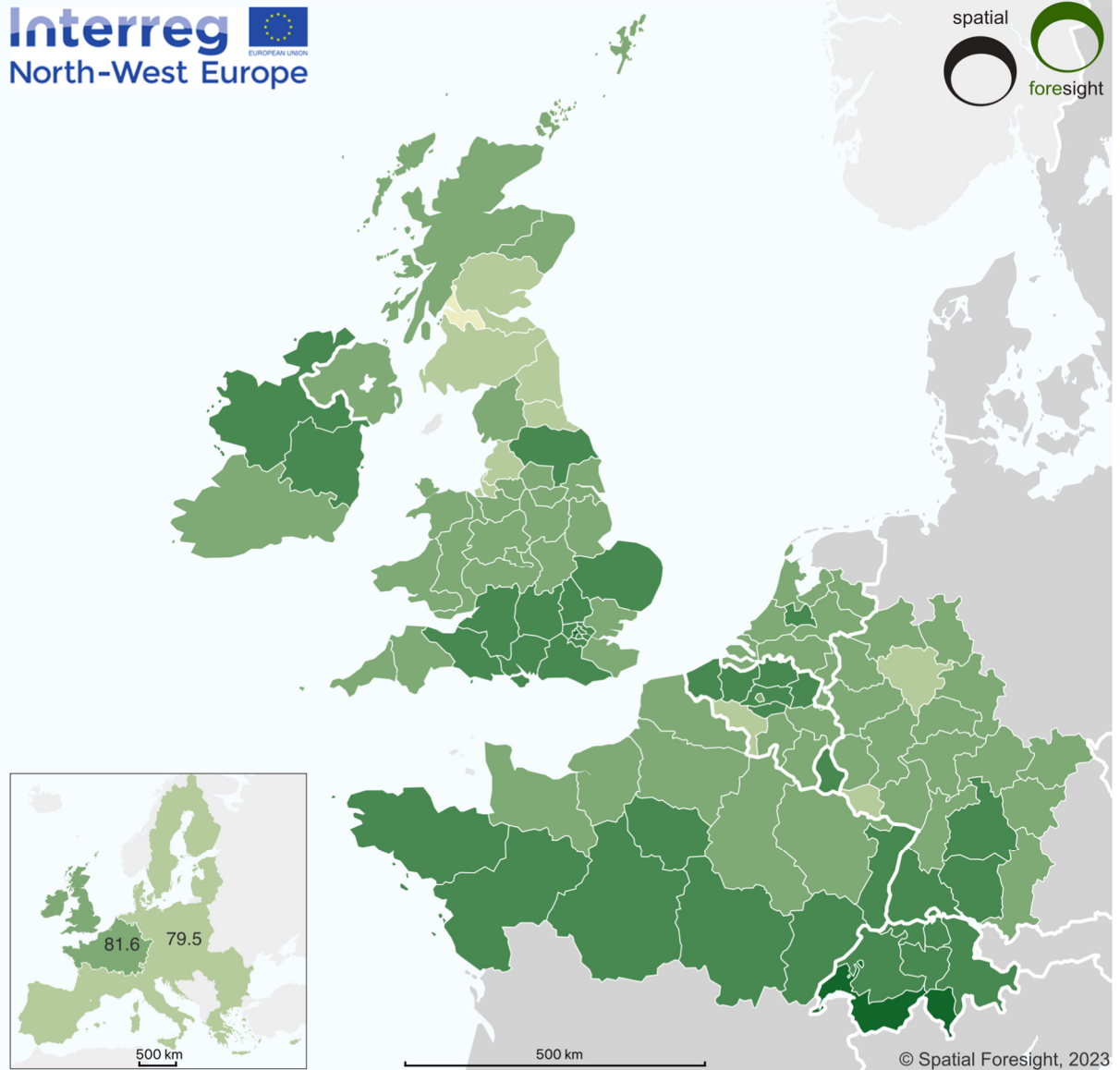
Change in life expectancy of population less than one year old, between 2014 and 2021*

- | | |
|--|--|
| ■ > 1 year | ■ -1 - -0.5 year |
| ■ > 0.5 - 1 year | ■ < -1 year |
| ■ > -0.5 - 0.5 year | ■ no data |

Source: own elaboration based on Eurostat [DEMO_R_MLIFEXP]. Administrative boundaries: Eurostat GISCO, NUTS 2 (2016).

Note: *Values for NUTS 2 regions UKC1, UKC2, UKD1, UKD3, UKD4, UKD6, UKD7, UKE1, UKE2, UKE3, UKE4, UKF1, UKF2, UKF3, UKG1, UKG2, UKG3, UKH1, UKH2, UKH3, UKI3, UKI4, UKI5, UKI6, UKI7, UKJ1, UKJ2, UKJ3, UKJ4, UKK1, UKK2, UKK3, UKK4, UKL1, UKL2, UKM5, UKM6, and UKN0 refer to the difference in population change between 2014 and 2018, due to lack of data availability. The average of other EU regions' values refer to all EU regions except for those of the NWE Programme 2014-2020, and those for which there is no data available. The average of the NWE regions' values refers to all NWE Programme 2014-2020 regions, except those for which there is no data.

Map 2.16 Life expectancy of population less than one year old in 2021*, NUTS 2



Life expectancy of population less than one year old in 2021*

- > 84 - 86 years
- > 82 - 84 years
- > 80 - 82 years
- > 78 - 80 years
- 76 - 78 years
- no data

Source: own elaboration based on Eurostat [DEMO_R_MLIFEXP]. Administrative boundaries: Eurostat GISCO, NUTS 2 (2016).

Note: *Values for NUTS 2 regions UKC1, UKC2, UKD1, UKD3, UKD4, UKD6, UKD7, UKE1, UKE2, UKE3, UKE4, UKF1, UKF2, UKF3, UKG1, UKG2, UKG3, UKH1, UKH2, UKH3, UKI3, UKI4, UKI5, UKI6, UKI7, UKJ1, UKJ2, UKJ3, UKJ4, UKK1, UKK2, UKK3, UKK4, UKL1, UKL2, UKM5, UKM6, and UKN0 refer to 2018, due to lack of data availability. The average of other EU regions' values refer to all EU regions except for those of the NWE Programme 2014-2020, and those for which there is no data available. The average of the NWE regions' values refers to all NWE Programme 2014-2020 regions, except those for which there is no data.

Indicator: B7. Individuals who use the internet for interaction with public authorities

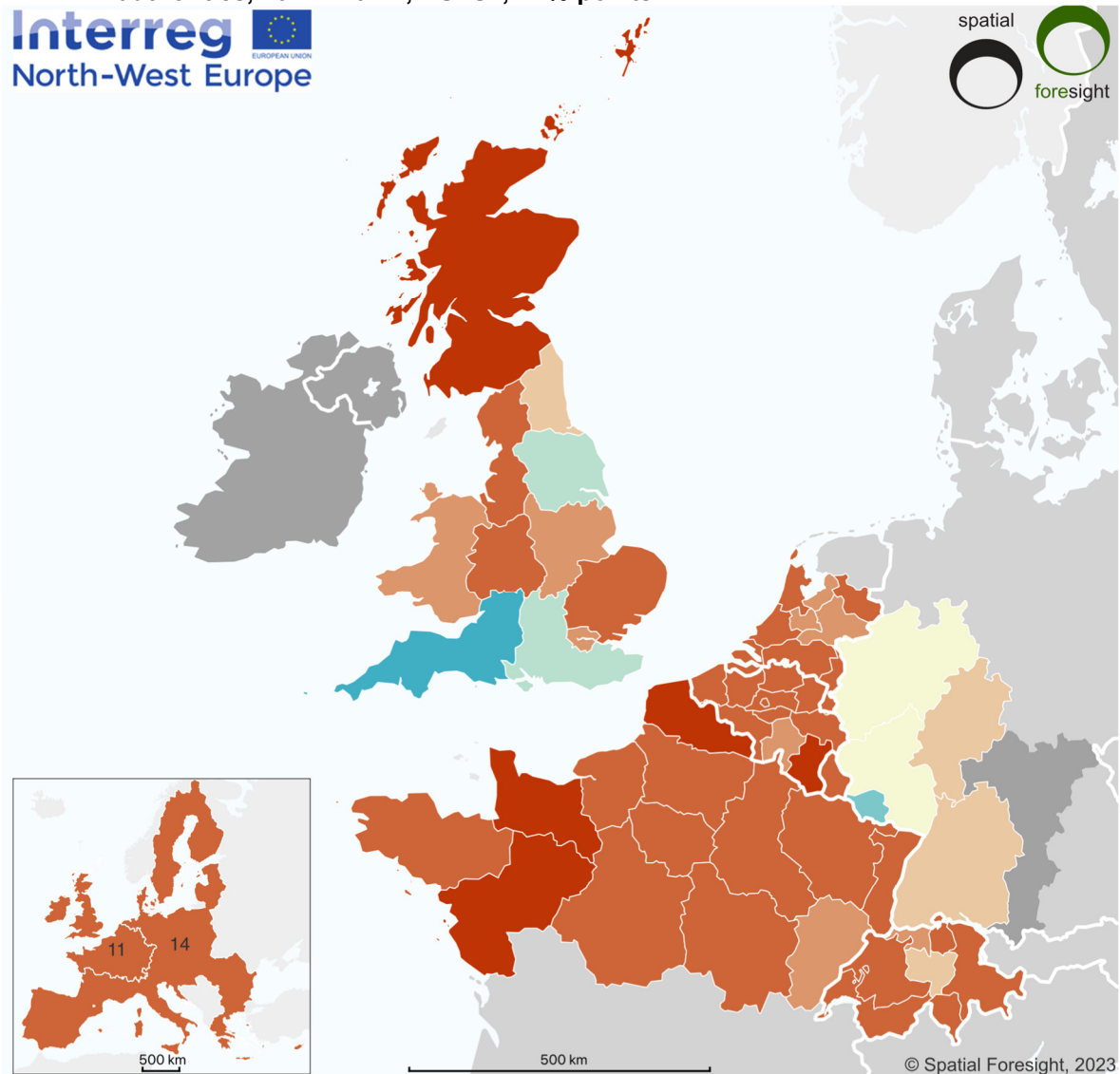
The NWE Programme regions saw an increase of about 11%-points in the share of population that used the internet for interaction with public authorities between 2014 and 2021. Other EU regions saw an even greater increase, of 14%-points. Even so, using the internet to communicate with public authorities was more common in the NWE Programme area (average 73%) than in other EU regions (60%) in 2021 but the disparity has decreased.

Between 2014 and 2021, the largest positive change was in Basse-Normandie (28.5%-points), followed by Nord-Pas de Calais (20.6%-points), both in France and Prov. Luxembourg (20.6%-points), in Belgium. The share of individuals using the internet for interaction with public authorities decreased in only a few regions. The most negative changes were Southwest of England (-13.5%-points), in the UK, and Saarland (-8.8%-points), in Germany. Only German and UK regions saw reduced internet use for interaction with public authorities.

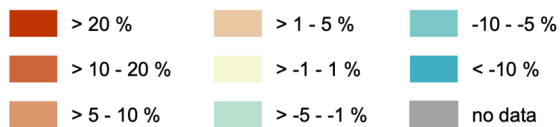
In 2021, Ireland had the highest rates of 90 to 92.4%. Utrecht and Zeeland, in the Netherlands were also close to 91%, and the other Dutch regions were 85 to 90%. The lowest rates were in the UK, Yorkshire and the Humber (42%), North East England (42.6%), and Wales (48.8%). Saarland, in Germany was also far below the average of 49.1%.

The pattern seems to be nationally driven, as this indicator depends on instruments and tools offered by the respective public authorities. Especially in the map for 2021, Ireland and Switzerland are leading, while Germany and the UK seem to be lagging. There are increasing disparities across all NWE regions. However, both lagging and leading countries saw mostly positive changes.

Map 2.17 Change in share of individuals who use the internet for interaction with public authorities, 2014 - 2021², NUTS2, in %-points



Change in the share of population that used the internet for interaction with public authorities between 2014 and 2021

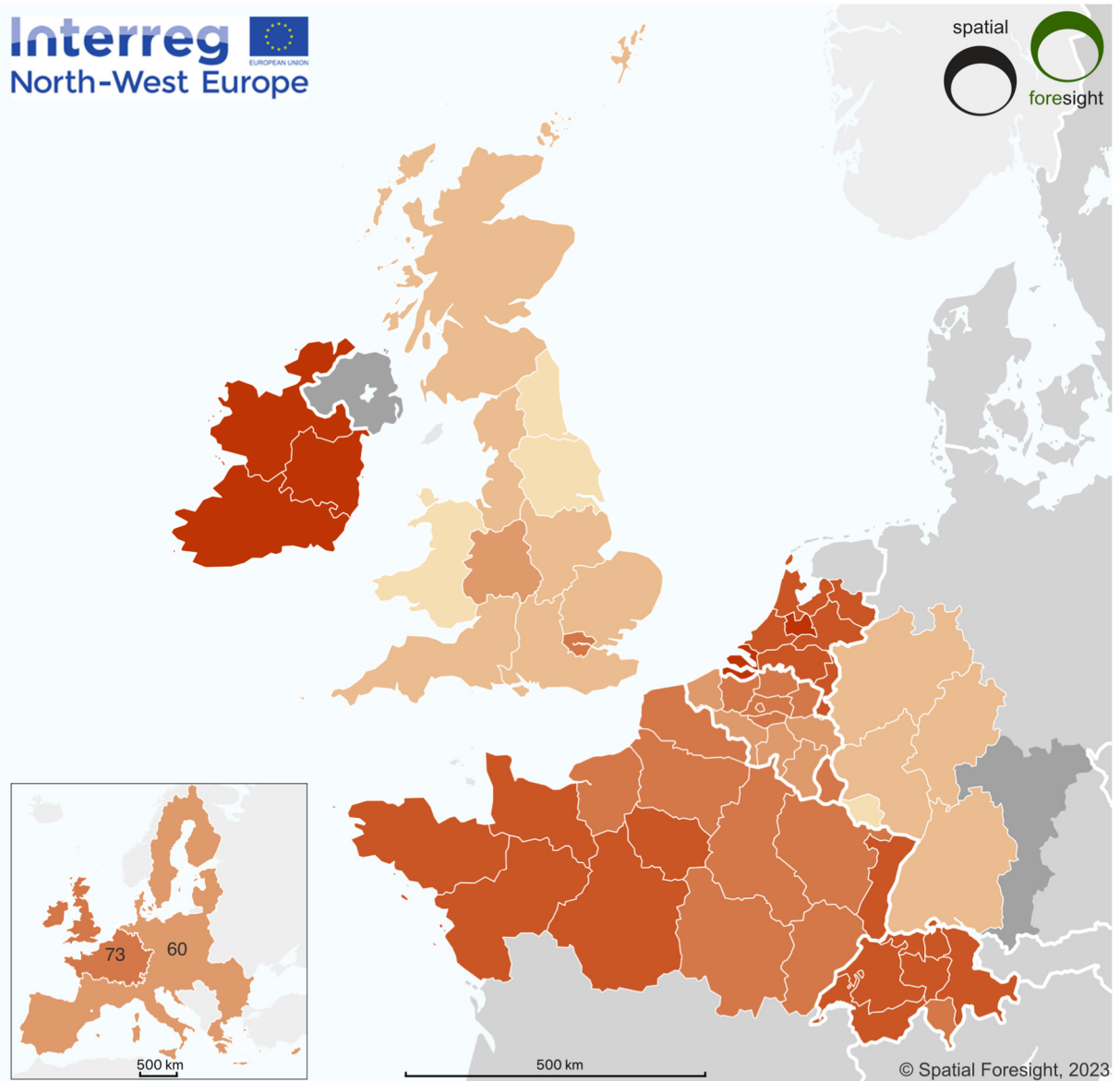


Source: own elaboration based on Eurostat [ISOC_R_GOV_I], share of population that used the internet for interaction with public authorities within the last 12 months of the year, in 2014 and in 2021. Administrative boundaries: Eurostat GISCO, NUTS 2 and NUTS 1 (2016).

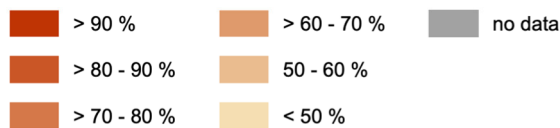
Note: values for the UK (UKC, UDK, UKE, UKF, UKG, UKH, UKI, UKJ, UKK, UKL, UKM, UKN, and UKD), and values for DE (DE1, DE7, DEA, DEB, and DEC), are represented at NUTS 1 level, due to lack of data availability at NUTS 2 level. The values for UKC, UKD, UKE, UKF, UKG, UKH, UKI, UKJ, UKK, UKL, and UKM, refer to the change between year 2014 and 2020, due to lack of data availability. The average of other EU regions' values refer to all EU regions except for those of the NWE Programme 2014-2020, and those for which there is no data available. The average of the NWE regions' values refers to all NWE Programme 2014-2020 regions, except those for which there is no data.

² Change was not calculated for Ireland because the 2014 data is available only at NUTS 2013, which is not comparable to the 2021 data, that is only available at NUTS 2016.

Map 2.18 Individuals who use the internet for interaction with public authorities, 2021



Share of population that used the internet for interaction with public authorities in 2021



Source: own elaboration based on Eurostat [ISOC_R_GOV_I], share of population that used the internet for interaction with public authorities within the last 12 months of the year, in 2021. Administrative boundaries: Eurostat GISCO, NUTS 2 and NUTS 1 (2016).

Note: values for the UK (UKC, UKD, UKE, UKF, UKG, UKH, UKI, UKJ, UKK, UKL, and UKM), and values for DE (DE1, DE7, DEA, DEB, and DEC), are represented at NUTS 1 level, due to lack of data availability at NUTS 2 level. The values for UKC, UKD, UKE, UKF, UKG, UKH, UKI, UKJ, UKK, UKL, and UKM, refer to the year 2020, due to lack of data availability. The average of other EU regions' values refer to all EU regions except for those of the NWE Programme 2014-2020, and those for which there is no data available. The average of the NWE regions' values refers to all NWE Programme 2014-2020 regions, except those for which there is no data.

Indicator: B8. Municipalities covered by the Covenant of Mayors

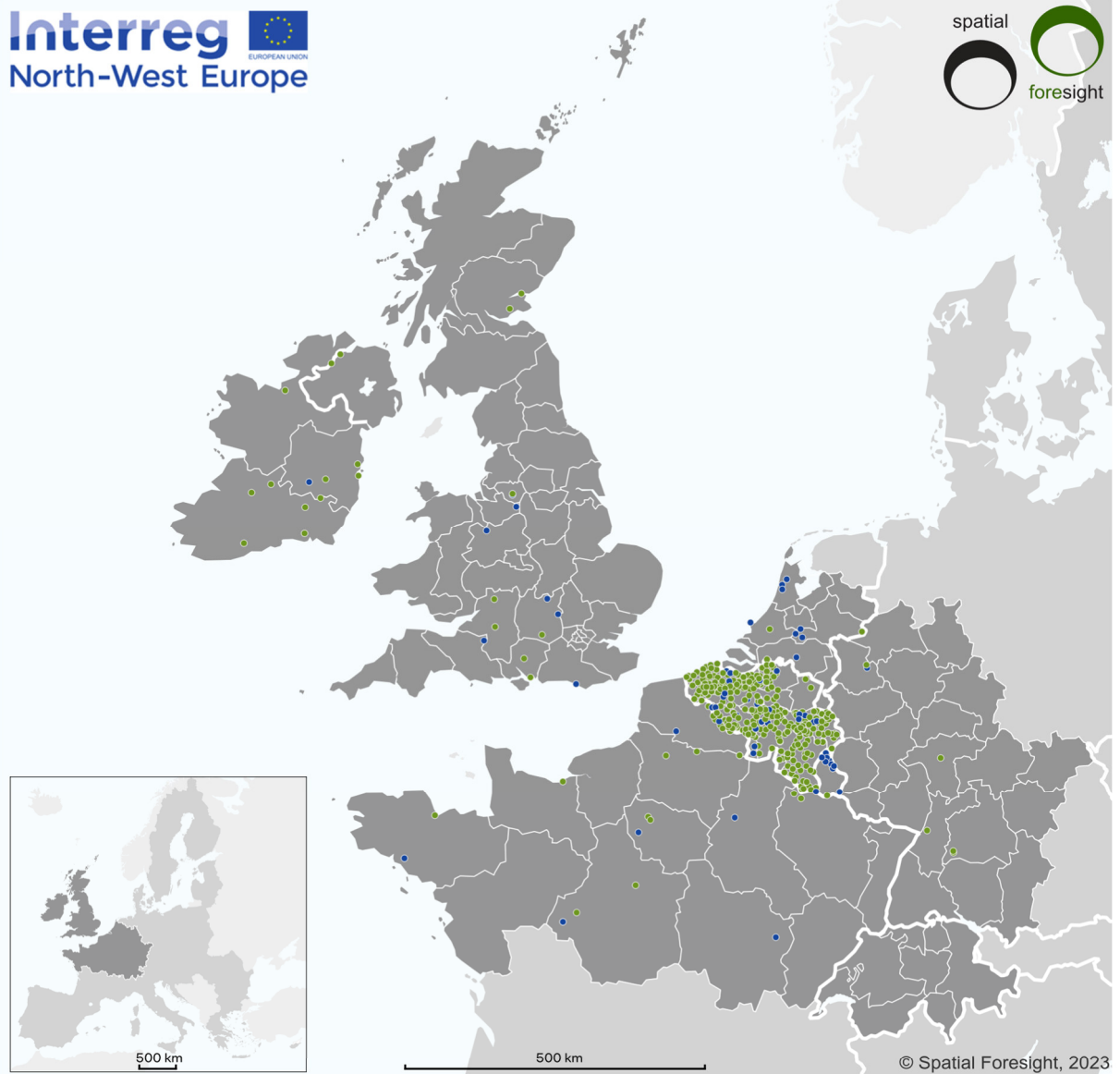
‘B8. Municipalities covered by the Covenant of Mayors’ illustrates areas that are protected by low carbon strategies. The dots in the map represent municipalities that are signatories.

Within the NWE Programme area, the most significant increase in the number of signatories between 2014 and 2021 was in Belgium. Nevertheless, all other countries in the region, apart from Switzerland, saw additional signatories.

In 2022, the most signatories were in Belgium, as in 2014. Germany, the UK, the Netherlands, and Switzerland still had NUTS 2 regions with no signatories, published or on hold, in 2022.

As mentioned in the August 2017 publication, this indicator is subject to national differences in settlement structures and definitions of cities. Still, there are NUTS 2 regions with no signatories in 2022, indicating territorial gaps for low carbon strategies. Due to the nature of the data, the NWE Programme cannot be compared to other EU countries.

Map 2.19 Change in municipalities covered by the Covenant of Mayors, 2014 - 2022, NUTS 2



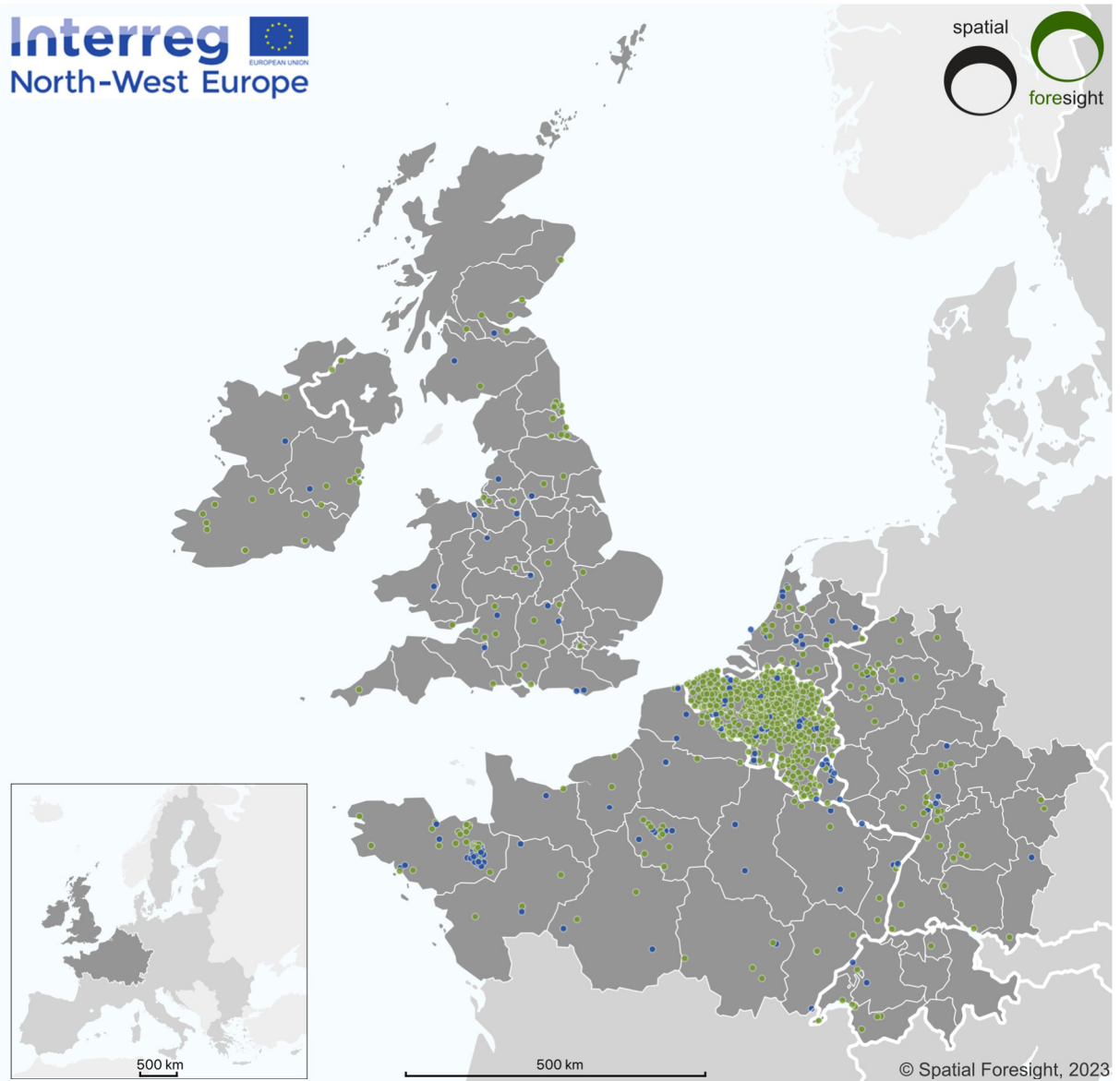
Change in municipalities covered by the Covenant of Mayors signatories between 2014 and 2022

- New signatories published
- New signatories on hold
- NWE Programme area

Source: own elaboration based on Baldi, Marta Giulia; Franco, Camilo; Melica, Giulia; Treville, Aldo; Bertoldi, Paolo. 2023. Global Covenant of Mayors - A complete collection of action plans and monitoring reports from MyCovenant reporting platform, Joint Research Centre (JRC) [Dataset ID 3rd Release - September 2022]. Administrative boundaries: Eurostat GISCO, NUTS 2 (2016).

Note: Each point represents a municipality registered by the Covenant of Mayors under a unique ID code, whether as an individual signatory or as a member of a group.

Map 2.20 Municipalities covered by the Covenant of Mayors in 2022, NUTS 2



Municipalities covered by the Covenant of Mayors signatories in 2022

Signatory status

- published
- on hold
- NWE Programme area

Source: own elaboration based on Baldi, Marta Giulia; Franco, Camilo; Melica, Giulia; Treville, Aldo; Bertoldi, Paolo. 2023. Global Covenant of Mayors - A complete collection of action plans and monitoring reports from MyCovenant reporting platform, Joint Research Centre (JRC) [Dataset ID 3rd Release - September 2022]. Administrative boundaries: Eurostat GISCO, NUTS 2 (2016).

Note: Each point represents a municipality registered by the Covenant of Mayors under a unique ID code, whether as an individual signatory or as a member of a group.

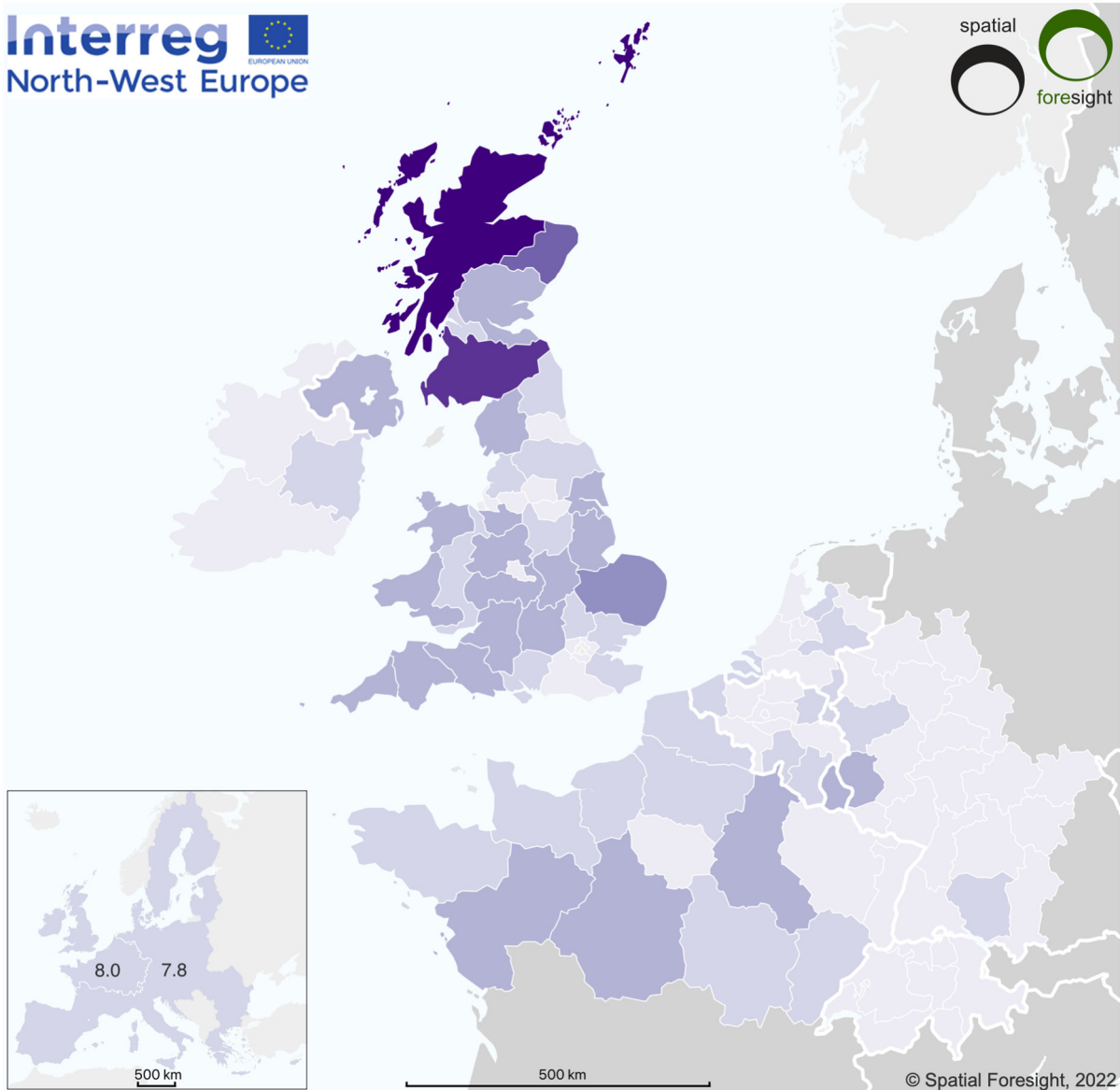
Indicator: B11. Change in land-use towards artificial surfaces

The Corine Land Cover (CLC) Change Layer 2012-2018 is the base of the 'Change in land-use towards artificial surfaces' indicator. The Change Layer 2012-2018 is the latest version available, with changes computed by remote sensing. For this indicator, we considered only higher levels of artificial surfaces. The change was calculated in relation to population in 2018.

Despite the high degree of urbanisation in large parts of the NWE Programme area, artificial land use increased more than in other EU regions. The average increase towards artificial surfaces in the NWE Programme area (8m²/capita) was slightly above the average for other EU countries (7.8m²/capita) between 2012 and 2018.

Within the Programme area, Switzerland had least change, all its regions were below 3m²/capita, except for Trier (10m²/capita). Change in Germany was also considerably below the Programme area average. The UK suffered changes way above the average in Highlands and Islands (89.2m²/capita), Southern Scotland (65.6m²/capita) and North Eastern Scotland (45.8m²/capita), regions that are predominantly rural or intermediate. Due to the typically high share of artificial land and combined with a higher population, predominantly urban regions suffered less from increased artificial land use.

Map 2.21 Change in land-use towards artificial surfaces, 2012 - 2018, NUTS 2



Change in land use to artificial surface, between 2012 and 2018, at NUTS 2



Source: own elaboration based on Copernicus Land Monitoring Service, Corine Land Cover CHA 2012-2018, European Environment Agency (EEA). Administrative boundaries: Eurostat GISCO, NUTS 2 (2016).

Note: change to artificial surfaces, clc_codes 111, 112, 121, 123, 124, 131, 132, 133, 141 and 142. The average of other EU regions' values refer to all EU regions except for those of the NWE Programme 2014-2020, and those for which there is no data available. The average of the NWE regions' values refers to all NWE Programme 2014-2020 regions, except those for which there is no data.

Indicator: B11. Change in land-use from artificial surfaces towards more natural surfaces

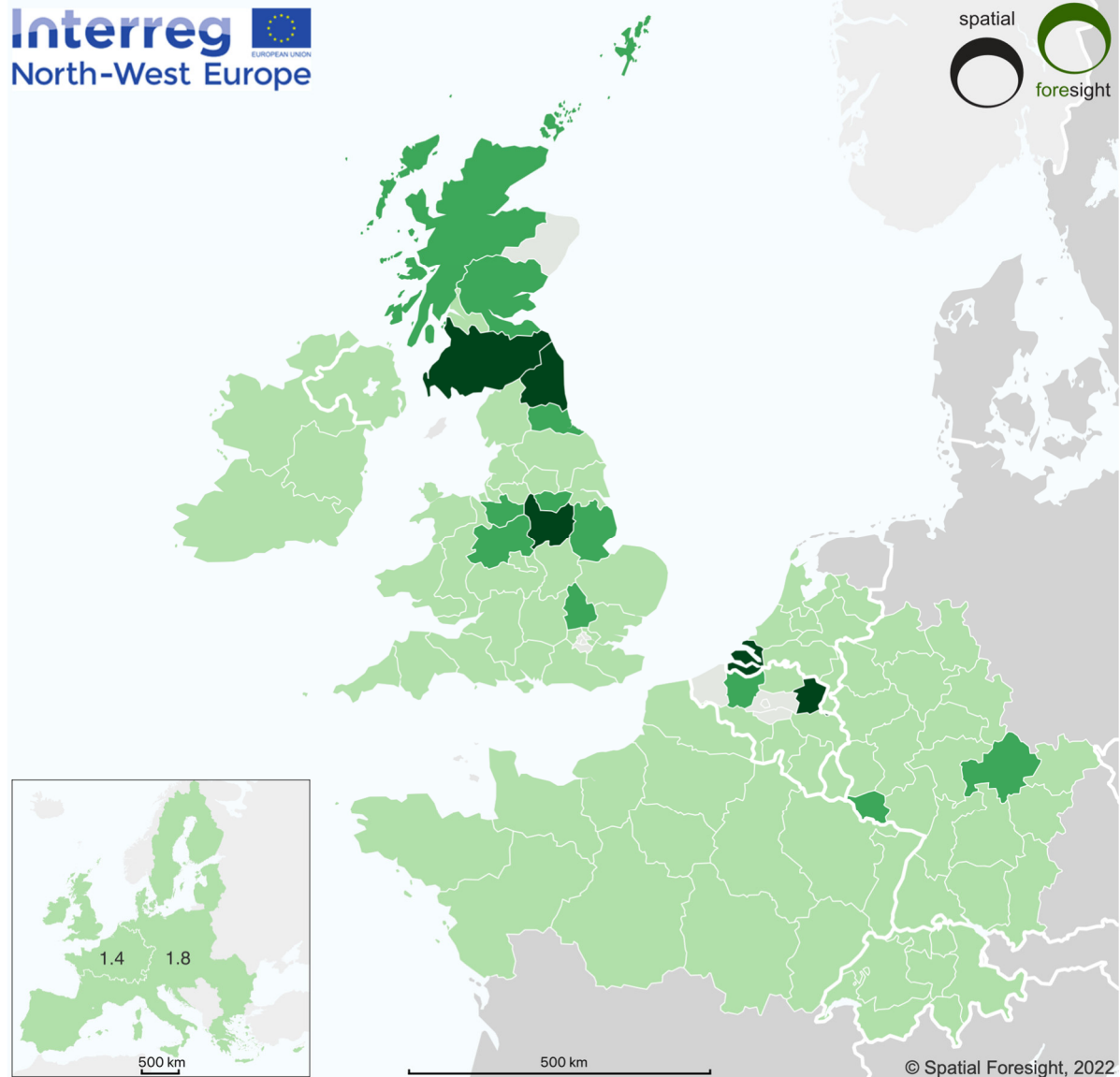
The Corine Land Cover (CLC) Change Layer 2012-2018 change is also the base of the 'Change in land-use towards more natural surfaces' indicator. For this, we considered only increases in natural surfaces. The change was calculated in relation to population in 2018.

The average change from artificial surfaces towards more natural surfaces of the NWE Programme regions (1.4 m²/capita) was lower than for other EU regions (1.8m²/capita) between 2012 and 2018.

Within the NWE Programme region, Zeeland (7m²/capita) in the Netherlands, and Southern Scotland (7m²/capita) had the largest changes. They are both intermediate regions. Limburg (5.8m²/capita), in Belgium, Derbyshire and Nottinghamshire (5.5m²/capita), in the UK, and Northumberland and Tyne and Wear (5.4m²/capita), also in the UK, had the next highest values. These are all predominantly urban regions. For most other regions the change was less significant. No change was registered in Région de Bruxelles-Capitale, Vlaams-Brabant, and West-Vlaanderen, in Belgium, or in East and West Inner London, Outer London, and North Eastern Scotland in the UK, regions that are predominantly urban or intermediate.

It seems that urban and intermediate regions gained back more natural surface per capita, moving towards more sustainable land cover. However, the rate was still very inferior to the move towards artificial surfaces in the NWE Programme area (see Indicator: B11. Change in land-use towards artificial surfaces).

Map 2.22 Change in land-use towards more natural surfaces, 2012 - 2018, NUTS 2



Change in land use from artificial surface, between 2012 and 2018, at NUTS 2



Source: own elaboration based on Copernicus Land Monitoring Service, Corine Land Cover CHA 2012-2018, European Environment Agency (EEA). Administrative boundaries: Eurostat GISCO, NUTS 2 (2016).

Note: change from artificial surfaces to agricultural areas, forest and seminatural areas, wetlands, and water bodies. The average of other EU regions' values refer to all EU regions except for those of the NWE Programme 2014-2020, and those for which there is no data available. The average of the NWE regions' values refers to all NWE Programme 2014-2020 regions, except those for which there is no data.

Indicator: B12. Annual road freight transport

This indicator is based on the Eurostat dataset 'National road freight transport by region of unloading' in 2014 and 2022. This data is only available at NUTS 3 level and was aggregated to NUTS 2 level. The original data is not available for some NUTS 3 regions, therefore, aggregation data is incomplete for a few NUTS 2 regions.

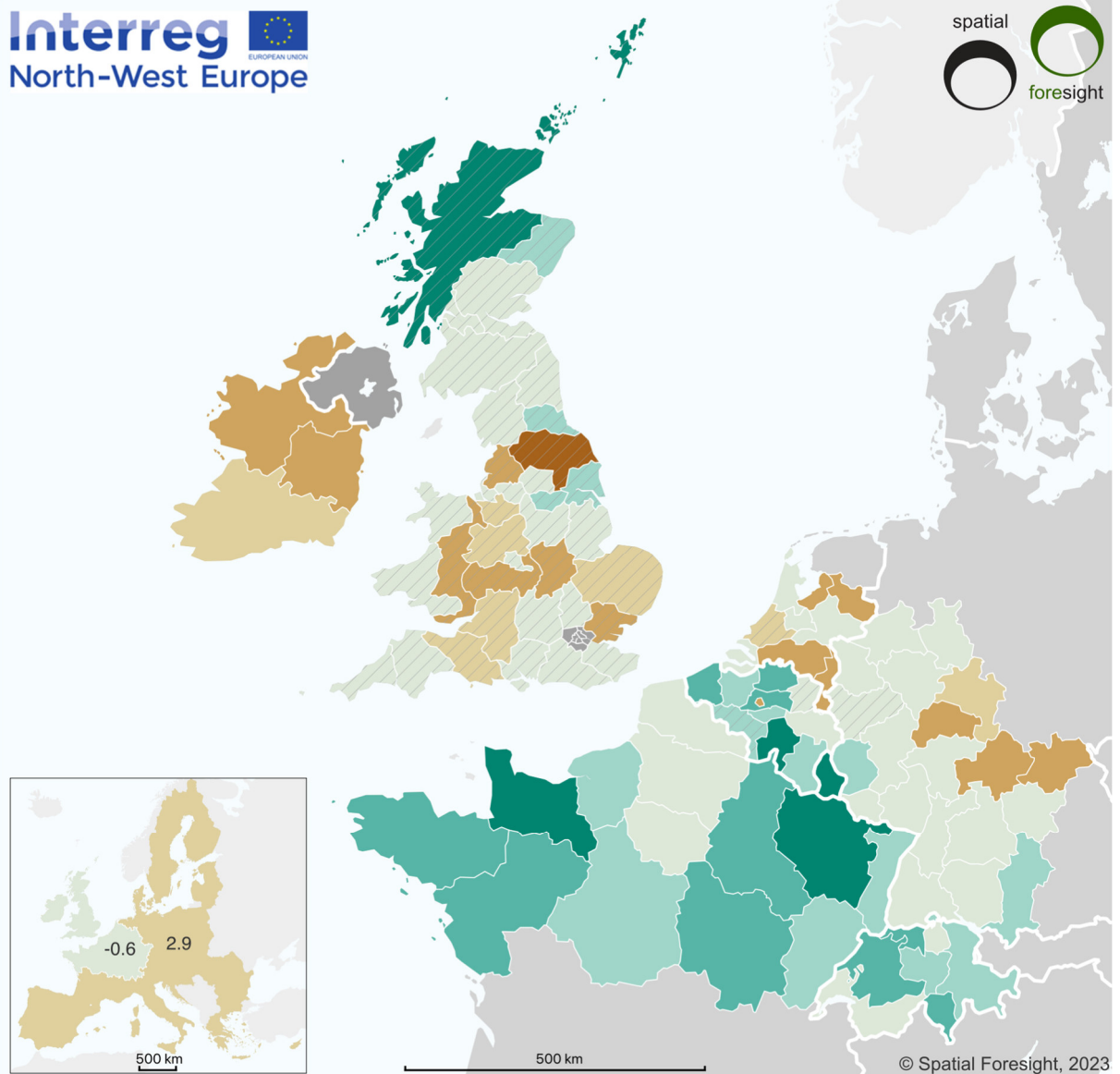
The NWE Programme region has seen a reduction in road freight transport (-0.6 tonnes/capita) between 2014 and 2022, while the average for other EU regions rose (2.9 tonnes/capita). In 2022, the NWE Programme area was slightly less dependent on the road freight transport (28 tonnes/capita) than other EU regions (30 tonnes/capita) in 2021.

Between 2014 and 2022, Luxembourg has the largest reduction (-21.4 tonnes/capita), followed by Namur (-12.4 tonnes/capita) in Belgium, and Highlands and Islands (-12.2 tonnes/capita) in the UK, all intermediate or predominantly rural regions. The largest increases were in the UK, in North Yorkshire (14.6 tonnes/capita), Leicestershire, Rutland and Northamptonshire (8.1 tonnes/capita), and Herefordshire, Worcestershire and Warwickshire (7.8 tonnes/capita); and in Région de Bruxelles-Capitale (9.2 tonnes/capita) in Belgium, regions that are intermediate or predominantly urban.

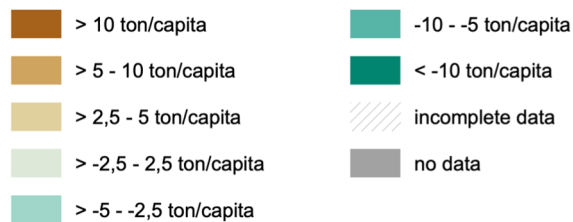
In 2022, the NUTS 2 regions with the highest values were predominantly rural, these are Kassel (52.5 tonnes/capita), Unterfranken (48.3 tonnes/capita), and Koblenz (45.3 tonnes/capita) in Germany, and Zentralschweiz, in Switzerland (45.3 tonnes/capita). The regions with the lowest values are predominantly urban, East (6.1 tonnes/capita) and West (7.4 tonnes/capita) Inner London, and South Outer London (7.7 tonnes/capita) in the UK.

The changes in this indicator seems nationally driven. Both Ireland and France had similar changes as to a lesser extent did most other countries in the NWE Programme area, except the UK. The changes also seem to be driven by typology, as predominantly urban areas saw higher increases, while predominantly rural areas showed the largest decreases. Between 2014 and 2022 the changes were uneven across the NWE Programme area, with an only slight reduction of about 1 tonne/capita between highest and lowest.

Map 2.23 Change in annual road freight transport, 2014 - 2022, NUTS 2



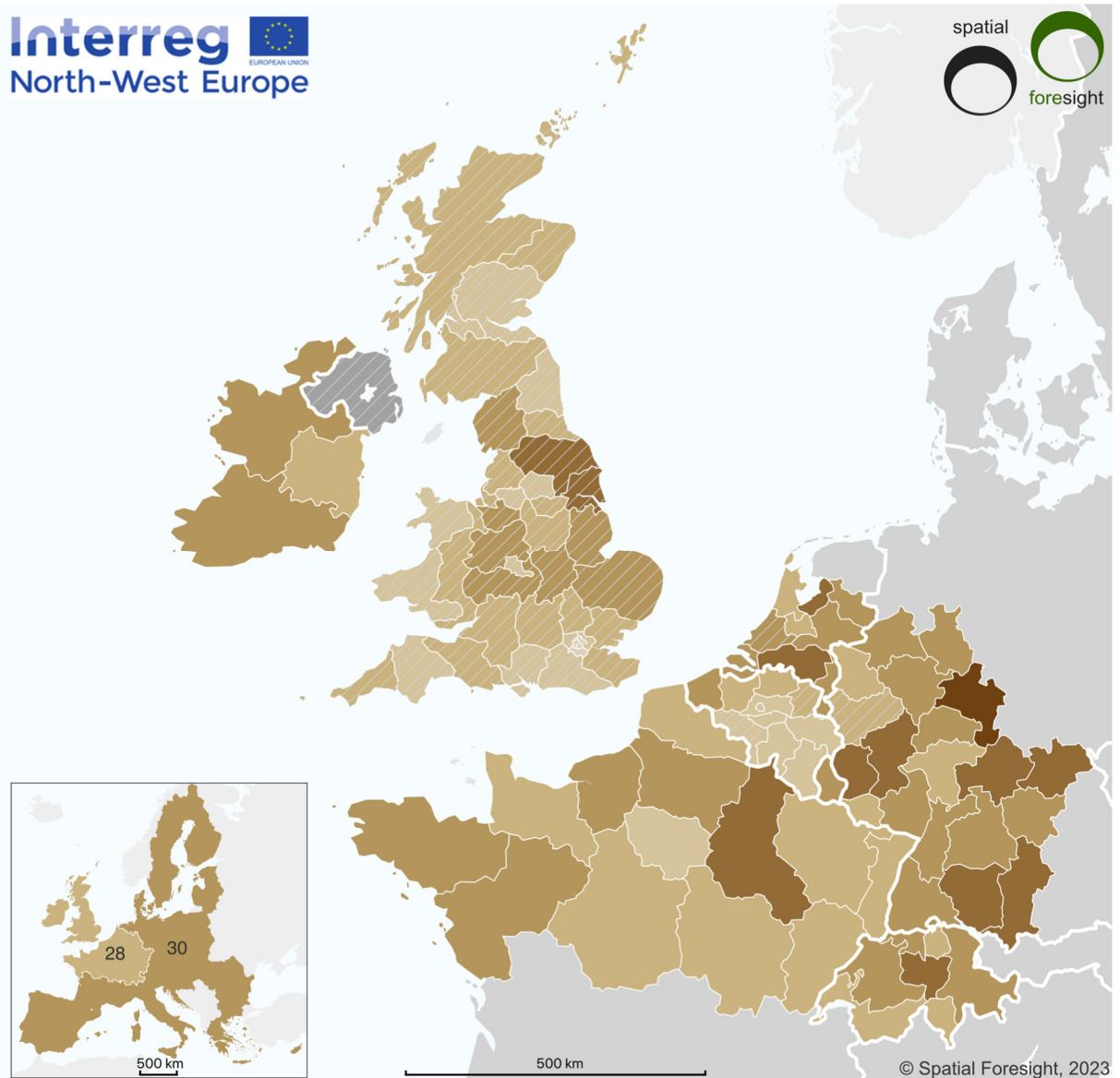
Change in annual road freight transport in between 2014 and 2022, at NUTS 2



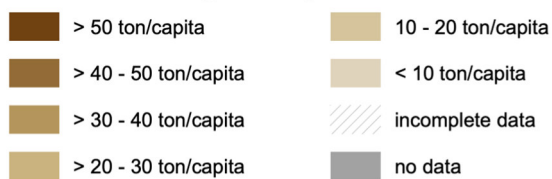
Source: own elaboration based on Eurostat [road_go_na_ru3g]. Administrative boundaries: Eurostat GISCO, NUTS 2 (2016).

Note: *Values for UKC1, UKC2, UKD1, UKD3, UKD4, UKD6, UKD7, UKE1, UKE2, UKE3, UKE4, UKF1, UKF2, UKF3, UKG1, UKG2, UKG3, UKH1, UKH2, UKH3, UKJ1, UKJ2, UKJ3, UKJ4, UKK1, UKK2, UKK3, UKK4, UKL1, UKL2, UKM5, UKM6, UKM7, UKM8, and UKM9, refer to the change between 2014 and 2019, due to lack of data availability. The average of other EU regions' values refer to all EU regions except for those of the NWE Programme 2014-2020, and those for which there is no data available. The average of the NWE regions' values refers to all NWE Programme 2014-2020 regions, except those for which there is no data.

Map 2.24 Annual road freight transport in 2022*, NUTS 2



Annual road freight transport in 2022* at NUTS 2



Source: own elaboration based on Eurostat [road_go_na_ru3g]. Administrative boundaries: Eurostat GISCO, NUTS 2 (2016).

Note: *Values for UKC1, UKC2, UKD1, UKD3, UKD4, UKD6, UKD7, UKE1, UKE2, UKE3, UKE4, UKF1, UKF2, UKF3, UKG1, UKG2, UKG3, UKH1, UKH2, UKH3, UKJ1, UKJ2, UKJ3, UKJ4, UKK1, UKK2, UKK3, UKK4, UKL1, UKL2, UKM5, UKM6, UKM7, UKM8, and UKM9, refer to year 2019, due to lack of data availability. The average of other EU regions' values refer to all EU regions except for those of the NWE Programme 2014-2020, and those for which there is no data available. The average of the NWE regions' values refers to all NWE Programme 2014-2020 regions, except those for which there is no data.

2.3 Summary of the analysis

The NWE Programme area performed generally better than the rest of the EU in all Competitiveness Indicators ('C' in the table). However, disparities within the NWE Programme area are still high for all these indicators and in some cases may even have increased. Within the Balanced Development indicators ('B' in the table), the Programme area also performed better than the rest of the EU, with the exception of changes in land cover. As with the Competitiveness indicators, the Programme area had major disparities for most the Balanced Development indicators.

Table 2.2 Summary: Evolution of NWE in relation to the EU

Indicator	Situation in 2014	Situation in the latest year	Assessment of the change
C1. Intramural R&D expenditure	POSITIVE	POSITIVE	The change was similar so disparity remained the same.
C2. Well-educated economically active population	POSITIVE	POSITIVE	The change was positive in both areas, however stronger in the NWE Programme area.
C3. Innovative SMEs collaborating with others	POSITIVE	POSITIVE	The change was higher outside NWE regions; so the disparity slightly reduced.
C4. Employment rate in technology and knowledge-intensive sector	POSITIVE	POSITIVE	The change was similar between NWE and other EU regions; maintaining the disparities.
B1. Employment rate	POSITIVE	POSITIVE	Positive change was stronger in other EU regions, however, the NWE baseline was higher in 2014 and remained higher in 2022.
B2. Population change - crude net migration	POSITIVE	POSITIVE	The NWE average increased and was positive in 2021 compared to a negative average for the other EU regions; increasing the disparities.
B3. People at risk of poverty	POSITIVE* analysed with national data	POSITIVE	Even though there was an increase in people at-risk-of-poverty across NWE regions, in 2020 the average was still lower than for other EU regions.
B4. Life expectancy	POSITIVE	POSITIVE	There was a decrease across NWE regions, as well as other EU regions, however the stronger decrease in other EU regions means average NWE life expectancy remains higher than the other EU regions and the distance has increased.
B7. Individuals who used internet for interaction with public authorities	POSITIVE	POSITIVE	The change was greater in other EU regions, however, the NWE average remains higher.
B8. Municipalities covered by the Covenant of Mayors	Not possible to measure	Not possible to measure	Not possible to measure due to the shift to regional data for NWE.
B11. Change in land-use towards artificial surface	POSITIVE	NEGATIVE	The change in land use towards artificial surfaces increased in the NWE and other EU regions, however the NWE average exceeded the EU average.
B11. Change in land-use from artificial surface	N/A *new Indicator	NEGATIVE	Positive change has been stronger in the other EU regions.
B12. Annual road freight transport	NEGATIVE	POSITIVE	There has been a decrease in average road freight transport in NWE compared to an increase in other EU regions, reversing the relationship between the NWE area and other EU regions.

Table 2.3 Summary: Evolution of NWE within itself

Indicator	Disparities in 2014	Disparities in latest year	Assessment of the change
C1. Intramural R&D expenditure	HIGH	HIGH	The changes had a significant negative impact in different countries, reducing cohesion.
C2. Well-educated economically active population	HIGH	HIGH	The changes seem to have no significant effects on cohesion in NWE.
C3. Innovative SMEs collaborating with others	HIGH	HIGH	A general positive change that reduced disparities between regions.
C4. Employment rate in technology and knowledge-intensive sector	HIGH	HIGH	Changes were uneven across the territory, reducing cohesion.
B1. Employment rate	HIGH	MEDIUM	Change was mostly positive.
B2. Population change - crude net migration	MEDIUM	MEDIUM	Change very different across the NWE territory but with a slight shift towards more balanced migration.
B3. People at risk of poverty	MEDIUM	MEDIUM	Reductions in NWE regions, with a slight decrease in social disparities.
B4. Life expectancy	HIGH	HIGH	Life expectancy variation increased across NWE regions, implying rising disparities.
B7. Individuals who used internet for interaction with public authorities	MEDIUM	HIGH	Change differed across the regions. Despite some reductions, especially in the UK, the general change was positive. However, disparities have increased.
B8. Municipalities covered by the Covenant of Mayors	MEDIUM	HIGH	Change was uneven across the regions with an outstanding increase in Belgium, resulting in more disparities.
B11. Change in land-use towards artificial surface	HIGH	HIGH	Very large differences in artificial surface increases across the Programme area.
B11. Change in land-use from artificial surface	N/A	LOW	Change was stronger in a few regions, but small for the large majority.
B12. Annual road freight transport	HIGH	HIGH	Changes uneven across the territory, with only slightly reduced disparities.

The latest situation is generally positive in the Programme area compared to other EU regions. However, the rate of change was not always even. For a few indicators, the distance between the NWE Programme area and the rest of the EU has decreased (e.g.: employment, people at risk of poverty, use of internet for interaction with public authorities). This indicates a possible loss of competitive advantages for the Programme area, compared to the rest of the EU or more balanced development between NWE and other parts of the EU.

Within the NWE Programme area, there were big differences for most of the latest indicator values. Even though some became more balanced, for others strong national patterns remain.

Table 2.4 Summary: Evolution of indicators in NWE according to type of regions

Indicator	Analysis
C1. Intramural R&D expenditure	The biggest investments are generally in intermediate and predominantly urban regions , with a few exceptions in rural regions .
C2. Well-educated economically active population	Predominantly urban and intermediate regions tend to have high values for this indicator, especially in the capitals. Even though some predominantly rural regions had high values for 2022, most of these regions were below the NWE average. The UK suffered the only negative changes; however, it still has the highest values. Ireland has high values across all regions.
C3. Innovative SMEs collaborating with others	Strong national patterns across the UK, Ireland, the Netherlands, and Belgium. This indicator seems to be influenced by national business structures.
C4. Employment rate in technology and knowledge-intensive sector	Predominantly urban and intermediate regions tend to have higher values for HTC employment. There are exceptions among predominantly rural regions that also have high values. Ireland has a generally high level across the entire country, even rural regions.
B1. Employment rate	The distribution of economically active people across Switzerland was generally high and uniform in 2022. This tends to correlate with patterns of economic and business activity in predominantly urban regions , with some predominantly rural region exceptions in Germany.
B2. Population change - crude net migration	Predominantly urban regions, especially capital cities, suffered more from out-migration and/or reduced in-migration from 2014 to 2021. There is generally positive migration in Luxembourg, Ireland, Switzerland.
B3. People at risk of poverty	The rate seems to be nationally driven. It is uniform across the Netherlands and very diverse in Belgium. It is considerably higher in the UK, possibly influenced by Brexit.
B4. Life expectancy	This indicator seems to be nationally driven. Ireland had generally positive changes and high life expectancy in 2021 across all regions. Switzerland also had relatively uniform life expectancy across all regions, though the change between 2014 and 2021 showed some diversity. Much of the French territory saw strong negative change.
B7. Individuals who used internet for interaction with public authorities	High values across all of Ireland, the Netherlands and Switzerland. Low values in Germany and UK. The patterns seem to be nationally driven, as the interaction depends on instruments and tools offered by the respective public authorities.
B8. Municipalities covered by the Covenant of Mayors	It is not possible to draw precise conclusions as this data is subject to national differences in settlement structures and definitions of signatories. However, some NUTS 2 regions in the UK, the Netherlands, Switzerland, and Germany still had no signatories in 2022, while all Belgium regions are now covered.
B11. Change in land-use towards artificial surface	Predominantly urban regions has less change, while high values were observed for intermediate and predominantly rural regions. Change in Switzerland was very uniform with very low values, as in Ireland and the Netherlands. Scotland had extremely big changes.
B11. Change in land-use from artificial surface	The highest rates of change in land-use from artificial surface were in a few predominantly urban and intermediate regions. The change was low and uniform across all regions in France, Switzerland and Ireland. Scotland had the highest variation across regions.
B12. Annual road freight transport	Predominantly urban regions saw the highest increases between 2014 and 2022. Predominantly rural showed the largest decreases, however with the highest values in 2022. Intermediate regions were in both groups, with high increases as well as high decreases in road freight transport. The change was very different between the countries. The extremes were Ireland with a strong increase, and France with a strong decrease.

2.4 Conclusions

Similar to the 2017 Task 4 report, most indicators show high territorial disparities in the NWE area which require action from the Programme and other stakeholders. Compared to other EU regions, the NWE Programme area performance is generally positive, though relative advantages decreased for some indicators between 2014 and 2020 (or the latest data).

Indicators related to **technology and innovation** showed increased disparities compared to the 2014 baseline, reducing cohesion. These are ‘C1. Intramural R&D expenditure’ and ‘C4. Employment rate in technology and knowledge-intensive sector’. **Disparities of social and health indicators**, ‘B3. Population at-risk-of-poverty’, and ‘B4. Life expectancy’ differed, less disparities for the first and more for the second. These indicators might have been affected by external influences, such as the COVID-19 pandemic and Brexit. The indicator ‘B2. **Population change**’ might also have been influenced by these external events, but showed **more cohesion** as migration flows became more evenly spread across the region. Some **environment** indicators highlighted **increase disparities**. Indicator ‘B11. Change in land-use towards artificial surface’ demonstrated **increased disparities** and seems to be

subject to national influences. The indicator 'B12. Annual road freight transport' showed uneven changes across the NWE territory, but with no considerable changes to the disparities.

The NWE area performed better for some **economic** indicators in terms of cohesion. These indicators are 'C3. Innovative SMEs collaborating with others', and 'B1. Employment rate'. Indicator 'C2. Share of well-educated economically active population' did not show significant effects on cohesion in the area.

The analysis, however, is subject to limited data availability and is, therefore, a reflection of what it is *possible* to evaluate at the moment. In addition, the NWE region is also subject to major external events that influence all the indicators.