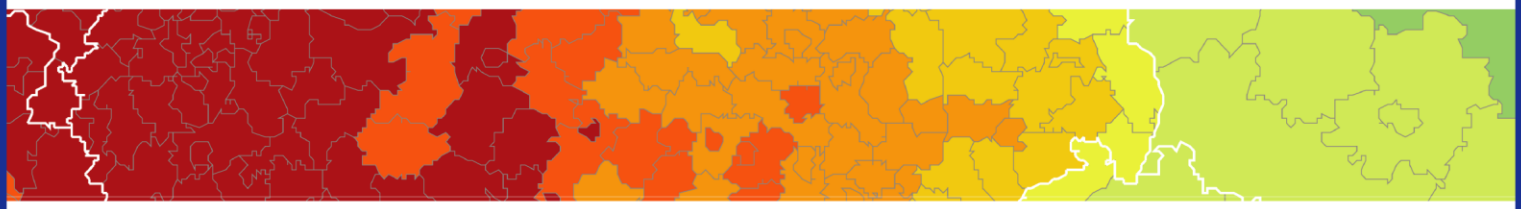

ESPON QoL – Quality of Life Measurements and Methodology

Applied Research

Inception Report

Inception Report

This applied research activity is conducted within the framework of the ESPON 2020 Cooperation Programme.

The ESPON EGTC is the Single Beneficiary of the ESPON 2020 Cooperation Programme. The Single Operation within the programme is implemented by the ESPON EGTC and co-financed by the European Regional Development Fund, the EU Member States and the Partner States, Iceland, Liechtenstein, Norway and Switzerland.

This delivery does not necessarily reflect the opinion of the members of the ESPON 2020 Monitoring Committee
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Inception Report

ESPON QoL – Quality of Life Measurements and Methodology

Version 12/06/2019

Disclaimer:
This document is an inception report.

The information contained herein is subject to change and does not commit the ESPON EGTC and the countries participating in the ESPON 2020 Cooperation Programme.

The final version of the report will be published as soon as approved.

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Abbreviations

ART	Articulation of Territorial Networks
CBC	Cross Border Cooperation
CEO	Chief Executive Officer
CO2	Cytochrome Oxidase 2
DG	Directorate General
DHB	District Health Board
EC	European Commission
ECE	Electrical and Computer Engineering
EEAS	European External Action Service
ESPON	European Territorial Observatory Network
ESPON EGTC	ESPON European Grouping of Territorial Cooperation
EU	European Union
FP7 ITN	Framework Programme 7 (2007-13) Initial Training Network
GDP	Gross Domestic Product
GNI	Gross National Income
ICT	Information and Communication Technology
LAU	Local Administrative Units
LGBT	Lesbian, Gay, Bisexual, Transgender
NCEA	National Certificate Educational Achievement
NEET	Not (engaged) in Education, Employment or Training
NUTS	Nomenclature of Territorial Units for Statistics
OECD	Organization for Economic Co-operation and Development
OLAP	Online Analytical Processing
PM10	Particulate Matter of 10 Microns in diameter or smaller
PM2.5	Particulate Matter (less than 2.5 microns in diameter)
QoL	Quality of Life
SMEs	Small and Medium Enterprises
TED	Technology, Entertainment and Design
UNLC	United Cities and Local Governments
UN	United Nations
UNDP	United Nations Development Programme
UN-HABITAT	United Nations Human Settlements Programme
UNOPS	United Nations Office for Project Services

1 Executive summary

"ESPON QoL – Quality of life measurements and methodology" is a project funded by the ESPON 2020 programme.[1]

The main outcome expected from the project should be territorial evidence and knowledge at regional level about challenges, achievements and development trends of European regions and cities in relation to quality of life. The project should produce guidance for local, regional and national level policy makers to promote the integration of quality of life in the formulation and implementation of territorial development strategies.

Quality of Life indicators cannot be seen in isolation, disentangled by other efforts of measuring progress. Our effort to improve QoL measurements and methodology, and promote its integration in the formulation and implementation of territorial development strategies, should be embedded in the evolving system of official statistics, considering two main aspects or needs:

- **Modernizing the Official Statistics system**: nowadays new data collection opportunities are open by smart technologies to elaborate enormous and detailed flows of data to measure "almost everything" (big data). Further modernization of the official statistics system may open unprecedented opportunities to trace individual behaviours and collect real-time and survey data on a wide range of QoL aspects.
- **Localizing the statistics**: It is obvious for the experienced statisticians that the same indicators do not tell the same things when used at different scales – national (NUT1), regional (NUTS2 or NUTS3) or sub-regional (LAU and sub-LAU). So, localizing statistics is more complex than simply scaling down indicators computed at aggregate (e.g. national) level, it requires to elaborate the indicators at the appropriate regional or sub-regional level using data collected locally according to standards that make those data comparable with other places. Although more complex, the advantage of localizing the computation of the indicators is that at local level it should be possible to collect more and more diverse data – at least in principle and with the help of modern technologies.

However, at least in the short term, availability of QoL data with a detailed territorial granularity is and will remain a challenge to be overcome. A critical review of data shall be made, generating a comprehensive overview covering the ESPON territory to 1) existing QoL indicators and their calculation methods, 2) available data suitable for QoL monitoring in Europe at regional level, and 3) innovative estimation methods for better developing underlying concepts and methods.

To overcome expected lack of data at the deepest of the territorial dimensions (NUTS3 and specially beyond NUTS3), the main strategy we intend to follow is by one side to work with definitions of synthetic indicators for the main dimensions of QoL but eventually consider only a few indicators or just one structural indicator for each of these dimensions, then work closely with other ongoing projects producing regional data that can be used as well (e.g. ESPON Fuore). On the other side, we intend to develop and test with information collected for a number of selected case studies (from at least 5 to max 10 territorial cases scattered in the different countries of Europe and with different settlement, geographical and economic features) a conceptual framework that can be applied in principle to measure QoL in any "place" (city or rural territory in Europe) and compare it across different places. A first concept of this framework is illustrated in this Inception Report. It includes the domains of "objective" and "subjective"

[1] https://www.espon.eu/

quality of life", and ancillary domains to consider strongly related aspects, namely the economic trends and attractiveness of the territories, and the territorial investment needs, i.e. the investment in basic infrastructures and services that would be necessary to deliver quality of life targets in different territories.

The proposed research approach is illustrated in the overview section 1.3, and more in detail in the description of the tasks required as per the terms of reference of the study:

- **Task 1: Establishment and cooperation with an Advisory Group** of experts from leading statistical and policy institutions, international and European, civil society and the academy. The Advisory Group composition, purpose, procedures and activities are illustrated in chapter 2.1.
- **Task 2: Gathering and updating of data, indicators and evidence related to quality of life at regional level**, which has the objective of consolidating a regional database on Quality of Life data and indicators, complementing the work already done by EUROSTAT, the OECD and the UN with the gathering of data, indicators and evidence related to measuring quality of life at regional level by considering the diversity of European territories. Our research approach to this task is illustrated in chapter 2.2.
- **Task 3: Develop a methodology for measuring quality of life at regional level**. This is clearly a core task of the project. The proposed methodological approach is illustrated in chapter 2.3, and it encompasses four steps: 1) the selection of suitable QoL indicators; 2) the weighting and calibration of QoL indicators for different types of territories (in particular the types of territories that will be considered in the case studies); 3) the testing and validation of QoL indicators; the analysis and visualization of QoL indicators.
- **Task 4: Application of the proposed methodology for mapping and analysing quality of life in European regions, metropolitan areas and urban and rural regions**. We will map most prominent indicators defined and other variables of interest in order to understand the different dimensions of QoL in Europe. Maps will cover the highest NUTS level possible or will go beyond Nuts if possible, according to the available data for selected case studies that will encompass a variety of territorial typologies, so that better understanding of interrelations between QoL and different territorial characteristics can be achieved. Our research approach to this task is illustrated in chapter 2.4
- **Task 5: Case studies to identify good practices in integrating quality of life measurements in national, regional and local territorial development strategies**. The case studies present an opportunity to analyse good practices in considering and integrating quality of life measurements in national, regional and local strategies, including also successful participative processes. They are also an opportunity to complement and test the findings developed in the previous tasks, in particular tasks 3 and 4. Our approach to this task is illustrated in chapter 2.5, showing in particular the criteria that will be used to select a good mix of case studies – within the range of minimum 5 and maximum 10 territorial cases – in the first stage of the research. A final list of case studies will be consolidated and presented in the intermediate report, but we have identified a list of proposed case studies which already respond to the criteria for being eventually selected.
- **Task 6: Developing recommendations on the integration of quality of life measurements in policy implementation**. Policy recommendations to support the EU Cohesion Policy will be formulated when the analyses are made and when all available data has been reviewed for accuracy. In this inception report, we have elaborated an overall research framework, which permits us to project potential policy outcomes. Especially three aspects are of interest when outlining the potential policy outcomes of this project: 1) Policy

recommendations should be aimed at different geographical levels; 2) how quality of life aspects and indicators should be considered in relation to future cohesion policy post 2020; 3) the policy recommendations to national, regional and local policy makers should address how to consider quality of life in territorial development strategies and in policy implementation. Our approach to this task is illustrated more in detail in chapter 2.6.

It is important to underline three further elements considered in the proposed approach to QoL measurement.

- The first is the need of adopting a "citizens-centric" systemic perspective of the quality of life. "Citizens-centric" means that the citizens should be called in to co-design and evaluate the QoL measurement frameworks and policy strategies – and this since the early steps of defining and weighting the domains of relevance in the functional areas defined by the their time-space patterns of living and quality of life needs (the conceptual framework to integrate this systemic citizens' perspective is described in section 1.3.2.1).
- The second – partially connected to the first – element is the attention given to the "factfulness approach". This is fully described in Hans Rosling (2018), and applied to analyse and compare indicators of income and quality of life across the world, at global level. In a nutshell, the factfulness methodology and its first application to the analysis of global trends show how some basic "instincts" - gap, negativity, straight line, fear, size, generalization, destiny, single perspective, blame, urgency – tend to bias the perception of the data and produce opinions that are not fact-based, and this happens independently from the level of education, expertise, culture etc. of the data users. Our ambition is to design and propose an adapted methodology to support fact-based policy making at regional and local level in Europe – e.g. designing a "factfulness gaming tool" and possibly making a prototype test.
- The third element concerns the expected policy recommendations. It is indeed our intention to connect those to the recent EU policy drive towards a comprehensive implementation of the Sustainable Development Goals (SDGs) in Europe and beyond.[2] The SDGs implementation strategy would clearly partially overlap with the purpose of the ESPON project to devise QoL measurements and methodologies for gauging the quality of life progress at territorial level. It will be therefore considered with the aim to link our own policy recommendations, as would be appropriate to make them contributing to the comprehensive SDGs strategy.

Finally, the inception report is by definition a first step of a work in progress. Two specific challenges remain to be addressed, and we will consider to engage ad hoc expertise to deal with them in the first phase of our research:

- How to operationalize big data opportunities for the QoL measurement
- The situation of QoL indicators and relevant statistics in the Balkan countries.

[2] Recently the draft EU Council conclusions of 29 March 2019 "Towards an ever more sustainable Union by 2030" claimed for a comprehensive implementation strategy to realise the SDGs of the UN Agenda 2030 in Europe and beyond, orienting internal and external EU policies. Implementing the SDGs also requires effective cooperation at EU, national, regional and local levels. The recommendations of the Commission's Communication "The principles of subsidiarity and proportionality: Strengthening their role in the EU's policymaking" that followed the 'Task Force on Subsidiarity, proportionality and doing less more efficiently' provide a roadmap for achieving this. The Commission and other EU bodies could in particular facilitate an exchange of best practices among cities and regions, and set out the parameters for a cross-border territorial approach for delivering on the SDGs.

2 Overview of the context

2.1 Purpose of the study

“ESPON QoL – Quality of life measurements and methodology” is a project funded by the ESPON 2020 programme.[3] This programme is financed by the European Regional Development Fund (ERDF), by EU Member States, Iceland, Liechtenstein, Norway and Switzerland. Its main objectives are to support the reinforcement of the effectiveness of the EU Cohesion Policy and other sectoral policies and programmes under European Structural Investment Funds as well as national and regional territorial policies.

The main outcome of the project should be territorial evidence and knowledge at regional level about challenges, achievements and development trends of European regions and cities in relation to quality of life. The project should produce guidance for local, regional and national level policy makers to promote the integration of quality of life in the formulation and implementation of territorial development strategies.

As per terms of reference of the study, different policy questions are addressed by the project:

- How does the concept and measurement of quality of life differ in meaning at different scales (national, regional, local)?
- What are the territorial dimensions of quality of life? How does quality of life relate to economic growth, the environment, governance, social aspects? What territorial patterns can be identified?
- How can we measure people’s quality of life at different geographical levels? What territorial aspects (such as demography, economy and social and cultural issues) play a role in assessing and measuring quality of life?
- What are possible common indicators, which allow a comparative measurement and how measurement can be adjusted to different types of territories (by for example allowing different weights for various dimensions of quality of life)?
- How can quality of life aspects be better integrated in territorial development strategies at different geographical levels? How, at which territorial scale and to which extent can spatial and environmental measures contribute to the enhancement of quality of life?
- What are possible processes/good practices for the development and choice of quality of life measurements, especially with regard to increasing ownership and the aspects of multilevel governance and results orientation?
- How could quality of life be better integrated in Cohesion policy at European level and in territorial development strategies at national, regional and local levels?

2.2 Embedding the study in the context of measuring progress initiatives

All these research questions shall be considered in the context of the system of official statistics and its evolution (Radermacher W.J., 2018). “Official statistics” can be defined by using three questions (Eurostat 2016):

- Who? Normally, official statistics are produced and provided by statistical offices, i.e. public administrations.
- What? Statistical work programmes and priorities are prepared according to public sector standards with the final decisions partly taken in legislative procedures.

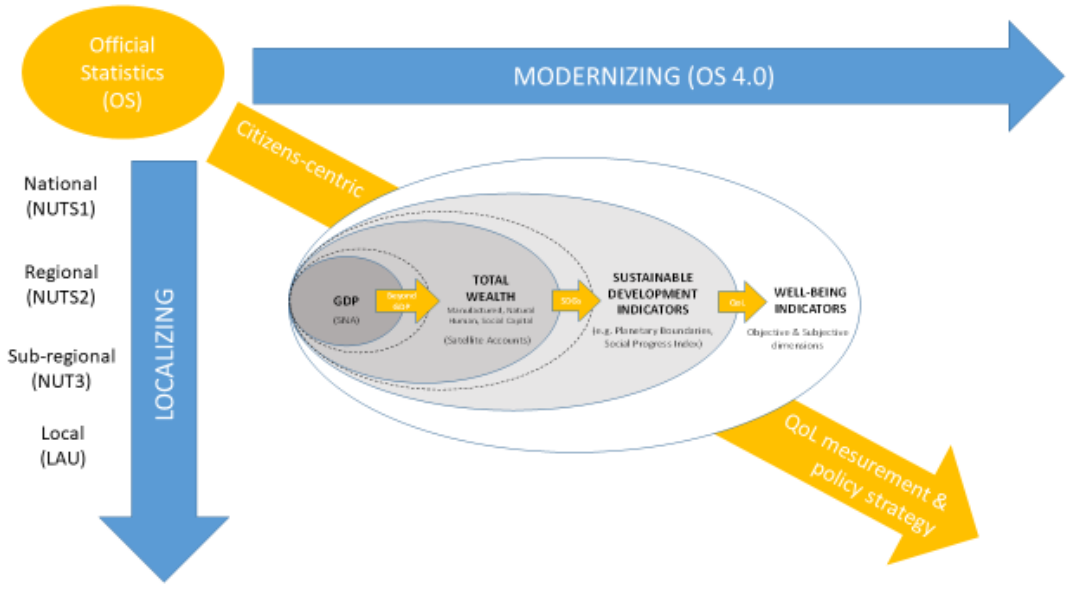
[3] https://www.espon.eu/

- How? Statistical methodologies are nowadays subject of international cooperation and manifested in statistical standards; high-level quality is assured through management systems and ethical codes.

According to Radermacher (2018) “official statistics enable anyone to observe and assess social, economic and ecological phenomena. They provide evidence for the formation of opinion(s), but they are neither an end in themselves nor a substitute for decisions. They need to clarify the availability of alternatives and facilitate their selection, but without taking sides themselves. They are a political element, not a politics in themselves (Turnpenny et al. 2015). Therefore, official statistics should not be reserved for use by technical experts. Statisticians need to engage with the public and work intensively and regularly with different users and stakeholders, whether public or private, journalists, researchers or citizens. The goal is to better understand their needs (as users of statistics) and their limitations (as sources of statistics) in order to provide them with adequate information. To do this, statisticians must actively seek to create a positive data culture by becoming more flexible and reactive to ensure that official statistics are understood well. With the intelligent tools available today, such as interactive graphics, the contents of the partially abstract information provided by official statistics can be communicated much better. Of course, it is very important to strike a balance between the dissemination of understandable messages and a strict focus on technical precision, between excessive simplification and unnecessary complexity, between vulgarisation and overly scientific methods and outcomes. Likewise, the boundaries between objective, quantifiable conditions and subjective impressions must be clearly demonstrated.”

The following figure shows how the topic of the project – improving QoL measurements and methodology and promoting its integration in the formulation and implementation of territorial development strategies – should be embedded in the evolving system of official statistics:

Figure 2.1: Embedding QoL measurements in the evolving system of Official Statistics



At the core of this perspective, we acknowledge that Quality of Life indicators cannot be seen in isolation, disentangled by other efforts of measuring progress. The core of the figure shows measuring progress as an expanding set of statistical production practices, including the measurement of GDP based on the System of National Accounts (SNA), the inclusion – beyond GDP – of total wealth measurement (including manufactured, natural, human and social capital

assets) based on satellite accounts, the measurement of Sustainable Development Goals (SDGs) achievement by means of systems of indicators – as for instance the Planetary Boundaries for the environmental dimension (Stockholm Resilience Centre, 2018), and the Social Progress Index (SPI) for the social dimension, and finally the measurement of the Quality of Life, considering objective and subjective well-being indicators.[4]

We need system thinking here, to deal with this expanding and evolving set of statistics measuring progress, to identify not only the single QoL indicators but also how these are related among themselves and with the other statistics to really gauge progress. A system perspective is achieved by making the QoL measurement and policy strategy "citizens-centric", which is represented in the figure as the resultant force (the diagonal arrow) of the official statistics and localizing drives (the horizontal and vertical arrows). "Citizens-centric" means that the citizens should be called in to co-design and evaluate the QoL measurement frameworks and policy strategies – and this since the early steps of defining and weighting the domains of relevance in the functional areas defined by the their time-space patterns of living and quality of life needs (the conceptual framework to integrate this systemic citizens' perspective is described in section 1.3.2.1 below).

A description of the overlapping fields of measurement of progress introduced above is included in **Annex 1**.

Examples of existing quality of life indexes or dashboards of indicators are illustrated in **Annex 2**. This list is not exhaustive, it will be further implemented in the intermediate and final reports not only to update the state of play of the most prominent international quality of life measurements projects, but also to include interesting examples from national and local practices in Europe investigated in the project.

One of these national initiatives is the BES ("Benessere Equo e Sostenibile") launched by the Italian National Institute of Statistics (ISTAT) and the Italian Council for Economics and Labour (CNEL) for the identification of a set of indicators for measuring Italian "equitable and sustainable wellbeing", presented more extensively in **Annex 3**. Being a complete set of indicators, which has been applied at NUTS2, NUTS3 and even beyond NUTS3 level (to some metropolitan cities in Italy), it has been chosen to exemplify our methodological approach later in this inception report (see section 1.3 below).

What it is important to underline again, is that – while more narrowly focusing on designing and testing quality of life measurements and methodology answering to the research questions listed in the inception of this overview section – we need to keep also the wider system perspective, anchoring the suggested QoL measurements to the current ways of measuring progress and their evolution – of which the QoL indicators are an important part. And in doing this we need to consider two important dimensions represented by the horizontal and vertical (down) arrows in figure 1.1:

- **Modernizing the Official Statistics system**: As shown in Radermacher (2018), official statistics experience since the 19th century different phases of growth and methodological

[4] Societal wellbeing is a multi-dimensional concept that describes progress in terms of improvements in quality of life, material conditions and sustainability. Objective and subjective well-being dimensions are therefore core dimensions to consider for measuring Quality of Life. The other dimensions of progress are obviously related to QoL and their measurement methodologies are partially overlapping with the specific QoL measurements, as it is represented by the overlapping circles in the figure. The boundaries of the GDP and Total Wealth accounting systems are movable, as they can evolve to include phenomena from outside the standard production boundary (e.g. domestic work in the GDP measure, or new natural assets in the satellite accounts). This is represented in the figure by a halo (dotted circles) surrounding respectively the GDP and Total Wealth domains.

development, from establishing them as a component of the modern national state (phase 1.0), the development of GDP, macro-economic statistics and SNAs (phase 2.0), the switch from tailored to industrial production of survey and registered-based data for a wider range of economic, social and environmental phenomena (phase 3.0), and nowadays the new opportunities open by big data, machine learning, open data access to elaborate enormous and detailed flows of data to measure "almost everything" (phase 4.0). Further modernization of the official statistics system may open unprecedented opportunities to trace individual behaviours and collect real-time and survey data on a wide range of QoL aspects.

- **Localizing the statistics**: It is obvious for the experienced statisticians that the same indicators do not tell the same things when used at different scales – national (NUT1), regional (NUTS2 or NUTS3) or sub-regional (LAU). The so called "ecological fallacy" of statistics matters. An ecological fallacy is a formal fallacy in the interpretation of statistical data that occurs when inferences about the nature of individuals are deduced from inferences about the group to which those individuals belong. One example of ecological fallacy is the reversal paradox, a phenomenon in probability and statistics, in which a trend appears in several different groups of data but disappears or reverses when these groups are combined. The issue is particularly relevant as normally affects statistics elaborated at different territorial levels: the national average is often not representative of regional or especially sub-regional trends, because the different groups of population usually are not distributed evenly across sub-regions, they tend to agglomerate in some areas which may end to show patterns radically different from those detected by more aggregated statistics. Localizing statistics is more complex than simply scaling down indicators computed at aggregate (e.g. national) level, it requires to elaborate the indicators at the appropriate regional or sub-regional level using data collected locally according to standards that make those data comparable with other places. Although more complex, the advantage of localizing the computation of the indicators is that at local level it should be possible to collect more and more diverse data – at least in principle and with the help of modern technologies.

Finally, it is important to reiterate that producing and learning from indicators is not only a technical, but also a sociological and policy issue. The goal of governments is to enhance the well-being of their citizens. In the aftermath of World War II, national product (be it gross national or gross domestic) and its rate of growth were seen as a proxy indicator to measure well-being – making economic growth doubtless the most powerful political indicator in history, and nowadays still the "totemic" indicator we all use to judge the health of our national economies. Yet, the Sustainable Development Goals of 2015 underline a universal desire to "transform our world" and the fact that this transformation is to be done with the help of alternative statistical indicators. This has triggered a number of national initiatives to fix alternative measured of well-being "beyond GDP", deciding in a participatory manner which indicators matter to people and discussing which new or adapted notion of progress is valid in the 21st century. However, it has been shown that although revolutionary in their aspirations, many initiatives do not live up to their expectations (P. Lepenies, 2018). This has much to do with the manner they were executed, and with the political unwillingness to really consider alternatives to GDP and to allow broad participation in the definition (and implementation) of the new indicators.

While seeking alternatives to a dominant "overlord of measures" as GDP is – overshadowing other potentially useful well-being indicators – there is always a trade-off between too much information or too little. As soon as you disaggregate numbers or come up with new things to measure, you have to weight their importance. Many of the outcomes we might seek – a clean environment, healthy lives, safe streets, higher income, job security – are on different

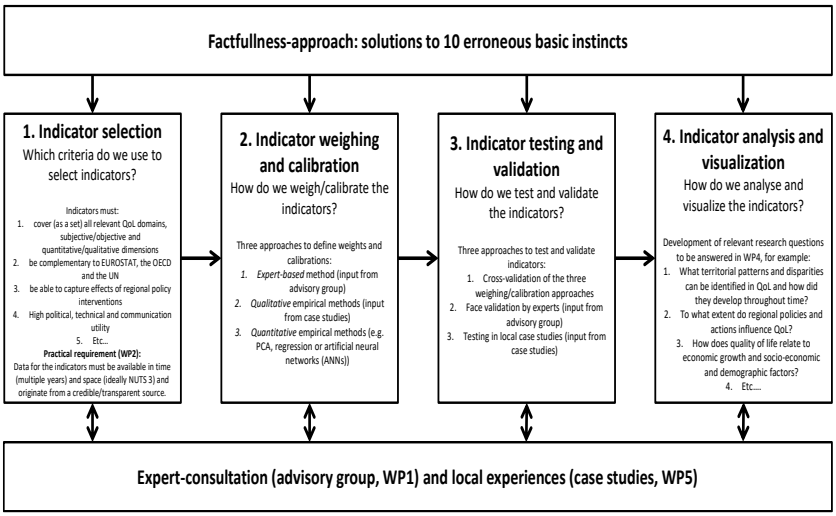
dimensions. Whenever you form an aggregate you lose information. On the other hand, if you don't form an aggregate you can't process or handle all the information that you possess. One solution to this problem is the dashboard. Using the analogy of a car dashboard, the idea is to monitor multiple things at once. This is the concept underpinning, among others QoL frameworks, the OECD's Better Life Index, which was launched in 2011, and it is included in Annex 3 and considered to support the selection of case studies in our project (see the description of Task 5 in section 2.5 below).[5]

The novelty of our project approach is the territorial focus and citizens-centric character of the QoL measurement and policy strategy, and of the dashboard of indicators we are going to develop, test and promote for a wider application to modernise territorial development policies in the regions and cities of Europe.

2.3 Overview of the study approach

In the broader context illustrated above, our project focuses on the production and use of data to measure the quality of life, and it does so with an overall methodology synthetically illustrated in the diagram below, sourced from the technical proposal. The overall process of QoL indicators selection (step 1), weighting and calibration (step 2), testing and validation (step 3) and analysis and visualization (step 4) is informed by the factfulness approach by one side, and supported on the other side by the advice of an Advisory Group of experts selected to include different quality of life related data producer and/or user perspectives – all along the project duration – and by a deep diving into a number of selected local case studies in the second phase of the project (steps 3 and 4). Note that the four steps of our methodology are elaborated in detail in paragraphs 2.3.1-2.3.4 of this report. The outcome of this process – not represented in the diagram – will be a number of recommendations on the integration of QoL measurements in policy implementation.

Figure 2.2: Outline of the proposed methodology



[5] A dashboard of indicators to measure and compare progress across countries has been suggested by David Pilling at the conclusion of his inquiry on "the wealth and well-being of nations". The indicators suggested are: GDP per capita, median income, inequality, net domestic produce, CO_2 emissions, well-being. The latter indicator is suggested as a worthwhile attempt to complement GDP per capita – wrongly considered as a proxy of well-being – with some "beyond GDP" formulation, as for instance the GPI adopted in Maryland, or the Human Development Index (D. Pilling, 2018).

"Factfulness" is a concept and methodology fully described in Hans Rosling (2018), and applied to analyse and compare indicators of income and quality of life across the world, at global level. We will take and adapt the methodology to support fact-based policy making at regional a local level in Europe.[6] In a nutshell, the factfulness methodology and its first application to the analysis of global trends show how some basic "instincts" - gap, negativity, straight line, fear, size, generalization, destiny, single perspective, blame, urgency – tend to bias the perception of the data and produce opinions that are not fact-based, and this happens independently from the level of education, expertise, culture etc. of the data users. Another important tenet of the approach is the analysis of the world population divided in four income levels, and the visualization of the quality of living associated to the different income levels with the "dollar street" method (www.dollarstreet.org).

The motivations to consider the factfulness approach are therefore twofold:

- One is intrinsic, linked to the focus on distributions more than averages while making comparisons the methodology recommends. Quality of life indicators should be measured – and their evolution over time tracked – as far as possible for different classes of households' disposable income or an equivalent proxy associated to different living conditions. Possible proxies, for instance, could be the value of land – which is fairly different between central/attractive and peripheral areas – or a composite index of accessibility and amenity of the places (hedonic index), if available.
- The other is extrinsic, related to the need of communicating the results of quality of life fact-based analyses to the policy makers and the citizenships, overcoming the instincts that systematically bias the perception of reality.

A more expanded description of the factfulness approach, its 10 basic instincts that bias the perception of real trends, and the "dollar street" methodology is provided in Annex 4.

But how the methodological approach described above will be implemented in practice to achieve the two main expected outcomes of the project, reminded again below?

- *Territorial evidence and knowledge at regional level about challenges, achievements and development trends of European regions and cities in relation to quality of life.*
- *Guidance for local, regional and national level policy makers to promote the integration of quality of life in the development and implementation of territorial development strategies.*

A realistic answer shall take into account the poor granularity of data that are collected with European and national surveys, where the dimension of the survey samples does not allow to deliver robust indicators at levels beyond NUTS2. This preliminary assessment will be substantiated by an in depth analysis of challenges and data gaps beyond the NUTS2 level. The ambition will remain that of creating a data set of selected Quality of Life indicators and aggregate indexes to compare QoL-related performance measures across cities in Europe, as for instance it has been recently done in a partially overlapping domain – measuring culture in European cities – using data mostly retrieved from Eurostat's Urban Audit for 168 selected

[6] Indeed, also Rosling ends his book recommending an application of the factfulness approach at local level, when he writes "*So far we have only tried a few local fact questions, but it seems like they follow a very similar pattern to the global facts we have tested more widely … there are so many more local and subject area fact questions we would love to try. Do people in your city know the basic proportions and trends that are shaping the future of the place they live in? We don't know, because we haven't tested it. But more likely: no.*"

cities but also from experimental web sources (TripAvisor).[7] The QoL data set should be robust enough and provide at least a first set of "proxies" for different QoL dimensions that could be improved as more information becomes available (for new more precise indicators and for new cities). However, this ambition could be satisfied for the urban regions – which are also the focus of other international organizations as UN Habitat and OECD measurement efforts, and where detailed data may be more easily gathered – but hardly for the rural and peripheral regions which is a main target of the ESPON QoL measurement project to address,

To overcome this problem, our project will develop two main streams of analysis:

- Main territorial QoL analysis: This stream will identify some synthetic indicators where available data are robust enough to compute and map the indicators and composite indexes at NUTS3 level, producing maps covering the whole ESPON territory at this level of detail.
- Detailed territorial QoL analysis: This stream will develop a theoretical place-based approach to the production of territorial statistics with a greater detail – beyond the NUTS3 level – and their use to formulate QoLpolicy strategies, based on the lessons learned in a number of case studies.

For the first point, section 1.3.1 illustrates a synthetic index of the quality of life in the NUTS3 regions that is the intention of our project to develop.

For the second point, the approach is illustrated in section 1.3.2 below.

2.3.1 Computing a synthetic ESPON Quality of Life index

QoL indicators at regional level will have to be of a synthetic character – i.e. built based upon less number of indicators, more strategically chosen - given that data availability and precision at NUTS3 level is lower than at Member State level (NUTS1), which is the scale available indexes usually deal with.

Our approach here is to work on the definition of synthetic indicators based on a selection of variables representing key QoL dimensions observed for the relevant QoL indexes identified during the inception phase. Actual national and regional Quality of Life Index methodologies used from different entities worldwide (OECD, UN, Legatum institute, NUMBEO…) tend to use indicators closely related that can be classified by a limited number of domains (health, education, economy, environment, social interactions, safety, governance). There are not as many data at the regional level as at the national level so we had to simplify the methodology and reduce the number of indicators to be used to calculate the index.

In this direction, we are considering previous work in FLAGSHIP FP7 project that proposed a measure of *welfare* based on the following factors Welfare = f(Affluence, Cohesion, Environment), but incorporating an additional component related to Governance. The latter is missing based in the indexes scanned in this inception report (see Annex 3).

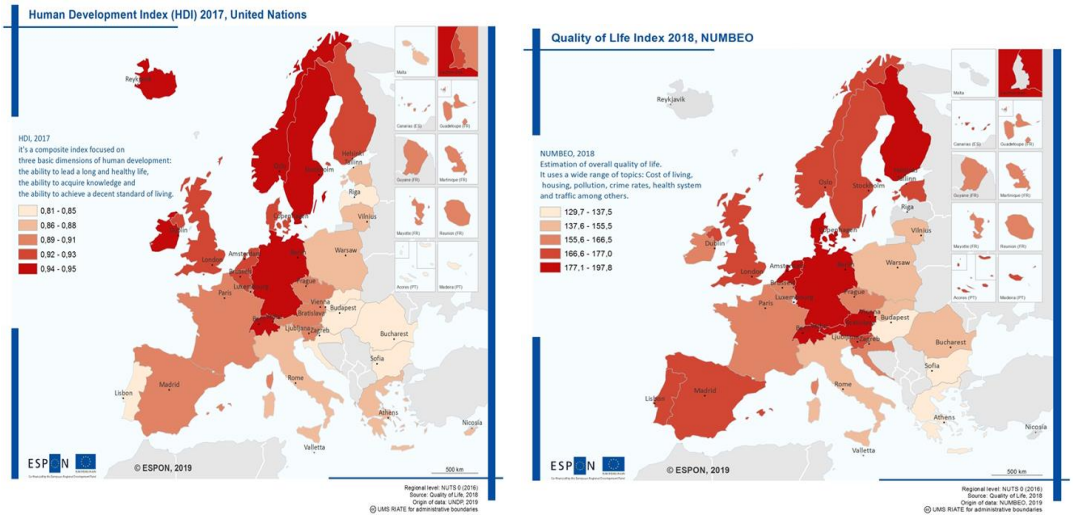
In using synthetic indexes, we will explore alternative formulations that give greater weight to some of the factors or to the others. In doing so, we can test different orientations to the QoL

[7] A novel dataset to measure culture in urban areas is presented in Valentina Montalto et al. (2019). The Cultural and Creative Cities Monitor (CCCM) dataset gathers 29 selected culture-related indicators for 168 cities in 30 European countries, which have then be aggregated in in an overall Cultural and Creative Cities Ibdex (C3 Index) as a synthetic measure of performance. All the methodological details and data are freely accessible at: https://composite-indicators.jrc.ec.europa.eu/cultural-creativecities-monitor/downloads

indictors proposed, giving more weight to social issues, to income issues, or to issues like climate and life cost.

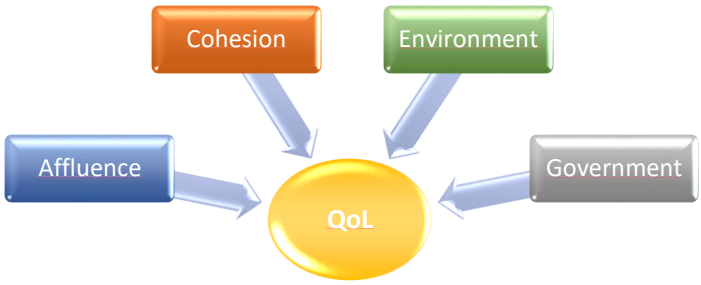
In fact, the preliminary analysis of existing indexes already provides hints on this, with some indexes more focused on income, accountability and environment showing best performance for the northern European countries, whereas indicators stressing other elements like cost of life, climate or social interaction show good performance in the Mediterranean, and generally in southern Europe.

Figure 2.3: QoL according to United Nations in the left, driven by income, governance and social indicators, contrasting to NUMBEO index on the right, considering other elements such as cost of life, sociability, climate.



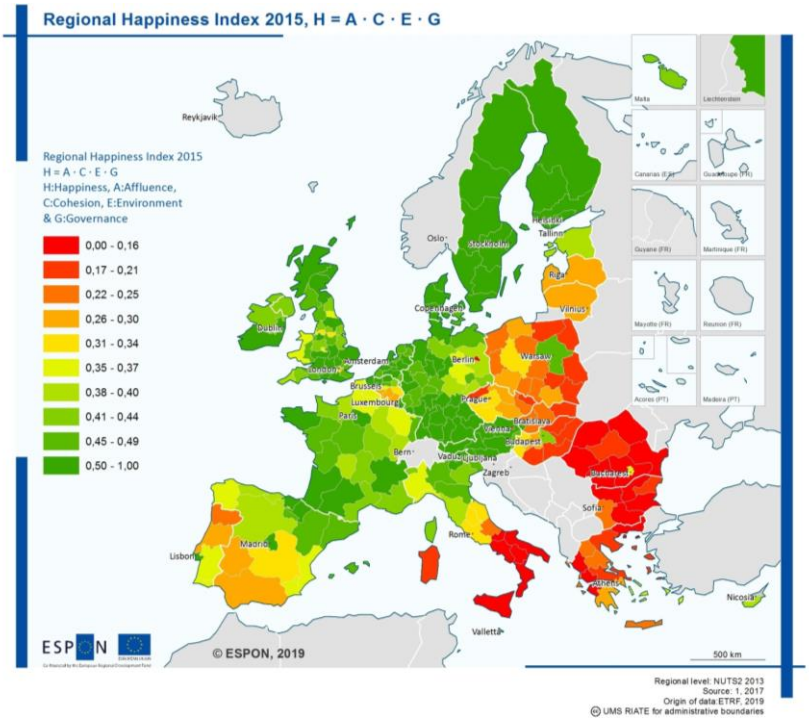
The preliminary work allowed also testing available data at different territorial levels (NUTS2, NUTS3), data quality and completeness, and limitations. We eventually selected the following dimensions and indicators, based on relevance and data availability at NUT2 or NUTS3 level:

- **Affluence** is measured by means of GDP per capita (€/inh), based on ESPON DB
- **Cohesion** is measured by means of NUTS2 GDP per capita compared to its national average, based
- **Environment** is terms of the annual land-take in percentage (km2/year)
- **Government** it is measured as the European Quality of Government Index (EQI) made by the University of Goteborg.



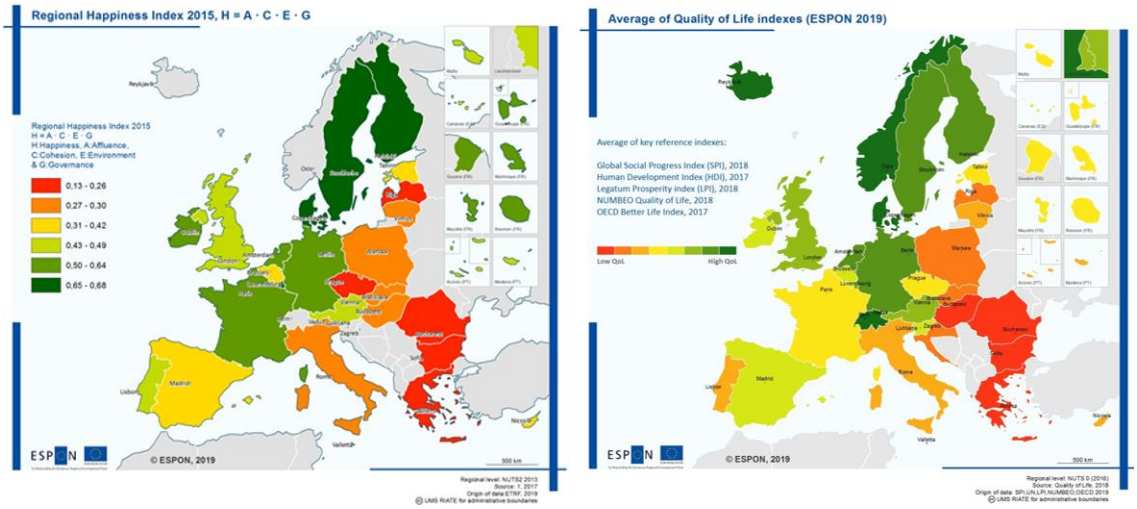
The following figure shows the preliminary mapping of QoL at regional level according to above mentioned strategy:

Figure 2.4: Preliminary mapping of QoL at regional level (NUTS2) based on the consolidation of a synthetic index considering the key dimensions of Affluence, Cohesion, Environment, and Governance



The re-aggregation of the results at Member state level – useful to check the alignment with existing indexes – shows how this preliminary work (on the left) is providing results aligned with existing QoL indexes (on the right).

Figure 2.5: QoL calculated by at regional level, then re-aggregated at Member State level (left) and average of existing indexes (right)



2.3.2 A place-based approach to territorial growth and Quality of Life development

Territorial Quality of Life initiatives should support regions and cities to to better understand what drives people's wellbeing and what needs to be done to achieve greater progress for all. These initiatives should include the measurement of a basket of indicators beyond solely the economic, to provide evidence to support the design of policies.

To help framing such initiatives, we aim to develop a "place-based QoL framework" – a conceptual framework that can be applied in any "place" (city or region) of Europe and which will be actively tested in our project case studies (Task 5).

The framework will provide guidance for the selection, elaboration and application of QoL indicators to support territorial growth and wellbeing development strategies.

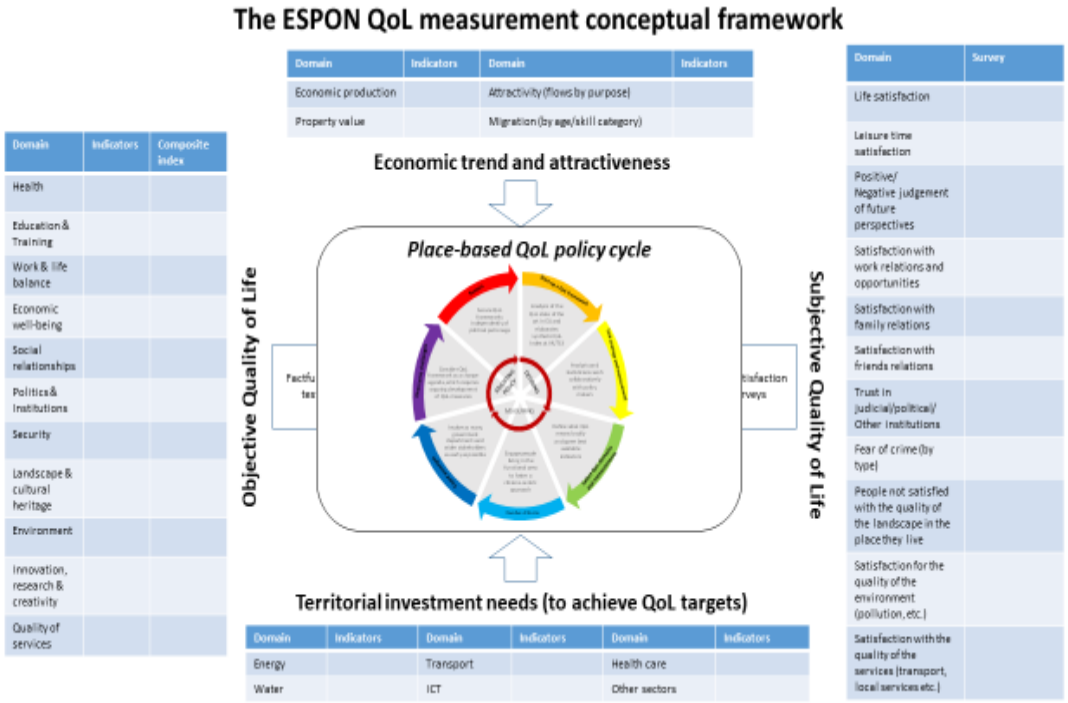
The framework is built upon two main sources of knowledge:

- An existing framework of wellbeing indicators - the BES system of indicators described in Annex 3 - which provides a starting benchmark for developing a common basket of QoL measurement domains and examples of indicators. This benchmark will be further refined and updated in the intermediate and final reports, taking into account of the results and lessons emerged from the case studies and the consultations with the Advisory Group.
- The Carnegie UK Trust & OECD guidance on societal wellbeing frameworks for cities and regions (Carnegie UK Trust, OECD, 2016)

1.3.2.1 A conceptual framework for measuring QoL in the European territories

The overall ESPON QoL measurement conceptual framework is represented in the Figure 2.5:

Figure 2.6: ESPON QoL measurement conceptual framework



A place-based QoL measurement and policy cycle (described in section 1.3.2.2 below) is placed at the core of the conceptual framework, embedded into a reference framework of measurement domains:

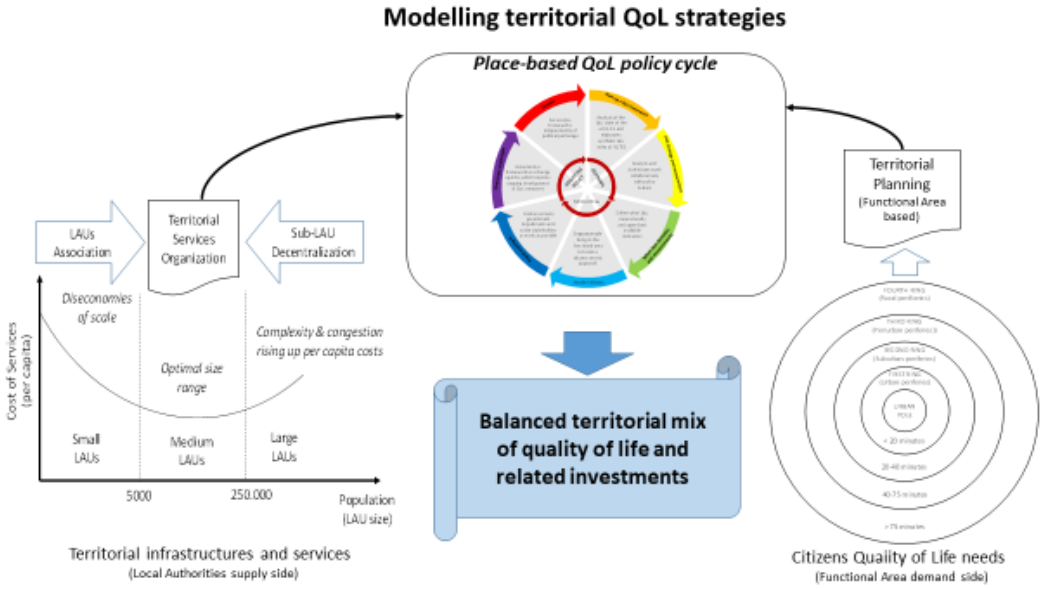
- **Objective Quality of Life**: this includes the 11 domains of quality of life of the BES system[8]: 1) health, 2) education & training, 3) work & life balance, 4) economic well-being, 5) social relationships, 6) politics & institutions, 7) security, 8) landscape & cultural heritage, 9) environment, 10) innovation, research & creativity, 11) quality of services. Basic concepts and the dimensions considered in each domain are described in Annex 4, together with the list of indicators adopted by ISTAT and data availability at different territorial levels (NUTS2, NUTS3, beyond NUTS3) for the Italian case. Each territorial case studies will adopt its own list of indicators for each domain, and possibly will elaborate composite indexes standardised and comparable with other case studies. The indicators are used to assess objective quality of life and – whenever time series are available – it is possible to check the knowledge and perception of trends with factfulness tests.
- **Subjective Quality of Life**: this includes satisfaction indicators for the life as whole and specific areas identified in the BES system, described in Annex 3. Again, each territorial case will have its own specific satisfaction surveys to assess the subjective quality of life.
- **Economic trend and attractiveness**: this includes the GDP trend and business indicators (e.g. enterprises birth and death rates) and property (housing) value indicators – to gauge production and tangible wealth trends in the territory – and the indicators of attractiveness of flows (commuting for work and education purposes, business and tourism visitors) and immigration by age and skill categories. These aspects are obviously relevant and influence directly the quality of life in the territory, in several ways.
- **Territorial investment needs**: this focus on the investment in basic infrastructures and services that would be necessary to deliver quality of life targets in different territories.

It is important to underline that, while the main focus of our project case studies will be on the objective and subjective measurements of the quality of life, the other two macro-aspects – the economic trend and attractiveness and the investment needs in the territory – need to be taken into account given their influence on the quality of life which is possible to achieve (e.g. the costs to provide some infrastructure and services in remote regions may be prohibitive) and for whom (residents, immigrants, visitors).

In principle, the whole framework can be applied in any given region to seek for a balanced territorial mix of quality of life and related investments to maintain or upgrade infrastructures and services according to QoLneeds and policy targets. The following figure shows how a place-based QoL policy framework could help to match the provision of territorial infrastructures and services, which is primarily affected by production economies of scale (the supply side on the left) with the quality of life needs of the population using the services, which is primarily affected by the time-space living patterns and the services people can get within functional areas (the demand side on the right).

[8] We use here as a reference list of QoL domains and examples of indicators applied at different territorial levels those identified in the BES experience, illustrated in Annex 3. Each local case study will consider its own list of indicators, but we can assume that the BES domains and categories of indicators are complete enough and appropriate to provide a similar structure that all ESPON QoL case studies may populate with their indicators. The framework may be revised in the intermediate stage of the project, but we do not expect major changes.

Figure 2.7: Modelling territorial QoL strategies



More precisely, on the left side the cost per capita of basic services is assumed to be high in the small municipalities (up to 5.000 inhabitants), lower in a size between 5.000 and 250.000 inhabitants, and again higher in the large cities with more than 250.000 inhabitants, due to increasing complexity of service provision and the pressure of the increasing (resident and visitors) population.[9] Rationalization of service delivery costs may push small local authorities to associate, and large cities to decentralise, their services in order to optimise availability and provision (we name these “territorial services organization strategies”).

On the right side, a territorial model is used to represent a functional area, with an urban pole at the centre, and four rings of progressive (time measured) distance from the pole: urban peripheries (within 20 minutes), suburban peripheries (within 40 minutes), peri-urban peripheries (within 75 minutes) and rural peripheries (beyond 75 minutes).[10] Quality of life needs are defined as those of the population living in the functional area as whole, each individual having her/his own daily life time-space patterns for different purposes – work, education, leisure, etc. These quality of life aspects should be focused on in territorial planning strategies, aimed to answer to the needs of the population living in central and peripheral areas.

[9] Obviously this general assumption should be analysed and supported by evidence produced in specific cases, and the cost curve could be different depending on single services characteristics and/or the density of population settlement (the population thresholds used to divide small, medium and large cities are a simplification). However, we use here the U cost pattern as a general argument, used to support the rationalization of territorial services supply.

[10] Again, this is a conceptual model that would need to be adapted to the specific features of a given territory and population settlement and mobility patterns. The urban pole is the place where the higher level urban functions are located, attracting flows from the surrounding territorial rings. Depending on population density in the area, the size of the “urban pole” may vary from a small town with central facilities (e.g. a railway station, hospital, high school, etc) to the inner centre of a large metropolitan area (as it is implied in with the wording used to name the rings in the figure). In reality we can have polycentric areas with two or more poles, mountain or island territories where both time-measured distances and the cost of services are higher, etc. This will obviously require adaptations while applying the scheme to real territorial contexts, but does not invalidate the functional area concept used to measure quality of life needs from the perspective of the citizens’ time-space living patterns.

The place-based Quality of Life policy framework is presented in the middle as a mechanism that should be put in operation to match territorial services organization strategies from the supply side with territorial planning strategies from the demand side. The following section discusses the policy cycle to put in operation the QoL framework, providing an initial guidance which will be used to investigate the QoL measurements implementation aspects in the case studies.

1.3.2.2 Guidance for establishing QoL measurements and policy frameworks in the cities and regions of Europe

The main ambition of the whole framework and QoL policy cycle is to eventually help developing an higher "eco-system awareness" of the whole quality of life in the territory, first for all the people – experts, policy makers, stakeholders, citizens – involved in the QoL measurement process, and then – whenever an effective communication is put in place – the public at large, moving people from their initial silo view and subjective perception of quality of life to a shared system view.

The policy framework is "place-based", not simply "local", because to make it happen will require not only the engagement and efforts of the local concerned actors, but crucially the support of the official statistical system, at national and European level.

Indeed, a key factor of success for localizing the production of indicators, and the application and diffusion of territorial Quality of Life measurements beyond the NUTS3 level, is creating the local culture and build the capacity to absorb and apply correctly QoL measurements tools that should be provided through digital official statistical platforms. Local applications will benefit then from the availability of more detailed statistical data layers at local level (e.g. census data at LAU and sub-LAU level), the access to administrative data, and opportunities for new data collection (by means of local surveys, or real time data crowdsourcing apps). At the same time, being based on standard templates, the data and results delivered will be in principle comparable across different localities.[11]

Our project will provide guidance in this direction, tacking stock as mentioned above of the OECD guidance on societal wellbeing frameworks for regions and cities, and implying an equivalence between "societal wellbeing" and "quality of life" measurement.

Several cities and regions have already used the guidance to develop their own local framework and measures, which take into account local characteristics.[12] These local frameworks have a number of shared features:

- **Purpose**: They share the aim of understanding social progress 'in the round' and not prioritising one aspect of wellbeing over the others.
- **Domains**: They use sub-categories or domains, such as 'health' or 'education' to help people navigate the framework.

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[11] This could be done using a standard but at the same time flexible approach, where European and national official statistical digital platforms provide guidelines and modules for local actors to design, implement and validate local Quality of Life surveys, tools for data collection and computation of a list of core and ancillary indicators, glossaries, data assessment tools, apps for real time data collection etc. This same platform could learn from local practices, incorporating new indicators – for instance those created from local administrative sources and databases which can be replicated elsewhere - with a sort of "self-learning" and "mass-modularization" statistical production process.

[12] European regions that developed their own case studies include Southern Denmark, Newcastle (UK), Rome (Italy), North Netherlands, Sardinia (Italy).

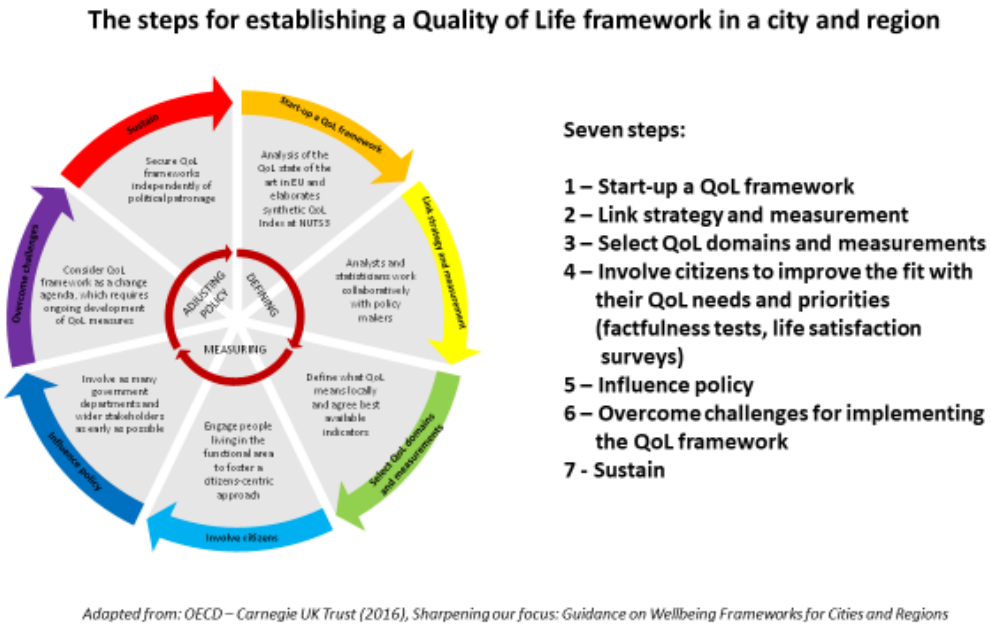
- **Indicators**: They measure progress towards the domains through a number of indicators. The number of indicators in a framework varies significantly, but usually there are up to 60 indicators.
- **Communication**: They communicate these visually through a dashboard often seeking to produce an overview of social progress on one page.

Simply picking up a basket of QoL indicators and compiling them, however, might be of limited value to policy-makers in cities and regions. That is because, firstly, any QoL measurement and policy strategy will have more traction if it is developed in a participatory way, within the context of a region's – and its citizens - priorities and aspirations. Secondly, in some areas the indicators recommended in the common framework could not be readily available, or at least not at the required level of disaggregation.

In this way, regions or cities preparing QoL frameworks have to go through several steps. The OECD describes this as a cyclical process of defining wellbeing objectives and related indicators, implementing policy and then adjusting measures.

An adapted cyclical process representation for our QoL measurement and policy framework is presented in Figure 2.7.

Figure 2.8: The steps for establishing a QoL framework in a city and region



Adapted from: OECD – Carnegie UK Trust (2016), Sharpening our focus: Guidance on Wellbeing Frameworks for Cities and Regions

Implementing the QoL cycle of measurement is not without difficulties, for example it requires engaging stakeholders who have different objectives and capacities. The seven key steps are summarised in the list below:

1. **Start-up a QoL framework**: The triggering event should be the baseline analysis of the Quality of Life state of the art in the European regions. The synthetic Quality of Life index elaborated by our project at NUTS3 level for the whole ESPON area (see section 1.3.1 above) can help here to identify the regions where the QoL index is lower as those where starting with a QoL measurement and policy strategy would be a priority. Then start-up activities are necessary to mobilise government data analysts, academics, elected

representatives or civil servants and start to develop detailed functional area QoL frameworks in the selected NUTS3 regions. A local government leader, such as the City Mayor, championing the framework increases the likelihood it will spread across government.

2. **Link strategy and measurement**: When QoL analysts and statisticians work collaboratively with policy makers a QoL framework provides a structure for reviewing policy and progress. To achieve this, QoL frameworks shall be positioned inside and outside of government. Inside government, QoL frameworks in overarching or influential parts of government have the advantage of being able to reach out to multiple departments. QoL frameworks are usually developed also with a support from outside the government, e.g. by universities or statistical institutes. Where wellbeing thinking and data comes from outside of government the challenge is to gain traction within government. This is important both for the development of QoL indicators and the feedback into policy.

3. **Select Quality of Life domains and measures**: Start with a theoretical framework, but define what QoL means to local stakeholders and communities, and agree the best available indicators with a range of stakeholders. Although the theoretical framework underpins the choice of indicators, in many cases selecting the indicators is a pragmatic process.

4. **Involve citizens to improve the fit with their QoL needs and priorities**: In a citizens-centric approach, citizens living in the functional area should be engaged at various points and in various ways: in defining what Quality of Life means; through presenting QoL data in a simplified format and providing online, interactive tools. Ideally, a widespread, in-depth consultation at the start of the process will prompt citizen engagement, e.g. by holding an extensive conversation with the population to define the domains of wellbeing. As well as consulting with citizens on domains and indicators, people can be involved once a first dashboard of indicators has been developed. It is here that factfulness tests on QoL trends enter into the picture, to test the users' perception of key trends and confront them with the real behaviours as measured by the indicators computed for the different objective QoL dimensions. This will contribute to raise the awareness of citizens and policy makers of the real tendencies and QoL priorities, and help to adapt the policy strategies and change agendas to fit better with the real people needs. Citizens can also be involved in life satisfaction surveys and focus group activities. To facilitate citizens' inclusion, our project will design an online "**factfulness gaming tool**" for any user to answer to sets of fact questions designed to test the single QoL indicators with several audiences. A prototype of the tool can be experimented first inviting experts from the ESPON community to test it. Beyond the ESPON QoL project frame, a more elaborated online tool could be made available for testing the perception of QoL data and trends with other European communities (e.g. the Members of the European Parliament) or for local applications with the citizens (when sufficient time series of QoL indicators are available for a local area)

5. **Influence policy**: Communicate with, involve, and create buy-in of government departments and wider stakeholders as early as possible in the development of the QoL framework. QoL frameworks often lead to a discussion of "why": why a trend is occurring? Why has there been a change in an indicator? This analysis of the story behind the statistics has an important influence on policy making. It moves the debate beyond a more narrow economic or service-specific focus; it helps policy makers understand the underlying conditions affecting communities' quality of life and what might be triggers for problems; it enables more impartial decision-making.

6. **Overcome challenges for implementing the QoL framework**: Consider developing a QoL framework as a change agenda, which requires time and resources. This requires an ongoing development of appropriate QoL indicators that reflect changes in quality of life and open access to sufficiently disaggregated data. The biggest challenges for implementing QoL frameworks are cultural, as QoL measurement requires a new way of thinking – less in silos, more open to cross-sectoral learning – as well as policy-makers mind-set change. QoL measurement shall also make strong use of existing data, which provides several other challenges, as:
    - **Choosing what to measure**. The domains of quality of life and objectives of a strategy may have been decided, but the question remains as to what can best indicate progress towards the QoL objectives. There is the continual issue of how closely the (available) chosen indicators approximate to a real change in quality of life.
    - **Availability of data**. It might be that a closed culture in government acts to prevent the sharing of data; or, in one city, the country's privacy law is an impediment, whilst in another the national statistics authority may charge for data. Regions and cities get around these impediments by narrowing down their ideal list of indicators (for the QoL domains) to what is available, for free.
    - **Depth of data**. Regions and cities struggle to find data that is significantly disaggregated to their level, especially when cities want to look at differences between neighbourhoods or municipalities.
    - **Impact on decision making**. Regions and cities feel that the impact they have on quality of life is muted by their lack of control over policy decision-making (for example health policy) or budgets, where higher-level government controls the expenditure on services that impact quality of life. This implies the impact of QoL frameworks would be increased if tiers of government (national, regional, local) had more aligned QoL aspirations and measures.
7. **Sustain**: Ensuring the longevity of QoL frameworks is a challenge. In many instances a prominent politician sponsors government framework, which provides momentum at the start of the process. However, in representative democracies political involvement is risky as the quality of life agenda may come to be seen as the domain of one party and, by implication, not something to be pursued by opposing parties. Quality of life needs to be secured independently of political patronage. At one end of the scale this is represented by the view that QoL initiatives should be data-driven, focusing on the delivery of accessible products, such as maps and profiles. Another path to influencing policy in a non-partisan way (that could be combined with the research emphasis) is QoL becoming a shared vision for government, which stretches beyond one political party or politician. To achieve this, administrators, government civil servants, and politicians need to work closely together to an overarching strategic purpose and goals (as for instance a Sustainable Development Goals Agenda 2030 for a territorial place would be).

To conclude the overview of the methodology, it is important to underline the policy relevance of the whole matter.

Quality of Life frameworks, on their surface, can be seen indeed as indicator projects of limited interest outside statistical departments. But in practice, changing how we measure the progress of communities necessitates a change in our understanding of the role of governments and how we can affect change through complex systems. Political leadership is required to ensure that QoL frameworks 'stay the course' and are able to achieve a real and lasting change to the view of what matters to citizens and governments.

In the context of our project, it will be key to anchor quality of life measurements to the SDGs Agenda 2030. The latter has been endorsed recently by the European Union, in the Draft Council conclusions of 29 March 2019 “Towards an ever more sustainable Union by 2030” (…). The Council urges the Commission to elaborate a comprehensive implementation strategy outlining timelines, objectives and concrete measures to reflect the 2030 Agenda and mainstream SDGs in all relevant EU internal and external policies. This comprehensive implementation strategy should use existing mechanisms for monitoring and reporting, so to avoid duplication and excessive administrative burdens, and the integrated follow-up and review of its implementation at EU level should be based on Eurostat’s progress analysis, which will continue to be developed and improved, when appropriate.

In this respect, the ESPON research on QoL measurements is set to contribute to this process, by improving the methodologies used to assess quality of life in the different regions, cities and territories of Europe. Policy recommendations from our project should also contribute to accelerate the mainstreaming of the 2030 Agenda and the SDGs in the field of EU territorial cohesion policies, and help to assess in particular “how the new Multiannual-Financial-Framework (MFF) can support the implementation of the 2030 Agenda”[13], by providing QoL measurements and parameters that could be used to optimise the distribution of structural funds according to quality of life priorities.

[13] Draft Council Conclusions 29 March 2019, page 6

3 Methodological approach

3.1 Task 1: Establishment of an Advisory Group

3.1.1 Advisory Group composition

Members of the project Advisory Group (AG) have been identified in cooperation with the ESPON EGTC, the Project Support Team (PST) and the Chair of the Advisory Group, Enrico Giovannini.

The main criteria for selection was to ensure a wide representation of perspectives from quality of life data producers and/or users, inviting experts in charge of relevant research, data handling or policy dossiers related to the regional quality of life field of investigation. An additional criterion was to maximise the diversity of the group by nationality and gender.

A restricted list of 15 experts has been identified according to these criteria, and a letter of invitation sent to the members of the list. 11 experts confirmed. They are listed in the table below, with the indication of the main focus of expertise (short biographies are provided in **Annex 5**):

Table 3.1: Advisory Group List

	Expert	Affiliation	Main focus of expertise
1	Enrico Giovannini (Chair)	Department of Economics and Finance (DEF) – University of Rome "Tor Vergata", Via Columbia 2 - 00133 – Roma (Italy) Portavoce dell'Alleanza Italiana per lo Sviluppo Sostenibile (ASviS), Via Farini 17 – 00185 – Roma (Italy) www.asvis.it e www.festivalsviluppososteni bile.it	Beyond GDP measurements
2	Tomas Hanell	D.Sc. (Tech.), MSc (Econ.) Postdoctoral researcher University of Helsinki, Faculty of Science Department of Geosciences and Geography, Spatial Policy, Politics and Planning Research Group P.o.Box 4 (Yliopistonkatu 3) FI-00014 University of Helsinki, FINLAND Web: www.helsinki.fi/spatial-policy-politics-and-planning	Regional QoL measurements & methodology
3	Kathrin Riedler	Policy Officer for Youth Employment European Commission Directorate-General for Employment, Social Affairs and Inclusion Unit B1 Employment Strategy J27 03/051 B-1049 Brussels/Belgium	Youth unemployment, NEET data and inclusion policies
4	Flavia Terribile	Chairman of the Committee for Regional Development OECD policies Director, Evaluation Unit of Public Investments Ministry of Economic Development Largo Pietro di Brazzà 86 00187 Rome Italy	Regional OECD statistics and policies

5	Johannes Krassnitzer	UNITED NATIONS UNDP ART Initiative Brussels	Localising SDGs, Human Development Index
6	Georgios Petras	European Committee of the Regions Commission for Social Policy, Education, Employment, Research and Culture (SEDEC) - C.3 Directorate C - Legislative Work Rue Belliard/Belliardstraat 101 1040 Bruxelles/Brussel www.cor.europa.eu	Employment, demography, work-life balance, social policies, poverty
7	Michael Green	CEO at Social Progress Imperative London, UK	Social Progress Index
8	Walter Rademarcher	President FENStatS http://fenstats.eu Postdoctoral Researcher at University La Sapienza, Rome	Embedding new quality of life & environmental measures in the evolving system of official statistics.
9	Rudina Toto	Coordinator of the Western Balkan Network on Territorial Governance (http://tg-web.eu/) Research Director at Co-PLAN, Institute for Habitat Development Tirana, Albania	Data, environmental indicators and policies in the Western Balkans
10	Maros Finka	Director of the Slovak University of Technology (STUBA) Vazovova 5 81243 Bratislava Office of the Vice-Prime Minister of the SR, expert UN Habitat III expert East China Normal University, professor Slovak Smart City Cluster, co-chair SPECTRA Centre of Excellence of the EU and Institute of Management. www.stuba.sk, www.spectra-perseus.org	Urban planning and QoL indicators
11	Norry Schneider	Coordination of the Luxembourg Transition Platform Centre for Ecological Learning Luxembourg (CELL) www.cell.lu	Transition Town movement, focusing on the energy transition and the societal and behavioural shift to circular economy and living

The EUROSTAT Unit in charge of the Quality of Life Report (Eurostat 2017a) was invited to appoint an expert to the AG, but could not confirm due to current organizational constraints which made not possible for the invited experts to participate. However, through the ESPON EGTC we will continue to connect with them and be ready to involve them later in the project life if the current constraints will be overcome.

3.1.2 Advisory Group purpose

The primary purpose of the Advisory Group is to make a link and establish an as far as possible mutual cooperation between the ESPON QoL project and the activities related to some main aspects and/or methodologies for the measurement of the Quality of Life the invited members may be aware or in charge of.

A mutual cooperation attitude will be fostered since the inception of the AG activities, by:sharing the purpose of the study (described in section 1.1 of this report) and asking the members to

what extent (e.g. in relation to which QoL dimensions or methodologies) and how we could benefit from their own work and they could benefit from our research. This with the aim to enhance the complementarity of the ESPON QoL activities and expected outcomes with the already existing projects and initiatives, and identify opportunities for mutually beneficial cooperation for the purpose of improving the measurement of the Quality of Life at territorial level in Europe.

After a first round to share the different perspectives of the AG members, they will be asked to assess from their own perspectives:

- the quality our project approach and results at the inception, intermediate and draft final report stages;
- which complementarities could be found with QoL measurements activities they are aware or in charge of, and in particular any opportunity for the ESPON QoL results to feed on going and future QoL measurement and/or strategic policy making.

3.1.3 Advisory Group procedures

The AG will meet three times during the project, ordinarily for half a day in Brussels:

- Inception AG meeting: On 24th June 2019
- Intermediate AG meeting: In January 2020 (date to be confirmed).
- Final AG meeting: In June 2020 (date to be confirmed)

The agenda and pertinent materials will be sent to the AG members one week before each meeting. Pertinent materials for the three meetings will include respectively the final drafts of the inception report, of the intermediate report and of the final report. These drafts will include executive summaries that will allow to grasp the key points and results of the research. The AG members will be invited to comment the reports at the meetings, and they may send as well written comments shortly after the meetings by e-mail.

The AG meetings' discussions will be moderated and the results reported in a fair way, highlighting the consensus achieved or the reasons for any dissent may emerge in the discussion. The ownership and responsibility of the project outcomes and policy recommendations will remain fully in charge of the consortium and supported as appropriate by the ESPON EGTC.

Unless opportunities emerge to involve one or more members of the AG in deepening some specific aspects with ad hoc commitments, the AG members will be asked to accompany our study with their advice, but not to elaborate elements of the study.[14]

3.1.4 Advisory Group activities

The following table summarise the activities planned for the Advisory Group milestone meetings:

Table 3.2: Advisory Group activities

[14] At present, an ad hoc commitment has been arranged with the Chair, to provide a peer-review of the reports before these are distributed to the AG members. Other ad hoc commitments may be needed on specific topics, namely the situation in the Balkans and the use of big data to support OoL data collection and analysis.

Meeting	Agenda	Time
Inception AG Meeting 24-06-2019 Brussels-Factory Forty	Welcome o Project Officer o Tender coordinator o AG Chair First round: Sharing the ESPON QoL purpose and complementarities with the AG members activities (up to 10 min. per member) Second round: o Presentation of the Inception Report (Carlo Sessa) o Discussion (up to 10 minutes per member) Next steps: o Interactions until the next meeting in January 2020 o Date of the January meeting	12.30-12.45 12.45-14.15 14.15-14.30 14.30-16.00 16.00-16.30
Intermediate AG meeting January 2020 (date to be confirmed)	Discussion of the Interim Report (detailed agenda in the due course)	12.30-16.30
Final AG meeting June 2020 (date to be confirmed)	Discussion of the Draft Final Report (detailed agenda in the due course)	12.30-16.30

Besides the 3 milestone AG meetings, ad hoc interactions will be organised between the meetings with single members of the AG, to keep them updated of ongoing project developments in their field of expertise and interest, and when it is appropriate to ask for specific advice.

One general activity engaging all the AG members will concern the weighting of QoL domains and indicators according to policy priorities, in particular those for the EU contribution to the SDGs Agenda 2030 and the cohesion policy.

Other expected interactions until the next meeting will be planned at the end of each AG meeting and reported in the minutes, with the detail of the AG members involved, interaction activity, and time schedule.

3.2 Task 2: Gathering and updating data, indicators and evidence related to quality of life at regional level

The objective of Task 2 is to consolidate a regional database on Quality of Life data and indicators, complementing the work already done by EUROSTAT, the OECD and the UN with the gathering of data, indicators and evidence related to measuring quality of life at regional level by considering the diversity of European territories.

Identification of QoL indicators, methodologies to produce them and data required

The first activity will consist on identifying the existing Quality of Life indicators and documenting them using normalised templates that will clearly identify -at least- time and spatial data resolution (NUTSX, raster, grid…), calculation methodology behind the indicator, main data sources, and parties responsible. The objective of this activity is assessing to what extent regional data available at ESPON, EUROSTAT or other sources is sufficient to recreate proxies of identified QoL indicators at Regional Level.

The tables showing data availability for different territorial levels are included in the Annex 3, after the description of the BES benchmark framework.

Table 3.3. Indicators classified by domain used in different Quality of Life Index methodologies.

Domain	Indicator	UN Human Development Index (HDI)	UN World Health Organization Quality of Life[1]	OECD	The Legatum Prosperity Index	Global Social Progress Index (SPI)	FLAGSHIP – Social Welfare Index	European Social Progress Index (EU-SPI)	Canadian Index of wellbeing	Australian Unity Wellbeing Index (AUWI)	UK Prosperity Index	Bhutan's Gross National Happiness Index	AARP Livability Index	Economist Intelligences – Quality of life	MERCER Quality of life	Movehub - Quality of Life Index	Ferrans and Powers – Quality of life index	Expat Insider - Quality of Life Index	Expat Insider - Quality of Urban Life Index	NUMBEO – Quality of life	Canterbury Wellbeing Index	Charlotte/Mecklenburg Quality of Life Explorer	EUROSTAT QoL[2]
Material living conditions	Income	x	x	x	x				x	x	x	x	x			x	x			x	x	x	x
	Consumption				x		x								x								x
	Material conditions (deprivation, housing)			x		x		x	x		x	x	x		x	x				x	x	x	x
Productive or other activities	Quantity of employment			x					x		x		x	x			x				x	x	x
	Quality of employment			x	x				x		x	x									x	x	x
	Other main activities		x						x		x	x									x		x
Health	Life expectancy	x				x		x	x		x			x			x	x	x			x	x
	Morbidity		x		x	x		x	x	x	x		x				x	x	x		x		x
	Healthy and unhealthy behaviors		x			x		x	x		x		x		x		x				x		x
	Access to healthcare		x	x	x	x		x	x				x		x	x	x		x	x	x	x	x
Education	Educational attainment			x	x	x		x	x		x	x	x				x				x	x	x
	Self-reported skills			x		x		x	x		x	x					x						x
	Lifelong learning	x		x	x	x		x	x												x		x
	Opportunities		x			x		x	x						x		x					x	x
Leisure and social interactions	Leisure		x			x		x	x				x		x		x	x	x		x	x	x
	Social interactions		x	x	x	x		x	x	x	x	x	x				x				x	x	x
Economic and physical safety	Economic security and vulnerability			x	x	x		x	x	x					x								x
	Physical and personal security		x	x	x	x		x	x	x	x	x	x	x	x	x		x		x	x	x	x
Governance and basic rights	Trust/satisfaction in institutions and public services					x		x	x	x	x			x	x				x	x			x
	Discrimination and equal opportunities				x	x	x	x	x					x	x								x
	Active citizenship			x	x	x		x	x		x	x	x							x	x	x	x
Natural and living environment	Pollution		x	x	x	x	x	x	x	x	x	x	x		x	x			x	x	x		x
	Access to green and recreational spaces					x		x			x	x	x								x	x	x
	Landscape and built environment		x		x	x		x						x	x				x	x			x
Overall experience of life	Life satisfaction			x						x		x					x	x			x		x
	Affects																						x
Others	Traffic commute		x										x			x		x	x		x	x	
	Digital life										x		x					x					

**Does not provide an aggregated index*

Identification Regional data suitable for Quality of Life measurement

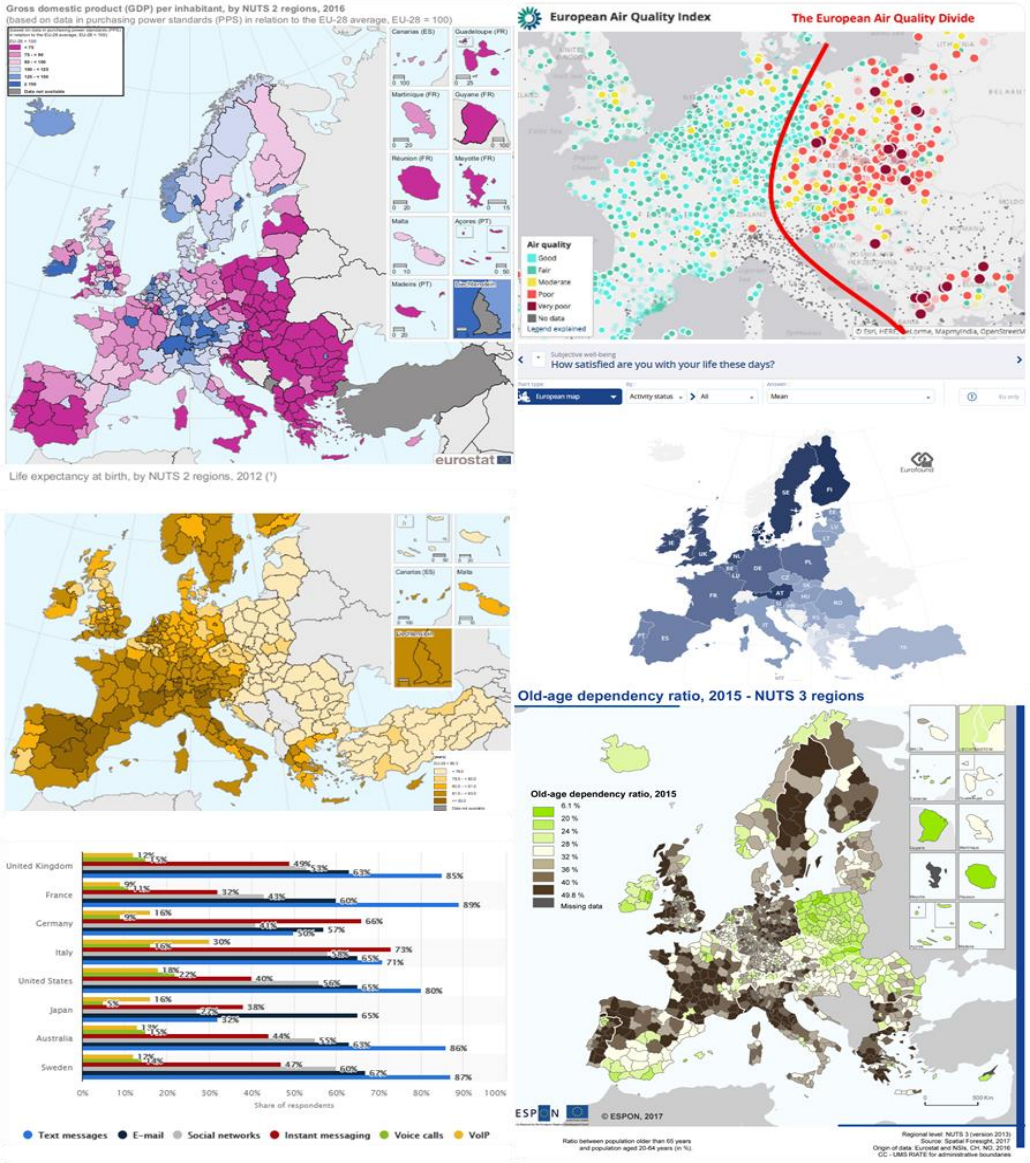
In particular, the following elements will be considered:

- Indicator systems covering social aspects related to QoL, such as United Nations Sustainable Development Goals indicators (UN-SGDs) and the EU Regional Social Progress Indicators (EU-SPI). These may be useful for re-elaborating QoL indexes identified in previous tasks, but at a regional level this time.
- Availability of structural data (e.g. population, population by age, economy, labour, income distribution, geography, environment) at sub-regional/functional urban areas level, especially to support case studies selection and later on comparability. One source to mention in this respect is the OECD database to compare metropolitan areas in OECD countries [15]
- Urban and rural areas are two central concepts used by a wide range of policymakers, researchers, national administrations and international organisations such as the OECD, the UN and the EU. These two terms are readily understood by the general public, but a clear definition at the international level has remained elusive. For example, the UN publishes data on cities, urban areas and rural areas, but relies almost entirely on national definitions of these areas. The UN principles and recommendations state that due to different characteristics of urban and rural areas across the globe, a global definition is not possible. These recommendations also draw attention to the difficulty of finding data for these areas. The new degree of urbanisation provides a solution for this double problem of data availability and lack of a shared definition. In the European Union and the European Free Trade Association (EFTA) countries (Iceland, Liechtenstein, Norway and Switzerland), the new degree of urbanisation provides access to data from a wide range of surveys, including the labour force survey and the survey on income and living conditions. This new degree of urbanisation also introduces a new harmonised city definition, which was developed in close cooperation with the OECD (Dijkstra, L., Poelman, H., 2014).
- Data based on raster, grid, Big Data or collaborative data providers will be also considered, like NUMBEO's database on urban cost life and citizen satisfaction, World Bank's experience on mapping poverty with satellite data (Orbital Insight), or census/register data already available at grid level for a number of EU countries.

Data identification is ongoing, focusing on the key topic preliminary identified in most QoL reference indexes. The next images show how many of these indicators can be represented at regional level, showing important contrast among different regions in Europe.

[15] (https://stats.oecd.org/Index.aspx?DataSetCode=CITIES)

Figure 3.1: regional data representation of indicators commonly used for creation of QoL.[16]



Geographical level, scales and coverage

The entire ESPON space will be covered and the data situation in the Balkan countries will be assessed. Considering that some members' states are represented at national level as NUTS 2, the quality of life analyses will consider the regional and local dimensions and go beyond NUTS 3 level.

Data available at regional level mostly originates either from ESPON Base Indicators, a set of 35-40 structural indicators for which ESPON keeps updated and harmonised time series (with approximately 60% of them being at NUTS2 or NUTS3 level), or from the regionalisation of EU2020 strategy Monitor Indicators maintained by EUROSTAT / DG Regio. Such indicators mostly include demographic issues (including demographic structures), data on income (e.g.

[16] Data indicates sensible regional contrast for several of these indicators. GDP per capita (top left), air quality (top right), Life expectancy (middle left), satisfaction (middle right), social interactions (bottom left) and old-age dependency (bottom right). Data sources: EEA, Eurofound, Statista, EFTA

GDP, GDP per capita), possibility to income access (e.g. risk of poverty, severe deprivation…), employment/unemployment, human capital (e.g. tertiary education), data on quality of governance derived from Goteborg University work, and environmental data, mostly on air quality (emissions) and land cover (imperviousness, green infrastructure, …).

For territorial divisions smaller than NUTS3, the analyses will be based on data existing at raster level and LAU2 level. At this regard, the European Environment Agency (EEA), Eurostat, the Joint Research Centre (JRC) and Global Human Settlement (GHS) are producing data at grid level that will be considered (population, environmental conditions and exposures, land cover, but also some socio-economic data), although in some cases , this data does not go beyond the level of dot data associated to punctual measurements or estimates (e.g. climate change risks).

As for the interlinkage with other ESPON projects, ESPON produced in the past some grid data in the frame of the ESPON DB2 project, and is currently working on further developing OLAP technologies for more grid data in the frame of the ESPON Functional Urban Areas project. It will be explored if they can participate and/or add some input to the project.

There will be continuous contact with the ESPON European and Macro-regional Territorial Monitoring (EMTM) project, as in the frame of the EU Strategy for the Adriatic and Ionian Region (EUSAIR) they are gathering data not available on EUROSTAT nor the ESPON database. They have reviewed the existing data in the national statistical online sites of Albania, Montenegro, Macedonia, Bosnia & Herzegovina and Serbia.

The data was available at territorial levels equivalent to NUTS2 or NUTS3 and even LAU2, but many indicators existed only at national level. These indicators will be available in the ESPON EMTM tool.

For full relation of available identified sets, see Annex at the end of the report.

Establishing a database of existing indicators and evidence

Available data will be integrated in an ESPON QoL Database. This database will support further research activities within the project, and will aim at enlarging existing ESPON Database in the field of Quality of Life.

Data will be harmonised as much as possible at temporal and spatial levels.

The geographical coverage of the data collection will encompass all the countries participating in the ESPON 2020 Cooperation Programme (EU28 plus Switzerland, Iceland, Liechtenstein, Norway) as much as possible, as well as EU Candidate Countries (i.e. Albania, Republic of North Macedonia, Montenegro, Serbia, Turkey) and/or the other countries of the Western Balkans (i.e. Bosnia and Herzegovina, Kosovo under UN Security Council Resolution 1244).

Special attention will be paid to fill data gaps for the ESPON Partner States, i.e. Switzerland, Iceland, Liechtenstein, and Norway. NUTS data will be gathered using latest 2016 NUTS system; data based on previous NUTS systems will be harmonized to fit 2016 NUTS geometries, whenever possible.

The database will closely follow data and metadata protocols defined by ESPON Database project to ensure data compatibility with ESPON Database.

Strategy to assess data availability and overcome gaps

A critical review of data identified in previous tasks will be made in this task, generating a comprehensive report assessing 1) existing QoL indicators and their calculation methods, 2) available data suitable for QoL monitoring in Europe at regional level, and 3) innovative estimation methods for better developing underlying concepts and methods.

To overcome expected lack of data at the deepest of the territorial dimensions (NUTS3 and specially beyond NUTS3), the main strategy will be on the one side working with definitions of synthetic indicators that will consider the main dimensions for QoL but eventually consider only a few indicators or just one structural indicator for each of these dimensions, then work closely with other ongoing projects producing regional data that can be used as well (e.g ESPON Fuore).

3.3 Task 3: Propose and develop a methodology for measuring quality of life at regional level

As detailed in the overview of the project context above, the methodology for measuring quality of life at regional level (including weighting and calibrations for different types of territories) encompasses four steps:

1. The selection of QoL indicators
2. The weighing and calibration of QoL indicators (for different types of territories)
3. The testing and validation of QoL indicators
4. The analysis and visualization of QoL indicators

The factfulness-approach will underlie and inform each of these steps, along with input from the advisory group (Task 1) and input from the case studies (Task 5). Before discussing the four steps in more detail and providing our responses to the feedback received during the KO meeting, it is important to note that our methodology (consisting of 4 steps) encompasses the (more elaborately detailed) steps of previously established *generic* methodologies to develop composite scales, consisting of the following 10 (see OECD-JRC-EC (2008) and JRC-COIN (2018)):

1. Theoretical/Conceptual framework
2. Data selection
3. Data treatment
4. Multivariate analysis
5. Normalisation
6. Weighting and aggregation
7. Uncertainty and sensitivity analysis
8. Relation to other indicators
9. Decomposition into the underlying indicators
10. Visualisation of the results

Wherever possible we will make use of these textbook materials (OECD-JRC-EC, 2008; JRC-COI, 2018) to execute certain (intermediate) steps and/or motivate certain decisions (e.g. regarding normalization of the data or determining the weights). Note that Joskin (2018) provides an application of the methodology to QoL (in Belgium).

In the following the four steps will be further elaborated upon taking into account the feedback received during the KO meeting, in particular related to the use/inclusion of qualitative information, soft factors and big data.

3.3.1 The selection of QoL indicators

With regard to the selection of indicators, the following criteria can be listed, namely the indicators must:

1. unequivocally contribute to QoL,
2. cover (as a set) all relevant QoL domains (e.g. material living conditions, health, leisure, environment, etc.),

3. include both objective and subjective dimensions,
4. be complementary to EUROSTAT, the OECD and the UN,
5. be able to capture the effects of regional policy interventions, and
6. have a high political, technical and communication utility.

An additional practical requirement is that data for the indicators must be available over time (e.g. cover recent and/or multiple years) and space (ideally with a NUTS 3 or lower detail) and originate from a credible and transparent source (as identified in Tasks 2: existing data and data-gaps).

Objective and subjective QoL indicators

Regarding the use of objective and subjective QoL indicators (the third criterion above) it is important to first clarify the definitions:

- **Objective QoL indicators** are defined as intersubjective conditions calculated/measured based on factual information, and
- **Subjective QoL indicators** are defined as subject-dependent evaluations made by individuals as measured, for example, via large-scale surveys or the use of twitter data.

In everyday language the 'objective-subjective' distinction may be used interchangeably with the distinctions 'quantitative-qualitative' or 'soft-hard' factors, yet we believe these latter distinctions less precisely convey the meaning of the definitions provided above. For example, the distinction quantitative-qualitative may also refer to the question whether QoL is assessed/measured using quantitative or qualitative research methods (which is another discussion). In a similar fashion, the soft/hard distinction indeed also to some extent overlaps with the subjective/objective one, but also relates to the distinction between (traditionally considered) material conditions, like income per capita (a 'hard' factor) and post-material conditions, like quality of the environment (a 'soft' factor). For this, no explicit distinction needs to be made, since criterion 2 above already ensures that these various domains will be considered.

Before going into the selection of objective and subjective QoL indicators in the proposed methodology, it is good to elaborate further on our motivation behind the decision to consider both types of indicators. Indeed, any methodology that aims at measuring QoL will be more valid and reliable when both objective and subjective QoL indicators are taken into account. This is because they complement each other's strengths and (thereby) compensate for each other's weaknesses.

Objective indicators have the desirable property that they (when defined and measured in the same way) can unambiguously be used for interregional comparisons, showing factually which regions perform better or worse. Yet, their selection can be quite normative. For example, it is clear that indicators such as access to jobs or the unemployment rate capture relevant components of QoL, but should access to a cinema or engagement in voluntary work also be considered as relevant components of QoL? Incidentally, this kind of dilemmas explain why it will be crucial to discuss and get the input from the advisory group in the indicator selection process. Because subjective indicators of QoL are based on the subjective evaluations expressed by individuals, the problem of making normative decisions related to the question what counts as QoL (or not) is to some extent circumvented. In the end, one can argue that what is relevant to people actually living in the specific regions should be considered relevant to QoL.

Yet, subjective QoL indicators suffer from the general problem that they are 'biased' by specific standards and/or aspirations, which may vary across individuals and contexts. The relationship between income and subjective well-being is illustrative. Empirical research generally shows

that when income increases, subjective well-being also increases (in the short term). However, due to the increase in income, the standard related to what is considered as an acceptable level of income also increases. As a result, when the higher standard is used to evaluate the new level of income, the initial wellbeing-gain by the increase in income eventually wears off (in the long term).[17] This mechanism similarly applies to subjective QoL dimensions. As a result, one region may objectively score higher on a certain QoL indicator than another, but may have a similar subjective QoL rating due to differences in standards across the two regions as to what constitutes 'high quality' (for that respective indicator). Obviously, objective QoL indicators do not suffer from this problem. Given that objective and subjective QoL indicators naturally complement each other, both will be considered in the proposed methodology.

Using the capability approach to guide indicator selection

The selection of relevant QoL indicators is inherently normative and subjective in nature; what is considered as a relevant component of QoL may differ from person to person. Therefore, in order to transcend any single individual (perspective) and arrive at an intersubjective valid measurement of well-being/QoL, a sound theoretical/normative framework related to wellbeing and quality of life is crucial. Such a framework may then be used to guide indicator selection (and weighing).

Based on a review of studies aimed at measuring well-being and QoL in a regional setting, Hanell (2018) recently concluded that such a theoretical basis is often lacking. In fact, regarding indicator selection (and weighting) most studies proceed in an exploratively and ad-hoc fashion. Consequently, it may happen that indicators related to the same latent construct end up to be considered in different dimensions, resulting in a skewed weighting of that respective latent construct in the final composite index. Also, it is not clear whether important indicators are missing from the measurement.

To address this overt lack of theory, Robeyns and Van der Veen (2007) have argued that Amartia Sen's capability approach is a suitable theoretical framework (and preferred compared to other frameworks) to conceptualise QoL and support indicator selection. The main premise of the capability approach is that quality of life is determined by real opportunities of individuals to function in various areas of social life according to their preferences. Hence, the principle goal is to guarantee real options, termed 'capabilities', which allow citizens to make their own choices regarding the levels of functioning they would wish to realize, given their own ideas about what is the good life. This notion deviates from subjective well-being approaches, which, as stated above, may be strongly biased by mental adaptation and social comparisons. In this context, Amartia Sen gives the example of people living in slums who, despite their poor objective living conditions, mentally adapt to their situation and can be fairly happy in life. From a policy perspective it would obviously not make any sense to qualify such situations as reflecting states of high QoL.

Recently, Hanell (2018) adapted the conceptualization of Robeyns and Van der Veen (2007) and used it to operationalise and measure QoL at the level of European regions (NUTS 2 level). The developed index is based on the 8 (+1) domains of Quality of Life developed by Eurostat

[17] As the historian Yuval Noah Harari elegantly says "*Homo Sapiens* is just not built for satisfaction. Human happiness depends less on objective conditions and more on our own expectations. Expectations, however, tend to adapt to conditions, including to the condition of other people. When things improve, expectations balloon, and consequently even dramatic improvements in conditions might leave us as dissatisfied as before." (Y. N. Harari, 2018, page 41)

(2017) (excluding life satisfaction itself). The selection of specific indicators is guided by the capability approach. Hanell shows that the index has high concurrent validity (being highly correlated with similar measures like the European Regional Social Progess Index), high predictive validity (being highly correlated with overall life satisfaction and happiness) and high reliability (Cronbach's Alpha of almost 0.9), thereby proving to be a suitable and effective index to measure quality of life at the regional level.

The present project will further be built on the capability approach as well as the recent work of Hanell (2018). The reason is that the capability approach combines the best of two alternative approaches, namely the resource-based approach (focused only on objective dimensions and conditions) and the life satisfaction approach (focused only on subjective dimensions and outcomes). In the words of Robeyns and Van der Veen (2007, p.13): "On the one hand, the capability approach extends beyond the resource approach, which denies the political legitimacy of formulating an intersubjectively valid conception of life quality. On the other hand, it locates that conception downstream of the utility metric, as it were. Although having the capabilities to function will usually cause subjective well-being, this well-being is seen as an evidently desirable by-product of life quality, not as its substance."

Hence, the indicator selection will be primarily guided by the capability approach. However, the selected indicators should also be suitable from the practical perspective. This means that input from the advisory group as well as insights from the case studies are also crucial at this stage and will be used to support indicator selection. Moreover, in addition to the study of Hanell (2018), a distinction will be made between headline and supplementary indicators as well as between input, output and process indicators.

The measurement of QoL indicators: existing and new sources

To measure the selected QoL indicators various data sources will be considered, which have been reviewed in Tasks 2. Here, we will reflect on specific issues raised during the KO meeting, namely the use of qualitative data, defined here as subjective QoL indicators, and Big Data.

The typical way to measure subjective QoL indicators is via the use of surveys. At the European/Global level the available sources are the following:

- The European Quality of Life Survey (EQLS) (Eurofound, 2018)
- Survey of Income and Living Conditions (EU-SILC) (Eurostat, 2017)
- The European Social Survey (ESS) (ESS, 2018)
- The World Values Survey (WVS, 2018)
- The Gallop World Poll (Gallup, 2018)

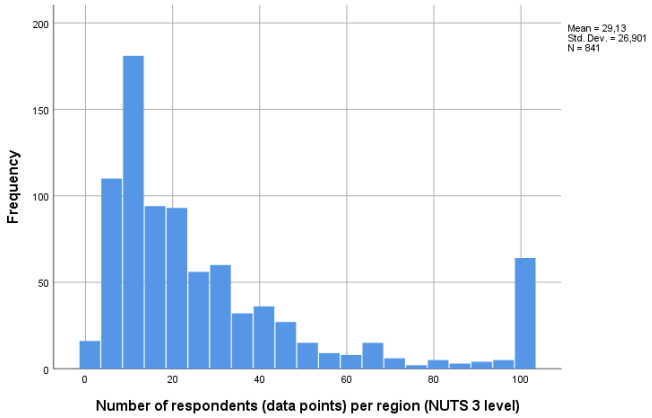


Figure 3.2: Number of respondents per region[18]

For the current project, the EQLS will likely form the most prominent of source of data, as it covers most of the domains considered relevant to QoL. However, the use of this dataset for low levels of aggregation (NUTS 3 and lower) can result in the exclusion of many regions. Figure 2.2 below illustrates this problem by plotting the number of respondents for each of the NUTS 3 regions represented in the dataset.

In total, 841 (out of 1342 regions at NUTS 3 level) are represented in the data and out of those only 422 regions have 20 respondents or more (the absolute lower bound for a reliable estimate). This means that only 31,4% of the regions are eventually represented in the analysis, underrepresenting small and/or low-density regions.

To address this coverage problem, innovative (Big Data) sources may be considered. For example, in several recent studies, researchers have experimented with the use of (geotagged) Facebook and Twitter data to measure regional differences in happiness/wellbeing (Curini, 2015; Mitchell et al., 2013; Nguyen et al., 2016; Schwartz, et al., 2013; Zivanovic, 2018). Several of these studies have also been reviewed in the most recent edition of the World Hapiness Report (Helliwell et al., 2019).

To give one example, Mitchell et al. (2013) used a corpus of over 10 million geotagged tweets to develop a happiness-index at the state-level in the US. In this study, the happiness-level of a text (a tweet) was established by using survey data related to the happiness level associated with individual words (in a separate data collection effort 10,000 frequently used words were scored on a 9-point scale from 1 (sad) to 9 (happy)). In a next step the data were aggregated at the state-level. At this level, sizable correlations were found between the constructed index and other wellbeing measures. For example, a correlation of 0.51 was found with the well-being measure from the Gallup poll. However, as concluded by the review of Helliwell et al. (2019), typically much lower correlations are found (especially at lower levels of aggregation). For example, a study conducted in Italy at the level of provinces found a correlation of -0.19 between the constructed happiness index (iHappy) and the rank in terms of QoL of each province (Curini et al., 2015).

In the present project, it will be explored whether Twitter data can be leveraged to measure subjective QoL. From the onset, however, several important caveats about using these data should be emphasised. Firstly, only a small portion of the adults (e.g. 15% in the US) is represented on twitter and young people are strongly over-represented. Secondly, existing algorithms to rate tweets only focus on overall happiness and are not geared towards the different QoL domains (leisure, heath, etc). And thirdly, the data may suffer from migration biases, i.e. sentiments felt in one location may be expressed in another (Nguyen et al., 2016). In general, the project is open to possibilities of including these new sources of data, but it is also aware of the (additional) limitations associated with them. At this stage, since the limitations detailed above will probably not be resolved in the near future, it is unlikely that social media data will actually be used in the project.

3.3.2 The weighting of QoL indicators (and calibration for different types of territories)

Once indicators and relevant data have been obtained, the second step is to weight and calibrate the indicators. This step is based on the notion that certain indicators may be less or

[18] Analysis based on EQLS dataset of 2016. Note: regions with more than 100 respondents are fixed to 100.

more relevant within certain territories, thereby allowing for better integration of the territorial context in the measurement of quality of life. For example, the weighting given to the level of access to services or jobs in rural regions might be different than in urban regions.

Similar to the selection of QoL indicators, the weighting of indicators is also inherently normative. The typical way to approach the weighting-problem is by letting the data determine the weights for the individual dimensions (using principal component analysis) and setting the weights for the dimensions equal to 1.

In line with the factfulness approach, it important to avoid the fallacy of the 'single perspective instinct' in this step, i.e. the notion that humans by nature are attracted to a single perspective or solution. By considering explicitly that weights for the criteria can be established in various ways (not only by data-driven methods but also by input from experts and local experiences), we will look at the weighting-problem from multiple angles and avoid focusing on a single solution.

In particular, as detailed in the original proposal, three complementary approaches will be adopted: an expert-based approach, a qualitative approach and a quantitative approach. The expert-based approach is based on the input from the advisory group (Tasks 1). As experts in the field of QoL measurement, their opinions may be translated to particular weights for the indicators. To this end, particular methods will be adopted, such as Best-Worst scaling or the Analytic Hierarchy Process (AHP) methodology. The qualitative approach will be based on the input from the case studies (Tasks 5). Here, the local experiences with integrating QoL in policy processes may be translated to particular weights for the indicators. Finally, we will contrast these two methods with the (typically adopted) quantitative approach, whereby we will use the observed data on the indicators to empirically derive weights.

3.3.3 The testing and validation of QoL indicators

To test and validate the indicators three approaches will be adopted. Firstly, the composite index can be quantitatively validated by assessing its concurrent validity (does is correlate with similar measures?), predictive validity (does it correlate with relevant outcomes?) and reliability (is the index internally consistent?).

Secondly, face validation will be performed through consultation of the experts in the advisory group. Here, as in the previous steps, insights from the factfulness approach will provide relevant input. For example, when performing the face validation of the established indicators by experts, it is important to assess whether their interpretations and judgments of the indicators are affected in any way by the ten instincts of the factfulness approach. Insights derived from this assessment may be used to reconfigure and/or reformulate indicators, so as to prevent the erroneous instincts.

And thirdly, the case studies will provide the necessary testing ground to field test the developed indicators and weights in actual practice. For example, it can be assessed whether observed changes in the index in the selected case study regions coincide with local experiences of regional policy actors and with specific regional policies that have been implemented to maintain or increase QoL. Another option is to reverse the process and select case study regions which have shown a large increase in the established QoL index. Such regions can be considered as exemplary 'best practice' cases (see also next section).

3.3.4 The analysis and visualization of QoL indicators

In the fourth and final step the indicators will be analysed and visualised (this step will be executed in Tasks 4). Here, it is important to consider explicitly and thoughtfully which research questions will be answered and how they will be answered (through relevant visualizations) to

prevent the occurrence of the erroneous instincts as defined by the factfulness approach. For example, in answering the question how the indicators are affected by income or level of education, the gap and generalization instinct may be prevented by not only considering the categories 'low' and 'high', but by also taking into account intermediate categories which (most likely) encompass the majority of the population.

Another particular instinct which may be avoided in this step is the 'destiny instinct', the idea that things are as they are for ineluctable, inescapable reasons: they have always been this way and will never change. Typically, studies focusing on regional QoL assume a static approach, showing how various regions score on the constructed QoL indicators/indices *at one point in time*. As also noted by Hanell (2018), time itself is often neglected as a relevant dimension. Hence, a particular interesting analysis would be to assess in which regions the QoL indicators (or the constructed index) actually increased/decreased (over the last years or decade), and if the drivers behind the changes can be identified. Such an analysis would also be highly relevant to policy, as the regions with the largest positive changes may be considered as exemplary 'best practice' cases and (thereby) may provide inspiration for other regions.

3.4 Task 4: Mapping and analysing quality of life in European regions, metropolitan areas and urban and rural regions

The objective of this Task is to carry out an analysis on quality of life in Europe at sub-national level based on data, indicators and evidence gathered and the methodology developed in the previous Tasks 2 and 3 respectively. The aim is also to feed into the following Tasks 5 and 6, where insights about measuring quality of life can be better integrated in the future in policy processes and strategies.

Mapping Quality of Life across Europe

We will map most prominent indicators defined and other variables of interest in order to understand the different dimensions of QoL in Europe. Maps will cover the highest NUTS level possible or will go beyond Nuts if possible, according to the available data. They will both cover most recent data available and evolution between the oldest and the newest yearly data available, so that relative progresses in different regions can be visualised. They will encompass a variety of territorial typologies, so that better understanding of interrelations between QoL and different territorial characteristics can be achieved.

The production of the maps will be done using ArcGIS, using the ESPON map templates.

Analysis on the territorial dimensions of Quality of Life

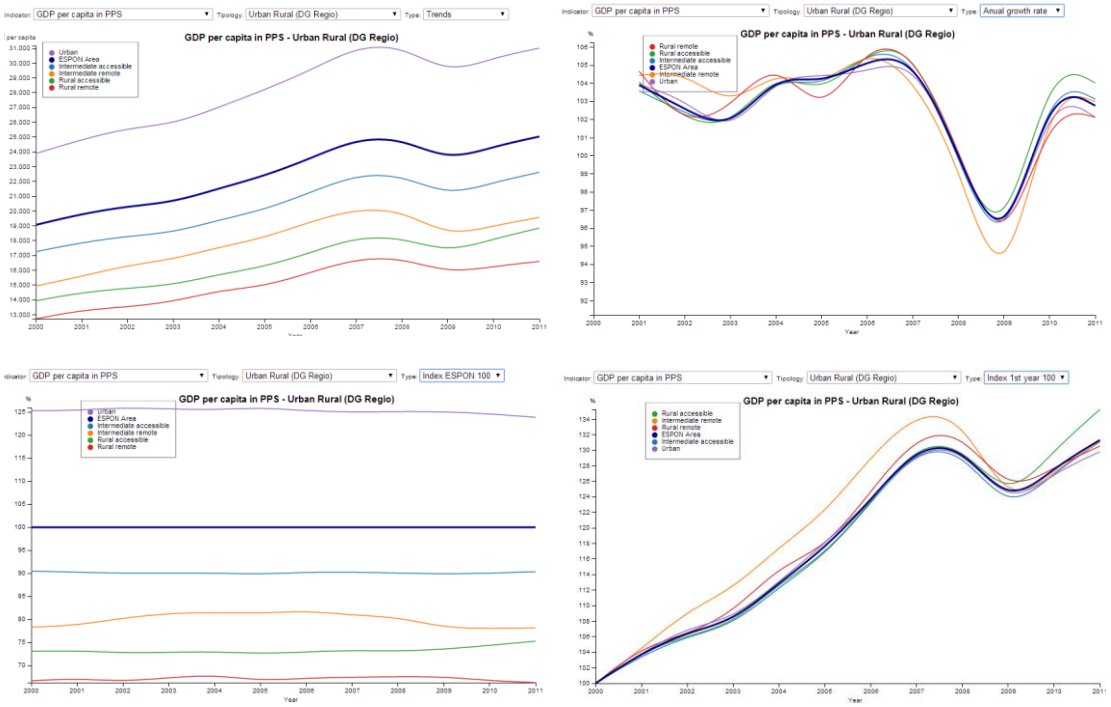
Key research questions will be addressed in this section, namely

1. What is the territorial dimension of quality of life?
2. How has it been progressing throughout time?
3. How does quality of life relate to economic growth, the environment, governance, social aspects?
4. Which are the socio-economic, demographic and territorial factors to be taken into account?
5. What territorial patterns and disparities can be identified and how did they develop throughout time?

The analysis will be based on maps developed in previous activity, as well as analytical discussion of trends of QoL indicators by different territorial typologies (e.g. urban-rural, geographic specificities, Structural Funds eligibility…). Indicators can also be described and analysed in different ways, such as in absolute terms, or in relation to their time growth (if time series become available), or in relation to the ESPON average values. This approach was

already considered in the ESPON ETMS Project, and allowed identifying different trends for a number of indicators and for several different territorial typologies. An example is displayed in the next figure:

Figure 3.3: Indicator analysed in relation to different urban-rural typology categories and in different measure units[19]



Synthesis of Territorial typologies that will be considered

The use of typologies is aimed at identifying specific trends for single territorial typologies in Europe. For instance, it will be investigated if Quality of Life is systematically better for some kinds of regions opposed to others (e.g. eventually better in urban regions than in rural, or better in coastal regions than in mountainous or sparsely populated regions).

For this goal, we will consider as many typologies as possible, then try to identify those typologies that provide specific patterns and disregard those that do not. The departing point will be the typologies defined by ESPON, but the analysis will be completed by linking with other projects as appropriate. In particular, the EUROSTAT TERCET - Territorial typologies project will be considered.

To begin with, the following typologies will be considered:

- **Urban-rural typology by Eurostat TERCET**: "Predominantly urban, Intermediate, Predominantly rural"
- **Metropolitan Regions by Eurostat TERCET**: "Metropolitan regions, non-metropolitan regions". We will also consider previous 2012 typology by Eurostat further developing the concept onto "Capital cities, 2nd Tier Cities, Small metros and other metros"
- **Regions with Geographical Specificities**: "Coastal (defined by Eurostat), Mountain, Islands, Sparsely-Populated, Border, Outermost (defined by DGRegio)"

[19] GDP per Capita evolutions 2000-2012 in absolute terms (top left), annual growth rate (top right), index ESPON = 100 (bottom left) and index year 2000=100 (bottom right).

- **Structural Funds Eligibility criteria of the MFF 2014-2020**: “less developed, transition and more developed” regions
- **Transnational Cooperation Areas**: “Baltic, Danube, Alpine, Adriatic-Ionian”
- **EU2020 Strategy performance typology defined by ESPON Siesta** (University of Santiago et al, 2013): “GDP leaders, performance regions, on-the-move regions, and EU2020S challenging regions”.
- **Scientific Regions typology defined by ESPON KIT** (Politecnico di Milano et al, 2013): “scientific, research intensive, human capital intensive, no specialisation in knowledge regions”
- **Regions according to their geographical location as defined by ESPON ET2050** (Mcrit et al, 2014): “northern, Mediterranean, central&eastern, western regions”
- If data on Quality of Life becomes finally available at LAU level, we will also discuss trends based on other territories with geographical specificities:
- **Mountains, islands, coastal areas and sparsely populated areas as defined in the ESPON GEOSPECS** project (University of Geneva, 2012)
- **Data at city level based on data available at LUZ, FUA,**
- **Degree of Urbanisation (DEGURBA) level data**: “Cities, Towns and Suburbs, Rural areas”

Figure 3.4: Urban-rural and Metropolitan regions typologies by Eurostat TERCET. DegUrba typology at LAU level by Eurostat TERCET.

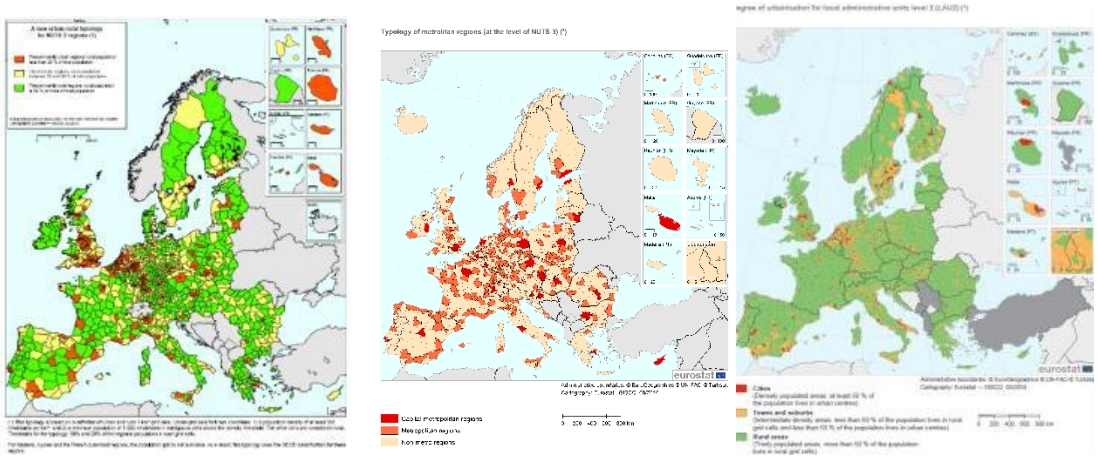


Figure 3.5: Typologies of Regions with Geographical Specificities by DGRegio and Eurostat (Mountain, SPA, Island and Coastal regions)

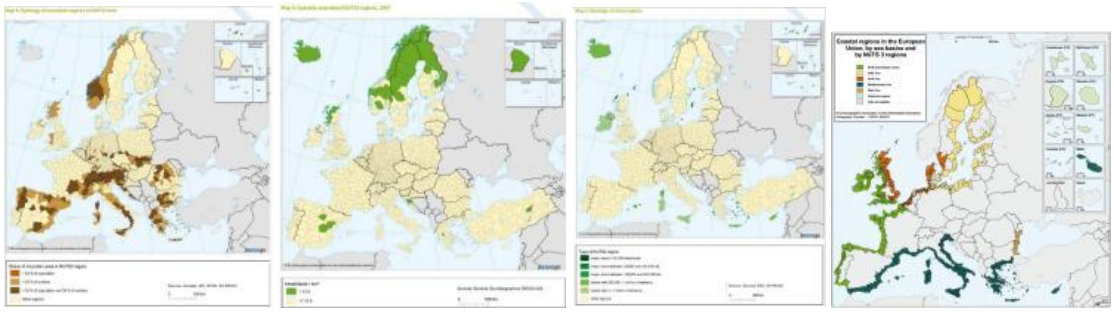
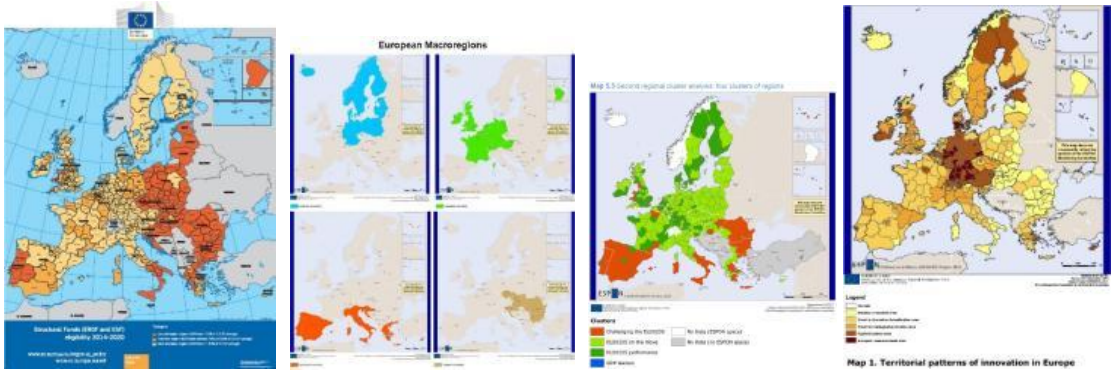


Figure 3.6: Cohesion Funds eligibility, EU Macroregions, EU2020S Performance, KIT Innovation typology



3.5 Task 5: Carry out minimum 5 case studies to identify good practices in integrating quality of life measurements in national, regional and local territorial development strategies

The case studies present an opportunity to analyse good practices in considering and integrating quality of life measurements in national, regional and local strategies, including also successful participative processes. They are also an opportunity to complement and test the findings developed in the previous tasks, in particular tasks 3 and 4.

The final proposal for the case studies will be based on the preliminary results of task 4 and presented in the Interim Report. The definitive list in the Interim Report will benefit of the knowledge on existing QoL measurement practices acquired from our intermediate stage reviews and possible further suggestions of the AG and PST members. In this revised Inception Report, we present the revised selection criteria and our proposal for the selection process based on quantitative ('hard') and qualitative ('soft') criteria. We also provide a further preliminary proposal of nine potential case studies – taking into account the comments made by the Project Support Team (PST) during the kick-off and inception meetings. If further interesting case studies should emerge as the work progresses, we would include them in the list of potential case studies. However, for logistic and resource reasons, we will implement between five and ten cases, located in different ESPON countries (so minimum five and maximum ten cases in between five and ten different countries) and representing a good mix of regions according to our selection criteria (see below). We have also been careful to include regions and territories in which QoL has already been addressed and practised in order to be able to compare and contrast existing experiences. The final mix will respect the criteria for selection and consider the practical feasibility of the cases to ensure effective outcomes.

3.5.1 Selection criteria

The revised selection criteria are presented and explained below.

Regions from the various ESPON territorial categories: Urban, Metropolitan, Border, Islands, Sparsely populated, Outermost, Mountains, Coastal and in industrial transition. The focus of the study is on providing evidence and recommendations on how measures related to quality of life in European cities and regions "can be promoted and achieved in practice by taking into consideration the diversity of the European territory in terms of socio-economic, cultural and environmental endowments but also demographic factors such as ageing and population structure".[20] For this reason, one of the defining criteria in the selection of case

[20] Terms of Reference – 'Quality of life measurements and methodology'

studies is the type of territory and ensuring that a good range of territories are represented in the case studies. The assumption is that the promotion and achievement of measures related to quality of life will be different in different territories as these face different challenges and have particular assets.[21] The study should lead to a "better understanding and choice of how quality of life aspects can be integrated in territorial development strategies at different geographical levels and in relation to a place-based approach to territorial development".[22]

Territories in which QoL has already been addressed, i.e. regions having already considered or developed an approach to measuring quality of life and/or which have previous experience in gathering information on relevant indicators and have decent regional data. Previous experience is so important because one of the further objectives of the study is to "understand the territorial dimensions of quality of life and to develop a rationale for applying particular indicators to measure quality of life at the sub-national and in particular regional levels"[23]. It will be crucial to understand how regions which have successfully integrated quality of life indicators into their regional monitoring (e.g. Finland or Iceland) have done so. In this manner, we have screened regions by looking at the databases of the United Nations and the OECD for evidence of action in relation to the SDGs and the better life index as well as Eurostat's own survey of life satisfaction.

GDP (combined with the Gini coefficient – see below). Although the whole purpose of this contract – addressing QoL measurements and methodology – is indeed to explore indicators going beyond GDP, GDP does tell the story of economic progress well over the long term. GDP is the sum of total value added in the economy, or total incomes, and involves a large number of assumptions or conventions. It puts equal weight on spending for current consumption and investment spending and it is of no use as an indicator of sustainability, or to measure whether future generations will be at least as well off as we are. Nevertheless, macroeconomic policy requires a measure of total economic activity and GDP is a long-established way of doing this[24]. For the present study, it serves as a sort of baseline or backdrop against which to look at other important indicators of social progress and well-being. In this sense, it can be kept in the 'toolbox' while using other indicators to assess policy.[25]

Gini index. The Gini index or Gini coefficient of equivalised disposable income is a statistical measure of income distribution within a population. It ranges from 0 to 100 with 0 representing total equality and 100 total inequality. As it is a measure of income distribution and not total wealth, a high-income country and low-income country can have a similar Gini coefficient as long as the incomes are distributed similarly. For example, Romania and the United Kingdom had the same Gini coefficient of 33.1 in 2017 and a number of the Central European EU Member States such as the Czech Republic, Slovenia and Slovakia have a lower Gini coefficient than France and Luxembourg.[26] The United Kingdom is an example of increasing inequality within a prosperous country as a consequence not only of the crisis but also economic policy since the 1980s. The the Gini coefficient is only available at national level

[21] Article 174 of the Treaty on the Functioning of the European Union (TFEU) and the Green Paper on Territorial Cohesion

[22] Terms of Reference – 'Quality of life measurements and methodology'

[23] Terms of Reference – 'Quality of life measurements and methodology'

[24] Diane Coyle on http://www.oecdbetterlifeindex.org/blog/is-gdp-still-useful.htm

[25] Dan Button, New Economics Foundation, in The Guardian, 10 June 2019

[26] Gini coefficient of equivalised disposable income - EU-SILC survey [ilc_di12], 05-06-2019

under Eurostat so we have used the OECD figures for regional income distribution (see table 6).

Population dynamics. Different regions are affected by different challenges in relation to population dynamics. Some are experiencing depopulation and ageing, others increasing populations and the subsequent effects on infrastructures. This has a significant effect on quality of life (e.g. full hospitals, overcrowding, over-stretched services on the one hand and the loss of services due to underuse and lack of resources on the other). Thus, we will use population dynamics such as population growth and ageing as important indicators in our selection of regions.

Eurostat average rating of satisfaction by domain. As an alternative and addition to GDP, we will be looking closely at existing evidence and other methods of measuring quality of life in this study. The Eurostat rating of satisfaction is one of these dashboard approaches and measures the following: Satisfaction with financial situation, satisfaction with accommodation, job satisfaction, satisfaction with commuting time, satisfaction with time use, overall life satisfaction, satisfaction with recreational and green areas, satisfaction with living environment, satisfaction with personal relationships and meaning of life.

OECD Better Life Index and Regional Well-Being measures. To inform our choice, we also look at the OECD Better Life Index. This will also be a source of information during the case studies. The OECD measures the housing, income, jobs, community, education, environment, civic engagement, health, life satisfaction, safety, and work-life balance dimensions. For the selection, the better life index gives a good and immediate overview of countries, each presented on the website as a flower. E.g. for Iceland[27], this is shown below with each of the petals describing the values of the indicator, e.g. the longest on is for environment.

Figure 3.7: Better life index: Iceland[28]

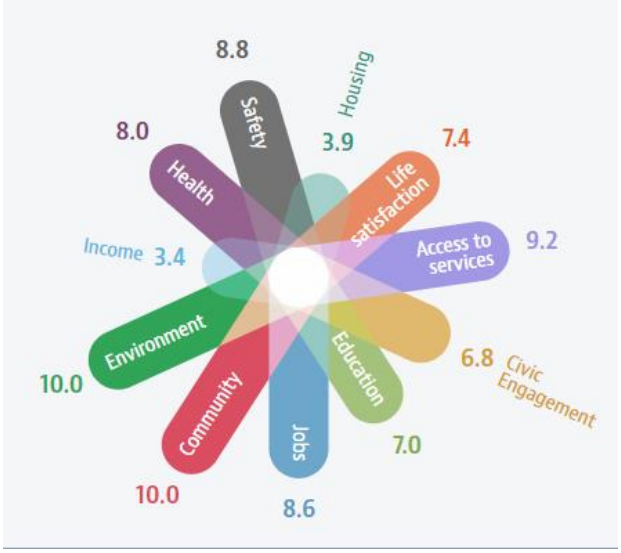
The website also gives interesting statistics and examples of projects and initiatives supporting quality of life, e.g. leveraging social media to increase public safety, and open government for the environment.

[27] http://www.oecdbetterlifeindex.org/countries/iceland/

[28] Source: http://www.oecdbetterlifeindex.org/countries/iceland/

At a regional level, the OECD measures of well-being provide an excellent source of good practice. In this initiative, each region score is measured using eleven topics which are nearly the same as the topics of the better life index: income, jobs, housing, health, access to services, environment, education, safety, civic engagement and governance, community, and life satisfaction. Here the results are also presented attractively and can be compared to other regions.

Figure 3.8: Reykjavik Region, Iceland: regional well-being[29]



Monitoring and implementation of the United Nations' Sustainable development goals (SDGs) and 2030 Agenda. We have also looked for countries which are interested in measuring and implementing the United Nations Sustainable Development Goals. Our findings include:

- NSDS - National Sustainable Development Strategies, Austria[30]
- The 2030 Agenda has sparked a mobilization in Spain and it has produced a report on the subject: Informe Nacional Espanol, Comisión de desarollo sostenible 18/1931
- Best practices from Finland, Making it happen[32]
- The government of Iceland is committed to the realization of the SDGs
- In Italy, the NSDS is endorsed by the Italian Council of Ministers. A future Plan of Action will be developed by the end of the year and will include numerical and quantitative targets at 2030, as well as monitoring and review mechanisms and analytical models capable of measuring the impacts of policies on the NSDS objectives. The NSDS will undergo an annual review and monitoring process.
- Luxembourg describes itself as a committed player in a multilateral world[33] and is committed to implementing the 2030 Agenda for sustainable development.

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[29] Source: https://www.oecdregionalwellbeing.org/IS01.html

[30]https://sustainabledevelopment.un.org/content/documents/dsd/dsd_aofw_ni/ni_pdfs/NationalReports/austria/Full_Report.pdf

[31]https://sustainabledevelopment.un.org/content/documents/dsd/dsd_aofw_ni/ni_pdfs/NationalReports/spain/Full_Report.pdf

[32]https://sustainabledevelopment.un.org/content/documents/dsd/dsd_aofw_ni/ni_pdfs/NationalReports/finland/FinlandMakingItHappen.pdf

[33] https://sustainabledevelopment.un.org/memberstates/luxembourg

- Likewise, the Netherlands is committed to the SDGs and the 2030 Agenda.
- Slovenia has a strong tradition of promoting sustainable development. Policies and measurements in the last decade have significantly contributed to the fact that in many areas Slovenia's current SDG performance is strong, notably in aspects of the environment, health, and sustainable tourism. Moreover, inequality has fallen and is among the lowest in OECD, as measured by income redistribution and income growth for the bottom 40% of the population.
- The UK was at the forefront of negotiating the SDGs and will be at the forefront of delivering them.

We will analyse to what extent other regions are following the SDG and 2030 Agenda and include those countries and regions in our case studies where there is evidence of them making a significant contribution.

Geographic spread across the EU. In order to ensure a certain representability, efforts will be made to ensure that the ten case studies in ten countries will be relatively evenly spread across the ESPON countries as well as across the ESPON categories of regions (see above).

3.5.2 Selection process

We have decided to start the selection process with those countries and regions where we can identify previous practice in addressing QoL. This has been the main criterion for the current proposal of case study regions and will be further explored and extended in the next phase of the research. The research will include a further screening of the OECD regional well-being statistics and the Monitoring and implementation of the United Nations' Sustainable development goals (SDGs). We will also report on the Eurostat average rating of satisfaction by domain. We expect to come up with a list of around twenty to thirty regions, including also the preliminary list of potential case studies presented in section 2.5.3 below.

We then propose to cluster these regions according to the ESPON territorial categories and ensure that all categories are represented.

For each of the regions in these clusters, we will additionally provide the GDP and population statistics and trends to ensure that we have good background data on the regions. We will undertake a ranking according to all these criteria with the aim of achieving an optimal mix of geographical distribution and diversity of practices in the final list of pilot case studies.

In a next step, we will pull out those five to ten regions that strike us as being both representative and interesting (ensuring that all clusters are covered whereby many regions adhere to more than one category). It is also the aim to have good geographic spread across the ESPON countries.

3.5.3 Preliminary proposal of nine potential case studies

The aim of the preliminary list of potential case studies is to show how the criteria apply to concrete cases. As mentioned above, this list will be expanded during the first phase of the research. The revised selection of case studies included in the Inception Report has been further revised in response to a suggestion from the PST member for Slovenia, Janja Pečar. The list now includes the cross-border region of Nova Gorica (SI) and Gorizia (IT) rather than Ljubljana region (Osrednjeslovenska at NUTS 3 level) as the latter includes the capital city and has better access to services and a higher standard of living than the cross-border region.

The Nova Gorica (SI) and Gorizia (IT) region is a predominantly rural region, close to a city, and with more than 50% of the surface covered by mountain areas. It is a cross-border case, with a European Grouping of Territorial Cooperation (EGTC GO) involving since 2010 the Comune of Gorizia (IT), Mestna občina Nova Gorica (SI) and Občina Sempeter-Vrtojba (SI).

The EGTC GO may be an interesting partner in the development of the case study as they are active in the field of health and social inclusion in the framework of Interreg V-A Italy-Slovenia as well as having a range of cultural initiatives.

While there is still a predominance of capital cities, we propose to leave these in as they represent important examples of experience with QoL. Vienna is repeatedly at the top of the tables in the Mercer Quality of Living Survey, whose 2019 ranking was dominated by European cities. Rome is proposed as it was the focus of a QoL measurement practice (BES, see Annex 3) at different territorial levels: NUTS3, metropolitan area including Rome and other 121 peri-urban and rural municipalities and a urban peripheries within the city of Rome boundaries. Helsinki is proposed for its Regional Authority work on the SPI. However, the list will be expanded with secondary cities in the next phase of the research. It was also agreed that Luxembourg will be treated as a cross-border case.

With regard to the other regions in the list, they have been chosen for their high rating of satisfaction by domain, previous experience with QoL (Iceland, Randstad area in South Holland, Scotland UK), unique characteristics (Santa Cruz de Tenerife), balance according to ESPON territorial categories and overall geographic balance. In the Iceland case the intention is to select a region other then the capital city Reykjavil.

The full set of potential case studies and the final proposal of between five and ten case studies will be presented in the Interim Report, and supported by the further analysis of available information, purpose and organization of the pilot case studies, based on the review undertaken to prepare the intermediate report. We therefore continue to be open to change the list of regions as we progress with the project if other interesting good practice examples come up, and/or on the basis of further suggestions possibly received from members of the Advisory Group and/or the Project Support Team (keeping the total number of case studies within the limit of 10 pilots).

The following table shows the population trends in the pilot regions of the preliminary list:

Table 3.4: Population change: Demographic balance and crude rates at regional level (NUTS 3)

MS	GEO/TIME	2014	2015	2016	2017	2018	2014-2018
AT	Wien	1,766,746	1,797,337	1,840,226	1,867,582	1,888,776	
ES	Tenerife	898,486	904,713	909,298	920,253	933,402	
FI	Helsinki-Uusimaa	1,585,473	1,603,388	1,620,261	1,638,293	1,655,624	
IS	Iceland	325,671	329,100	332,529	338,349	348,450	
IT	Roma	4,321,244	4,342,046	4,340,474	4,353,738	4,355,725	
LU	Luxembourg	549,680	562,958	576,249	590,667	602,005	
NL	Zuid-Holland	3,577,032	3,600,011	3,622,303	3,650,222	3,681,044	
IT / SI	EGTC Euro Go	73,750	73,300	72,842	72,662	72,499	
UK	Scotland	5,337,613	5,360,273	5,388,865	5,414,723	5,436,926	

Source: Eurostat,10.04.19, Population on 1 January – total.

The EGTC Euro Go consists of Nova Gorica (SI), Gorizia (IT), Šempeter-Vrtojba (SI

Table 6. Table of criteria and potential case study countries

MS	Region	NUTS Level	ESPON regional typologies	Population 2018	GDP per capita in purchasing power standard units in 2015	Gini (at disposable income, after taxes and transfers)*	Evidence of previous addressing the issue of QoL	Eurostat Average rating of satisfaction by domain										Comments
								Satisfac-tion with financial situation	Satisfac-tion with accommodation	Job satisfac-tion	Satisfac-tion with commuting time	Satisfac-tion with time use	Overall life satisfac-tion	Satisfac-tion with recreational and green areas	Satisfac-tion with living environment	Satisfac-tion with personal relationships	Meaning of life	
AT	Vienna	3	Urban Metropolitan Border A and B	1.888.776	44,7	0.34	"Quality of Living Survey 2017" carried out by the Mercer Group	7	8,3	8	8	7,3	7,8	8,3	8,4	8,5	7,9	
ES	Santa Cruz de Tenerife	3	Island and outermost Predominantly rural	933.402	21,500 (data available for NUTS 2 Canarias)	0.33		5,8	7,3	6,9	7,1	6,6	6,9	6,6	7,2	7,8	7,5	
FI	Helsinki-Uusima	3	Metropolitan-coastal	1.655.624	41,5	0.24	Regional Authority work on the SPI	7,5	8,4	8,1	8,2	7,7	8	8,3	7,8	8,3	8	
IS	Iceland	2	Sparsely populated (micro-area to be decided)	348.450		0.24	Better Life Index	6,4	8,1	8	8,2	7,4	7,9	8	7,5	8,1	8,3	very good welfare services, high gender equality
IT	Roma	3	Metropolitan	4.355.725	31,800 (data available for Nuts 2 Lazio)	0.35	Multi-layer BES application	5,7	7,2	7	7	6,4	6,7	6,1	6	7,3	7,3	
LU	Luxembourg	1	Urban-rural Cross-border	602.005	76,2	0.31	Luxembourg Index of Well-Being	6,9	7,8	7,5	7,7	7,2	7,5	7,8	7,8	8	8,1	
NL	Randstad area (South Holland)	3	Urban area and coastal area	3.681.044	37	0.28	Regional Quality of Living Index (RQI)	7,4	8,1	7,7	8	7,5	7,8	8,1	8	8,2	7,7	

MS	Region	NUTS Level	ESPON regional typologies	Population 2018	GDP per capita in purchasing power standard units in 2015	Gini (at disposable income, after taxes and transfers)*	Evidence of previous addressing the issue of QoL	Eurostat Average rating of satisfaction by domain									Comments
								Satisfac-tion with financial situation	Satisfac-tion with accommodation	Job satisfac-tion	Satisfac-tion with commuting time	Satisfac-tion with time use	Overall life satisfac-tion	Satisfac-tion with recreational and green areas	Satisfac-tion with living environment	Satisfac-tion with personal relationships	Meaning of life	
SI/IT	Nova Gorica (Slovenia) and Gorica (Italy) (=EGTC Euro Go)	3	Predominantly rural region, close to a city; Regions with more than 50% of their surface covered by mountain areas Cross-border	73.750	16 / 26 (data availablle for NUTS 2 regions)	0.25/0.26	Better Life Index	5,6 / 5,7	7,6 / 7,2	7,3 / 7,0	7,8 / 7,0	6,8 / 6,4	7 / 6,7	7,9 / 6,1	7,7 / 6,0	8,3 / 7,3	7,9 / 7,3	
UK	Scotland	2	Urban-rural Industrial transition	5.436.926	28,9	0.30	Measuring of National Well-being programme	6,2	7,9	7	7,5	6,9	7,3	7,6	7,8	8,3	7,7	

* Data extracted on 11 Jun 2019 12:06 UTC (GMT) from OECD.Stat, https://stats.oecd.org/Index.aspx?DataSetCode=RWB

3.6 Task 6: Developing recommendations on the integration of quality of life measurements in policy implementation

Policy recommendations to support the EU Cohesion Policy will be formulated when the analyses are made and when all available data has been reviewed for accuracy. In this inception report, we have elaborated an overall research framework, which **permits us to project potential policy outcomes**. Policy recommendations and policy implications related to 'Quality of Life' issues will be based upon analyses of quantitative and qualitative data from the project as well as previous research. This kind of methodological approach will enable an in-depth understanding of the QoL issues. The policy recommendations will be based upon the findings in the case studies and they will be based upon the identified good practice from the case studies, and in what context they work.

Issues regarding employment and income distribution, social services, housing, education and training are related to 'Quality of Life'. Together with territorial development these issues for key parts of what is considered the 'European Social Model' (ESPON, 2007). QoL aspects are, however, not restricted to the above-mentioned issues, but can contain a vast number of aspects.

The research described in Tasks 2 and 5 of this Inception Report will form the evidence base for the policy recommendations. Especially three aspects are of interest when outlining the potential policy outcomes of this project:

- Policy recommendations should be aimed at different geographical levels.
- How quality of life aspects and indicators should be considered in relation to future cohesion policy post 2020
- The policy recommendations to national, regional and local policy makers should address how to consider quality of life in territorial development strategies and in policy implementation.

At this stage of the work, the issues discussed here will outline the proposed work – not formulate any policy recommendations per se.

3.6.1 Policy recommendations, different geographical levels and multi-level governance.

It is very important to acknowledge that adverse effects of reduced wellbeing or quality of life of citizens (resulting, for example, from austerity policies induced by shocks in macroeconomic conditions) are not experienced equally within the population. Rather, the most vulnerable individuals (low income, low education, etc.) are commonly the most affected (Weckroth et al., 2017). Hence, **policy recommendations at the national level** should ensure the quality of life inclusively for all citizens across different socio-economic groups.

It is well known that large territorial units, such as NUTS-2 regions, do not perform well when designing territorial development strategies and when implementing policies. These units are commonly very large, particularly in Nordic countries (e.g. Inkinen, 2005), and can therefore include well-off central cities and less-developed peripheries. This requires that **policy recommendations at the regional level** need to be designed (and their impacts assessed) in a more nuanced way that takes into account geographical differences in quality of life within the region; not just the averages.

A centralisation of welfare services to regional levels will lower the accessibility to these services, and hence also the perceived quality of life (ESPON, 2013). Accessibility to health care is a key aspect for a person's perception of quality of life. The accessibility should not be reduced to potential access to a service offer or simple utilisation metrics, but to the accessibility

to the entire health system (Rauhut and Smith, 2019). **Policy recommendations at the local level** need to be place-based and address the question of how to maintain welfare services to break the vicious spiral on regional development that outmigration and narrowing tax-base cause.

Quality of Life aspects are difficult to place in a simple governance scheme. Welfare policies are in the discretion of the single member states, while social services of general interest are in the discretion of the EU (Smith and Rauhut, 2015), and QoL aspects overlap both of them. Welfare policies and policies on services of general interest are largely overlapping, which may cause governance problems.

Scholten (2013) elaborated a typology of governance configurations in multi-level settings of interest for our project.

1. The centralist ideal type is based on the idea of a clear **top-down and hierarchical relations** between levels of government. In a multi-level setting, this involves a clear central codification of the division of labour between levels and control mechanisms to make sure that policy implementation at the local level clearly follows central rules and reflects the central policy frame. In this type, one should expect there to be a clear national structure for policy coordination, such as a specialized department and a political responsible minister specific for integration policy.
2. The localist type involves a more **bottom-up** perspective on governance in multi-level settings. In this type, policy competencies follow a principle of subsidiarity; what can be done locally should be done locally. In this type, local governments are involved in more than policy implementation: agenda setting and policy formulation also take places at the local level, in response to specific local circumstances. In this typology, local governments do more than just policy implementation, they formulate policies locally, respond to local policy agendas and exchange knowledge and information horizontally with other local governments.
3. In contrast to the often-abstract use of the concept of **multi-level governance**, in this typology the terms refer only to those situations where there is vertical interaction and joint coordination of relations between various levels of government. Contrary to the localist and centralist types, this should not involve a sense of hierarchy; rather cooperation among actors from various levels meeting on a level playing field. There have to be 'vertical venues' for governments from different levels jointly to engage in meaningful policy coordination, such as forums or networks where organizations from different levels are used to join.
4. The final type refers to a situation in which vertical relations are absent or when there is a '**decoupling**'. This means that in a single policy domain, there may be policies at different levels that are dissociated and may in fact even been contradictory. Evidently, this type can lead not only to policy conflicts between government levels but also to conflicting policy messages to the policy target groups and reduced policy effectiveness.

In principle, different geographical governance levels should address and focus on different dimensions of quality of life, since the concept itself has different nuances according to the territorial typology considered. Therefore, a key policy recommendation this project has to produce is to clarify **at what geographical governance level (local, regional, national) responsibility for QoL issues should lay** to avoid the 'decoupling' situation outlined by Scholten (2013). At this stage in the project, i.e. before any case studies or empirical analysis have been undertaken, it is not possible to produce concrete and practical evidence based policy recommendations on what governance level the responsibility of QoL issues should lay, and which forms of association or inter-governmental agreements or institutions may be needed in some circumstances. In the Interim Report we will provide preliminary evidence based

recommendations on what governance level the responsibility for the QoL issues should lay and which forms of inter-institutional cooperation may be necessary for an effective implementation. In turn, these preliminary policy recommendations will be further elaborated in the Draft Final Report and in the Final Report.

3.6.2 Quality of life aspects, indicators and the post-2020 Cohesion Policy

To focus on metrics such as GDP or income-per-capita is a definite non-starter when it comes to measuring well-being. Such indicators are not evenly distributed among the population; in fact, they are mere statistical constructs (Sen, 1999b). **Being well-off is usually mistaken for well-being**. If individuals are deprived of the capability to change their situation in life, they are indeed poor. Being poor means having limited access to e.g. transport, education, health care and public areas, regardless of the nature of the geographical area in which an individual lives (Sen, 1999a). Access to education and medical care are components of 'the second generation of Human Rights' (Sen, 2009).

One of the findings in the ESPON SEMIGRA - Selective Migration and Unbalanced Sex Ratio in Rural Regions project (2012) was that one of the drivers behind young women leaving peripheral regions was related to 'quality of life' aspects. While low accessibility to local welfare services, bad (quality wise) welfare services, limited availability of education and uncertain employment possibilities push young women away from peripheral areas (Rauhut and Littke, 2016; Timár and Velkey, 2016; Wiest, 2016), poor welfare services and low accessibility in certain areas repel potential in-movers from settling there (Sörensson, 2012).

The ESPON Indicators and Perspectives for Services of General Interest in Territorial Cohesion and Development (SeGI) project (2013) highlights the importance of the local level in production of welfare services, which have a direct impact on what individuals perceive as 'quality of life'. Infrastructure, internet services, local transport, schools, elderly care, health care etc. operate to large extent on a local level. **A centralisation of welfare services to regional levels will lower the accessibility to these services, and hence also the perceived 'quality of life'.** The SeGI project also questions some aspects of the marketisation of welfare services also in remote and peripheral areas: the market will find no profitability in running any business there and the third sector cannot accumulate the needed resources to run basic services of general interest in these areas. Declining service quality as well as limitations in service accessibility, affordability and availability are foreseen for remote and peripheral areas.

Recent research shows that **regional indicators currently in use for evaluating the progress of the Europe 2020 Strategy and for determining Structural Fund eligibility are not able to shed light on regional levels of quality of life in the EU**. Spatial patterns of QoL emerging from the analysis are highly incongruent with what has hitherto been observed by means of traditional metrics. Furthermore, urbanisation and agglomeration economies are demonstrably assessed to have little to do with the quality of life of citizens (Hanell, 2018). While being key pillars in the EU Cohesion Policy, they have marginal impact on the production of welfare services (Rauhut et al., 2018), and the increased marketisation of some services of general interests in the health care sector has had an alarming impact on morbidity and mortality in peripheral and remote areas (Rauhut and Smith, 2019).

These aspects link back to the capability approach by Sen described above and to the findings in e.g. the ESPON projects SEMIGRA and SeGI. Indicators such as GDP or income-per-capita are output indicators, but when analysing services of general interest, welfare, or quality of life aspects they are used as input variables (Marques da Costa et al., 2013). This leads to the confusion of being well-off as well-being.

When introduced in 1930s, GDP was a relevant signpost of the progress of countries and regions relating to improved employment, higher incomes and access to amenities. Today the emphasis on GDP, however, can fuel social and environmental instability, since it ignores social costs, environmental impacts and income inequality. A simple example of the inadequateness of GDP as measure of quality of life is that, for example, increased crime rates do not raise quality of life, but they can lift GDP by raising expenditures on security systems (Costanza et al., 2014). As a national or regional average, **GDP is a poor measure for capturing the distributional, social and human aspects of quality of life**. Studies reporting low correlation between quality of life and GDP (e.g. Bérenger and Verdier-Chouchane, 2007) give empirical support to this conceptual distinction. Thus, in principle quality of life is not directly related to GDP after a certain level; i.e. once the basic provision and access to services are ensured. However, this (weak) link between GDP and quality of life needs to (and will) be analysed and verified at a later stage during the project.

3.6.3 How to consider QoL in territorial development strategies and in policy implementation

In the wake of the economic crises 2008/2009 many regions experienced mass unemployment and reduced, or even lost, welfare benefits (Essletzbichler et al., 2018); some regions suffered massive job destruction (Fratesi and Rodríguez-Pose, 2016). Simultaneously, a retrenchment of the public sector and a shrinking state occurred. The shift in competence from national to supra-national levels have also resulted in less public intervention to support weak regions (Lobao et al., 2018). Many regions were labelled as 'no future'; they were 'places that don't matter' (Rodríguez-Pose, 2018). The revolt these regions have made through the ballot box, voting for right wing and populist parties, have strong territorial foundations, rather than social. The established political system is no longer seen to provide opportunities for people to live in these places (Essletzbichler et al., 2018; Rodríguez-Pose, 2018). This is indeed related to quality of life aspects.

Those working with territorial development strategies and policy implementation at regional and local levels are very well aware of the devastating effects of this policy shift, place attractiveness and quality of life in 'places that don't matter'. **Macro-economic decisions are made at national and supra-national levels, and the regional and local levels have little to say on these matters.** Also, peripheral regions in countries relatively unaffected by the 2008/2009 economic crises have experienced public sector retrenchment, a shrinking state and less economic support (Gruber et al, 2019). This indicates the importance of supra-national and national levels on macro-economic decisions regarding quality of life aspects.

For time being other EU actors also work with QoL and QoL related issues. Recently the draft EU Council conclusions of 29 March 2019 "Towards an ever more sustainable Union by 2030" claimed for a comprehensive implementation strategy to realise the SDGs of the UN Agenda 2030 in Europe and beyond, orienting internal and external EU policies. Implementing the SDGs also requires effective cooperation at EU, national, regional and local levels. The recommendations of the Commission's Communication "The principles of subsidiarity and proportionality: Strengthening their role in the EU's policymaking" that followed the 'Task Force on Subsidiarity, proportionality and doing less more efficiently' provide a roadmap for achieving this.[34] The Commission and other EU bodies could in particular facilitate an exchange of best

[34] COM(2018) 703 final. Available at: https://ec.europa.eu/info/sites/info/files/communication-principles-subsidiarity-proportionality-strengthening-role-policymaking_en.pdf and https://ec.europa.eu/commission/priorities/democratic-change/better-regulation/task-force-subsidiarity-proportionality-and-doing-less-more-efficiently_en.

practices among cities and regions, and set out the parameters for a cross-border territorial approach for delivering on the SDGs.

The SDGs implementation strategy would clearly partially overlap with the purpose of the ESPON project to devise QoL measurements and methodologies for gauging the quality of life progress at territorial level. It will be therefore considered with the aim to link our own policy recommendations, as would be appropriate to make them contributing to the comprehensive SDGs strategy.

In some countries, there has been a strong tendency to direct municipal development from traditional industrial policy towards a more comprehensive "vitality" policy including softer development values related to the wellbeing and quality of life of residents. Via these vitality policies, the municipalities have taken a more active role towards communality and quality of life. This work includes the realization that softer aspects of development such as cultural amenities, hobby facilities, educational (incl. day-care and primary schooling) and social and welfare services are all part of the development level of a region (Makkonen et al., 2019). This illustrates efforts to address QoL in territorial development strategies and in policy implementation and counteract the feeling of being a 'place that doesn't matter'.

It is our hope that the case studies undertaken in this project will **identify good practices on how the regional and local levels can address QoL aspects in territorial development strategies and in policy implementation without clashing or counteracting decisions at national and supra-national levels**. This brings us back to the 'decoupling' problems raised earlier.

3.6.4 Towards practitioner-oriented policy recommendations

The policy challenge ahead then is not only about developing recommendations to support policy makers at local, regional, national and European levels on how to measure quality of life and wellbeing in Europe and its different types of territories. An even bigger challenge is perhaps to be found in the attempt to resuscitate the EU Cohesion Policy in, especially, 'places that don't matter'. In the wake of austerity policies and privatization of services, these regions have experienced a deteriorating – perceived or real – quality of life. After all, quality of life aspects affects all residents over the EU territory and hence it is important to do a serious attempt to incorporate these aspects into the EU Cohesion Policy. If national governments, regions or local authorities cannot guarantee and uphold what the residents and voters believe are minimum levels of quality of life, who can? The EU Cohesion Policy has an important role to fill here with explicit policy declarations and guiding principles to safeguard the European model of society.

4 Project management and interlinkages with other ESPON projects

4.1 Project management

Based on the proposal presented by the EGTC at the Kick-Off meeting, Table 7 below show the calendar of project activities and deliverables.
The various reports will be commented by the ESPON Monitoring Committee, the ESPON EGTC, the PST members and sent to ISINNOVA normally within 4 weeks after the reception of the various reports. In total 3 meetings or teleconferences are envisaged to be organised with the PST members.
The Advisory Group will meet 3 times, with the first meeting fixed on Monday 24th June in Brussels. The other two meetings will be planned respectively in January and June 2020, possibly aside the PST meetings.

Table 4.1: Schedule of deliveries and meetings

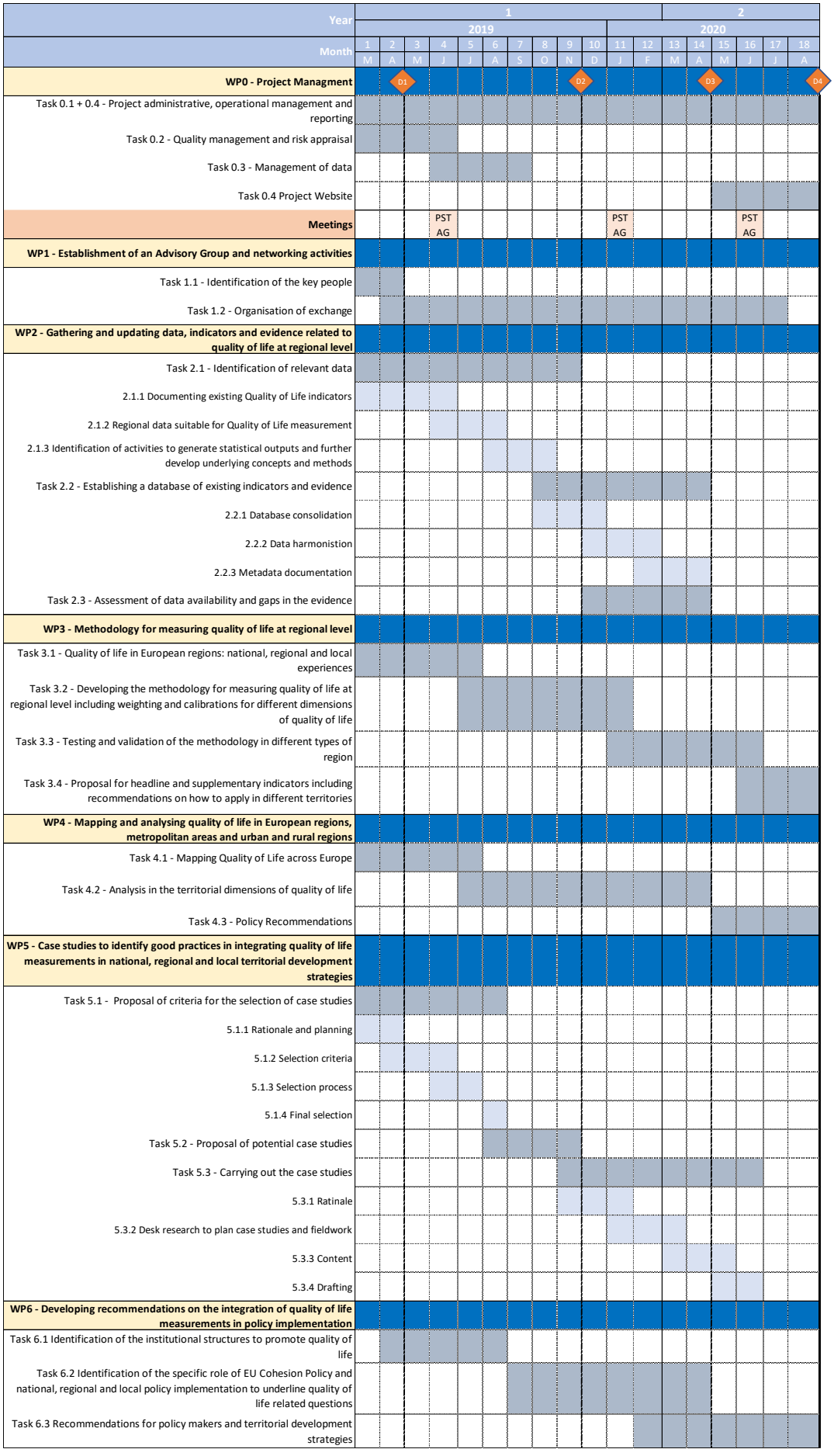
Delivery	Delivery description	Indicative deadline[35]	Deadline
	Kick-off meeting	As soon as possible and up to 4 weeks after the award of the contract.	27/02/2019
D1	Inception delivery	T + 2 months	29/04/2019
	Meeting	T + 3 months	05/06/2019
	1st Meeting of the Advisory Group	T + 4 months	24/06/2019
D2	Interim delivery	T + 9 months	02/12/2019
	Meeting or teleconference	T + 10 months	Week of 02/01/2020 Tbc
	2nd Meeting of the Advisory Group	T + 10 months	tbc with advisory group
D3	Draft Final delivery	T + 14 months	27/04/2020
	Meeting or teleconference	T + 15 months	Week of 27/05/2020 Tbc
	3rd Meeting of the Advisory Group	T + 15 months	tbc with advisory group
D4	Final delivery	T + 18 months	27/08/2020

The project GANNT has been revised according to the suggestions received from the ESPON EGTC at the kick-off meeting, to better show how the activities (works packages and tasks) are interlinked, and some of the work packages start earlier and are implemented longer than what was initially proposed in the tender document.

The new project GANNT is shown in Figure 4.1:

Figure 4.1: Modified GANTT

[35] The letter "T" in this table stands for the date of the kick-off meeting.


Year
1
2
2019
2020
Month
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18
M A M J J A S O N D J F M A M J J A
WP0 - Project Managment
D1
D2
D3
D4
Task 0.1 + 0.4 - Project administrative, operational management and reporting
Task 0.2 - Quality management and risk appraisal
Task 0.3 - Management of data
Task 0.4 Project Website
Meetings
PST AG
PST AG
PST AG
WP1 - Establishment of an Advisory Group and networking activities
Task 1.1 - Identification of the key people
Task 1.2 - Organisation of exchange
WP2 - Gathering and updating data, indicators and evidence related to quality of life at regional level
Task 2.1 - Identification of relevant data
2.1.1 Documenting existing Quality of Life indicators
2.1.2 Regional data suitable for Quality of Life measurement
2.1.3 Identification of activities to generate statistical outputs and further develop underlying concepts and methods
Task 2.2 - Establishing a database of existing indicators and evidence
2.2.1 Database consolidation
2.2.2 Data harmonistion
2.2.3 Metadata documentation
Task 2.3 - Assessment of data availability and gaps in the evidence
WP3 - Methodology for measuring quality of life at regional level
Task 3.1 - Quality of life in European regions: national, regional and local experiences
Task 3.2 - Developing the methodology for measuring quality of life at regional level including weighting and calibrations for different dimensions of quality of life
Task 3.3 - Testing and validation of the methodology in different types of region
Task 3.4 - Proposal for headline and supplementary indicators including recommendations on how to apply in different territories
WP4 - Mapping and analysing quality of life in European regions, metropolitan areas and urban and rural regions
Task 4.1 - Mapping Quality of Life across Europe
Task 4.2 - Analysis in the territorial dimensions of quality of life
Task 4.3 - Policy Recommendations
WP5 - Case studies to identify good practices in integrating quality of life measurements in national, regional and local territorial development strategies
Task 5.1 - Proposal of criteria for the selection of case studies
5.1.1 Rationale and planning
5.1.2 Selection criteria
5.1.3 Selection process
5.1.4 Final selection
Task 5.2 - Proposal of potential case studies
Task 5.3 - Carrying out the case studies
5.3.1 Ratinale
5.3.2 Desk research to plan case studies and fieldwork
5.3.3 Content
5.3.4 Drafting
WP6 - Developing recommendations on the integration of quality of life measurements in policy implementation
Task 6.1 Identification of the institutional structures to promote quality of life
Task 6.2 Identification of the specific role of EU Cohesion Policy and national, regional and local policy implementation to underline quality of life related questions
Task 6.3 Recommendations for policy makers and territorial development strategies

4.2 Interlinkages and relation with other ESPON projects

The following selection of ESPON projects has been done considering the potentially relevant interlinkages and relations with the Quality of Life Measurements and Methodology, as is being described for each ESPON projects mentioned.

ESPON 2020 Database Portal with more of 30 indicators will be considered as a core database, given also its storage and efficient distribution of a wide variety of data. The extensive functionalities covered by ESPON database, especially in the socioeconomic area, will be integrated in the research project lifelong as strategic factors of territorial development. Thanks to the presence of data-related support desk, indicators at NUTS 3 level will be deeply investigated in order to map the tools and stakeholders needed for such a geographically accurate analysis. Because of the continuously updated information and data sources, ESPON database is important as monitoring tool particularly for the policy recommendations at different geographical level, the consideration of the quality of life aspects in the territorial policies implementation for the sustainable development and the relation between ESPON indicators and the post-2020 Cohesion Policy.

European and Macro-regional Territorial Monitoring Tool is being developed by two partners also involved in this applied research: MCRIT and METIS. This fact is important to ensure the complementarity of the two studies, avoiding to spend double time on the same aspect of territorial monitoring and taking reciprocal advantage from the research advances. The module of monitoring is comparable, considering the priority areas identified by our colleagues for the strategy of indicators selection: socio-economic centrality, correlation with sustainable development goals, the importance of connectivity including accessibility and transversal subjects as governance and spatial planning. The contribution on the examination of territorial tendencies and compositions during the time, the strategic goals at the macro-regional level and the relative European actions is important to understand the structural factors behind a determining level of quality of life and to coordinate recommendations on the integration of quality of life measurements in policy implementation, especially on the Cohesion Policy, with other European policies and tools. Furthermore, the research analysing in-depth all areas of Europe have collected an important amount of data with a significant quality also for the Balkan countries, which represent a strategic area for our research. Also, in the last phase of proposing and developing a methodology for measuring quality of life at regional level, the work done by the European and Macro-regional Territorial Monitoring Tool symbolises a term of reference in order to ensure a usability of results of our research through interactive visualization of Quality of Life Indicators. Data, maps and graphs highlight geographical and temporal relationship, the development of trends and pattern, allowing the possibility to filter and query the available information.

BRIDGES – Territories with Geographical Specificities cover a detailed analysis of territories having a specific challenge and an important value for overall Europe. The methodology and results of this research are particularly important for the selection criteria of case studies and therefore for mapping and analysing the quality of life in European regions. Territorials which will synthesise the geographical specificities of mountain regions, island and island states, sparsely populated areas and coastal areas, will be taken into account during the selection process of case studies. The twenty case studies selected by the team of BRIDGES are being examined in correlation with specific and allocated modules between: Innovation, Sustainable tourism, Public Service Obligations, Social innovation in the provision of SGIs, Transitional approaches to labour markets and demographic change, Residential economy, Biodiversity conservation and sustainable development, Energy provision and production and

Climate change. This schema of analysis of case studies, thought to concentrate on relevant features for each area and ensuring a balanced distribution, allows a deep and specific research, like those ones on biodiversity and conservation case studies, of being applied at practically all part of Europe. The correlation and the outcome of this investigation represent a consolidated basis to understand key features of the future policy for territorial development, especially regarding the objective factors of constraint and the relative approach to transform a critical issue into an attractive element of the exclusive resource of the area. Considering the valuable assets of these regions with geographic specificities for all Europe, the ESPON BRIDGES applied research is awfully important to support in the delineation of a comprehensive strategy for future European policies, as explicative but non-exhaustive indication: Common Agricultural Policy, Multiannual Financial Framework and the Marine Strategy Framework Directive.

ESPON FUORE – Functional Urban Areas and Regions in Europe is an important start point for the gathering and updating data related to quality of life at urban level. A significance contribution is been developed in the reshaping of socioeconomic data by using a regular grid structure to facilitate the operation of multidimensional and relational aggregated database (ESPON SMD) in order to potentially pre-calculate all data queries. The analysis is been conducted on functional regions derive from several territorial typologies from Eurostat, areas of geographical specificities and network of high Green Infrastructure potential from ESPON. The results will be considered in the carrying out of the case studies, in both phases the criteria and processes selection, and in the mapping the quality of life in European metropolitan and urban areas. The strong points and the findings of the procedure used in this research to integrate and combine not-spatially matching data represent a consolidate background knowledge in the construction of a methodology for measuring the quality of life at regional level.

ESPON Big Data for Territorial Analysis and Housing Dynamics is a central point of reference for the application of Big Data in the geographically accurate policy-oriented analysis. The future development of this monitoring tool will be closely followed and integrate into the proposal and elaboration of the Quality of Life methodology. This study has applied an innovative approach, using real estate agent listing and Airbnb to monitor the fluctuation of rents prize and considering the affordability ration and the living condition as component of the wellbeing. Considering that the study is being conducted in the areas of Geneva (Switzerland), Annecy, Avignon and Paris (France), Madrid, Barcelona and Palma de Majorca (Spain) and Warsaw, Lods and Cracow (Poland), an exception could be done in the selection process of the case studies in order to include their outputs to observe the housing dynamics.

ESPON On Line Analytical Processing (OLAP) Cube collects numerous projects at different geographical level and with diverse focus areas in the overall European continent where this software has been applied for several Quality of Life domains**.** OLAP is a computer-based technique for analysing two- or three-dimensional spreadsheet. This approach belongs to the broader tools of business intelligence and answers to multi-dimensional analytical queries. Being the latest NUTS codes updated at 2010 in the ESPON we will use the NUTS Converter web tool, developed by the Joint Research Centre in coordination with the Commission's Directorate-General for Regional and Urban Policy, in order to guarantee a full backward compatibility. From the local data section, in particular, the information available at NUTS 5 and LAU 2 will significantly contribute to the data gathering phase. Two data sources – statistical and GIS indicators – have been compiled down to NUTS 5 level, even if a number of indicators were only available at more aggregated NUTS levels. The first statistical source covers for all ESPON countries demographic and economic indicators (as the number of employees by sector and number of unemployed by sex), while further agriculture, infrastructure and

economic indicators (e.g. unemployed people under 25 year, long-term unemployed, number of people with the highest education) have been gathered only for countries with mountain areas. The second GIS source includes indicators related to the environment, the degree of urbanisation and the Climatic Contrast Index. The GIS indicators related to agriculture measure forest areas and arable land.

References

Annoni, P., Dijkstra , L., Hellman, T., (2016) *A Measure Of Social Progress In The Eu Regions - Methodological Paper1.* Economic Analysis Unit of the EC-DG for Regional and Urban Policy, Social Progress Imperative

Bérenger V and Verdier-Chouchane A (2007) Multidimensional measures of well-being: Standard of living and quality of life across countries. World Development 35(7): 1259-1276.

Carnegie UK Trust, OECD (2016), Sharpening our focus. Guidance on Wellbeing Frameworks for Cities and Regions, Carnegie Numited Kingdom Trust.

Costanza R, Kubiszewski I, Giovannini E, Lovins H, McGlade J, Pickett KE et al. (2014) Development: Time to leave GDP behind. Nature News 505(7483): 283

Curini, L., Iacus, S., & Canova, L. (2015). Measuring idiosyncratic happiness through the analysis of twitter: An application to the italian case. Social Indicators Research, 121(2), 525-542.

Dijkstra, L., Poelman, H., (2014). *A harmonised definition of cities and rural areas: the new degree of urbanisation*. Brussels: Directorate-General for Regional and Urban Policy.

Durand, M. (2017). *Measuring what matter to people.* Presentation to the 2017 EURAM Conference, Glasgow, 23 June 2017

Engstrom, R., Hersh, J., Newhouse, D., (2016) *Poverty in HD: What Does High Resolution Satellite Imagery Reveal about Economic Welfare?* World Bank;

Engstrom, R., Hersh, J., Newhouse, D., (2017) *Poverty from Space - Using High-Resolution Satellite Imagery for Estimating Economic Well-Being.* Policy Research Working Paper 8284. World Bank

ESPON (2007) Social aspects of EU territorial development. Available at: https://www.espon.eu/programme/projects/espon-2006/studies-and-scientific-support-projects/social-aspects-eu-territorial

ESPON (2012) SEMIGRA - Selective Migration and Unbalanced Sex Ratio in Rural Regions. Final Report. Available at: https://www.espon.eu/programme/projects/espon-2013/targeted-analyses/semigra-selective-migration-and-unbalanced-sex-ratio (Accessed 7 April 2019).

ESPON (2013) SeGI - Indicators and Perspectives for Services of General Interest in Territorial Cohesion and Development. Final report. Available at: https://www.espon.eu/programme/projects/espon-2013/applied-research/segi-indicators-and-perspectives-services-general (accessed 7 April 2019).

ESPON (2013b), *ATTREG – The Attractiveness of European regions and cities for residents and tourists* – Final Report

ESS (2018). European Social Survey. Available at: https://www.europeansocialsurvey.org/

Essletzbichler J, Disslbacher F and Moser M (2018) The victims of neoliberal globalisation and the rise of the populist vote: a comparative analysis of three recent electoral decisions. Cambridge Journal of Regions, Economy and Society 11(1): 73-94

Eurofound (2017), *European Quality of Life Survey 2016: Quality of life, quality of public services, and quality of society*. Publications Office of the European Union, Luxembourg

European Union (2018), *Active Subsidiarity. A new way of working*. Report of the Task Force on Subsidiarity, Proportionality and "Doing Less More Efficiently".

Eurostat (2017a). Final report of the expert group on quality of life indicators. Luxembourg: Publications Office of the European Union.

Eurostat (2017b). EU statistics on income and living conditions (EU-SILC) methodology. Available at: https://ec.europa.eu/eurostat/statistics-explained/index.php/EU_statistics_on_income_and_living_conditions_(EU-SILC)_methodolog

Eurostat (2017c). Final report of the expert group on quality of life indicators. Luxembourg: Publications Office of the European Union

Eurostat (2011) Report of the Sponsorship Group on Measuring Progress, Well-Being and Sustainable Development. Available at: https://ec.europa.eu/eurostat/documents/7330775/7339383/SpG-Final-report-Progress-wellbeing-and-sustainable-deve/428899a4-9b8d-450c-a511-ae7ae35587cb

Eurostat (2016) Quality Declaration of the European Statistical System. In. Luxembourg: Eurostat

EUROSTAT (2018a) Enlargement countries - statistical overview - Enlargement countries - indicators for Sustainable Development Goals.

EUROSTAT (2018b). Enlargement countries - statistical overview - Enlargement countries - statistics on living conditions.

Fassmann H, Rauhut D, Marques da Costa E and Humer A – eds. (2015) Services of General Interest and Territorial Cohesion. European Perspectives and National Insights. Göttingen: University of Vienna Press.

Fratesi U. and Rodríguez-Pose A. (2016) The crisis and regional employment in Europe: what role for sheltered economies? Cambridge Journal of Regions, Economy and Society 9(1): 33-57

Gallup (2018). Advanced Analytics. Available at: https://www.gallup.com/analytics/232838/world-poll.aspx

Global Council for Happiness and Wellbeing (2019). *Global Happiness and Wellbeing Policy Report 2019*, New York: Sustainable Development Solutions Network.

Gruber E, Rauhut D. and Humer A. (2019) Territorial Cohesion under Pressure? Welfare policy and planning responses in Austrian and Swedish Peripheries. Papers in Regional Science 98(1): 115-132

Hanell T. (2018) Regional Quality of Life in the EU. Comprehending the European space beyond GDP through the capability approach. PhD Thesis. Aalto University, School of Engineering, Department of Built Environment, Helsinki, Finland.

Harari Y. N. (2018) 21 Lessons for the 21st Century, Jonathan Cape, London.

Helliwell, J., Layard, R., & Sachs, J. (2019). World Happiness Report 2019, New York: Sustainable Development Solutions Network.

Hollywood, E., Egdell, V., McQuaid, R., & Michel-Schertges, D. (2012) Methodological issues in operationalising the capability approach in empirical research: An example of cross-country research on youth unemployment in the Eu. Social Work & Society, 10(1).

Inkinen T. (2005) European coherence and regional policy? A Finnish perspective on the observed and reported territorial impacts of EU research and development policies. European Planning Studies 13(7): 1113-1121.

ISTAT (2015), *URBES: Il Benessere Equo e Sostenibile nelle Città 2015*, ISTAT, Roma

ISTAT (2018), *BES 2018: Il Benessere Equo e Sostenibile in Italia*, ISTAT, Roma

ISTAT (2018), *Il Benessere Equo e Sostenibile delle Province*, ISTAT, Roma

Jones, A, Mair, S, Ward, J, Druckman, A, Lyon, F, Christie, I, Hafner, S. (2016) *Indicators for Sustainable Prosperity? - Challenges and potentials for indicator use in political processes.* CUSP Working Paper No. 03. Guildford: University of Surrey

Joskin, A. (2018). Het welzijn in België meten. Opbouw van een composiete indicator om het huidige welzijn in België te meten. Federaal Planbureau, working paper 2-18.

JRC-COIN (2018). Competence Centre on Composite Indicators and Scoreboards (COIN). https://ec.europa.eu/jrc/en/coin.

Lagas, P., Kuiper, R., van Dongen, F., van Rijn, F., van Amsterdam, H., (2014) *Regional Quality of Living in Europe.* Report

Layard, R. (2005), *Happiness*, Penguin Books

Lepenies P. (2018) Transforming by Metrics that Matter – Progress, Participation, and the National Initatives of Fixing Well-Being Indicators, in Historical Social Research, Special issue “Governing by Numbers”.

Lobao L., Gray M., Cox K. and Kitson M. (2018) The shrinking state? Understanding the assault on the public sector. Cambridge Journal of Regions, Economy and Society 11(3): 389-408

Makkonen T., Jolkkonen A., Kahila P., Lemponen V. and Forsberg P. (2019) Puhtia Pohjois-Karjalaan: Kuntien elinvoimaselvitys. SPATIA Raportteja 2019(1).

Marques da Costa E, Palma P, Rauhut D, Humer A, Constantin D and Velasco X (2013) What Indicators to Use when Measuring Services of General Interest? EUROPE XXI Vol. 23: 7-28

Mitchell, L., Frank, M. R., Harris, K. D., Dodds, P. S., & Danforth, C. M. (2013). The geography of happiness: Connecting twitter sentiment and expression, demographics, and objective characteristics of place. PloS one, 8(5), e64417.

Montalto V., Jorge Tacao Moura C., Langedijk S., Saisana M. (2019), Culture counts: An empirical approach to measure the cultural and creative vitality of European cities, European Commission, JRC, Ispra, Italy, in Cities. Elsevier Publisher

Newhouse, D., Mapping Poverty by Satellite - World Bank. https://olc.worldbank.org/system/files/WBG_BD_CS_MappingPoverty.pdf

Nguyen, Q. C., Kath, S., Meng, H. W., Li, D., Smith, K. R., VanDerslice, J. A. & Li, F. (2016). Leveraging geotagged Twitter data to examine neighborhood happiness, diet, and physical activity. Applied Geography, 73, 77-88.

Nussbaum, M. (2003) Capabilities as fundamental entitlements: Sen and social justice. Feminist economics, 9(2-3), 33-59

OECD-JRC-EC (2008). Handbook on constructing composite indicators: methodology and user guide. OECD publishing.

OECD (2013), *OECD Framework for Statistics on the Distribution of Household Income, Consumption and Wealth*, OECD Publishing, Paris, https://doi.org/10.1787/9789264194830-en.

OECD (2013), *OECD Guidelines on Measuring Subjective Well-being*, OECD Publishing, Paris, https://doi.org/10.1787/9789264191655-en.

OECD (2014), *How's Life in Your Region? Measuring Regional and Local Well-being for Policy Making,* OECD Publishing, Paris, https://doi.org/10.1787/9789264217416-en.

OECD (2016) *Regional Well-Being A user's guide - .Using data to build better communities.* OECD. www.oecdregionalwellbeing.org;

OECD (2017), *How's Life? 2017: Measuring Well-being – The 60-second guide.* OECD Publishing, Paris, https://doi.org/10.1787/how_life-2017-en.

OECD (2017), *Measuring Distance to the Sdg Targets - An assessment of where OECD countries stand.* OECD, Paris, http://www.oecd.org/sdd/measuring-distance-to-the-sdgs-targets.htm

OECD (2018), *Beyond GDP: Measuring what counts for economic and socialperformance*, OECD Publishing, Paris - https://doi.org/10.1787/9789264307292-en

OECD (2018), For Good Measure: Advancing Research on Well-Being Metrics Beyond GDP, OECD Publishing, Paris - https://doi.org/10.1787/9789264307278-en

Pilling, D. (2018), The Growth Delusion. The Wealth and Well-Being of Nations. Bloomsbury.

Prahalad C. K. and Stuart L. Hart (2002), The Fortune at the Bottom of the Pyramid*, Strategy+Business*, January 2002

Radermacher W.J. (2018) Official Statistics 4.0. Facts for People in the 21st Century. PhD Thesis. La Sapianza University. Statistical Science Department, Rome, Italy

Rauhut D and Smith CJ (2019) Does the Inverse Care Law have a spatial dimension? Accessibility, Marketisation and health care reforms in Finland and Sweden. In: Marques da Costa, E. (ed.) Health Service Provision Disparities within the European Union: A Comparative Approach. Cham: Springer Verlag (forthcoming 2019).

Rauhut D, Palma P and Humer A (2018) Can Polycentrism stimulate the provision of Social Services of General Interest? Social Science Spectrum 4(1): 1-15

Rauhut D and Littke H (2016) 'A one-way ticket to the city, please!' On young women leaving the Swedish peripheral region Västernorrland. Journal of Rural Studies 43(1): 301-310.

Robeyns, I. A. M., & Van der Veen, R. J. (2007). Sustainable quality of life: Conceptual analysis for policy-relevant empirical specification.

Rodríguez-Pose A (2018) The revenge of the places that don't matter (and what to do about it). Cambridge Journal of Regions, Economy and Society 11(1): 189-209

Rosling, H. with Rosling, O. and Rosling Ronnlund, A. (2018), *Factfulness: Ten Reasons We're Wrong About the World – and Why Things Are Better Than You Think*. Flatiron Books

Russo, A., Smith,I., Atkinson, R., Servillo, L., Madsen, B., Otgaar, A. (2012) *ATTREG - The Attractiveness of European regions and cities for residents and visitors.* Final report. Tarragona. ESPON & University Rovira i Virgili

Scholten P (2013) Agenda dynamics and the multi-level governance of intractable policy controversies: the case of migrant integration policies in the Netherlands. Policy Sciences 46(3): 217–236.

Schwartz, H. A., Eichstaedt, J. C., Kern, M. L., Dziurzynski, L., Lucas, R. E., Agrawal, M., ... & Ungar, L. (2013). Characterizing geographic variation in well-being using tweets. In Seventh International AAAI Conference on Weblogs and Social Media.

Sen A. (1993) Capability and well-being, in Nussbaum & Sen (Eds): The Quality of Life. Oxford: Clarendon Press

Sen A. (1999a) Commodities and Capabilities. New Delhi: Oxford University Press

Sen A. (1999b) Development as Freedom. Oxford: Oxford University Press

Sen A. (2009) The Idea of Justice. Cambridge, MA: Belknap Press

Smith CJ. and Rauhut D. (2015) Stealthy, covert and uninvited? Commission 'activism' in the implementation convergence of Social Services of General Interest in the EU. Croatian and Comparative Public Administration 15(3): 667-696.

Sörensson R. (2012) Population and employment location in Swedish municipalities 1994–2004. Annals of Regional Science 48(3): 743–762

Stiglitz, J., Sen, A. and J-P. Fitussi (2009) Report by the Commission in the Measurements of Economic Performance and Social Progress. Http:/www.stiglitz-sen-fitoussi.fr/documents/rapport_anglais.pdf.

Stiglitz, J. (2015) The great divide. UK: Penguin.

Stockholm Resilience Centre (2018), Transformation is feasible. How to achieve Sustainable Development Goals within Planetary Boundaries. A report to the Club of Rome.

Timár J and Velkey G (2016) The relevance of the political economic approach: The interpretations of the rural in the migration decision of young women and men in an economically backward region. Journal of Rural Studies 43(1): 311-322.

Turnpenny, John R., Andrew J. Jordan, David Benson, and Tim Rayner (2015), The tools of policy formulation: an introduction, in Andrew J. Jordan and John R Turnpenny (eds.), The tools of policy formulation (Edgar Elgar: Chelenham)

UN. Secretary-General (2017) - *Progress towards the Sustainable Development Goals* - report of the Secretary-General*.* New York: UN, 10 May 2018

United Nations (2018) *The Sustainable Development Goals Report,* New York, https://unstats.un.org/sdgs.

Van Zanden, J., et al. (eds.) (2014), *How Was Life? Global Well-being since 1820*, OECD Publishing, Paris, https://doi.org/10.1787/9789264214262-en.

Weckroth M, Kemppainen T and Dorling D (2017) Socio-economic stratification of life satisfaction in Ireland during an economic recession: A repeated cross-sectional study using the European Social Survey. Irish Journal of Sociology 25(2): 128-149.

Whitby, A. (WFC) et al. (2014), 'BRAINPOoL Project Final Report: Beyond GDP – From Measurement to Politics and Policy' BRAINPOoL deliverable 5.2, A collaborative programme funded by the European Union's Seventh Programme for research, technological development and demonstration under grant agreement No. 283024.WFC (World Future Council), 31 March 2014.

Wiest K (2016) Migration and everyday discourses: Peripheralisation in rural Saxony-Anhalt from a gender perspective. Journal of Rural Studies 43(1): 280-290.

World Bank (2006) Where is the wealth of nations? Measuring Capital for the 21st Century. Washington: The World Bank

World Bank (2018) Big Data Innovation Challenge: Pioneering approaches to data-driven development. Washington: The World Bank

Zivanovic, S., Martinez, J., & Verplanke, J. (2018). Capturing and mapping quality of life using Twitter data. GeoJournal, 1-19

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Annex 1 – Measurement of progress macro-domains

The following is a summary of macro-domains of statistics used to measure progress, mostly based on a recent popular account of the matter from David Pilling (2018):

- **GDP**: In modern times, GDP has become a proxy for a country well-being. If the economy is growing, then things must be good. If it is shrinking, then not so much. But this way of interpreting the GDP measurement is grossly distorted and increasingly at odds with reality. GDP measures production of whatever kind, good or bad (the bad include expenditures for clearing pollution, preventing crime, repairing accidents damages, wars and conflicts, etc.). Moreover, GDP is mercenary, as it doesn't deign to count transactions where no money changes hands, i.e. transactions that lie outside the so-called "production boundary" (including for instance household work). And GDP was designed primarily to measure physical production, it struggles to make sense of modern service economies and the increasing production of intangible goods. The digital economy has blurred the distinction between work, leisure and households cores, shifting what is called the production boundary between activities that we count and activities that we don't (for instance, while in the past to book flights we had to pay for the service of a travel agency, now booking on Internet is a "do it yourself" (DYT) activity which doesn't add anything to the GDP – fall outside the production boundary). We may even say that the goal of disruptive digital technology, virtualization and DYT activities is to reduce GDP. Finally, GDP was conceived in terms of the nation state, but business increasingly operates across borders. In these days of the multinational, it makes more sense to use gross national product, which measures everything produced by a country's national, wherever they happen to work, rather than domestic product, which measures whatever is produced within the country borders. But what constitute national production, however it is configured, becomes almost meaningless when companies are registered in one country, make products in a second, sell them in a third and pay taxes (if they really have to) in a fourth.
- **Wealth**: Our standard growth measurement tells us everything about production, income and expenditures and nothing about wealth[36]. This one of its fundamental shortcomings. Measuring wealth – the stocks of assets – is indispensable if we are to get a true picture of the world. National accounts huge amounts of information, but these are rarely brought to light by growth-obsessed policy makers who home in on only one of the numbers – GDP – at their disposal. The core System of National Accounts (SNA) allows to compute the Net Domestic Product (NDP), calculated by subtracting the depreciation of capital goods such as roads, airports and housing from GDP. If a nation is adding to its capital stock, the NDP will rise. If not, it will fall. The gap between NDP and GDP gives you an idea of whether a country is running down its capital to achieve an unsustainable boost to current production. Satellite (the SNA) systems of accounts have been designed to measure the variations in the stock of natural capital. Standard models of economic growth and development regard nature to be a fixed, indestructible factor of production, but this assumption is wrong. Nature is a mosaic of degradable assets. Agricultural land, forests, watersheds, fisheries, freshwater resources, estuaries, wetlands, the atmosphere – more generally ecosystems – are assets that are self-regenerative, but can suffer from deterioration or depletion

[36] Partha Dasgupta, a pioneer of environmental economics, meant by "the social worth of an economy stock's of capital assets, comprising manufactured capital (roads, ports, machinery, and so on), human capital (population size and composition, education, health), knowledge (the art, humanities, and sciences) and natural capital (ecosystems, sources of water, the atmosphere, land, sub-soil resources)" (P. Dasgupta 2013)

through human use (P. Dasgupta, 2013b). The main reason for counting natural assets depletion is that today's actions have an impact on future generations. At the extreme, one generation might use up all a nation's forest cover and all its oil reserves in the interest of double-digit growth and in the expectation that future generations will somehow sort things out. Measuring natural capital stocks is key for sustainability, and could help societies avoid collapse. Moreover, the assets of a nation go beyond physical assets, whether natural or industrial. They include skills, counted for example in trained carpenters and the number of professionals with PhDs. The concept of capital assets can be stretched as far to include cultural capital, to measure – hardly to measure but real – endowments of social and cultural trust which influence trade, growth and wealth creation opportunities in any society. There have been attempts by the World Bank to come up with what it calls the "total wealth" of nations, a measure not only of the natural capital but also of physical and institutional capital (G.M..Lange, 2011). For produced – or physical – capital, the World Bank uses, where able, numbers collected by national statistics agencies.[37] For the rest, the bank relies on data compiled for 150 countries by a group at the University of Groningen in the Netherlands. When it comes to natural capital, instead of trying to value whole ecosystems, the Wold Bank confines itself to valuing agricultural land, forest land and subsoil resources such as oil, coal, bauxite and gold. The services that nature provides are assumed to be counted in the cost of land. The calculations are not exhaustive, even important minerals and marine resources such as fish are not counted because of a lack of definitive data. Finally, an interesting aspect of the World Bank approach to measuring comprehensive wealth is the very high value it attaches to "intangible capital" such as an educated workforce and functioning institutions.[38]

- **Beyond GDP**: There are several attempts to go "beyond GDP" by improving the measure of GDP itself, correcting its defects to create a new sort of GDP 2.0 measure. One – may be the most interesting – attempt of this kind is the Genuine Progress Index (GPI), created on the shoulders of the William Nordhaus and James Tobin work about what they called the "measure of economic welfare". Using GDP as a base measure, they added previously invisible goods such as leisure time and unpaid housework, and subtracted what they called "regrettable", including commuting time, pollution and spending on crime prevention. The GPI, which came out of the further work undertaken by Herman Daly, an ecological economist and the pioneer of the "steady-state" model of economy, is perhaps the most enduring attempts to go beyond GDP, and has been adopted in Maryland, US, in 2010. The GPI is not that radical, it is really a refined version of GDP, based on three main adjustments: 1) it adjust for income inequality; 2) it includes non-market benefits from the environment (such as wetlands) and from society (such as volunteer work); 3) it deducts such things as the costs of environmental degradation, spending on things like crime prevention or health insurance, and loss of leisure time.[39] Like GDP, the GPI is a single number, and the most interesting thing to do is to compare it from year to year, and to confront its trend with that of the standard GDP growth. For instance – to explain the

[37] Some thirty national governments compile comprehensive data on capital stock: factories, roads, sewerage systems and so on. These are given virtually no publicity, but the number do exist.

[38] However, intangible capital is not measured directly, but estimated indirectly as a "residual" after subtracting from estimates of total wealth the measured physical and natural capital items. Clearly wealth accounting has some way to go to become truly operational and useful, there are many conceptual and data problems, although some of the latter could be lessened by progress in big data collection, such as using satellite data to measure urban and land assets degradation.

[39] Altogether, the Maryland GPI uses 26 indicators (economic, environmental and social), each expressed in dollars, to produce a single number akin to GDP (D. Pilling 2018).

different GPI rationale – the Maryland department website gives the example of economic expansion resulting from the explosive growth of urban sprawl. All that activity in construction, new sewerage systems, ne roads and new cars counts towards growth, but sprawl is also associated with several costs such as longer commutes, loss of community, destruction of natural land, as well as water and air pollution. While the GDP add such bad and good things all together, the GPI counts as positive all the things we pay for that we actually want – contributing to our life satisfaction – but counts on the negative side of the ledger all things we should rather not spend our money for, which is what is called a defensive expenditure (e.g. locks for your doors, legal services, etc.).[40] The GPI has evolved even in the few short years Maryland has been compiling it. Nowadays, Maryland is able to use big data to reflect real state consumption patterns rather than, as before, estimates extrapolated from national data. Similarly, it uses satellite imagery to work out more accurately the extent of the Maryland's forest and wetland reserves, showing that new technology and big data provide the chance to improve our metrics.

- **Sustainable Development Goals and indicators**: Sustainable Development Goals (SDGs) were defined and adopted as a result of an unprecedented effort to bring together stakeholders of inclusive and sustainable development – virtually every one of us from public institutions to private firms, academy to the civil society, and so on – under the auspices of the UN. The UN High-Level Panel of Eminent Persons, bringing together leaders from governments, civil society and private sector, was formed to provide high-level advice on the global development framework beyond 2015. Ultimately, the 2030 Agenda for Sustainable Development and 17 SDGs at its heart were adopted at a dedicated UN summit in September 2015. The SDGs apply to all countries – low, middle and high income – to promote prosperity while protecting the planet, catalysing efforts to end poverty in all its dimensions and fight inequalities.

The UN 2030 Agenda describes sustainable development goals and targets, the operational ways of measuring the achievements of these goals and targets are what we mean as "sustainable development indicators". There are several systems of sustainability indicators that have been developed for this purpose, from more aggregate – as for instance the Human Development Index (see Annex 2) – to more analytical systems focused on several environmental or social aspects of sustainable development. The last report to the Club of Rome "Achieving the Sustainable Development Goals within Planetary Boundaries" (Stockholm Resilience Centre, 2018) explores different pathways for the implementation of the Agenda 2030. It confirms that meeting the SDGs in an integrated fashion based on conventional growth policies is not possible, and if major changes in the way economic growth is defined and pursued occur, humanity would be confronted with

[40] It is interesting to note that in Maryland, while GDP and GPI grew from 1960 to 2005 – although with divergent paths since the 70s showing a higher GDP growth – the GPI stalled after 2005, with the GDP continuing to grow (D. Pilling, 2018)

massive trade-offs between the socio-economic and the environmental SDGs. According to the report, the only way that will meet most of the goals by 2030 is one built on transformational change starting now. Such a pathway rests on at least five transformational actions with system-wide effects of the SDGs: 1) accelerated renewable energy growth; 2) accelerated productivity in food chains; 3) new development models in the poorer countries (inclusive development from the bottom of the pyramid[41]); 4) active inequality reduction; 5) investments in education for all, gender equality and family planning. The report develops its scenarios using the systems of nine "planetary boundary" indicators which address critical environmental challenges, including climate change, stratospheric ozone depletion, ocean acidification, biogeochemical (nutrients) flows, freshwater use, land system changes among the quantified factors. Besides the environmental dimension of sustainability, the social dimension matters too, and it is measured at global level – and also at regional level in the EU (Annoni P. et al., 2016) – by the Social Progress Index (SPI), a system of basic human needs, well-being and social opportunity indicators mostly developed under the lead of the Social Progress Imperative initiative (see Annex 2).

Happiness and well-being indicators: Economists have become increasingly interested in defining and measuring happiness and in determining what conditions and policies may bring it about. Western governments have conducted regular surveys on the levels of happiness reported by individuals. And several yearly editions of a World Happiness Report have been issued since the first in 2012 (Helliwell, J., Layard, R., Sachs, J., 2019). No discussion on the subject can avoid to mention Jeremy Bentham, the British philosopher and social critic born in 1748 in London. The fundamental axiom of his philosophy was the principle that "it is the greatest happiness of the greatest number that is the measure of right and wrong". Bentham is considered the founder of utilitarianism, which states that an action is right if it promotes overall happiness. His notion of utility has become foundational in modern economics. A modern disciple of Bentham, Richard Layard, has championed since the 1970s the cause of well-being, interpreting the logic of happiness maximization as the need to promote a caring, progressive society, in which it is more important to relieve the suffering of those who are unhappy that to add a bit of extra happiness to those who are already content. In the new "science of happiness" there are several ways of measuring what researchers call "subjective well-being". One is to rely on fast-advancing neuroscience, assuming as a basic premise that happiness is real and measurable, and that there is a direct connection between brain activity and mood. However, most of the work in happiness economics rests on the same basic assumptions as those used to compile growth statistics: collecting survey data. Numerous methods have been developed for assessing people's happiness by asking them how they feel. Some surveys concentrate on what may be called mood, but the surveys that tend to be favoured by economist seeking to capture national well-being concentrate more on what is often called "life satisfaction".[42] Besides cross-country comparisons of the levels of perceived happiness or life satisfactions, it is interesting to investigate what dictates levels of happiness within countries. Using data from the World Values Survey, which has been carried out since

[41] The opportunities for an inclusive model of development starting from the bottom of the pyramid – the low-income countries – is illustrated in The Fortune at the Bottom of the Pyramid by C.K. Prahalad and Stuart L. Hart

[42] In the most comprehensive life satisfaction survey, which covers 150 countries and whose results are presented in the World Happiness reports, people are asked to evaluate the quality ot their lives on an eleven-point scale known as the Cantril Ladder (from 0 to 10).

1981, Richard Layard singles out seven main determinants of happiness (Layard, 2005): family relationships, financial situation, work, friends, health, personal freedom and personal values. These can be considered more objective quality of life determinants of the perceived subjective levels of happiness or life satisfaction.[43] Subjective levels of happiness enter in what has been called the Happy Planet Index. This is a very elegant and clean measure of happiness, multiplied by how many years on average you are on earth (life expectancy), divided by the ecological footprint.[44] However, besides concrete problems in getting the data to measure this indicator, the main drawback of the Happy Planet Index is that it can hardly considered by elected leaders to take policy decisions, based as it is on a subjective measurement of happiness. No index can be useful without political and popular credibility. A more objective view of happiness, not primarily focused on subjective well-being or self-reported happiness, underpins the Gross National Happiness (GNH) measure adopted in Bhutan (see Annex 2). It is entirely sensible for Bhutan to try to handle development cautiously and responsibly, focusing on well-being priorities. Indeed, when left purely to market forces and the vagaries of globalization, poor countries seeking to overcome poverty can indeed experience violent dislocations. But there are limitations in the Bhutan's approach that need to be recognised.[45] At the end of the day, happiness economics may have more to say about rich countries, for which the accumulation of ever greater income cannot be the answer to everything. Richard Layard is surely right that happiness measures point to some important things like the futility of endlessly seeking status and money, the importance of community and a sense of security and stability, the need of avoiding depression and overwork. In this respect, the new happiness science helps to motivate the research of effective quality of life measurements, as a meaningful effort to be anchored in the global, national, regional and local policy-making process.

[43] Measuring the determinants of happiness is safer than relying on the happiness index. One problem about the way happiness is measured is that it in on a finite scale, while income – with which levels of happiness are usually compared – is measured on an open-ended scale, as in theory it can rise indefinitely. Second, an element of social engineering can quickly creep into happiness economics. The virtue of income is that you can do with it what you like. But once we start trying to figure out what makes people happy, you don't have to stretch things too far to imagine a "brave new world" in which governments continually probe into people's minds and ply them with drugs to make sure they are happy and docile.

[44] The ecological footprint is the number of global hectares per person, where the global hectare is a single unit measuring the average productivity of land. It is a non-monetary indicator measuring how much equivalent land is needed to sustain the life of one person per year.

[45] Bhutan itself is a lower-middle income country with an income per capita of just over $8.000 adjusted for local prices. It has low literacy levels, despite the government's association of happiness with good education; only 55 per cent of Bhutanese women can read and write. Nor is Bhutan health provision particularly outstanding – life expectancy is just below 70 – notwithstanding the attention given to health in the National Human Development Report.

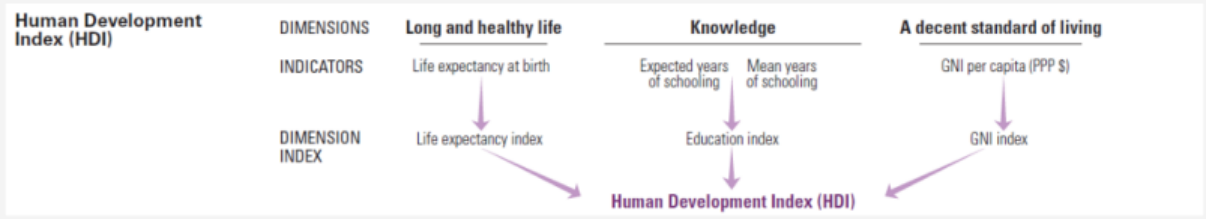
Annex 2 - Quality of Life Index methodologies

UN - Human Development Index (HDI)

The HDI was created to emphasize that people and their capabilities should be the ultimate criteria for assessing the development of a country, not economic growth alone. The HDI can also be used to question national policy choices, asking how two countries with the same level of GNI per capita can end up with different human development outcomes. These contrasts can stimulate debate about government policy priorities.

The Human Development Index (HDI) is a summary measure of average achievement in key dimensions of human development: a long and healthy life, being knowledgeable and have a decent standard of living. The HDI is the geometric mean of normalized indices for each of the three dimensions.

https://www.numbeo.com/quality-of-life/gmaps_rankings.jsp



Party responsible: United Nations Development Programme

Data sources:

- UNDESA (2017)
- UNESCO Institute for Statistics (2018)
- ICF Macro Demographic and Health Surveys
- United Nations Children's Fund (UNICEF)
- Multiple Indicator Cluster Surveys and OECD (2017)
- UNESCO Institute for Statistics (2018)
- Barro and Lee (2016)
- ICF Macro Demographic and Health Surveys,
- UNICEF Multiple Indicator Cluster Surveys
- OECD (2017)
- World Bank (2018)
- IMF (2018)
- United Nations Statistics Division (2018).

Spatial resolution: Worldwide; 235 cities; Local level (LAU)

Temporal resolution: 2012-2019 , updated continuously

Methology:

The Human Development Index (HDI) is a summary measure of achievements in three key dimensions of human development: a long and healthy life, access to knowledge and a decent standard of living. The HDI is the geometric mean of normalized indices for each of the three dimensions.

Dimension	Indicator	Minimum	Maximum
Health	Life expectancy (years)	20	85
Education	Expected years of schooling (years)	0	18
	Mean years of schooling (years)	0	15
Standard of living	Gross national income per capita (2011 PPP $)	100	75,000

$$Dimension\ index\ = \frac{actual\ value\ -\ minimum\ value}{maximum\ value\ -\ minimum\ value}$$

The HDI is the geometric mean of the three-dimensional indices:

$$HDI\ =\ (I_{Health}\ .I_{Education}\ .\ I_{Income})^{1/3}$$

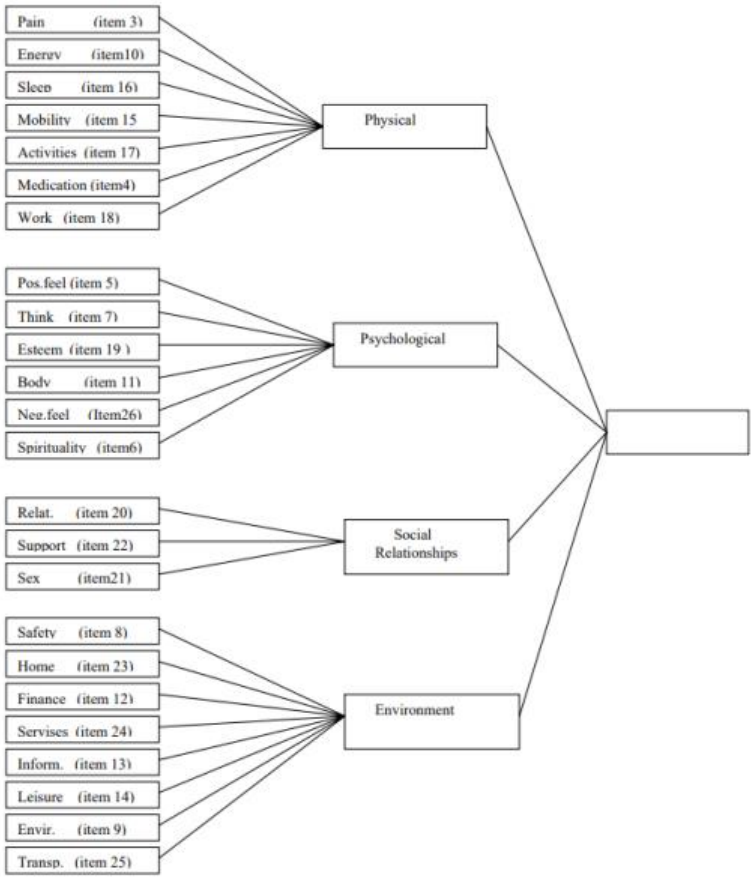
Indicators:

- Life expectancy
- Expected years of schooling (years)
- Mean years of schooling (years)
- Gross national income per capita (2011 PPP $)

UN World Health Organization Quality of Life (WHOQOL)

The WHOQOL is a quality of life assessment developed by the WHOQOL Group with fifteen international field centres, simultaneously, in an attempt to develop a quality of life assessment that would be applicable cross-culturally. It was developed collaboratively in some 15 cultural settings over several years and has been field tested in 37 field centres.

https://www.who.int/mental_health/publications/whoqol/en/



Party responsible: WHO

Data sources:
Elaborated by WHO

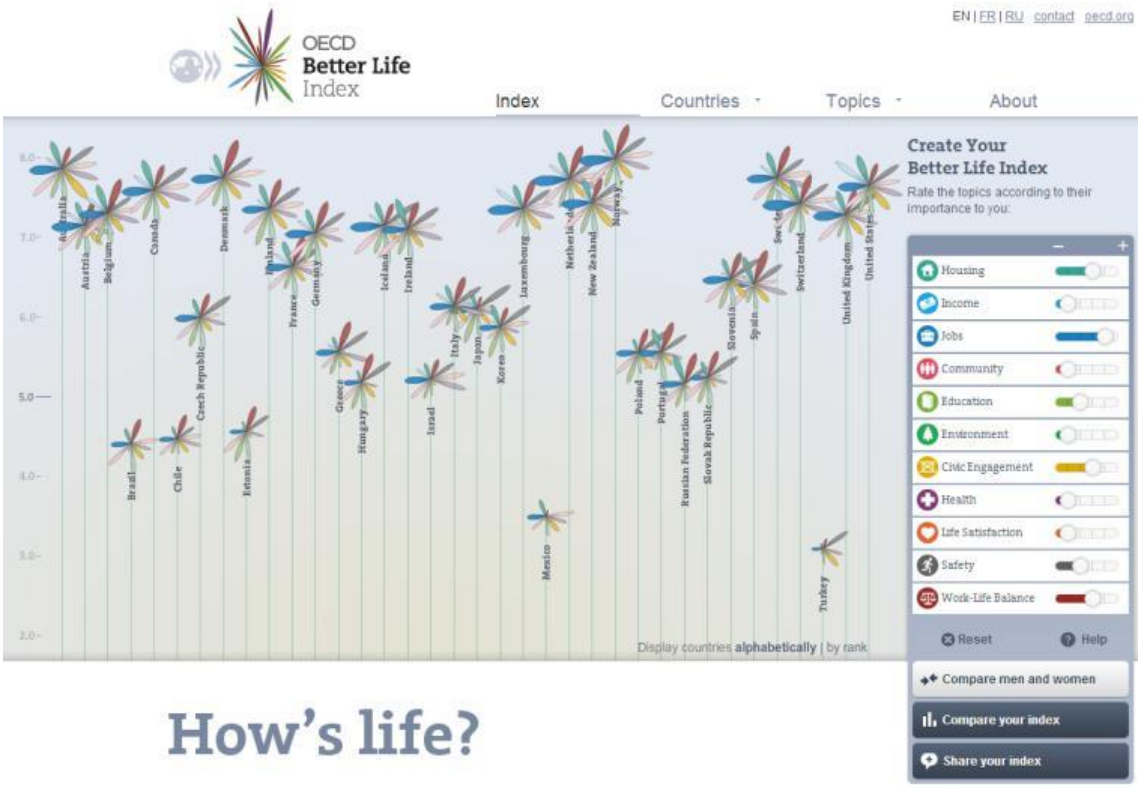
Spatial resolution: Worldwide; Local level (LAU)
Temporal resolution: 1998, Not ongoing project
Methology: The WHOQOL assesses individuals' perceptions of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards and concerns. It is a 100-question assessment that currently exists in directly comparable forms in 29 language versions. It yields a multi-dimensional profile of scores across domains and sub-domains (facets) of quality of life. **Indicators:** • Physical domain (pain and discomfort, energy and fatigue, sleep and rest) • Psychological (positive feelings, thinking, learning, memory and concentration, self-esteem, body image and appearance, negative feelings) • Level of independence (mobility, activities of daily living, dependence on medication or treatments, working capacity) • Social relationships (personal relationships, social support, sexual activity) • Environment (physical safety and security, home environment, financial resources, health and social care, opportunities for acquiring new information and skills, participation in and opportunities for recreation and leisure, physical environment, transport) • Spirituality / religion / personal beliefs

OECD Better Life Index (OECD)

Your Better Life Index aims to involve citizens in the debate on measuring the well-being of societies, and to empower them to become more informed and engaged in the policy-making process that shapes all our lives. It is updated every year with new data and additional information on measures such as inequality.

It is designed to visualise and compare some of the key factors – like education, housing, environment, and so on – that contribute to well-being in OECD countries. This tool allows the monitoring of the Better Life index, as well as of all indicators used to compute it.

http://www.oecdbetterlifeindex.org/#/13111311311



Party responsible: OECD Stat (stat.contact@oecd.org)

Data sources:

- OECD Database (National Accounts, Income Distribution and Poverty, Job quality, Labour Force Statistics, Education at a Glance, PISA at a Glance, Exposure to air pollution, Indicators of Regulatory Policy and Governance, Health Status database, Labour Force Statistics database, Time Use Surveys microdata)
- European Union Statistics on Income and Living Conditions (EU-SILC)
- International Institute for Democracy and Electoral Assistance (IDEA)
- Gallup World Poll
- Comparative Studies of Electoral System for inequalities estimations

Spatial resolution: Worlwide; OECD countries, Russia, Brazil and South Africa; country level (NUTS0)

Temporal resolution: 2013-2017, yearly

Methology:

Each of the 11 topics of the Index is currently based on one to three indicators. Within each topic, the indicators are averaged with equal weights. The indicators have been chosen on the basis of a number of statistical criteria such as relevance (face-validity, depth, policy relevance) and data quality (predictive validity, coverage, timeliness, cross-country comparability etc.) and in consultation with OECD member countries. These indicators are good measures of the concepts of well-being, in particular in the context of a country comparative exercise. Other indicators will gradually be added to each topic.

Indicators:

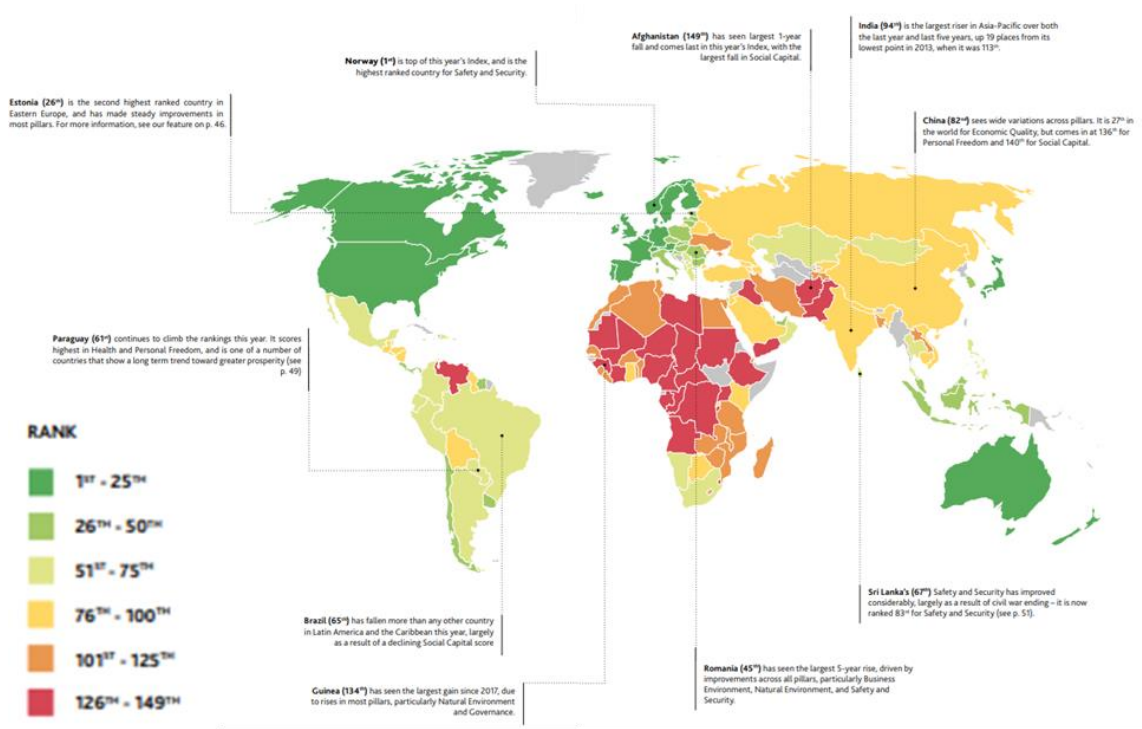
- Housing (dwellings without basic facilities, housing expenditure, rooms per person)
- Income (Household net adjusted disposable incomes, household net financial wealth)

- Jobs (Labour market insecurity, employment rate, long-term unemployment rate , personal earnings)
- Community (quality of support network)
- Education (educational attainment, student skills, years in education)
- Environment (air pollution, water quality)
- Civic engagement (stakeholder engagement for developing regulations, voter turnout)
- Health (life expectancy, self-reported health)
- Life satisfaction
- Safety (feeling safe walking alone at night, homicide rate)
- Work-Life Balance (employees working very long hours, time devoted to leisure and personal care)

The Legatum Prosperity Index

The Prosperity Index seeks to help country governments to set the agendas for growth and development. The index is calculated based on that prosperity entails much more than wealth, it considers the political, the judicial, and the wellbeing and character of a nation. It evaluates the environment where a person is able to reach their full potential. The most prosperous nations are the ones that has an open economy, inclusive society, strong institutions and empowered people who are healthy, educated and safe.

https://www.prosperity.com/



Party responsible: Legatum Institute Foundation (pi@li.com)

Data sources:

- The Office for National Statistics. 2014. Underemployment and Overemployment in the UK, 2014. ONS.
- UNEP. 1995. Poverty and the Environment. Reconciling Short Term Needs with Long Term Sustainability Goals. Kenya: UNEP.

- Economist Intelligence, Unit. Global food security index 2014. Index, The Economist, 2014.
- GDRD, Global Development Research Centre.
- The United Nations, 'Human Rights Indicators: A Guide to Measurement and Implementation', New York and Geneva, 2012.
- BTI. BTI 2014, Codebook for country assessments. Codebook, Gütersloh: BTI, 2014
- World Bank. Information and Communications. Global Trends and Policies. Washington, DC: World Bank, 2006.
- World Economic Forum, The Human Capital Report, Geneva, Switzerland, 2015.
- All sources in Methodology Report (Appendix II); https://www.prosperity.com/application/files/1914/7819/5146/Legatum_Prosperity_Index_Methodology_Report.pdf

Spatial resolution: Worldwide; 149 countries; country level (NUTS0)

Temporal resolution: 2007-2018, Yearly

Methology:

The Legatum Prosperity Index TM is a framework that assesses countries on the promotion of their citizens' flourishing, reflecting both wealth and wellbeing. The Index captures the breadth of prosperity across nine pillars of prosperity using 104 indicators.

A country is given a score for each pillar. This score is based on that country's performance with respect to each of the indicators in that pillar, and the level of that indicator's importance (the weight assigned to each indicator). The pillar scores are averaged to obtain an overall prosperity score, which determines each country's rank. Each pillar contains around 12 indicators. The indicators are aggregated into sub-pillars. The Index score provides an overall assessment of a country's prosperity and each pillar (and sub-pillar) score serves as a guide to how that country is performing with respect to a particular foundation of prosperity.

Indicators:

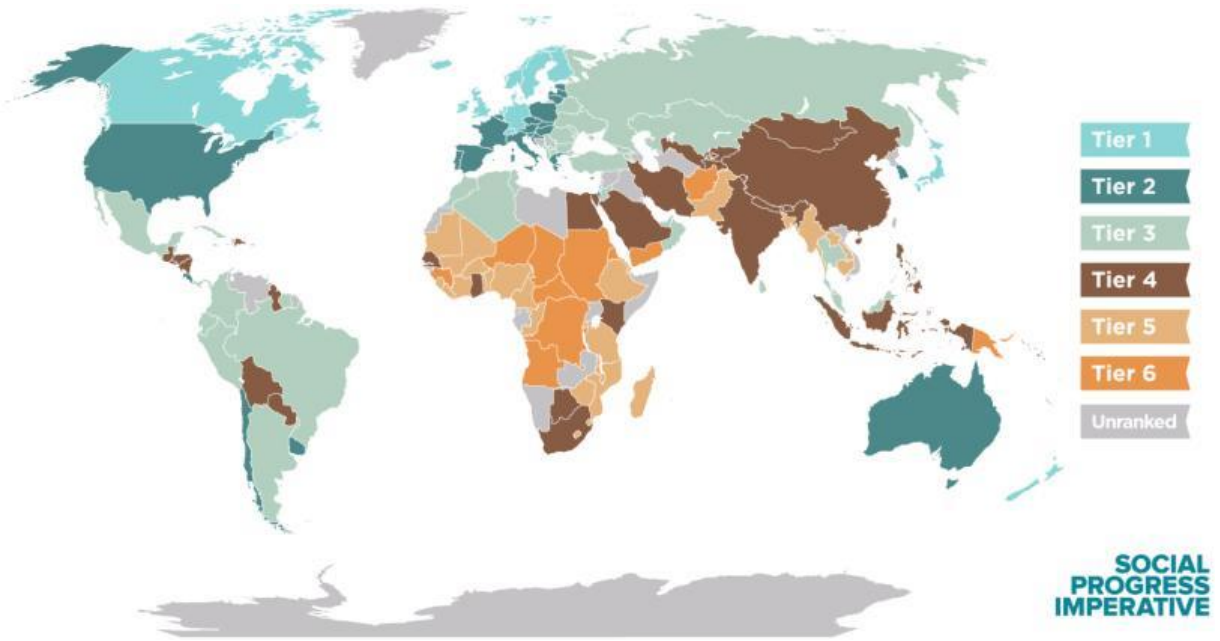
- The Economic Quality pillar measures countries on the openness of their economy, macro-economic indicators, foundations for growth, economic opportunity and financial sector efficiency.
- The Business Environment pillar measures a country's entrepreneurial environment, its business infrastructure, barriers to innovation and labour market flexibility.
- The Governance pillar measures a country's performance in rule of law, effective governance, and democracy and political participation.
- The Education pillar measures access to education, quality of education and human capital. The Health pillar measures a country's performance in basic physical and mental health, health infrastructure and preventative care.
- The Safety & Security pillar measures countries based on national security, security of living conditions and personal safety.
- The Personal Freedom pillar measures national progress towards basic legal rights, individual liberties and social tolerance.
- The Social Capital pillar measures the strength of personal relationships, social network support, social norms and civic participation in a country.
- The Natural Environment pillar measures a country's performance in the quality of the natural environment, environmental pressures and preservation efforts.

Global Social Progress Index (SPI)

The Social Progress Index It aims to define the success of societies. It is an understandable measure of quality of life, leaving aside economic indicators. The Social Progress Index is designed to complement economic measures such as GDP, income or employment.

It helps decision-makers and shows how individuals are living and which societies are left behind. This new approach is used to craft evidence-based policies, allocate resources and drive actions: better healthcare and education, safer streets, a clean environment, and an inclusive society with rights and opportunities for everyone.

https://www.socialprogress.org/



Party responsible: Social Progress Imperative

Data sources:

- Food and Agriculture Organization of the United Nations
- Freedom House
- Transparency International
- Gallup World Poll
- OECD
- Institute for Health Metrics and Evaluation
- Varieties of Democracy (VSDem) Project
- World Bank
- UNESCO
- Times Higher Education World University Rankings

Spatial resolution: Worldwide; 146 countries; country level (NUTS0)

Temporal resolution: 2014-2018; yearly

Methology:

The 2018 Social Progress Index ranks 146 countries on social progress. It combines 51 social outcome indicators to calculate an aggregated score for each country, based on stepped levels of scoring that include measures in health, safety, education, technology, rights, among others.

The framework of the Social Progress Index alludes to three broad elements of social progress, referred as Basic Human Needs, Foundations of Wellbeing, and Opportunity. Under each dimension are four components whose concepts relate and are guided by questions answered with available data.

- Basic human needs: nutrition and basic medical care, water & sanitation, shelter and personal safety
- Foundations of wellbeing: access to basic knowledge, access to information & communications, health and wellness and environmental quality
- Opportunity: personal rights, personal freedom & choice, inclusiveness and access to advanced education

Indicators:

- Nutrition and basic medical care: Undernourishment, maternal mortality rate, child mortality rate, and deaths from infectious diseases
- Water and sanitation: Access to at least basic drinking water, access to piped, water, access to at least basic sanitation facilities, rural open defecation
- Shelter: Access to electricity, quality of electricity supply, household air pollution attributable deaths
- Personal safety: Homicide rate, perceived criminality, political killings and torture and traffic deaths
- Access to basic knowledge: Adult literacy rate, primary school enrolment, secondary school enrolment, gender parity in secondary enrolment
- Access to ICT: Mobile telephone subscriptions, mobile telephone subscriptions, participation in online governance, access to independent media
- Health and wellness: Life expectancy at 60, premature deaths from non-communicable diseases, access to essential health services, access to quality healthcare
- Environmental quality: Outdoor air pollution attributable deaths, greenhouse gas emissions, biome protection
- Personal rights: Political rights, freedom of expression, freedom of religion, access to justice, property rights for women
- Personal freedom and choice: Vulnerable employment, satisfied demand for contraception, corruption
- Tolerances and inclusion: Acceptance of gays and lesbians, equality of political power by gender, equality of political power by socioeconomic position, equality of political power by social group
- Access to advanced education: Years of tertiary schooling, women's average years in school, globally ranked universities, percent of tertiary students enrolled in globally ranked universities, GDP per capita

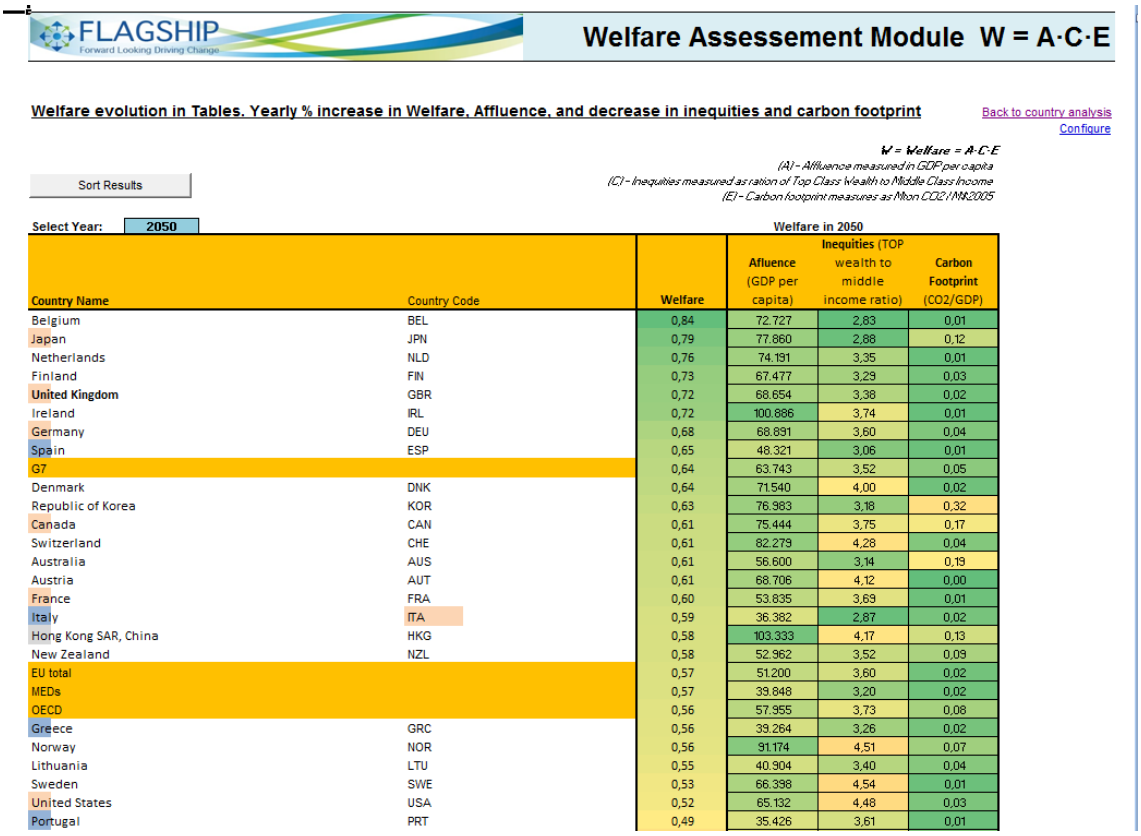
Social Welfare Index

The Social Welfare Index is an adaptation of the IPAT approach in environmental science developed by Ehrlich, Commoner & Holdren to assess welfare understood as a combination of affluence (A), equity (C), and environmental standards (E) indexes. It has been elaborated as a meta-model tool for the period 1980-2050, it shows different index results according to the scenarios defined in the tool.

Affluence index is based on Luca Ricolfi's essay "L'Enigma della Crescita". Analyses economic growth per capita (affluence) based on a simplified Solow approach without technological progress, Cohesion index is based on Thomas Piketty's essay "Capital in the 21st century", dealing with expected growing

inequities in the 21st century in societies where the return obtained from property ownership (rents) becomes more important than the rate of growth of salaries, which is generally driven by economic growth and Environmental Index is based on Jørgen Randers' essay "2052 A Global Forecast for the next 40 Years". The author suggests the use of cross elasticities to economy and technology to provide a holistic analysis of needed game changers and trend breaks to meet environmental and energy challenges toward the middle of the 21st century.

https://cordis.europa.eu/project/rcn/108144/reporting/en



FLAGSHIP
Forward Looking Driving Change

Welfare Assessement Module W = A·C·E

Welfare evolution in Tables. Yearly % increase in Welfare, Affluence, and decrease in inequities and carbon footprint

Back to country analysis
Configure

W = Welfare = A·C·E
(A) - Affluence measured in GDP per capita
(C) - Inequities measured as ration of Top Class Wealth to Middle Class Income
(E) - Carbon footprint measures as Mton CO2 / Mt 2005

Sort Results

Select Year: 2050

Welfare in 2050

Country Name	Country Code	Welfare	Affluence (GDP per capita)	Inequities (TOP wealth to middle income ratio)	Carbon Footprint (CO2/GDP)
Belgium	BEL	0,84	72.727	2,83	0,01
Japan	JPN	0,79	77.860	2,88	0,12
Netherlands	NLD	0,76	74.191	3,35	0,01
Finland	FIN	0,73	67.477	3,29	0,03
United Kingdom	GBR	0,72	68.654	3,38	0,02
Ireland	IRL	0,72	100.886	3,74	0,01
Germany	DEU	0,68	68.891	3,60	0,04
Spain	ESP	0,65	48.321	3,06	0,01
G7		0,64	63.743	3,52	0,05
Denmark	DNK	0,64	71.540	4,00	0,02
Republic of Korea	KOR	0,63	76.983	3,18	0,32
Canada	CAN	0,61	75.444	3,75	0,17
Switzerland	CHE	0,61	82.279	4,28	0,04
Australia	AUS	0,61	56.600	3,14	0,19
Austria	AUT	0,61	68.706	4,12	0,00
France	FRA	0,60	53.835	3,69	0,01
Italy	ITA	0,59	36.382	2,87	0,02
Hong Kong SAR, China	HKG	0,58	103.333	4,17	0,13
New Zealand	NZL	0,58	52.962	3,52	0,09
EU total		0,57	51.200	3,60	0,02
MEDs		0,57	39.848	3,20	0,02
OECD		0,56	57.955	3,73	0,08
Greece	GRC	0,56	39.264	3,26	0,02
Norway	NOR	0,56	91.174	4,51	0,07
Lithuania	LTU	0,55	40.904	3,40	0,04
Sweden	SWE	0,53	66.398	4,54	0,01
United States	USA	0,52	65.132	4,48	0,03
Portugal	PRT	0,49	35.426	3,61	0,01

Party responsible: FLAGSHIP Consortium (obiosca@mcrit.com)

Data sources:

- BP. Statistical review of world energy 2013
- Climate Council (2014). The US-China joint announcement on climate change and clean energy cooperation: What's the big deal?
- OECD, National Accounts (2014)
- R.N. Elliott's (1940). The Basis of the Wave Principle.
- United Nations Framework Convention on Climate Change (UNFCCC) (2011)
- UN DESA, Department of Economic and Social Affairs
- UN Population Division, World Population Prospects 2010
- UNU WINDER. World Income Inequality Database (WIID) (2014)
- Wittgenstein Centre for Demography and Global Human Capital, (2015)
- World Bank, World Development Indicators

Spatial resolution: Worlwide; country level (NUTS0)

Temporal resolution: 1980-2050; (results obtained with a meta-model tool)

Methology:

Welfare index is based on a parallelism established with the I=P•A•T approach defined in environmental science by Ehrlich, Commoner & Holdren. In the formulation, the variable "P" represents the population, the "A" represents the average consumption commonly measured as the GDP per capita and the "T" variable represents how resource intensive the production of affluence is, how much environmental impact is involved in creating, transporting and disposing of the goods, services and amenities used.

Likewise, to IPAT, the welfare index is proposed a formulation as follows: $W_{(welfare)} = A_{(affluence)} \bullet C_{(cohesion)} \bullet E_{(environment)}$. Affluence is measured through GDP per capita. Cohesion is measured as the inverse of country internal inequalities, which in their turn are defined as the ratio between welfare concentration of the top classes and the share in total income of the middle classes. The environmental component is estimated inversely to the ratio of GHG emissions released per unit of GDP, or the inverse to the product of carbon and energy intensities.

$$W = A^{\alpha} \cdot C^{\beta} \cdot E^{\gamma}$$

The parameters were introduced in the formulation normalised on a scale ranging from 0 to 1, where 0 corresponds to the minimum value registered by a country for any given year between 1980 and 2050, and 1 corresponds to the maximum value registered by a country on a certain year between 1980 and 2050.

Indicators:

- Affluence: GDP per capita
- Cohesion: top welfare respect the middle class income
- Environment = CO_2 emissions respect the GDP

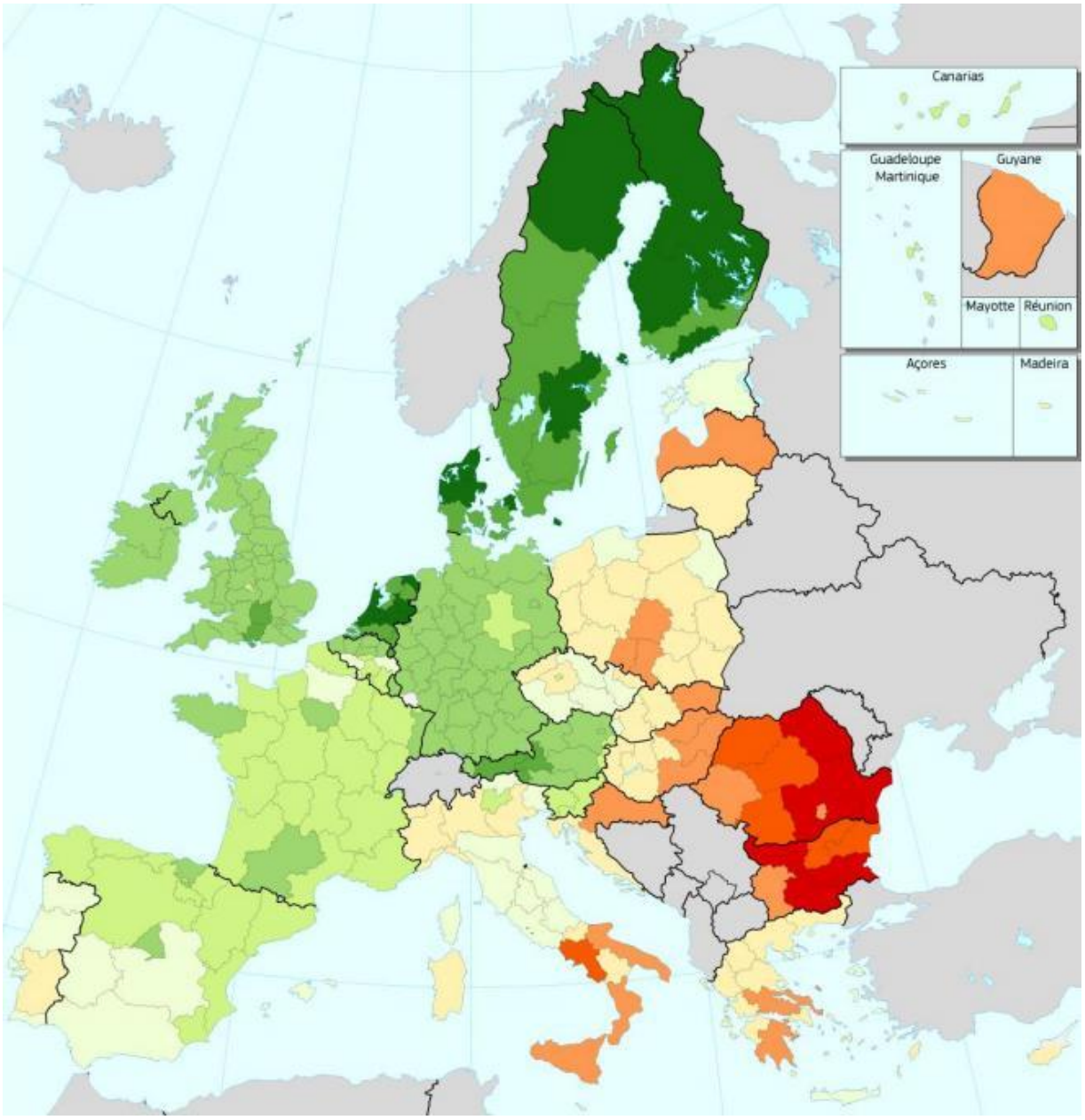
European Social Progress Index (EU-SPI)

The EU regional Social Progress Index (SPI) measures the social progress at regional level as a complement to traditional measures of economic progress. It purposely leaves indicators such as GDP, income or employment, so it can be used complement measures based on those indicators.

The EU-SPI has been published in the year 2016, and it is the result of a three-year collaborative project carried out by the Social Progress Imperative, Orkestra (a research institute on competitiveness in the Basque region) and the Directorate-General for Regional and Urban Policy of the European Commission. The Index builds on the global Social Progress Index developed by the Social Progress Imperative, a non-profit, non-governmental organisation based in Washington, DC. The regional EU-SPI aims at providing consistent, comparable and actionable measures of social and environmental issues for the regions in the 28 EU Member States (272 regions in total).

Some globally important indicators, such as primary school enrolment or household access to electricity, are important factors worldwide but less pressing issues in the EU. The EU-SPI is therefore based on a different set of indicators but with the identical set of dimensions and components.

https://ec.europa.eu/regional_policy/en/information/maps/social_progress



Party responsible: European Comission (REGIO-B1-PAPERS@ec.europa.eu)

Data sources:

- EUROSTAT
- EU Survey on Social and Living Conditions – EU-SILC
- European Environmental Agency (EEA)
- Gallup World Poll
- Quality of Government Institute of the University of Gothenburg and Eurobarometer

Spatial resolution: EU28+4 (272 regions); regional level (NUTS2)

Temporal resolution: 2013 (data ciollected from 2011 to 2016)

Methology:

The European Union Regional Social Progress Index (EU-SPI) is an aggregate index of 50 indicators that represent three dimensions of social progress and their twelve domains.

The index was computed following a step-wise approach:

- assessing of the best possible geographical coverage given data availability and reliability
- checking for statistical internal consistency within each component
- normalizing
- aggregating indicators
- anchoring regional scores to purely national ones
- testing scores and rankings through an extensive robustness analysis

Whenever possible, the indicators were averaged over three years, 2011-2013, to smooth out erratic changes and limit missing values problems. For consistency across the indicators, the reference period was 2011-2013 even when more recent data were available.

Indicators:

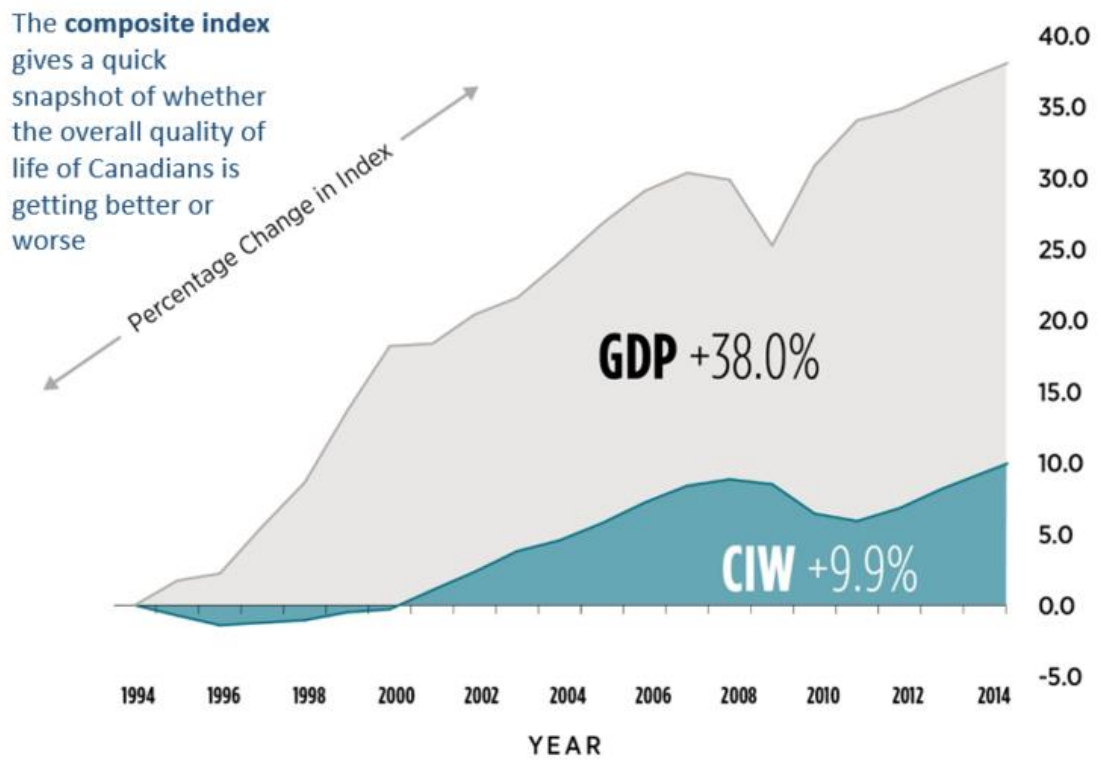
- Nutrition and basic care: premature and infant mortality, unmet medical needs and insufficient food
- Water and sanitation: water quality, lack of toilet in dwelling, uncollected sewage and seawage treatment
- Shelter: cost of housing, satisfaction with housing, overcrowding and lack of adequate heating
- Personal safety: homicide rate, safety at night and traffic deaths
- Access to basic knowledge: upper secondary enrolment rate, lower-secondary completion and early leavers
- Access to ICT: internet at home, broadband at home and online interaction with public authorities
- Health and wellness: life expectancy, general health status, cancer deaths rate and heart disease death rate, unmet dental needs and
- Environmental quality: CO2 consumption, air pollution (PM2,5, PM10 and ozone), noise, natura2000, and land use efficiency
- Personal rights: trust in the political and the legal system, trust in the police, citizen engagement and quality of government services
- Personal freedom and choice: freedom over life choice, teenage pregnancy, young people not in education employment or training and corruption index
- Tolerances and inclusion: impartially government services, tolerance for immigrants and minorities, attitudes toward people disabilities, gender employment gap, and trust in others
- Access to advances education: tertiary education attainment , tertiary enrolment and lifelong learning

Canadian Index of Wellbeing

GDP only tells us about economic productivity, assuming that all growth is good when in fact, spending on crime or natural disasters contributes to productivity. Further, GDP allows no insight into the quality of life of people, environment, democracy, or other aspects of wellbeing that people value.

In 2011 it was launched the first national index report of the Canadian Index of Wellbeing (CIW). They found out that between 1994 and 2008, Canada showed robust economic growth, but increases in the wellbeing of Canadians were not comparable.

https://uwaterloo.ca/canadian-index-wellbeing/



Party responsible: WHO (-)

- Data sources:
- Statistics Canada.
- Canadian Community Health Survey
- Labour Force Survey
- General Social Survey (e.g., Time Use, Social Networks and Identity, Victimization),
- Travel Survey of Residents of Canada
- Survey of Labour and Income Dynamics
- Environment Canada
- Board of Internal Economy
- Elections Canada
- Parks Canada
- OECD
- Global Footprint Network
- Canadian Imperial Bank of Commerce (CIBC)
- Canadian Centre for Economic Analysis
- Childcare Resource and Research Unit

Spatial resolution: Canada

Temporal resolution: 1994-2014, Yearly

Methology:

The base year selected for monitoring trends in wellbeing is 1994, the year the National Population Health Survey began. The indicators used in the Index are set to a value of 100 at the base year. Percentage changes are then calculated for each subsequent year with positive reflecting some improvement in wellbeing while negative percentage changes indicate a deterioration. This approach applies to all 64 indicators as well as the eight domains, and ultimately, the CIW composite index.

All of the indicators are weighted equally. There are many reasons for regarding one or another indicator as more important in some way or other, but what is missing is a good reason for assigning any particular indicator a weighting greater or less than that of some or all other indicators. The absence of such a reason justifies the equal treatment of all indicators at this time.

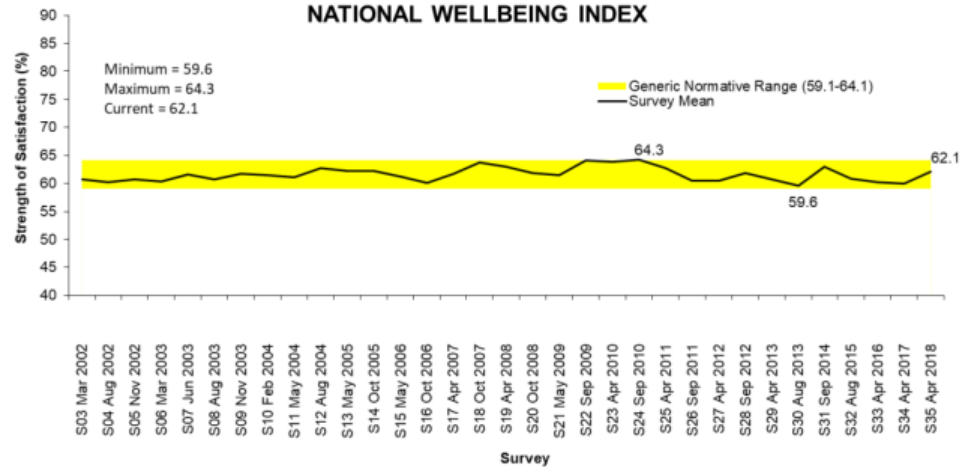
Indicators:

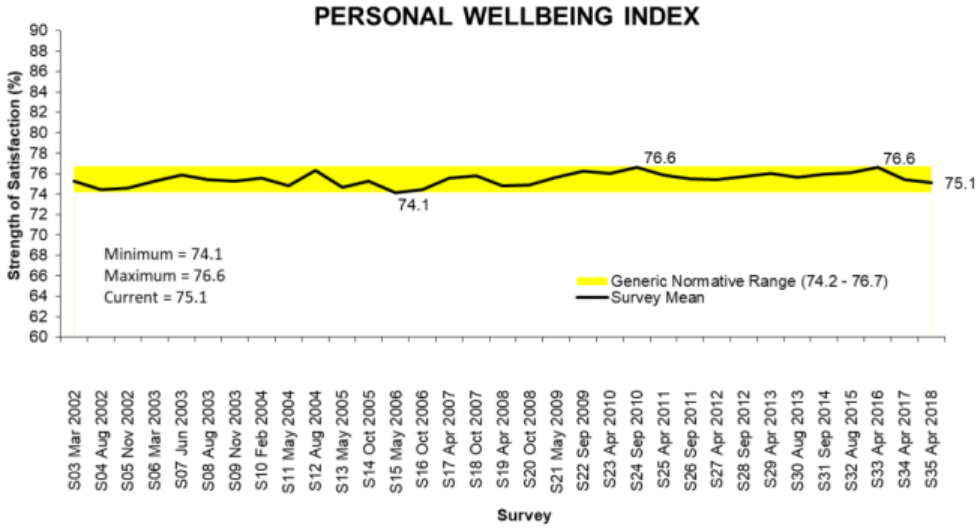
- Healthy population (Life expectancy, % smokers aged 12-19, % diabetics, % population with a regular medical doctor…),
- Demographic engagement (voters, women in federal Parliament, volunteers for a law, advocacy or political group, satisfaction with democracy and confidence in federal Parliament)
- Community vitality (sense of belonging to community, people with more than 5 close friends, population that feels safe, crime severity index, discrimination, trust in people, volunteering)
- Environment (ecological footprint, GEH emissions, ozone, primary energy production, metal reserves, residential energy use, farm land and water yield)
- Leisure and culture (time spent in social leisure, arts and culture, physical activities, art performance, volunteering for culture or recreation organizations, visits at National Parks or Historic sites, number of nights on vacation trips and expenditure on culture and recreation)
- Time use (people working over 50 h/week, under 30/week (not by choice), regular work hours, flexible work hours, good quality essential sleep, time with friends and time pressure)
- Education (% children aged 0-5 with a regulated centre-based child care space, time spent in talk-based activities with children aged 0-14, average expenditure per public school student, ratio of students to educators in public schools, average annual Canadian undergraduate tuition fees (2015$), percentage of Canadians 20-24 in labour force completing high school, percentage of 25 to 64-year-olds in population with a university degree, percentage of population aged 25 and older participating in education-related activities)
- Living standards (income, poverty, GINI coefficient, food insecurity, housing affordability, labour force, unemployment, CIBC index of employment quality)

Australian Unity Wellbeing Index (AUWI)

The Australian Unity Wellbeing Index (AUWI) is a barometer of Australians' subjective wellbeing (SWB). It measures SWB using two indices: the Personal Wellbeing Index (PWI) and the National Wellbeing Index (NWI). The PWI determines the average level of satisfaction across seven aspects of personal life – standard of living, health, achieving in life, personal relationships, safety, community connectedness, and future security. The NWI determines the average satisfaction score across six aspects of national life – the economy, the environment, social conditions, governance, business, and national security.

https://www.australianunity.com.au/media-centre/wellbeing





Party responsible: Deakin University (delyse.hutchinson@deakin.edu.au)

Data sources:

- Australian Bureau of Statistics
- International Wellbeing Group

Spatial resolution: Australia

Temporal resolution: 2001-2018, Yearly

Methology:

Data for the Australian Unity Wellbeing Index survey derive from a near representative sample of 2,000 Australians aged 18 or over and fluent in English. The sample of Random Digit Dialling numbers (RDD) was obtained from Sample Pages, a supplier of phone numbers for social and market research. This database comprises over four million valid mobile phone numbers from Australia. The sample was collected by contacting mobile numbers using Random Digit Dialling numbers (RDD), which consist of random digits attached to valid mobile prefixes.

Indicators:

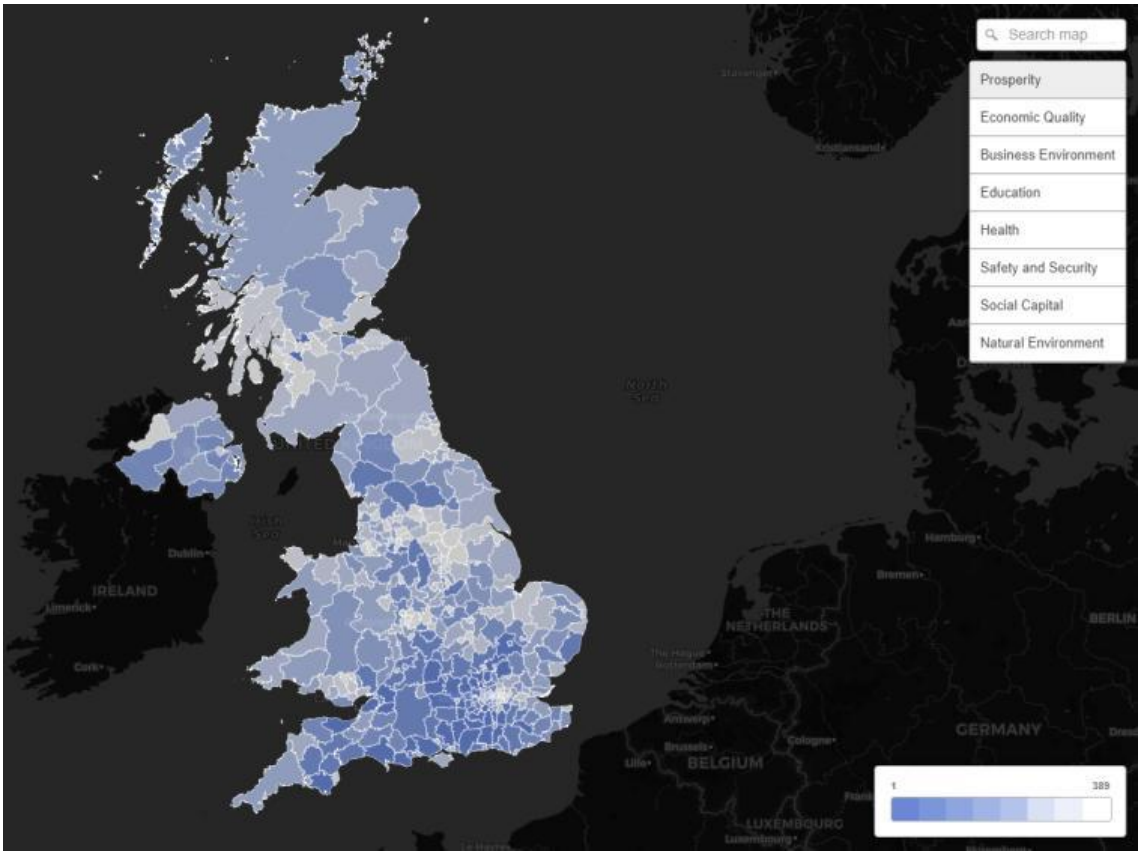
- standard of living
- health
- achieving in life
- personal relationships

- safety
- community connectedness
- future security
- economy
- environment
- social conditions
- governance
- business
- national security

UK Prosperity Index

UK Prosperity Index assesses how prosperous a place is using a combination of wealth and wellbeing across a number of sub-indices. From the strength of communities to the health of the population, the Index goes beyond traditional measures to give a rich picture of life in the UK.

http://uk.prosperity.com/



Party responsible: Legatum Institute Foundation (pi@li.com)

Data sources:

- Office for National Statistics
- Northern Ireland Labour Force Survey
- Child Poverty Action Group
- Understanding Society
- Ofcom
- Department for Business, Energy, and Industrial Strategy

- Education Scotland / Welsh Government / NI Department of Education
- DEFRA/ Environment Scotland / Department of the Environment

Spatial resolution: UK, local level (LAU2)

Temporal resolution: 2016, Yearly

Methology:

The UK Prosperity Index takes objective and subjective data to measure prosperity across seven sub-indices: Economic Quality, Business Environment, Education, Health, Safety & Security, Social Capital, and Natural Environment. This reflects the pillars of the global Index, less those that are determined at the centre of government and that do not vary by local area, namely Personal Freedom and Governance.

The Index covers 389 of the UK's 391 local authority areas. In England, this means the Index reaches the second tier of local government—district councils—where they still exist. The only two areas excluded from the Index are the Isles of Scilly and the City of London, where large amounts of data are missing.

Indicators:

- Economic quality (unemployment, long term unemployment, child poverty, feelings about household income, job satisfaction, median annual earnings, economic growth)
- Business environment (broadband speed, superfast broadband access, business survival, entrepreneurship rate, logistics index)
- Education (attainment at 16, core subject attainment at 16, truancy, qualifications)
- Health (life expectancy, life expectancy at 65, anxiety, eudemonic wellbeing, cancer mortality, premature cardiovascular mortality, obesity, infant mortality, health satisfaction, smoking)
- Safety & security (safe walking, perception of community safety, road deaths, violent crime, theft)
- Social capital (recycling rate, volunteering, voter turnout, trust, housing costs, housing affordability, friendship support, family support)
- Natural environment (waste generated, landfill, air pollution, protected land)

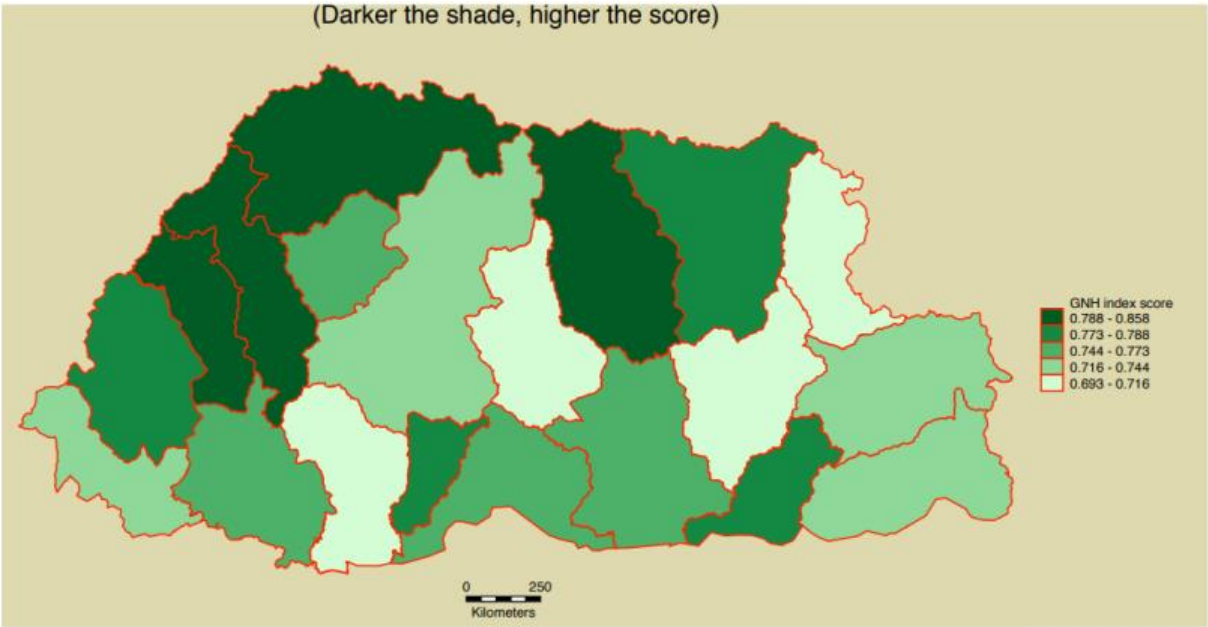
Bhutan's Gross National Happiness Index

The phrase 'gross national happiness' was first coined by the 4th King of Bhutan, King Jigme Singye Wangchuck, in 1972 when he declared, "Gross National Happiness is more important than Gross Domestic Product." The concept implies that sustainable development should take a holistic approach towards notions of progress and give equal importance to non-economic aspects of wellbeing.

Since then the idea of Gross National Happiness (GNH) has influenced Bhutan's economic and social policy, and also captured the imagination of others far beyond its borders. In creating the Gross National Happiness Index, Bhutan sought to create a measurement tool that would be useful for policymaking and create policy incentives for the government, NGOs and businesses of Bhutan to increase GNH.

The GNH Index includes both traditional areas of socio-economic concern such as living standards, health and education and less traditional aspects of culture and psychological wellbeing. It is a holistic reflection of the general wellbeing of the Bhutanese population rather than a subjective psychological ranking of 'happiness' alone.

http://www.grossnationalhappiness.com/



Party responsible: Centre for Bhutan Studies & GNH Research

Data sources:
Centre for Bhutan Studies & GNH Research

Spatial resolution: Buthan; local level

Temporal resolution: 2006, 2010, 2015 (each 5 years)

Methology:

The Gross National Happiness Index is a single number index developed from the 33 indicators categorised under nine domains. The Centre for Bhutan Studies constructed the GNH Index using robust multidimensional methodology known as Alkire-Foster method.

The nine domains are equally weighted because each domain is considered to be equal in terms of its intrinsic importance as a component of GNH.

The 33 indicators are statistically reliable, are normatively important, and are easily understood by large audiences. Within each domain, two to four indicators were selected that seemed likely to remain informative across time, had high response rates, and were relatively uncorrelated. Within each domain, the objective indicators are given higher weights while the subjective and self-reported indicators are assigned far lighter weights.

The GNH index identifies four groups of people. For policy purposes it identifies 'happiness' as comprising sufficient achievements in 66% of the weighted indicators, whichever domains they come from. This corresponds to the groups who are identified as 'extensively' and 'deeply' happy.

People who have achieved sufficiency in less than 50% are 'unhappy', and people who have sufficiency in 50-65% of domains and are called 'narrowly happy'

The GNH Index is the rate or headcount ratio of happy people (H^H), plus the extent of sufficiency that not-yet-happy people enjoy ($A^U{}_{SUFF}$). This second term is calculated by multiplying the percentage of people who are not-yet-happy (H^U, which is 100% minus H^H) by the average percentage of domains in which not-yet-happy people have sufficient achievements. So,

$$GNH = H^H + (H^U * A^U{}_{SUFF})$$

The GNH Index is a single number ranging from zero to one with zero being the lowest possible value and one, the highest possible value.

Indicators:

- Living standards
- Income
- Assets
- housing
- Health (both physical and mental health).
- Self-reported health status
- Number of healthy days
- Disability
- Mental health
- Education
- Literacy
- Schooling
- Knowledge
- Value
- Good governance
- Political participation
- Services
- Governance performance
- Fundamental right
- Ecological diversity and resilience (
- Wildlife damage
- Urban issues
- Responsibility to environment
- Ecological issues
- Time use
- Work
- Sleep
- Psychological wellbeing
- Life satisfaction
- Positive emotion
- Negative emotion
- Spirituality
- Cultural diversity and resilience
- *Zooring chusum skills* (Artisan skills)
- Cultural participation
- Speak native language
- *Driglam Namzha* (code of conduct)
- Community vitality
- Donation (time and money)
- Safety
- Community relationship
- Family

AARP Livability Index

The AARP Public Policy Institute developed the Livability Index as a web-based tool to measure neighborhoods and communities livability across the U.S. Users can search the Index by address, ZIP Code, or community to find an overall livability score, as well as a score for each of seven major livability categories: housing, neighborhood, transportation, environment, health, engagement, and opportunity. Users also can customize the Index to place higher or lower emphasis on the livability features of most importance to them. The Livability Index website provides resources to help consumers and policymakers use livability scores to effect change in their communities.

https://livindexhub.aarp.org/?cmp=LVABLIDX_MAR25_015

Large communities (500.000+)

Mid-Sized communities (100.000 to 499.999)

Small comunities (25.000 to 99.999)

Party responsible: Public Policy Institute

- Data sources:
- U.S. Census Bureau, 2011-2016
- Public and Affordable Housing Research Corporation and the National Low Income Housing Coalition's 2015 National Housing Preservation Database
- U.S. Housing and Urban Development (HUD) Public Housing Buildings Database

- Grocery store locations come from Dun & Bradstreet private data
- U.S. Department of Agriculture, Agricultural Marketing Service,
- 2014 Esri North America Parks Shapefile private datA
- Institute of Museum and Library Services, 2014 Public Library Outlet Data File

Spatial resolution: U.S; local level

Temporal resolution: 2015, 2017, 2018. Yearly

Methology:

The Livability Index assesses seven broad categories of community livability: housing, neighbourhood, transportation, environment, health, engagement, and opportunity. Metric values and policy points within each category are combined to create the category score. Those category scores are then averaged to create a location's total livability score.

The Livability Index score rates the overall livability of the selected neighbourhood, city, county, or state on a scale from 0 to 100. The total livability score is based on the average of all seven category scores, which also range from 0 to 100. Each category contains 4-9 metrics and 2-5 policies:

- Metrics measure how livable a community currently is.
- Policies capture steps communities take to become more livable in the future.

Each metric is scored on a scale of 0-100. The category score is determined by the average metric scores (each metric receives equal weight). Communities receive additional points in their category score for each policy in place.

Communities are scored by comparing them to one another, so the average community gets a score of 50, while above-average communities score higher and below-average communities score lower.

Indicators:

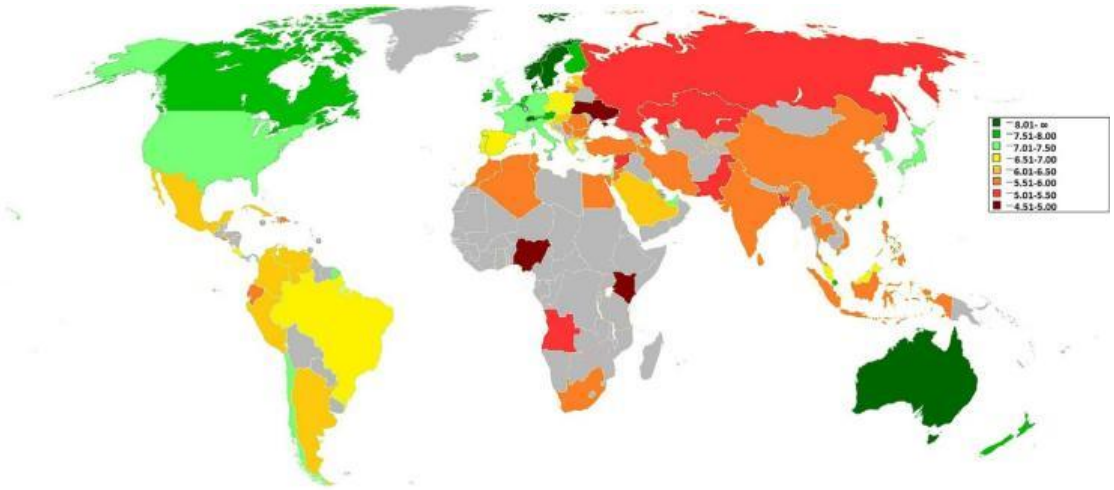
- **Housing** (affordability and access)
  - Metrics (zero-step entrance, availability of multi-family housing, housing costs, housing cost burden and availability of subsidized housing)
  - Policies (state and local inclusive design laws, state and local housing trust funds, sate manufactured housing protections, state foreclosure prevention and protection and state and local plans to create age-friendly communities)
- **Neighbourhood**
  - Metrics (access to grocery stores and farmers' markets, access to parks, access to libraries, access to jobs by transit, access to jobs by auto, diversity of destinations, activity density, crime rate and vacancy rate,
  - Policies (state and local tod programs and state and local plans to create age-friendly communities)
- **Transportation** (safe and convenient options)
  - Metrics (frequency of local transit service, ADA-accessible stations and vehicles,
  - Walk trips, congestion, household transportation costs, speed limits and crash rate)
  - Policies (state and local complete streets police, state human services transportation coordination, sate volunteer driver policies and state and local plans to create age-friendly communities)
- **Environment** (clear air and water)
  - Metrics (drinking water quality, regional air quality, near-roadway pollution and local industrial pollution)
  - Policies (state utility disconnection policies, local multi-hazard mitigation plans, state energy efficiency scorecard and state and local plans to create age-friendly communities)

- **Health** (prevention, access and quality)
  - Metrics (smoking prevalence, obesity prevalence,
  - Access to exercise opportunities, health care professional shortage areas, preventable hospitalization rate and patient satisfaction)
  - Policies (state and local smoke-free laws and state and local plans to create age-friendly communities)
- **Engagement** (civic and social involvement)
  - Metrics (broadband cost and speed, opportunity for civic involvement, voting rate, social involvement index and cultural, arts and entertainment institutions)
  - Policies (state barriers to community broadband, early, absentee or mail-in state voting laws, local human rights commission, local LGBT anti-discrimination laws and state and local plans to create age-friendly communities)
- **Opportunity** (inclusion and possibilities)
  - Metrics (income inequality, jobs per worker, high school graduation rate and age diversity)
  - Policies (local government creditworthiness, state minimum wage increase, state expansion of the family and medical leave act and state and local plans to create age-friendly communities)

Economist Intelligences – Where to be born index 2013

The where-to-be-born index is published by the Economist Intelligence Unit of the Economist Group, (most well-known for The Economist magazine). The index analyses which countries around the world have the potential to provide the highest quality of life to its citizens. This includes health, safety, and prosperity for the future of the country. For example, the 2013 index measures the quality of life for the year 2030, when the individuals born in 2013 will be adults.

https://www.economist.com/news/2012/11/21/the-lottery-of-life



Party responsible: Economist Intelligence Unit (-)

Data sources:
EIU's economic forecasts

Spatial resolution: Worldwide; 80 countries; country level (NUTS0)

Temporal resolution: 2013

Methology:

The where-to-be-born index is calculated by connecting the responses to subjective surveys, gross domestic product (GDP) per capita forecasts, and quality of life factors. It links the results of subjective life-satisfaction surveys to objective determinants of the quality of life across countries. It covers crime, trust in public institutions and the health of family. In all, the index takes 11 statistically significant indicators into account, some are fixed factors, such as geography; others change slowly over time (demography, many social and cultural characteristics); and some factors depend on policies and the state of the world economy.

A forward-looking element is considered, although many of the drivers of the quality of life are slow-changing, for this ranking some variables, such as income per head, need to be forecast. We use the EIU's economic forecasts to 2030, which is when children born in 2013 will be about to reach adulthood.

Indicators:

- life expectancy at birth
- political freedoms
- climate
- corruption in government
- gender equality
- divorce rates
- unemployment rate
- homicide rate

MERCER – Quality of Life

Mercer's Quality of Living Methodology was developed to encourage employment mobility by an international team of Mercer professionals, working closely with major multinational companies and other experts in the field. I provides reliable information to help calculate fair, consistent expatriate allowances. The Quality of Living Reports are released annually, in early November.

https://mobilityexchange.mercer.com/Insights/quality-of-living-rankings

Party responsible: MERCER (-)

Data sources:

-

Spatial resolution: Worldwide; 498 cities; Local level (LAU)

Temporal resolution:

Methology:

Based on 39 factors within ten categories, Mercer's Quality of Living Reports contain all the key elements you to calculate hardship allowances for transfers to 498 cities worldwide. "Hardship allowance" refers to premium compensation paid to expatriates who experience – or should expect to experience – a significant deterioration in living conditions in their new host location.

Indicators:

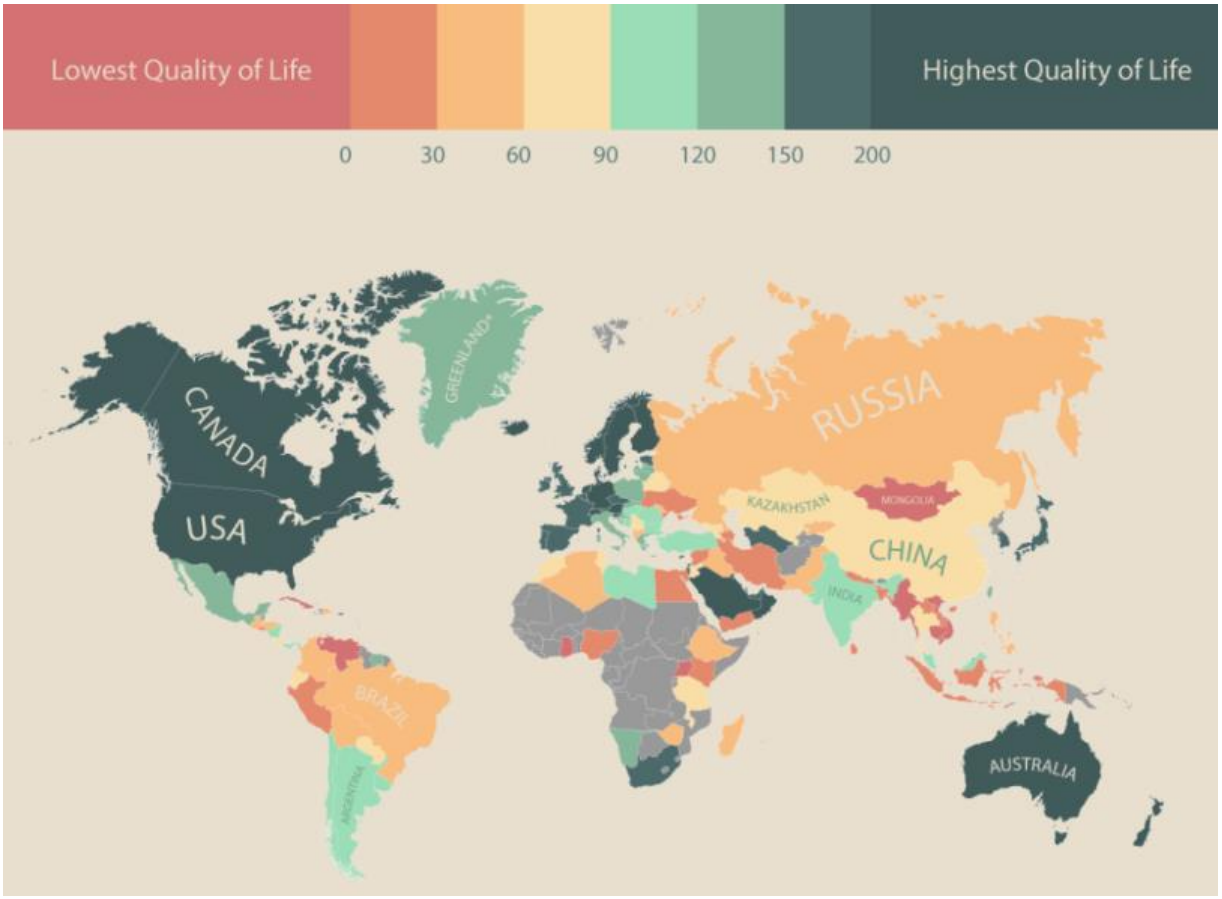
- Political and social environment (political stability, crime, law enforcement, etc.).
- Economic environment (currency exchange regulations, banking services).
- Socio-cultural environment (media availability and censorship, limitations on personal freedom).
- Medical and health considerations (medical supplies and services, infectious diseases, sewage, waste disposal, air pollution).
- Schools and education (standards and availability of international schools).
- Public services and transportation (electricity, water, public transportation, traffic congestion, etc.).
- Recreation (restaurants, theatres, cinemas, sports and leisure).
- Consumer goods (availability of food/daily consumption items, cars).
- Housing (rental housing, household appliances, furniture, maintenance services).
- Natural environment (climate, record of natural disasters).

MoveHub – Quality of Life Index

Quality of life index is an important indicator that you can use to guide your decision when moving abroad. Nevertheless, some of the factors are very subjective and surely all of them have a different degree of importance across the world and for each person in particular.

The Quality of Life index is made up of a series of factors including safety, healthcare, consumer prices and purchasing power, traffic commute, pollution and property price to income ratio.

https://www.movehub.com/blog/quality-of-life-world-map/



Party responsible: MoveHub (-)

Data sources:
Numbeo

Spatial resolution: Worldwide; country level (NUTS0)

Temporal resolution: Years, Yearly

Methology:
The data was collected by Numbeo.com, which is world's largest database of user-generated content about cities and countries. Firstly it's important to note the data was gathered from online surveys and not from official government reports. This implies that for some particular factors, the data shows the perception of the local population rather than figures drawn from government reports.

In determining the Quality of Life index, 7 factors were taken into account, each being based upon a number of surveys as percentage of the population

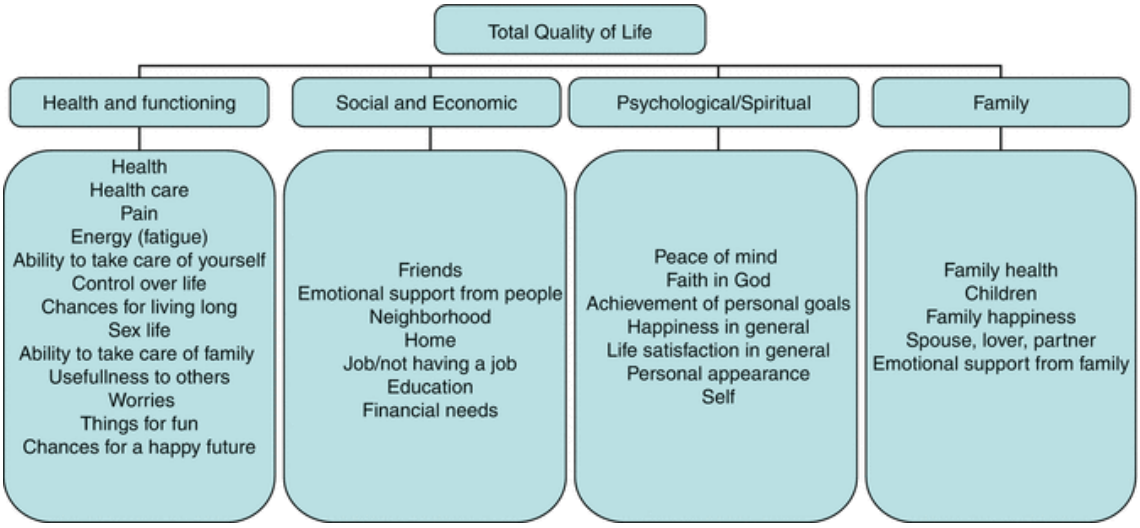
Indicators:

- Safety
- Healthcare
- Consumer prices
- Purchasing power
- Traffic commute
- Pollution
- Property price to income ratio

Ferrans and Powers – Quality of Life index

The Quality of Life Index (QLI) was developed by Ferrans and Powers to measure quality of life in terms of satisfaction with life (Ferrans & Powers, 1985). Quality of life is defined by Ferrans as "a person's sense of well-being that stems from satisfaction or dissatisfaction with the areas of life that are important to him/her".

https://qli.org.uic.edu/index.htm



Party responsible: Ferrans and Powers (cferrans@uic.edu)

Data sources:

- Ferrans, C. (1996). Development of a conceptual model of quality of life. Scholarly Inquiry for Nursing Practice: An International Journal, 10(3), 293-304.
- Ferrans, C., & Powers, M. (1985). Quality of Life Index: Development and psychometric properties. Advances in Nursing Science, 8, 15-24.
- Ferrans, C., & Powers, M. (1992). Psychometric assessment of the Quality of Life Index. Research in Nursing and Health, 15, 29-38.
- Ferrans, C. E. (1990). Development of a quality of life index for patients with cancer. Oncology Nursing Forum, 17(3), 15-19.
- Warnecke, R., Ferrans, C., Johnson, T., et. al. (1996). Measuring quality of life in culturally diverse populations. Journal of the National Cancer Institute Monographs, 20, 29-38.

Spatial resolution: -

Temporal resolution: 1996

Methology:

The QLI measures both satisfaction and importance of various aspects of life. Importance ratings are used to weight the satisfaction responses, so that scores reflect the respondents' satisfaction with the aspects of life they value. Items that are rated as more important have a greater impact on scores than those of lesser importance. The instrument consists of two parts: the first measures satisfaction with various aspects of life and the second measures importance of those same aspects. Scores are calculated for quality of life overall and in four domains: health and functioning, psychological/ spiritual, social and economic, and family.

Indicators:

- health and functioning domain
- psychological/spiritual domain

- social domain
- economic domain
- family domain

Expat Insider – Quality of Life Index

The Expat Insider city ranking provides an in-depth analysis of 72 cities around the world. The results focus on the quality of urban living, on getting settled, urban work life, as well as finance and housing — giving an overview of the best and worst cities for expats worldwide.

https://www.internations.org/expat-insider/2018/quality-of-life-index-39586

QUALITY OF LIFE	LEISURE OPTIONS	PERSONAL HAPPINESS	TRAVEL & TRANSPORT	HEALTH & WELL-BEING	SAFETY & SECURITY	DIGITAL LIFE
1 Taiwan	1 Spain	1 Mexico	1 Singapore	1 Austria	1 Luxembourg	1 Estonia
2 Portugal	2 Mexico	2 Bahrain	2 Hong Kong	2 Finland	2 Switzerland	2 Finland
3 Spain	3 Costa Rica	3 Taiwan	3 Czechia	3 Norway	3 Norway	3 Norway
4 Singapore	4 Portugal	4 Portugal	4 Switzerland	4 Israel	4 New Zealand	4 Denmark
5 Austria	5 Australia	5 Costa Rica	5 Taiwan	5 Taiwan	5 Finland	5 New Zealand
6 Czechia	6 Ecuador	6 Vietnam	6 Austria	6 Portugal	6 Singapore	6 Israel
7 Finland	7 South Africa	7 Spain	7 Netherlands	7 Japan	7 Canada	7 Canada
8 Australia	8 Colombia	8 Ecuador	8 Germany	8 Spain	8 Japan	8 Singapore
9 Switzerland	9 Israel	9 Thailand	9 Japan	9 France	9 UAE	9 Netherlands
10 Israel	10 Cyprus	10 Colombia	10 South Korea	10 Canada	10 Oman	10 USA
11 New Zealand	11 Thailand	11 Philippines	11 Spain	11 Denmark	11 Portugal	11 Sweden
12 Japan	12 New Zealand	12 Panama	12 Hungary	12 Costa Rica	12 Netherlands	12 Bahrain
13 Canada	13 Malta	13 Bulgaria	13 UAE	13 Luxembourg	13 Denmark	13 Taiwan
14 Costa Rica	14 Greece	14 Israel	14 China	14 Germany	14 Taiwan	14 Australia
15 Norway	15 Taiwan	15 Cyprus	15 Portugal	15 Czechia	15 Estonia	15 UK

Party responsible: InterNations (-)

Data sources:
Elaborated by InterNations

Spatial resolution: Worldwide; 68 countries; country level (NUTS0)

Temporal resolution: 2014-2018, yearly

Methology:
The Quality of Life Index features 68 countries with a sample size of at least 75 respondents. The index itself covers six different subcategories: Leisure Options, Health & Well-Being, Safety & Security, Personal Happiness, Travel & Transportation, and Digital Life. The latter was newly introduced in 2018.

Indicators:

- Leisure
- Health & Well being
- Safety & Security
- Personal happiness
- Travel & Transportation
- Digital life

Expat Insider – Quality of Urban Life Index

The Expat Insider 2018 city ranking provides an in-depth analysis of 72 cities around the world. The results focus on the quality of urban living, on getting settled, urban work life, as well as finance and housing — giving an overview of the best and worst cities for expats worldwide.

https://www.internations.org/expat-insider/2018/quality-of-urban-living-index-39686

Party responsible: InterNations

Data sources:
Elaborated by InterNations

Spatial resolution: Worldwide; 72 cities; local level (LAU)

Temporal resolution: 2014-2018, yearly

Methology:
For the Quality of Urban Living Index, survey respondents evaluated the leisure options and climate, local transportation, safety and politics, as well as health and environment in their city. A city needed to have at least 45 respondents in order to rank in this index, which was the case for 72 cities in 2018.

Indicators:

- Leisure
- Climate
- Transportation
- Safety
- Politics
- Health
- Environment

NUMBEO – Quality of Life

Numbeo is the world's largest database of user contributed data about cities and countries worldwide. Numbeo provides current and timely information on world living conditions including cost of living, housing indicators, health care, traffic, crime and pollution.

https://www.numbeo.com/quality-of-life/gmaps_rankings.jsp

Party responsible: NUMBERO

Data sources:
User contributed data

Spatial resolution: Worldwide; 235 cities; Local level (LAU)

Temporal resolution: 2012-2019 , updated continuously

Methology:
Quality of Life Index (higher is better) is an estimation of overall quality of life by using an empirical formula which takes into account purchasing power index (higher is better), pollution index (lower is better), house price to income ratio (lower is better), cost of living index (lower is better), safety index (higher is better), health care index (higher is better), traffic commute time index (lower is better) and climate index (higher is better).

Current formula (written in Java programming language):

index.main = Math.max(0, 100 + purchasingPowerInclRentIndex / 2.5 - (housePriceToIncomeRatio * 1.0) - costOfLivingIndex / 10 + safetyIndex / 2.0 + healthIndex / 2.5 - trafficTimeIndex / 2.0 - pollutionIndex * 2.0 / 3.0 + climateIndex / 3.0);

Indicators:

- purchasing power index
- pollution index
- house price to income ratio
- cost of living index
- safety index
- health care index
- traffic commute time index
- climate index
- Political and social environment (political stability, crime, law enforcement, etc.).

Canterbury Wellbeing Index

The Canterbury Wellbeing Index was developed by the Canterbury Earthquake Recovery Authority (CERA) with the support of multiple agencies to track the progress of the social recovery in greater Christchurch after the 2010 and 2011 earthquakes.

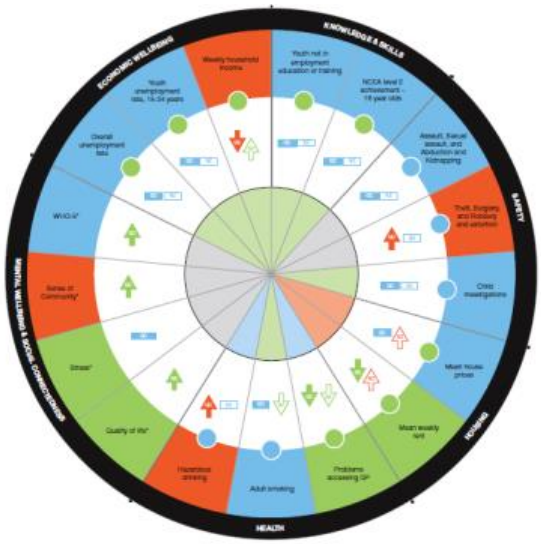
The Canterbury Wellbeing Index brings together high quality information about community wellbeing in Christchurch City, Selwyn District and Waimakariri District.

The purpose of the Index is to enable Canterbury communities to access accurate and comprehensive information about the social recovery, provide early warning of emerging social trends and issues to enable CERA and partner agencies to respond in a timely way, inform decisions about the most efficient targeting of funds and resourcing through the recovery and meet the monitoring and reporting requirements of the Recovery Strategy.

The Index was initially produced by the (CERA) annually from 2013 to 2015. Community and Public Health have produced the Index since CERA was disestablished in 2016.No Index was produced in 2017, as a comprehensive review of the Index was undertaken by Canterbury DHB, with the assistance of partner agencies.

The Index is organised into three main sections (Our Wellbeing - describing the wellbeing of the greater Christchurch population across 56 indicators, He Tohu Ora - focusing on Māori conceptualisations of wellbeing across 19 indicators and Our Population - describing the population of greater Christchurch across ten indicators).

https://www.canterburywellbeing.org.nz/



	Direction of change in greater Christchurch for the most recent 12 months compared to the previous 12 months		Direction of change in New Zealand for the most recent 12 months compared to the previous 12 months	Greater Christchurch in comparison to New Zealand	Greater Christchurch compared to the pre-earthquake period
FAVOURABLE The change is considered to be favourable		↑↓	↑↓		
NEUTRAL Either there was no change or the significance of the change is unknown		–	–		
LESS FAVOURABLE The change is considered to be less favourable		↑↓	↑↓		

Party responsible Canterbury District Health Board

Data sources:
Canterbury Wellbeing Survey

Spatial resolution: Greater Christchurch; local level

Temporal resolution: 2013-2016, 2018 Yearly

Methology:

Interpreting changes in greater Christchurch:

- In the wheel diagram, the outer shading and coloured arrows and bars represent year on year changes (favourable, neutral, and less favourable) in greater Christchurch for each indicator, and for New Zealand where comparable data is available
- The coloured dot represents how greater Christchurch compares to New Zealand for the most recent 12 months of data
- The inner shading represents how the current situation in greater Christchurch compares to the pre-earthquake period of 2008- 2010, where comparable data is available

Indicators:

- **Our Wellbeing**
  - Subjective wellbeing domain (quality of live, emotional wellbeing, stress and sense of purpose)
  - Civic engagement domain (voter turnout – local government elections, voter turnout – general elections, influencing central and local government)
  - Education domain (ECE participation, NCEA Level 2 achievement, Highest qualification, NEET)
  - Employment domain (unemployment rate, employment rate, labour force participation rate, underemployment rate, job satisfaction)
  - Environment domain (community facilities, access to transport, recreational and cultural facilities, alcohol licences, gambling machines, access to natural environment, air quality)
  - Health domain (self-rated health, smoking – year 10, smoking – adults, obesity, physical activity, hazardous drinking, unmet need, acute medical admissions, mental health service access)
  - Housing domain (housing affordability, housing-related spending, rental property supply, household crowding, housing quality)
  - Income domain (household income, household income after housing costs, low household income, satisfaction with income)
  - Safety domain (perceptions of safety, property-related victimisations, child investigations, child abuse or neglect, family violence victimisations)
  - Social Capital domain (sense of community, contact with family and friends, loneliness and isolation, personal identity, arts attendance, participation in the arts, discrimination, sports participation, unpaid activities, confidence in agencies)
- **He Tohu Ora**
  - Background
  - Sense of neighbourhood
  - Whanau support
  - Whanau contact
  - Unpaid activities
  - Whanau wellbeing
  - Self-rated health
  - Quality of life
  - Te reo Maori speaking
  - Te reo Maori understanding
  - Tribal identity
  - Visited marae
  - Turangawaewae connection
  - Cultural sport

- Cultural engagement
- Spirituality
- Housing quality
- Satisfaction with income
- Access to transport
- Access to natural environment

- **Our population**
  - Usually-resident population
  - Population change
  - Population projections
  - Population pyramids
  - Age distribution by ethnicity
  - Iwi affiliation
  - New Zealand Deprivation – NZDep2013
  - Index of Multiple Deprivation (IMD)
  - Long-term health condition or disability
  - Disability

Charlotte/Mecklenburg Quality of Life Explorer

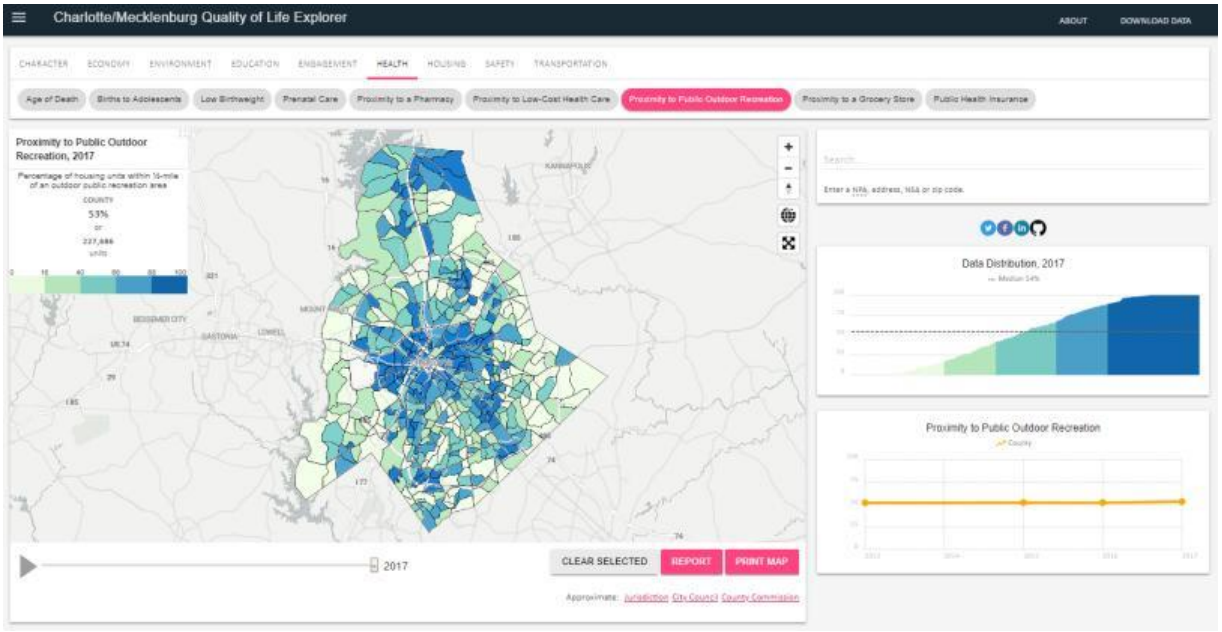
The Quality of Life Explorer looks at the social, housing, economic, and environmental and safety conditions in Charlotte and Mecklenburg County.

Local residents, businesses, service providers, government agencies, realtors, universities and others can use the Explorer to learn more about the county and its neighbourhoods, develop programs and services, and plan for the future.

The Quality of Life Explorer, formerly the Quality of Life Study, was created in partnership among the City of Charlotte, Mecklenburg County, and the UNC Charlotte Urban Institute, with the towns of Cornelius, Davidson, Huntersville, Matthews, Mint Hill and Pineville. In 2012, the study transformed into an interactive dashboard that included all of Mecklenburg County

It includes over 80 variables providing detailed information about neighbourhood housing stock, household income, jobs, health, education, tree canopy coverage, crime rates, code violations, community engagement, energy consumption and much more; maps, trend information, data tables and summary reports for 462 neighbourhood profile areas; data by custom geographies (i.e., the light rail corridor, school zones, business districts, or jurisdiction such as the City of Charlotte) and links to hundreds of City, County and community resources to help people learn more and take action.

https://charlottenc.gov/HNS/CE/CommunityInfo/Pages/QOL.aspx



Party responsible: City of Charlotte Neighborhood and Business Services (pi@li.com)

- Data sources:
- U.S. Census Bureau
- Minnesota Population Center
- National Historical Geographic Information System
- Charlotte-Mecklenburg Planning Department
- Mecklenburg County Tax Parcels, County Code Enforcement, County Department of Social Services, County Health Department, County Parks and Recreation and County Register of Deeds
- Community Care of North Carolina
- North Carolina Board of Pharmacy
- Federal Deposit Insurance Corporation (FDIC)
- National Credit Union Administration (NCUA)
- Charlotte Area Transit System
- Charlotte Department of Transportation
- Mecklenburg County Land Use & Environmental Services Agency
- Town of Cornelius
- Town of Davidson
- Town of Huntersville
- Town of Matthews
- Town of Mint Hill
- City of Charlotte Code Enforcement
- City of Charlotte Fire Department
- Mecklenburg E911
- Charlotte-Mecklenburg Police Department
- Cornelius Police Department
- Huntersville Police Department
- Matthews Police Department
- Mint Hill Police Department
- Pineville Police Department
- Mecklenburg County Board of Elections

- City of Charlotte Housing & Neighborhood Services
- Arts and Science Council
- City of Charlotte Char-Meck 311

Spatial resolution: Mecklenburg County; local level

Temporal resolution: 2002-2012, biannual. From 2012 the study transformed into an interactive dashboard.

Methology:

Go to http://mcmap.org/qol

Type the address in the search bar where it says "Search Map" and select the address from the drop-down list that appears. Then click the "Show Map" button beneath the map to make sure you landed in the right place.

Click the "Report" button beneath the map to generate a summary report of all the information in the Quality of Life Explorer. Or, click on the report header where it says "Summary Report" to give your report a custom name.

Indicators:

- **Character**
  - Age of residents
  - Area
  - Population – Older Adult
  - Population – Youth
  - Population Density
  - Race/Ethnicity – All other Races
  - Race/Ethnicity – Asian
  - Race/Ethnicity – Black or African American
  - Race/Ethnicity – Hispano or Latino
  - Race/Ethnicity – White or Caucasian
  - Vacant Land
- **Economy**
  - Commercial Building Age
  - Commercial Construction
  - Commercial Space
  - Employment
  - Food and Nutrition Services
  - Household Income
  - Job Density
  - Proximity to Financial Services
- **Environment**
  - Adopt-a-street participation
  - Adopt-a-stream participation
  - Commuters Driving Alone
  - Energy Consumption – Electricity
  - Energy Consumption – Natural Gas
  - Impervious Surface
  - Residential Recycling
  - Residential Solid Waste

- Residential Solid Waste Diversion
- Tree Canopy
- Tree Canopy – Residential
- Water consumption

- **Education**
  - Education Level – Bachelor's Degree
  - Education Level – High School Diploma
  - High School Graduation Rate
  - Library Card Holders
  - Neighbourhood School Attendance
  - Proximity to Early Care and Education
  - Proximity to School-Age Care
  - Student Absenteeism
  - Test Proficiency – Element School
  - Test Proficiency – High School
  - Test Proficiency – Middle School
- **Engagement**
  - 311 Requests
  - Arts and Culture Participation
  - Municipal board/committee Participation
  - Neighbourhood Organizations
  - Voter Participation
- **Health**
  - Age of Death
  - Births to Adolescents
  - Low Birthweight
  - Prenatal Care
  - Proximity to a Pharmacy
  - Proximity to Low-Cost Health Care
  - Proximity to Public Outdoor Recreation
  - Proximity to a Grocery Store
  - Public Health Insurance
- **Housing**
  - Home Ownership
  - Home Sales Price
  - Housing Age
  - Housing Assistance – Development Based
  - Housing Code Violations
  - Housing Density
  - Housing Size
  - Rental Costs
  - Rental Houses
  - Residential Demolitions
  - Residential Foreclosures
  - Residential New Construction
  - Residential Occupancy
  - Residential Renovation
  - Single-Family Housing

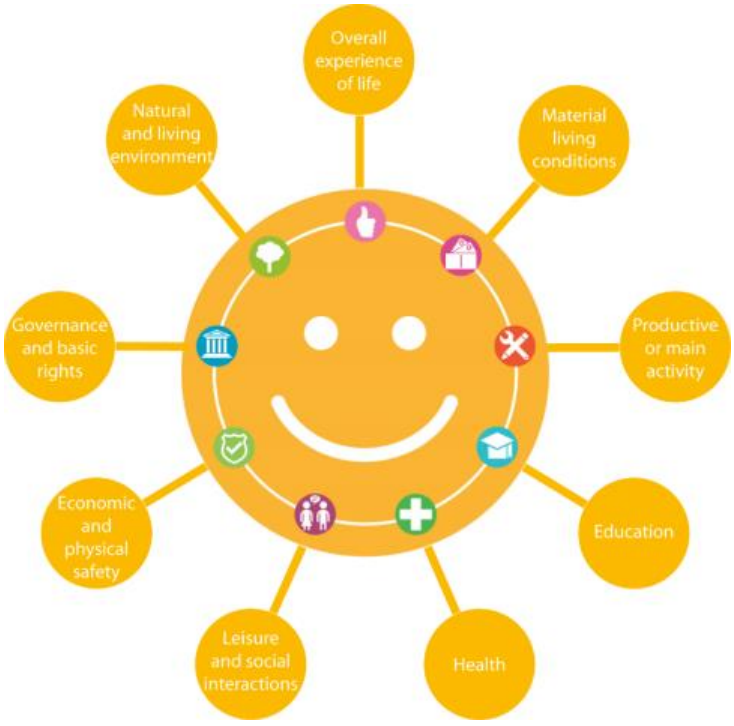
- **Safety**
  - Calls for Animal Care and Control
  - Crime-Property
  - Crime-Violent
  - Disorder-related Calls
  - Fire Calls for Service
- **Transportation**
  - Bicycle Friendliness
  - Long Commute
  - Proximity to Public Transportation
  - Sidewalk availability
  - Street Connectivity
  - Transit Ridership

EUROSTAT Quality of Life (QoL)

Quality of life (QoL) is broader than economic output and living standards. It includes the full range of factors influencing what people value in life beyond its material aspects. Factors potentially affecting our quality of life range from job and health status to social relationships, security and governance.

The 'GDP and beyond' Communication, the SSF Commission recommendations, the Sponsorship Group on 'Measuring Progress, Wellbeing and Sustainable Development' and the Sofia memorandum all underline the importance of collecting high-quality data about people's quality of life and wellbeing and the central role that EU Statistics on Income and Living Conditions (EU-SILC) have to play in this improved measurement. Building on the recommendations set out in that report, a set of indicators was developed and organised along 8 + 1 statistically measurable dimensions. These indicators could be 'subjective' or 'objective'.

https://ec.europa.eu/eurostat/web/gdp-and-beyond/quality-of-life



Party responsible: EUROSTAT

Data sources:

- EU-SILC (Statistics on Income and Living Conditions)
- LFS (Labour Force Survey)
- EHIS (European Health Interview Survey)
- European Statistical System (ESS)
- EQLS (European Quality of Life Survey)
- Administrative sources

Spatial resolution: Worlwide; OECD countries, Russia and Brazil; country level (NUTS0)

Temporal resolution: Data collected from 2015

Methology:

In 2016, Eurostat published an analytical report on QoL. It explains variations in subjective wellbeing using a range of variables included in Eurostat's Quality of Life framework, and has recourse to multivariate regression analysis.

Eventually, EU-SILC will be developed further to serve as the core EU instrument linking the different dimensions of quality of life at an individual level and reflecting their dynamic interdependencies. Some variables from the 2013 EU-SILC module on subjective wellbeing will be included in the EU-SILC instrument and collected annually or in rotating modules.

Indicators:

- Material living conditions (income, consumption, material conditions)
- Productive or other main activity (quantity &quality of employment, other main activities)
- Health (life expectancy, morbidity, healthy and unhealthy behaviours, access to healthcare)
- Education (competences and skills, lifelong learning, opportunities)
- Leisure and social interactions (leisure and social interactions)
- Economic and physical safety (economic security and vulnerability, physical and personal security)
- Governance and basic rights (trust/satisfaction in institutions, and public services)
- Natural and living environment (pollution, access to green and recreational spaces, landscape and built environment)
- Overall experience of life (life satisfaction, affects, meaning and purpose)

Annex 3 – A benchmark framework (BES) and data availability tables

Quality of Life domains

DOMAIN	BASIC CONCEPT	Dimensions considered to represent the domain
Health	Health is a central element in life and an essential condition for individual well-being and prosperity of populations. Health outcomes have an impact on all dimensions of the individual life in all its different phases, modifying life conditions, behaviour, social relationships, opportunities and prospects of individuals and, often, of their families. While age increases, the role played by health conditions becomes increasingly important, and it is nearly exclusive among the oldest old, when the risk of ill health is greater and the impact on quality of life of people can be very severe.	• Global outcome indicators • Specific indicators for lifecycle phases • Indicators related to risk or health protection factors caused by lifestyles
Education and training	Education, training and the level of competences affect the well-being of individuals because they live longer and better because they have healthier lifestyles and more opportunities to find jobs in a less risky position. Furthermore, higher levels of education and training are related to higher levels of access and enjoyment of goods and cultural services, and to active participation in the production process in the cultural and creative sectors.	• Formal education • Long life learning • Levels of competences • Cultural participation
Work and life balance	A job well paid, reasonably secure and corresponding to competences is a universal aspiration of adult people and contributes significantly to the achievement of their wellbeing. However, a bad distribution of work commitments which hamper the balance between working time and social and family life can have a negative impact. The sub-dimensions and the indicators chosen to represent this domain illustrate the contribution that the employment status gives to wellbeing in society.	• Participation and social inclusion • Work quality (stability, salary, competences and work safety) • Work and life balance • Uncertainty of employment and job satisfaction
Economic wellbeing	Earning capacities and economic resources are not seen as an end but rather as a mean by which an individual is able to obtain and to support a specific standard of living. As for most of the other dimensions of well-being, it is important to go over the mere study of mean or median levels of the chosen indicators, evaluating also the distribution among population: the judgment on the level of material well-being of a society can change if the same overall mean income is concentrated in the hands of a few wealthy people.	• Available income and wealth • Expenditure on consumption and material conditions of life
Social relationships	Relational networks to which individuals belong and in which they recognize themselves, represent a fundamental resource that allows pursuing their own ends relying on additional resources compared to the available endowments of economic and cultural capital. A generalized climate of interpersonal trust, high involvement in associative networks and widespread civic culture increase individual wellbeing and social cohesion, allowing a better performance, greater efficiency of public policies and a lower cost of economic transactions.	The following driver's domains of the wellbeing are inspired by the classic “welfare diamond”. • Civil society • Social economy • Family
Politics and institutions	The domain is based on the consideration that the trust expressed by the citizens to the institutions facilitate	• Civic and political participation

	cooperation and social cohesion while allowing greater efficiency of public policies and a lower cost of transactions. The indicators are based on the data available at present in official statistics, with a deficit of information regarding the compliance with the rules. It would be also essential to have objective and subjective measures of corruption. Equity is a cross-cutting aspect which is analysed by using appropriate break-downs, with particular reference to gender and age (especially in the policy and institutions).	• Trust in institutions and social cohesion • Shared values and norms.
Security	The subjective perception and the experience of objective safety in daily life is of paramount importance in the construction of individual and community well-being. The most important effect of criminality on well-being is the sense of vulnerability that it determines on individuals. The fear to be victim of crime can strongly affect personal freedom, quality of life and the development of territories.	- Objective indicators: • Criminality • Suffered physical and sexual violence inside and outside home - Subjective indicators: • Perception of social and environmental degradation • Fear of crime
Landscape and cultural heritage	The domain of Landscape and Cultural Heritage has been defined starting from the classical distinction between sensible landscape and geographical landscape. The sensible landscape directly contributes to the quality of life on an existential level: the factors that determine its influence on the quality of life invest a sphere of meaning that is wider than that of the mere visual perception, and of the aesthetic values usually associated with it ("experience"). It also includes, at least, the social attention to the protection of landscape itself as an environmental issue ("awareness"). The geographical landscape is divided into three sub-domains – urban, rural, natural – and the first two, that are shaped by the man's work, are considered as an integral part of the cultural heritage. Heritage can be considered, indeed, either as a sum of items (the "heritage properties": museums, monuments, archaeological areas, etc.), or – in a broader sense – as the organic whole of these elements and their respective territorial contexts.	• Sensible landscape • Geographical landscape: - urban - rural - natural
Environment	An environment which is in a vital and healthy state constitutes a prerequisite to ensure authentic well-being for all components of society. In synthesis, if our societies are not able to live within the boundaries of a single Planet (Rockstrom's planetary boundaries), well-being cannot be for all or lasting. The description of indicators is organized according to the DPSIR model categories (Drivers, Pressures, State, Impact, Responses).The scheme starts from the description of the socio-economic characteristics (drivers) of a territory that imply physical exchanges with the natural environment. This determines an alteration of the state, that is the qualitative and quantitative conditions of the natural environment which, in turn, have an impact on the socio-economic system. The anthropic system also tends to react (responses) to the	• Water quality • Air quality • Quality of soil and territory • Biodiversity • Subjective evaluation of quality of natural environment • Material, energy and climate change

	environmental change in progress, to eliminate its causes or consequences.	
Innovation, research and creativity	Innovation and Research are an indirect determinant of well-being and the base of social and economic progress. An effort was done in estimating a creativity indicator, using as a proxy the percentage of employment working in cultural and creative activities. The ability to attract young people with a high level of education was also included as indicative of propensity in a future progress.	• Creation of knowledge • Application and diffusion of knowledge • Creative propensity
Quality of services	High-quality public investments and services improve the general context in which people live and work and their social and economic interconnections. Aspects of equity and distribution , that is the connection between individual income and availability of services, are also relevant: the inadequate availability of services particularly affects those who do not have sufficient income conditions to resort to alternatives, while the non-availability of basic services is in itself a factor of poverty and exclusion. In this framework poverty is understood as the deprivation of opportunities and basic assets to which every person is entitled (nutrition, basic education, access to health services, water services, the possibility of participation in social and political life, ability to work, …).	• Accessibility • Timeliness • Transparency • Effectiveness
Subjective wellbeing	Subjective indicators are useful complement to the most objective indicators, because they allow evaluating the possible differences between what people report on their perceiving regarding their satisfaction and what it is captured by statistical observation of economic and social phenomena. The inclusion of subjective indicators allows having a more detailed and complete overview of the overall picture related to the evaluation of well-being. This can be related both to specific areas of life and to life as a whole.	• Cognitive dimension • Affective dimension

List of indicators

DOMAIN	INDICATORS
Health	1. **Life expectancy at birth**: Life expectancy expresses the average number of years that a child born in a given calendar year can expect to live if exposed during his whole life to the risks of death observed in the same year at different ages. 2. **Healthy life expectancy at birth**: It expresses the average number of years that a child born in a given calendar year can expect to live in good health on the assumption that the risks of death and perceived health conditions remain constant. It is built using the prevalence of individuals who respond positively ("good" or "very good") to the question on perceived health. 3. **Physical Component Summary (Pcs)**: Summary of the scores of each individual answering the 12 questions on the Short Form Health Survey SF12 questionnaire on physical state (Physical Component Summary). 4. **Mental Component Summary (Mcs)**: Summary of the scores of each individual answering the 12 questions on the questionnaire SF12 on psychological state (Mental Component Summary). 5. **Infant mortality rate**: Deaths during the first year of life per 10.000 born alive. 6. **Road accidents mortality rate (15-34 years old)**: Mortality rate in road accidents by five year age groups for people aged 15-34 years, standardized by the European 2013 population of the same age groups. 7. **Age-standardised cancer mortality rate**: Mortality rate for cancer (initial cause) by five year age groups for people aged 20-64 years, standardized by the European 2013 population in the same age groups.

	8. **Age-standardised mortality rate for dementia and nervous system diseases**: Mortality rate for nervous system diseases and psychical and behavioral disorders (initial cause) by five year age groups for people aged 65 years and over, standardized by the European 2013 population in the same age groups. 9. **Life expectancy without activity limitations at 65 years of age**: It expresses the average number of years that a person aged 65 can expect to live without suffering limitations in activities due to health problems. It is based on the prevalence of individuals who answer to be limited, for at least the past 6 months, because of a health problem in activities people usually do 10. **Overweight or obesity**: Proportion of population aged 18 and over overweight or obese. The indicator refers to the WHO classification of the Body Mass Index (BMI: ratio between the body weight, expressed in kilos, and the squared height, expressed in meters). The indicator is standardized using the european standard population 2013. 11. **Smoking:** Proportion of people aged 14 and over who report current smoking. The indicator is standardized using the European 2013 population as standard population. 12. **Alcohol consumption**: Proportion of people aged 14 and over with at least one risk behaviour in alcohol consumption. Taking into account the definitions adopted by the WHO and the recommendations from INRAN, in agreement with the National Institute of Health, are identified as "at-risk consumers" all those individuals who have at least one risk behaviour, exceeding the daily consumption of alcohol (according to specific thresholds for sex and age) or concentrating on a single occasion of consumption the intake of 6 or more units of any alcoholic drink (binge drinking). The indicator is standardized using the European 2013 population as standard population. 13. **Sedentariness**: Proportion of people aged 14 and over referring not to play sports neither continuously nor intermittently during their spare time, and people aged 14 and over referring not to perform any physical activity, such as walking at least 2 km, cycling, swimming, etc. The indicator is standardized using the European 2013 population as standard population. 14. **Nutrition**: Percentage of people aged 3 years and over who say they take every day at least 4 portions of fruit and vegetables. The indicator is standardized using the European 2013 population as standard population.
Education and training	1. **Participation in early childhood education**: Percentage of children aged 4-5 years participating in pre-primary education on total children aged 4-5 years 2. **People with at least upper secondary education level** (25-64 years old): Percentage of people aged 25-64 years having completed at least upper secondary education (ISCED level not below 3) on total people aged 25-64 years. 3. **People having completed tertiary education** (30-34 years old): Percentage of people aged 30-34 years having completed tertiary education (ISCED 5, 6, 7 or 8) on total people aged 30-34 years. 4. **First-time entry rate to university by cohort of upper secondary graduates**: Proportion of newgraduates from upper secondary education enrolled for the first time at university in the same year of upper secondary graduation (cohort-specific rate). Ù 5. **Early leavers from education and training**: Percentage of population aged 18-24 years who have achieved only lower secondary (ISCED 2) and are not included in a training program on total population aged 18-24 years. 6. **People not in education, employment, or training** (Neet): Percentage of people aged 15-29 years that are not in education, employment, or training on total people aged 15-29 years 7. **Participation in long-life learning** : Percentage of people aged 25-64 years participating in formal or non-formal education on total people aged 25-64 years 8. **Level of literacy**: Scores obtained in the tests of functional literacy skills of students in the II classes of upper secondary education. 9. **Level of numeracy**: Scores obtained in the tests of numeracy skills of students in the II classes of upper secondary education

	10. **People with high level of IT competencies**: Percentage of people aged 16-74 with advanced competences in all 4 groups identified in the "Digital competence framework".
Work and life balance	1. **Employment rate** (20-64 years old): Percentage of employed people aged 20-64 on total people aged 20-64 2. **Non-participation rate:** Percentage of unemployed people aged 15-74 plus part of the potential labour force aged 15-74 who are inactive not having looked for a job in the past 4 weeks but willing to work, on the total labour force aged 15-74 plus part of the potential labour force aged 15-74 who are inactive not having looked for a job in the past 4 weeks but willing to work. 3. **Transition rate** (12 months time-distance) from non-standard to standard employment: Percentage of people employed in non-standard jobs at the time t0 (employees with temporary jobs + term-contract workers + project worker + occasional hired workers + single customer self-employed without employees) which have a standard job (permanent employees + self-employed with employees + no single customer self-employed without employees) a year later on total people employed in non-standard jobs at the time t0 4. **Share of employed persons with temporary jobs for at least 5 years**: Percentage of temporary employees and term-contract workers who began their current job at least 5 years prior to interview on total temporary employees and term-contract workers 5. **Share of employees with below 2/3 of median hourly earnings**: Percentage of employees with an hourly wage of less than 2/3 of the median on total number of employees. 6. **Share of over-qualified employed persons**: Percentage of people employed with a qualification higher than the qualification held by the majority of people who exercise the same profession on total employed people. 7. **Incidence rate of fatal occupational injuries or injuries leading to permanent disability**: Proportion of fatal occupational injuries or injuries leading to permanent disability on total people employed (excluding the armed forces) per 10,000. 8. **Share of employed persons not in regular occupation**: People employed who do not comply with work, fiscal and pension laws on total people employed. 9. **Ratio of employment rate for women aged 25-49 with at least one child aged 0-5 to the employment rate of women 25-49 years without children, multiplied by 100**: Employment rate of women aged 25-49 with at least one child aged 0-5 / Employment rate of women aged 25-49 without children. 10. **Share of population aged 15-64 years that work over 60 hours per week** (including paid work and household work): Population aged 15-64 years that work over 60 hours per week of paid work and household work / population aged 15-64 years 11. **Share of household work time carried out by women in a couple on the total of the household work time**: Household work time carried out by women / household work time carried out by both partner * 100 12. **Share of employed persons who feel satisfied with their work**: The indicator is built as the average level of satisfaction (eg, using a scale from 0 to 10) in more than one dimension: the type of work, earnings, prospects of career, relations with others, working conditions and environment, reconciliation with lifetimes. 13. **Share of employed persons who feel their work unsecure**: Employed persons who, in the following 6 months, consider it is likely they lose their job and it is not at all or a little likely that they find another similar job / Total employed persons * 100 14. **Involuntary part time**: People employed in a part time job because they did not find a full-time job on total employed people
Economic wellbeing	1. **Per capita adjusted disposable income**: Ratio between disposable income of consumer households and the total number of residents (in euros). 2. **Disposable income inequality**: Ratio of total equivalised income received by the 20% of the population with the highest income to that received by the 20% of the population with the lowest income. 3. **People at risk of poverty**: Percentage of persons at risk of poverty, with an equivalised income less than or equal to 60% of the median equivalised income.

	4. **Per capita net wealth**: Ratio of total net wealth of households to the total number of residents. 5. **People living in financially vulnerable households**: Percentage of households with debt service greater than 30% of disposable income on total resident households. 6. **People living in absolute poverty:** Proportion of individuals belonging to households with an overall consumption expenditure equal or below the threshold of absolute poverty. 7. **Severe material deprivation rate**: Share of population living in households lacking at least 4 items out of the following 9 items: i) to pay rent or utility bills, ii) keep home adequately warm, iii) face unexpected expenses (of 800 euros in 2014), iv) eat meat, fish or a protein equivalent every second day, v) a week holiday away from home, or could not afford) vi) a car, vii) a washing machine, viii) a colour TV, or ix) a telephone. 8. **Severe housing deprivation rate**: Share of population living in a dwelling which is considered as overcrowded, while also exhibiting at least one of the housing deprivation measures. Housing deprivation is calculated by reference to households with a leaking roof, neither a bath, nor a shower, nor an indoor flushing toilet, or a dwelling considered too dark. 9. **Index of economic distress**: Share of individuals in households that, considering all the available income, declare to get to the end of the month with great difficulty 10. **Low work intensity**: Proportion of people living in households with very low work intensity namely household members of working age (person aged 18–59 years, with the exclusion of dependent children aged 18–24) that have worked during the income reference year less than 20% of the number of months that could theoretically have been worked by the same household members
Social relationships	1. **People to rely on**: Percentage of people aged 14 and over that have relatives, friends or neighbours they can rely on, on total population aged 14 and over. 2. **Social participation**: People aged 14 and over that have performed at least one social participation activity in the last 12 months on total population aged 14 and over. The activities in question are: participation in meetings of associations (cultural/recreational, ecological, civil rights, peace); participation in meetings of trade union organizations, professional or trade associations; meetings of political parties and/or performance of free activities for a party; payment of a monthly or quarterly fee for a sports club. 3. **Civic and political participation**: People aged 14 and over who perform at least one of the activities of civic and political participation on total population aged 14 and over. The activities in question are: to speak about politics at least once a week; to inform of the facts of Italian politics at least once a week; to attend online consultation or voting on social issues (civic) or political (e.g. urban planning, sign a petition) at least once in the 3 months prior to the interview, to read and to post opinions on social or political issues on the web at least once in the 3 months preceding the interview. 4. **Voluntary activity**: Percentage of people aged 14 and over that have performed free activities for voluntary associations or groups in the last 12 months on total population aged 14 and over. 5. **Association funding**: Percentage of people aged 14 and over that have funded associations in the last 12 months on total population aged 14 and over. 6. **No-profit organizations**: Number of no-profit organizations per 10,000 inhabitants. 7. **Generalized trust**: Percentage of people aged 14 and over that feel that most people are worthy of trust on the total population aged 14 and over.
Politics and institutions	1. **Voter turnout**: Percentage of eligible voter who cast a ballot in the last election for the European Parliament. 2. **Women and political representation in Parliament**: Percentage of women elected in Parliament on total number of MPs. 3. **Women and political representation at regional level**: Percentage of women elected in regional councils on total number of elected people. 4. **Women in decision-making bodies**: Percentage of women in position of high responsibility within the following bodies: Constitutional court, Magistrates'

	Governing Council, Regulatory authorities (competition, communication, privacy, securities market), Embassies. 5. **Women in the boards of companies listed in stock exchange**: Percentage of women in the board of companies listed in stock exchange. 6. **Median age of members of Parliament**: Average age of MPs 7. **Length of civil proceedings**: Effective average duration in days of proceedings set up in ordinary courts. 8. **Prison density**: Percentage of prisoners in penal institutions on the total capacity of penal institutions
Security	1. **Homicide rate**: Number of homicides on total population per 100,000. 2. **Burglary rate**: Number of burglaries / households * 1,000. 3. **Pick-pocketing rate**: Number of pick-pocketing on total population per 1,000. 4. **Robbery rate**: Number of robberies on total population per 1,000. 5. **Physical violence rate**: Percentage of women aged 16-70 victim of physical violence in the last 5 years before the interview on total women aged 16-70. 6. **Sexual violence rate**: Percentage of women aged 16-70 victim of sexual violence in the last 5 years before the interview on total women aged 16-70. 7. **Intimate partnership violence rate:** Percentage of women aged 16-70 victim of physical or sexual violence by the partner or ex-partner in the last 5 years before the interview on total women aged 16-70 who have or had a partner. 8. **Worries of being victim of a sexual violence:** Percentage of people aged 14 years and over who are very or quite worried of being victim of a sexual violence on total population aged 14 and over. 9. **Social decay (or incivilities) rate**: Percentage of people aged 14 and over who often see elements of social and environmental decay in the area where they live on total population aged 14 and over.
Landscape and cultural heritage	1. **Current expenditure of Municipalities for the management of cultural heritage** (museums, libraries, art galleries) **in euro per capita** 2. **Density and importance of museum heritage:** Number of permanent exhibition facilities per 100 sq.km (museums, archaeological sites and monuments open to public). Values weighted by the number of visitors. 3. **Illegal building rate:** Ratio of the number of unauthorized buildings to the number of building permits issued by the Municipalities. 4. **Erosion of rural space from urban sprawl:** Percentage ratio of rural areas affected by urban sprawl ("rural areas affected by urban sprawl": areas with increasing low-density urbanization and significant loss of agricultural land). 5. **Erosion of rural space from abandonment**: Percentage ratio of rural areas affected by abandonment ("rural areas affected by abandonment": rural areas with significant losses of population and agricultural land). 6. **Pressures of mining and quarrying activities**: Volume of mineral resources extracted (cubic metres) per sq.km. 7. **Impact of forest fires**: Proportion of burnt forest area (wooded and non-wooded) per 1,000 sq.km. 8. **Spread of rural tourism facilities**: Number of farmhouses per 100 sq.km. 9. **Presence of Historic Parks/Gardens and other Urban Parks recognised of significant public interest**: Percentage ratio of the area of parks and gardens classified as "historic" and/or "of a significant public interest" by the Legislative Decree no. 42/2004 to the total area of the provincial capital Municipalities. 10. **Concern about landscape deterioration**: Proportion of population reporting, among the environmental problems for which they express more concern, the decay of landscape due to overbuilding.
Environment	(Pressure indicators) 1. **Emissions of CO2 and other greenhouse gasses**: Tons of CO2 equivalent per capita. 2. **Domestic material consumption**: Quantity of materials, transformed in emissions, waste or new stocks, in million tons. 3. **Water losses in urban supply system**: Total water losses in urban supply system (percentage value on the total input volume on water supply network). 4. **Landfill of waste**: Percentage of municipal waste sent to landfill on total municipal waste collected.

	(State indicators) 5. **Quality of urban air - PM10**: Percentage of control units of provincial capitals with valid measurements that have exceeded the daily limit value for PM10 (50 µg/m3) for over 35 days in the year. 6. **Quality of urban air - nitrogen dioxide**: Percentage of control units of provincial capitals with valid measurements that exceeded the annual limit value for NO2 (40 µg / m3). 7. **Quality of marine coastal waters**: Percentage of bathing marine coastal waters on total coasts. 8. **Urban green:** Square meters of urban parks and gardens per inhabitants. 9. **Satisfaction for the environment**: Percentage of people aged 14 and over very or quite satisfied of the environmental situation (air, water, noise) of the area where they live on total population aged 14 and over. (Impact indicators) 10. **Contaminated sites**: Size of contaminated sites 11. **Areas with hydrogeological risks**: Percentage of population living in areas subject to landslide on total population. (Response indicators) 12. **Sewage treatment**: Percentage of polluting loads collected in secondary or advanced plants, in equivalent inhabitants, compared to the total urban loads (Aetu) generated. 13. **Protected natural areas**: Percentage share of terrestrial protected natural areas included in Italian Official List of Protected Areas (Euap) and Natura 2000 Network 14. **Concern for biodiversity loss:** Percentage of people aged 14 and over who believe that biodiversity loss is among the five most important environmental problems on total population aged 14 and over. 15. **Energy from renewable sources**: Percentage of energy consumptions provided by renewable sources on total internal consumptions. 16. **Separate collection of municipal waste**: Percentage of municipal waste object of separate collection on total municipal waste
Innovation, research and creativity	1. **R&D intensity:** Percentage of R&D expenditure on GDP 2. **Patent propensity**: Number of patent applications filed to the European Patent Office (EPO) per million of inhabitants. 3. **Impact of knowledge workers on employment**: Percentage of employees with tertiary education (ISCED 5-6-7-8) in scientific-technological occupations (ISCO 2-3) on total employees. 4. **Innovation rate of the national productive system**: Percentage of firms that have introduced technological (product or process), organizational or marketing innovation in a three-year period on total number of firms with at least 10 persons employed. 5. **Intellectual property products** (as part of gross fixed capital formation): The value of expenditure on research and development, mineral exploration and evaluation, computer software and database, entertainment literary or artistic originals and other intellectual property products intended to be used for more than one year. Chained values with reference year 2010 (millions of euro), Indexed 2007 = 100. 6. **Cultural employment** (% of total employment): Percentage of employees in cultural and creative enterprises (77 CP2011 professional units detected within the Isco08: 216, 235, 262, 264, 265, 343, 352, 441,731) out of the total number of employees (15 years and over). 7. **Brain circulation** (25-39 years old) **Net migration rate of holders of a tertiary degree**: (immigrants-emigrants) / total resident population * 1,000. Both numerator and denominator refer to italian holders of a tertiary degree, 25-39 years old.
Quality of services	1. **Beds in residential health care facilities:** Beds in residential health care facilities per 1,000 inhabitants 2. **Children who benefited of early childhood services**: Percentage of children aged zero to two years who benefited of early childhood services (crèches, micro-crèches or supplementary and innovative services) on total population aged 0-2. 3. **Integrated home assistance service**. Percentage of people aged 65 and over who benefited from integrated home assistance service.

	4. **Composite index of service accessibility**: Percentage of households who find very difficult to reach some basic services (pharmacy, emergency room, post office, police, carabinieri, municipal offices, crèches, nursery, primary and secondary school, market and supermarket). 5. **Broadband coverage**: Population covered with ultra-broadband (at least 30 Mbps) as a percentage of resident population. 6. **Irregularities in water supply**: Percentage of households who report irregularities in water supply on total number of households. 7. **Irregularities in electric power distribution**: Frequency of accidental long-lasting electric power cuts (cuts without notice longer than 3 minutes) (average number per consumer). 8. **Place-Km of public transport networks**: Place-Km of public transport networks per inhabitant 9. **Time devoted to mobility**: Minutes devoted to mobility on an average weekday.
Subjective wellbeing	• Satisfaction for life as a whole 1. **Life satisfaction**: Percentage of people aged 14 and over with a level of life satisfaction from 8 to 10 on total population aged 14 and over. 2. **Leisure time satisfaction**: Percentage of people aged 14 and over very or quite satisfied with their leisure time on total population aged 14 and over. 3. **Positive judgement of future perspectives**: Percentage of people aged 14 and over which believe their personal situation will improve in the next 5 years on total population aged 14 and over. 4. **Negative judgement of future perspectives**: Percentage of people aged 14 and over which believe their personal situation will worsen in the next 5 years on total population aged 14 and over. • Satisfaction for specific areas of life 5. **Very satisfied with family relations**: Percentage of people aged 14 and over that are very satisfied with family relations on total population aged 14 and over 6. **Very satisfied with friends' relations**: Percentage of people aged 14 and over that are very satisfied with relations with friends on total population aged 14 and over. 7. **Trust in the parliament:** Average score of trust in the Italian Parliament (on a scale from 0 to 10) expressed by people aged 14 and over. 8. **Trust in judicial system**: Average score of trust in the judicial system (on a scale from 0 to 10) expressed by people aged 14 and over. 9. **Trust in political parties**: Average score of trust in political parties (on a scale from 0 to 10) expressed by people aged 14 and over. 10. **Trust in other institutions**: Average score of trust in the police and the fire brigade (on a scale from 0 to 10) expressed by people aged 14 and over. 11. **Fear of crime rate**: Percentage of people aged 14 and over feeling unsafe walking alone when it is dark in the area where they live on total population aged 14 and over. 12. **Concrete fear rate**: Percentage of people aged 14 and over who are afraid of becoming concretely a victim of crime in the last 3 months on total population aged 14 and over. 13. **People that are not satisfied with the quality of landscape of the place where they live**: Proportion of population reporting that the landscape of the place where they live is affected by evident deterioration. 14. **Satisfaction with means of transport**: Percentage of users who rated 8 or more (over 10) for all means of transport used regularly (more than once a week), over the total number of regular users.

Data availability

DOMAIN	INDICATORS			Beyond NUTS3

		NUTS2	NUTS3	LAU[46]	Sub-LAU[47]
Health	Life expectancy at birth	X	X	X	
	Healthy life expectancy at birth	X			
	Physical Component Summary (Pcs)	X			
	Mental Component Summary (Mcs)	X			
	Infant mortality rate	X		X	
	Road accidents mortality rate (15-34 years old)	X		(x)[48]	
	Age-standardised cancer mortality rate	X	X	(x)	
	Age-standardised mortality rate for dementia and nervous system diseases	X	X	(x)	
	Life expectancy without activity limitations at 65 years of age	X			
	Overweight or obesity	X			
	Smoking	X			
	Alcohol consumption	X			
	Sedentariness	X			
	Nutrition	X			
Education and training	Participation in early childhood education	X		X	
	People with at least upper secondary education level (25-64 years old)	X	X	X	X
	People having completed tertiary education (30-34 years old)	X	X	X	X
	First-time entry rate to university by cohort of upper secondary graduates	X			
	Early leavers from education and training	X		X	
	People not in education, employment, or training (Neet)	X	X	X	
	Participation in long-life learning	X	X		
	Level of literacy	X		X	
	Level of numeracy	X		X	
	People with high level of IT competencies	X			
	Employment rate (20-64 years old)	X	X	X	X
	Non-participation rate	X	X	X	X
	Transition rate (12 months' time-distance) from non-standard to standard employment	X			
	Share of employed persons with temporary jobs for at least 5 years	X			

[46] Torino, Genova, Milano, Brescia, Bolzano, Verona, Venezia, Trieste, Parma, Reggio Emilia, Bologna, Cesena, Forlì, Firenze, Livorno, Prato, Perugia, Terni, Pesaro, Roma, Napoli, Bari, Potenza, Catanzaro, Reggio Calabria, Palermo, Messina, Catania e Cagliari.

[47] Roma Case

[48] Proxy variable

	Share of employees with below 2/3 of median hourly earnings	X			
	Share of over-qualified employed persons	X			
	Incidence rate of fatal occupational injuries or injuries leading to permanent disability	X		X	
Work and	Share of employed persons not in regular occupation	X			
life balance	Ratio of employment rate for women aged 25-49 with at least one child aged 0-5 to the employment rate of women 25-49 years without children, multiplied by 100	X		(x)	
	Share of population aged 15-64 years that work over 60 hours per week (including paid work and household work)	X			
	Share of household work time carried out by women in a couple on the total of the household work time	X			
	Share of employed persons who feel satisfied with their work	X			
	Share of employed persons who feel their work unsecure	X			
	Involuntary part time	X			
	Per capita adjusted disposable income	X		X	
	Disposable income inequality	X		(x)	
	People at risk of poverty	X			
	Per capita net wealth	X			
Economic	People living in financially vulnerable households	X		(x)	(x)
wellbeing	People living in absolute poverty	X			
	Severe material deprivation rate	X			
	Severe housing deprivation rate	X		(x)	(x)
	Index of economic distress	X			(x)
	Low work intensity	X			
	People to rely on	X			
	Social participation	X			
Social	Civic and political participation	X			
relationships	Voluntary activity	X	X	X	
	Association funding	X			
	No-profit organizations	X	X	X	
	Generalized trust	X			
	Voter turnout	X		X	
	Women and political representation in Parliament	X		X	
	Women and political representation at regional level	X	(x)	(x)	
Politics and	Women in decision-making bodies	X			
institutions	Women in the boards of companies listed in stock exchange	X			
	Median age of members of Parliament	X		(x)	

	Length of civil proceedings	X		X	
	Prison density	X			
Security	Homicide rate	X	X	X	
	Burglary rate	X	(x)	(x)	
	Pick-pocketing rate	X	(x)	X	
	Robbery rate	X	(x)	X	
	Physical violence rate	X	(x)		
	Sexual violence rate	X	(x)		
	Intimate partnership violence rate	X			
	Worries of being victim of a sexual violence	X			
	Social decay (or incivilities) rate	X			
Landscape and cultural heritage	Current expenditure of Municipalities for the management of cultural heritage (museums, libraries, art galleries) in euro per capita	X		(x)	
	Density and importance of museum heritage	X	X	(x)	
	Illegal building rate	X			
	Erosion of rural space from urban sprawl	X			
	Erosion of rural space from abandonment	X			
	Pressures of mining and quarrying activities:	X			
	Impact of forest fires	X			
	Spread of rural tourism facilities	X	(x)		
	Presence of Historic Parks/Gardens and other Urban Parks recognised of significant public interest	X		(x)	
	Concern about landscape deterioration	X			
Environment	Emissions of CO2 and other greenhouse gasses	X			
	Domestic material consumption	X			
	Water losses in urban supply system	X		X	
	Landfill of waste	X	X	X	
	Quality of urban air - PM10	X		(x)	
	Quality of urban air - nitrogen dioxide	X		(x)	
	Quality of marine coastal waters	X			
	Urban green	X		X	
	Satisfaction for the environment	X			
	Contaminated sites	X			
	Areas with hydrogeological risks	X			
	Sewage treatment	X			
	Protected natural areas	X		X	
	Concern for biodiversity loss	X			
	Energy from renewable sources	X			
	Separate collection of municipal waste	X	X	X	
Innovation,	R&D intensity	X			
	Patent propensity	X	X		
	Impact of knowledge workers on employment	X			

Research and creativity	Innovation rate of the national productive system	X		(x)	
	Intellectual property products (as part of gross fixed capital formation)	X		(x)	
	Cultural employment (% of total employment)	X			
	Brain circulation (25-39 years old) Net migration rate of holders of a tertiary degree	X	X		
Quality of services	Beds in residential health care facilities	X	(x)		(x)
	Children who benefited of early childhood services	X	X	(x)	X
	Integrated home assistance service	X			
	Composite index of service accessibility	X			
	Broadband coverage	X			
	Irregularities in water supply	X			
	Irregularities in electric power distribution	X			
	Place-Km of public transport networks	X		(x)	
	Time devoted to mobility	X		(x)	
Subjective wellbeing	Life satisfaction	X			
	Leisure time satisfaction	X			
	Positive judgement of future perspectives	X			
	Negative judgement of future perspectives	X			
	Very satisfied with family relations	X			
	Very satisfied with friends' relations	X			
	Trust in the parliament	X			
	Trust in judicial system	X			
	Trust in political parties	X			
	Trust in other institutions	X			
	Fear of crime rate	X			
	Concrete fear rate	X			
	People that are not satisfied with the quality of landscape of the place where they live	X			
	Satisfaction with means of transport	X			

Table 0.1. Data available for different domain indicators at different spatial resolution.

Domain	Indicator	Data available	NUTS0	NUTS2	NUTS3	beyond NUTS3	Territorial coverage	Temporal coverage	Source
Material living conditions	Income	Disposable income of private households	x	x	x		EU 28+4	2003-2013	ESPON DB
		At risk of poverty rate	x	x	x		EU 28+4	2005-2016	ESPON DB
		People at risk of poverty or social exclusion (% of total population)	x	x	x		EU 28+4	2005-2016	ESPON DB
		Mean and median income by age and sex	x				EU 28+4	1995-2017	EUROSTAT
		At-risk-of-poverty rate anchored at a fixed moment in time	x				EU 28+4	2008-2018	EUROSTAT
		At-risk-of-poverty rate by poverty threshold	x				EU 28+4	2008-2018	EUROSTAT
		S80/S20 income quintile share ratio	x				EU 28+4	2008-2018	EUROSTAT
		Percentage of the population rating their satisfaction as high, medium or low by domain	x				EU 28+4	2013	EUROSTAT
		Average rating of satisfaction by domain, sex, age and educational attainment level	x				EU 28+4	2013	EUROSTAT

	Consumption	Gross domestic product (GDP) at current market prices	x	x	x		EU 28+4	2000-2015	ESPON DB
	Material conditions (deprivation, housing)	Severe material deprivation rate	x	x	x		EU 28+4	2005-2016	ESPON DB
		Inability to make ends meet	x				EU 28+4	2003-2018	EUROSTAT
		Total population living in a dwelling with a leaking roof, damp walls, floors or foundation, or rot in window frames of floor	x				EU 28+4	2003-2018	EUROSTAT
		Overcrowding rate and poverty status	x				EU 28+4	2003-2018	EUROSTAT
		Share of people living in under-occupied dwellings by household type and income quintile	x				EU 28+4	2003-2018	EUROSTAT
Productive or other activities	**Quantity of employment**	Long-term unemployment (12 months and more)	x	x	x		EU 28+4	1999-2016	ESPON DB
		Unemployment	x	x	x		EU 28+4	1999-2016	ESPON DB
		People living in households with very low work intensity	x	x	x		EU 28+4	2005-2016	ESPON DB
		Involuntary part-time employment as percentage of the total part-time employment	x				EU 28+4	1983-2017	EUROSTAT
	Quality of employment	Low-wage earners as a proportion of all employees	x				EU 28+4	2006, 2010, 2014	EUROSTAT
		Part-time employment and temporary contracts	x				EU 28+4	1993-2017	EUROSTAT
		Temporary employees by main reason	x				EU 28+4	1983-2017	EUROSTAT
		Self-declared over-qualified employees	x				EU 28+4	2014	EUROSTAT
		Persons reporting an accident at work	x				EU 28+4	2007, 2013	EUROSTAT
		Persons reporting a work-related health problem	x				EU 28+4	2007, 2013	EUROSTAT
		Persons reporting exposure to risk factors that can adversely affect physical health	x				EU 28+4	2007, 2013	EUROSTAT
		Average number of usual weekly hours of work in main job	x				EU 28+4	2000-2017	EUROSTAT
		Employed persons working on Saturdays	x				EU 28+4	1992-2017	EUROSTAT
		Employed persons working on Sundays	x				EU 28+4	1992-2017	EUROSTAT
		Employed persons working in the evenings	x				EU 28+4	1992-2017	EUROSTAT
		Employed persons working at nights	x				EU 28+4	1992-2017	EUROSTAT
		Employees by flexibility of their working schedule and educational attainment	x				EU 28+4	2010	EUROSTAT
		Employed persons being able to choose their methods of work or to influence their pace of work	x				EU 28+4	2005, 2010, 2015	EUROSTAT
		Average rating of satisfaction by domain	x				EU 28+4	2013	EUROSTAT
		Percentage of the population rating their satisfaction as high, medium or low by domain	x				EU 28+4	2013	EUROSTAT
		Employees having a good relationship with their supervisor	x				EU 28+4	2005, 2010, 2015	EUROSTAT
		Employed persons having a good relationship with their colleagues	x				EU 28+4	2005, 2010, 2015	EUROSTAT
	Other main activities	Inactive population	x				EU 28+4	1983-2017	EUROSTAT
Health	**Life expectancy**	Life expectancy	x				EU 28+4	1960-2017	EUROSTAT
	Morbidity & Health status	Healthy life years (from 2004 onwards)	x				EU 28+4	2004-2016	EUROSTAT
		Self-perceived health	x				EU 28+4	2008-2018	EUROSTAT
		Current depressive symptoms	x				EU 28+4	2014	EUROSTAT
	Healthy and unhealthy behaviours	Body mass index	x				EU 28+4	2014	EUROSTAT
		Daily smokers of cigarettes	x				EU 28+4	2014	EUROSTAT
		Frequency of heavy episodic drinking	x				EU 28+4	2014	EUROSTAT
		Performing (non-work-related) physical activities	x				EU 28+4	2014	EUROSTAT
		Time spent on health-enhancing (non-work-related) aerobic physical activity	x				EU 28+4	2014	EUROSTAT
		Daily consumption of fruit and vegetables	x				EU 28+4	2014	EUROSTAT
	Access to healthcare	Self-reported unmet needs for medical examination	x				EU 28+4	2008-2018	EUROSTAT
		Location of SGIs in Europe (pharmacies, doctors, hospitals)				x	EU 28+4	2016	ESPON DB
		Standardized travel time to the next SGI point				x	EU 28+4	2016	ESPON DB
		SGIs Inner Periphery areas in Europe				x	EU 28+4	2016	ESPON DB
Education	**Educational attainment**	Population aged 25-64 and 30-34 by educational attainment level	x	x	x		EU 28+4	2000-2016	ESPON DB
		Early leavers from education and training	x	x	x		EU 28+4	2000-2016	ESPON DB
	Self-reported skills	Individuals' level of digital skills	x				EU 28+4	2015-2017	EUROSTAT
		Number of foreign languages known (self-reported)	x				EU 28+4	2007, 2011, 2016	EUROSTAT
	Lifelong learning	Participation rate in education and training	x	x	x		EU 28+4	2000-2016	ESPON DB
	Facilities	Location of SGIs in Europe (primary and secondary schools)				x	EU 28+4	2016	ESPON DB
		Standardized travel time to the next SGI point				x	EU 28+4	2016	ESPON DB
		SGIs Inner Periphery areas in Europe				x	EU 28+4	2016	ESPON DB
	Opportunities	Participation/ enrolment in education	x				EU 28+4	1998-2012	EUROSTAT
Leisure and social interactions	**Leisure**	Sport and leisure facilities	x	x	x		EU 28+4	1990, 2000, 2006	ESPON DB
		Participation in any cultural or sport activities in the last 12 months	x				EU 28+4	2006, 2015	EUROSTAT
		Frequency of participation in cultural or sport activities in the last 12 months	x				EU 28+4	2006, 2015	EUROSTAT
		Average rating of satisfaction by domain	x				EU 28+4	2013	EUROSTAT
		Percentage of the population rating their satisfaction as high, medium or low by domain	x				EU 28+4	2013	EUROSTAT
		Reasons of non-participation in cultural or sport activities in the last 12 months	x				EU 28+4	2015	EUROSTAT
	Facilities	Location of SGIs in Europe (cinemas, shops)				x	EU 28+4	2016	ESPON DB
		Standardized travel time to the next SGI point				x	EU 28+4	2016	ESPON DB
		SGIs Inner Periphery areas in Europe				x	EU 28+4	2016	ESPON DB
	Social interactions	Frequency of getting together with family and relatives or friends	x				EU 28+4	2015	EUROSTAT
		Frequency of contacts with family and relatives or friends	x				EU 28+4	2015	EUROSTAT
		Participation in formal or informal voluntary activities or active citizenship	x				EU 28+4	2015	EUROSTAT
		Reasons of non-participation in formal or informal voluntary activities, active citizenship in the last 12 months	x				EU 28+4	2015	EUROSTAT
		Persons who have someone to ask for help	x				EU 28+4	2013, 2015	EUROSTAT
		Persons who have someone to discuss personal matters	x				EU 28+4	2013, 2015	EUROSTAT
		Average rating of trust by domain	x				EU 28+4	2013	EUROSTAT
Economic and physical safety	**Economic security**	Index of access to funding and financial support		x			EU 28+4	2013	ESPON DB
		Inability to face unexpected financial expenses					EU 28+4	2003-2018	EUROSTAT
		Arrears (mortgage or rent, utility bills or hire purchase) from 2003 onwards					EU 28+4	2003-2018	EUROSTAT

		Labour transitions by employment status					EU 28+4	2006-2018	EUROSTAT
	Physical and personal security	Recorded offences by offence category - police data					EU 28+4	2008-2016	EUROSTAT
		Crime, violence or vandalism in the area					EU 28+4	2008-2016	EUROSTAT
Governance and basic rights	**Trust/satisfaction in institutions and public services**	Index of Good Governance		x			EU 28+4	2009	ESPON DB
		Average rating of trust by domain	x				EU 28+4	2013	EUROSTAT
	Discrimination and equal opportunities	Gender gap by age group		x			EU 28+4	2009	ESPON DB
		Typology of gender differences on the labour market		x			EU 28+4	2009	ESPON DB
		Unemployment by sex	x	x	x		EU 28+4	1999-2016	ESPON DB
		Unemployment by age	x	x	x		EU 28+4	1999-2016	ESPON DB
		Gender pay gap in unadjusted form by NACE Rev. 2 activity - structure of earnings survey methodology	x				EU 28+4	2007-2017	EUROSTAT
		Employment rates by sex, age, educational attainment level, country of birth and degree of urbanization	x				EU 28+4	2007-2017	EUROSTAT
	Active citizenship	Index of Environmental Awareness and Voluntary Actions					EU 28+4	2013	ESPON DB
		Participation in formal or informal voluntary activities or active citizenship	x				EU 28+4	2015	EUROSTAT
Natural and living environment	**Pollution**	Emissions of carbon oxide		x			EU 28+4	2010	ESPON DB
		Emissions of nitrogen oxides	x				EU 28+4	2010	ESPON DB
		Emissions of non-methane volatile organic compounds		x			EU 28+4	2010	ESPON DB
		Emissions of sulphur oxides	x				EU 28+4	2010	ESPON DB
		Exposure to air pollution by particulate matter	x				EU 28+4	2000-2017	EUROSTAT
		Pollution, grime or other environmental problems	x				EU 28+4	2003-2018	EUROSTAT
		Noise from neighbours or from the street	x				EU 28+4	2003-2018	EUROSTAT
	Climate change	CO2 emissions from ground transport, non-transport fossil combustion and territorial fossil combustion		x			EU 28+4	2000, 2008	ESPON DB
		Annual total emissions of greenhouse gases	x				EU 28+4	1970-2014	ESPON DB
	Access to green and recreational spaces	Green urban areas	x	x	x		EU 28+4	1990, 2000, 2006	ESPON DB
		Pan-European Map of Forest Biomass Increment				x		2006	ESPON DB
		Nationally designated areas				x		2018	ESPON DB
		Natura 2000 sites				x		2018	ESPON DB
	Landscape and built environment	Average rating of satisfaction by domain	x				EU 28+4	2013	EUROSTAT
		Percentage of the population rating their satisfaction as high, medium or low by domain	x				EU 28+4	2013	EUROSTAT
Overall experience of life	**Life satisfaction**	Average rating of satisfaction by domain	x				EU 28+4	2013	EUROSTAT
		Percentage of the population rating their satisfaction as high, medium or low by domain	x				EU 28+4	2013	EUROSTAT
	Affects	Frequency of being happy in the last 4 weeks	x				EU 28+4	2013	EUROSTAT
Others	**Traffic commute**	Car travel time to the next SGI point (grid)				x	EU 28+4	2016	ESPON DB
		Car travel time to next regional centre (grid)				x	EU 28+4	2017	ESPON DB
		Delineation 1 - Inner Periphery according to high travel times to regional centres			x	x	EU 28+4	2017	ESPON DB
		Delineation 2 - Inner Periphery according to potential accessibility by road and rail			x		EU 28+4	2014	ESPON DB
		Delineation 3 - Inner Periphery according to access to SGIs			x		EU 28+4	2016	ESPON DB
		Potential accessibility by road and rail			x		EU 28+4	2014	ESPON DB
	Digital life	Individuals who ordered goods or services over the internet for private use	x	x			EU 28+4	2006-2016	ESPON DB
		Individuals who used the internet for interaction with public authorities	x	x			EU 28+4	2008-2016	ESPON DB
	Uncategorized	Regional centres			x		EU 28+4	2017	ESPON DB
		Standardized travel time to next regional centre			x		EU 28+4	2017	ESPON DB

Table 0.2. List of indicators with data available beyond NUTS 3 level.

domain	indicator	Data Available	source	territorial coverage	resolution
Material living conditions	consumption	GDP	Global Human Settlement Layer (GHSL)	Worldwide	Grid 1x1km
Economic and physical security	**Physical and personal security**	Exposure to floods	Global Human Settlement Layer (GHSL)	Worldwide	Grid 1x1km
		Earthquake hazard estimate	Global Human Settlement Layer (GHSL)	Worldwide	Grid 1x1km
		Storm surge (exposure)	Global Human Settlement Layer (GHSL)	Worldwide	Grid 1x1km
Overall experience of life	**Life satisfaction**	Development	Global Human Settlement Layer (GHSL)	Worldwide	Grid 1x1km
natural and living environment	**Access to green and recreational spaces**	Vegetable land use (forest, pasture…) and imperviousness	EEA	EU 28+4	Grid 1x1km
		Corine land cover	EEA	EU 28+4	Grid 1x1, 5x5 and 10x10km
		Naturalis (land cover potential)	EEA	EU 28+4	Grid 1x1km

		Green potential background	EEA	EU 28+4	-
		Biome	Global Human Settlement Layer (GHSL)	Worldwide	Grid 1x1km
		Greenness	Global Human Settlement Layer (GHSL)	Worldwide	Grid 1x1km
	climate change	Sensitivity to desertification and drought	EEA	EU 28+4	Grid 1x1km
		Climate, soil and vegetation quality	EEA	EU 28+4	Grid 1x1km
		Climate	Global Human Settlement Layer (GHSL)	Worldwide	Grid 1x1km
		Soil	Global Human Settlement Layer (GHSL)	Worldwide	Grid 1x1km
		River basin	Global Human Settlement Layer (GHSL)	Worldwide	Grid 1x1km
		Temperature	Global Human Settlement Layer (GHSL)	Worldwide	Grid 1x1km
		Precipitation	Global Human Settlement Layer (GHSL)	Worldwide	Grid 1x1km
		Maximum magnitude of heat waves	Global Human Settlement Layer (GHSL)	Worldwide	Grid 1x1km
	Landscape and built environment	Soil sealing	EEA	EU 28+4	Grid 100x100m
		Urban morphological zones	EEA	EU 28+4	Grid 1x1km
		Degree of urbanisation	EUROSTAT	EU 28+4	Grid 1x1km
		Land cover	EUROSTAT	EU 28+4	Grid 1x1km
		Digital elevation model	EUROSTAT	EU 28+4	Grid 1x1km
		Urban-rural	JRC	EU 28+6	Grid 1x1km
		Built-up surface,	Global Human Settlement Layer (GHSL)	Worldwide	Grid 1x1km
		Urban-rural (urban centres, urban clusters, rural settlements)	Global Human Settlement Layer (GHSL)	Worldwide	Grid 1x1km
		Land use efficiency	Global Human Settlement Layer (GHSL)	Worldwide	Grid 1x1km
		Open spaces	Global Human Settlement Layer (GHSL)	Worldwide	Grid 1x1km
	pollution	Night-time light	Global Human Settlement Layer (GHSL)	Worldwide	Grid 1x1km
		Pollutant's emission	Global Human Settlement Layer (GHSL)	Worldwide	Grid 1x1km
		Pollutant's concentration	Global Human Settlement Layer (GHSL)	Worldwide	Grid 1x1km
Others	**Traffic commute**	Accessibility-remoteness	Global Human Settlement Layer (GHSL)	Worldwide	Grid 1x1km
	Uncategorized	Airports	EUROSTAT	EU 28+4	Grid 1x1km
		Ports	EUROSTAT	EU 28+4	Grid 1x1km
	demography	Population density	EEA	EU 28+4	Grid 1x1km
		Population	EUROSTAT	EU 28+4	Grid 1x1km
		Population density	EUROSTAT	EU 28+4	Grid 1x1km
		Population	JRC	EU 28+5	Grid 250x250 m and 1x1km
		Resident population,	Global Human Settlement Layer (GHSL)	Worldwide	Grid 1x1km

Table 0.3. Indicators and sources gathered on the EMTM project.

domain	indicator	Data available	Country	ESPON Equivalent	Link
Material living conditions	Material living conditions (deprivations, housing)	Devices available in households	RS	N/A	http://data.stat.gov.rs/Home/Result/270101?languageCode=en-US
	Consumption	Final energy consumption in households per capita, by years	MK	N/A	http://makstat.stat.gov.mk/PXWeb/pxweb/en/MakStat/MakStat__Energija__EnergetIndikatori/525_Ene_Mk_21FinPotrEEvoDompoZit_ml.px/?rxid=6f2ef58a-bcc4-4f11-b409-db2f03756003
		GDP at market prices at current prices (million euro)	AL	Gross domestic product (GDP) at current market prices by Million euro	http://databaza.instat.gov.al/pxweb/en/DST/START__NA__NAY__NAYPA/NAYPA1/?rxid=68f2e3b3-74dc-4b72-bed4-b79074e44339
	Income	Poverty Line	ME	At risk of poverty rate by NUTS 2 regions	https://www.monstat.org/userfiles/file/analiza%20siromastva/2013/POVERTY%20LINE_za%20web.xls
		Poverty indicators by region by Poverty measures, Prefecture, Type and Year	AL	At risk of poverty rate by NUTS 2 regions	http://databaza.instat.gov.al/pxweb/en/DST/START__LSMS/LSMS01/?rxid=0a920095-e961-4c2c-8cde-3162074b6a86
		Relative poverty rate and poverty gap, by years	MK	People at risk of poverty or social exclusion	http://makstat.stat.gov.mk/PXWeb/pxweb/en/MakStat/MakStat__ZivotenStandard__AnketaZaPotrosuvackaDomakinstva/325_ZivStand_mk_HBSPOV_en.px/?rxid=d48afd23-05c0-4373-b12e-d2cb520c4cb3
		Population at risk of poverty, not severely materially deprived and not living in a household with low work intensity	RS	People at risk of poverty or social exclusion	http://data.stat.gov.rs/Home/Result/0102010201?languageCode=en-US
		Population at risk of poverty, not severely materially deprived and not living in a household with low work intensity	RS	People at risk of poverty or social exclusion	http://data.stat.gov.rs/Home/Result/1503?languageCode=en-US
		Available Assets And Personal Consumption	ME	N/A	https://www.monstat.org/eng/page.php?id=72&pageid=72
		Minimum Food Basket	ME	N/A	https://www.monstat.org/eng/page.php?id=31&pageid=31
economic and physical safety	economic security	Minor and adult users of social protection, 2010 - 2014	ME	N/A	https://www.monstat.org/eng/page.php?id=1359&pageid=1359
Health		Institutions of social care 1999 - 2008 by Institutions of social care, Type and Year	AL	N/A	http://databaza.instat.gov.al/pxweb/en/DST/START__HE__KSH/HE0081/?rxid=0a920095-e961-4c2c-8cde-3162074b6a86
Education	Lifelong learning	Pupils Graduated On Basic Education by Region Type, Gender, Type and Year	AL	Participation rate in education and training	http://databaza.instat.gov.al/pxweb/en/DST/START__ED/ED0002/?rxid=1b8a08a7-c556-4133-8771-cb0d5af154c1
		Number of pupils who completed regularly secondary education - end of school year	ME	Participation rate in education and training	https://www.monstat.org/eng/page.php?id=189&pageid=75
		Students in primary and lower secondary schools, by gender, by regions and year of study	MK	Participation rate in education and training	http://makstat.stat.gov.mk/PXWeb/pxweb/en/MakStat/MakStat__ObrazovanieNauka__OsnovnoObrazovanie/225_osnovniucilista_rm_t3_ml.px/?rxid=a08ae983-678c-4831-a142-5d352c927fc0
		Number of pupils in secondary schools, at the beginning of the school year by	RS	Participation rate in education and training	http://data.stat.gov.rs/Home/Result/11030302?languageCode=en-US

		fields of education and sex [number]			
Productivity or other activities	quality of employment	Number of employed in Montenegro by Sector (2000-2010)	ME	Employment by sex & broad age group	http://monstat.org/eng/page.php?id=1148&pageid=23
		Employees by Activity Sectors (2010-2017)	ME	Employment by age, economic activity	http://monstat.org/eng/page.php?id=1148&pageid=23
	quantity of employment	Rates of activity, employment, inactivity and unemployment (%)	RS	Employment rates by sex & broad age groups	http://data.stat.gov.rs/Home/Result/2400020101?languageCode=en-US
		Labour force participation rate	AL	N/A	http://databaza.instat.gov.al/pxweb/en/DST/START__TP__LFS__LFSV/NewLFSY0013/?rxid=2941ad6a-7eef-4429-bd6c-86cc8027e15a
		Employment rate	AL	Employment rates by sex & broad age groups	http://databaza.instat.gov.al/pxweb/en/DST/START__TP__LFS__LFSV/NewLFSY0013/?rxid=2941ad6a-7eef-4429-bd6c-86cc8027e15a
		Working-age population according sex	BA	Employment by sex & broad age group	
natural and living environment	landscape and built environment	Land structure by Land structure, Type and Year	AL	N/A	http://databaza.instat.gov.al/pxweb/en/DST/START__BU/NewBU0009/?rxid=4aad4b8a-2487-485f-b935-dd1387138276
	Climate change	Production and consumption of primary energy	AL	Primary energy consumption	http://databaza.instat.gov.al/pxweb/en/DST/START__ENR/ENR001/?rxid=1b8a08a7-c556-4133-8771-cb0d5af154c1
		Share of renewable energy in gross final energy consumption in percentages, by years	MK	Share of energy from renewable sources	http://makstat.stat.gov.mk/PXWeb/pxweb/en/MakStat/MakStat__Energija__EnergetIndikatori/425_Ene_Mk_17UOIBfp_ml.px/?rxid=6f2ef58a-bcc4-4f11-b409-db2f03756003
		Share of renewable energy in gross final energy consumption in percentages, by years	MK	Share of energy from renewable sources	
		Total emission of GHG, CO2-equivalent	MK	Greenhouse gas emissions by source sector	http://makstat.stat.gov.mk/PXWeb/pxweb/en/MakStat/MakStat__ZivotnaSredina/425_ZivSred_MK_CO2GHG_eng.px/?rxid=ac50f6fc-b33d-411c-ae0f-ab89264d0723
		Projections of all GHG emissions for the sectors in CO2 - equivalent [kt] (basic scenario), by years	MK	N/A	http://makstat.stat.gov.mk/PXWeb/pxweb/en/MakStat/MakStat__ZivotnaSredina/275_ZivSr_nac_stak_gas_proekcii_ang.px/?rxid=ac50f6fc-b33d-411c-ae0f-ab89264d0723
		Investments and current expenditures for environmental protection and revenues from environmental protection related activities, by activities and environmental protection domains	RS	Total intramural R&D expenditure by sectors of performance	http://data.stat.gov.rs/Home/Result/0902030102?languageCode=en-US
		Protection of waters	ME	N/A	https://www.monstat.org/eng/page.php?id=1008&pageid=64
	Pollution	Content of air pollutants in main cities by Main cities, Type and Year	AL	Greenhouse gas emissions by source sector	http://databaza.instat.gov.al/pxweb/en/DST/START__EN/NewEN0010/?rxid=1b8a08a7-c556-4133-8771-cb0d5af154c1
		Bacteriological pollution of sea water in beaches by Beaches, Type and Year	AL	N/A	http://databaza.instat.gov.al/pxweb/en/DST/START__EN/NewEN0011/?rxid=1b8a08a7-c556-4133-8771-cb0d5af154c1
		Quality of rivers water by Basins: Stations,	AL	N/A	http://databaza.instat.gov.al/pxweb/en/DST/START__EN/NewEN0011/?rxid=1b8a08a7-c556-4133-8771-cb0d5af154c1

		Parameters, Type and Year			
		The physic-chemical data of water in Albanian lakes by Lakes, Type and Year	AL	N/A	http://databaza.instat.gov.al/pxweb/en/DST/START__EN/EN0017/?rxid=1b8a08a7-c556-4133-8771-cb0d5af154c1
		Urban waste by Prefecture, Type and Year	AL	N/A	http://databaza.instat.gov.al/pxweb/en/DST/START__EN/NewEN0003/?rxid=1b8a08a7-c556-4133-8771-cb0d5af154c1
		Data on municipal waste, equipment and machinery	ME	N/A	https://www.monstat.org/eng/page.php?id=1009&pageid=64
		Total ammonium in rivers, by river	MK	N/A	http://makstat.stat.gov.mk/PXWeb/pxweb/en/MakStat/MakStat__ZivotnaSredina/400_ZivSred_MK_AmonRek_eng.px/?rxid=ac50f6fc-b33d-411c-ae0f-ab89264d0723
		Total freshwater abstracted [Million cubic metres]	RS	N/A	http://data.stat.gov.rs/Home/Result/25010100?languageCode=en-US
		Use of waters in industry	ME	N/A	https://www.monstat.org/eng/page.php?id=1008&pageid=64
		Total energy consumption by fuel in BiH, kilotonne of oil equivalent (ktoe)	BA	Primary energy consumption	
Others	Traffic, commute	Registered road motor vehicles and trailers by years, by municipalities, number	AL	N/A	http://makstat.stat.gov.mk/PXWeb/pxweb/en/MakStat/MakStat__Transport__RegistriraniVozila/150_Trans_regi_veh_by_type_mun_en.px/?rxid=1425bbd5-f940-417b-bbdb-97a3bd58c33c
		Traffic Accidents	ME	N/A	http://monstat.org/eng/page.php?id=36&pageid=36
		Road motor vehicles according to the type of fuel, by municipalities, by years, number	ME	N/A	http://makstat.stat.gov.mk/PXWeb/pxweb/en/MakStat/MakStat__Transport__RegistriraniVozila/275_Trans_Reg_voz_Gorivo_en.px/?rxid=1425bbd5-f940-417b-bbdb-97a3bd58c33c
		Transport of passengers and goods	MK	N/A	http://data.stat.gov.rs/Home/Result/1501?languageCode=en-US
		Indicators of transport statistics	MK	N/A	https://www.monstat.org/userfiles/file/saobracaj/2018/I%20kvartal/PODACI_SAOBRACAJ%20-%20IQ-18.xls
		Vehicles by Fuel, Vehicle type, Type and Year	RS	N/A	http://databaza.instat.gov.al/pxweb/en/DST/START__EN/NewEN0006/?rxid=18015d96-f10a-4f37-b1f7-c14fd6c44738
	Uncategorized	The Killed of regions by Prefectures	AL	N/A	http://databaza.instat.gov.al/pxweb/en/DST/START__TR/Tr_0022/?rxid=68f2e3b3-74dc-4b72-bed4-b79074e44339
	demography	Population by prefectures January 1st	AL	Total Population	http://databaza.instat.gov.al/pxweb/en/DST/START__DE/NewPOP_0002/?rxid=1b8a08a7-c556-4133-8771-cb0d5af154c1
		Life expectancy at birth by sex, 2005-2017	AL	Life expectancy, by age, gender	http://databaza.instat.gov.al/pxweb/en/DST/START__BD/Lindje_002/?rxid=1b8a08a7-c556-4133-8771-cb0d5af154c1
		Number of Causalities by casualty Type and Year	AL	Total Deaths	http://databaza.instat.gov.al/pxweb/en/DST/START__HECOD/NewHE0001/?rxid=0a920095-e961-4c2c-8cde-3162074b6a86
		Estimated number of populations by municipalities, mid-year	ME	Total Population	https://www.monstat.org/eng/page.php?id=234&pageid=48
		Population of the Republic of Macedonia at 30.06 by the specific age group, by sex, by municipality, by years	MK	Total Population	http://makstat.stat.gov.mk/PXWeb/pxweb/en/MakStat/MakStat__Naselenie__ProcenkiNaselenie/124_Popis_Ops80_NasPolStar3006_eng.px/?rxid=2104bce5-c18f-4997-b352-27dc35bbd59e
		Estimates of population by age	RS	Population, total, by broad age groups and gender	http://data.stat.gov.rs/Home/Result/18010403?languageCode=en-US

		and sex (middle of year)			
		Population of Bosnia and Herzegovina according to age and sex, by Censuses 1971-1991	BA	Population, total, by broad age groups and gender	http://www.bhas.ba/index.php?option=com_publikacija&view=publikacija_pregled&ids=1&id=5&n=Population
		Natural Increase by 1000 inhabitants	BA	Natural change of population	http://www.bhas.ba/index.php?option=com_publikacija&view=publikacija_pregled&ids=1&id=5&n=Population
		Deaths by sex	BA	Total Deaths	http://www.bhas.ba/index.php?option=com_publikacija&view=publikacija_pregled&ids=1&id=5&n=Population
		Live Births 2007-2016	BA	Live Births	http://www.bhas.ba/index.php?option=com_publikacija&view=publikacija_pregled&ids=1&id=5&n=Population
		Total Deaths 2007-2016	BA	Total Deaths	http://www.bhas.ba/index.php?option=com_publikacija&view=publikacija_pregled&ids=1&id=5&n=Population
		Natural Population Change in Bosnia and Herzegovina 2007-2016	BA	Natural change of population	
	digital life	Number of subscribers to mobile and fixed networks	RS	N/A	
		Households having a computer, internet connection and broadband internet connection, by regions	RS	N/A	http://data.stat.gov.rs/Home/Result/270102?languageCode=en-US
	Economy	Electricity consumption in industry (GWh), by region, by years	MK	Primary energy consumption	http://makstat.stat.gov.mk/PXWeb/pxweb/en/MakStat/MakStat__Energija__EnergetBilansi/275_Ene_Reg_PotrVoInd_ang.px/?rxid=f97b551c-ac1d-4baa-8f3c-7958afeabf6f
		Investments by Description, Type and Year	AL	N/A	

Annex 4 – Factfulness approach in brief

The best way to introduce the factfulness concept would be to experiment it, as Rosling did in the inception of his book asking the reader to answer to 13 fact questions[49], as for instance:

In the last 20 years, the proportion of the world population living in extreme poverty has:

- ☐ *A: almost doubled*
- ☐ *B: remained more or less the same*
- ☐ *C: almost halved*

The questions were checked with several different audiences – with different levels of education, expertise, culture etc. – and the respondents almost always did worse than chimpanzees (assumed to respond randomly) and mostly in a direction which suggests that their impression of the state of the world is worse than what real numbers about the world shows! By the way, the answer to the above question is C.

This is because human beings, in guessing figures they don't really know, are biased by several instincts which let humans evolve from the distant past, but that tend to make them wrong in judging the complex reality we are all immersed in today. Random-behaving chimpanzees are paradoxically better…

The 10 instincts – gap, negativity, straight line, fear, size, generalization, destiny, single perspective, blame, urgency - identified by Rosling and their factfulness antithetic attitudes are illustrated in the table below (descriptions are excerpted from Rosling, 2018):

INSTINCTS	FACTFULNESS IS …
Gap instinct: this is about the irresistible temptation we have to divide all kind of things in two distinct and often conflicting groups, with an imagined gap in between (e.g. rich versus poor).	Recognising that reality is often not polarized at all, and usually the majority is right there in the middle, where the gap is supposed to be. To control the gap instinct, look for the majority. In all groups, of countries or people, there are some at the top and some at the bottom. The difference is sometimes extremely unfair. But even then, the majority is usually somewhere in between, right where the gap is supposed to be (see the discussion after the table of the four level of income across the world).
Negativity instinct: this is our tendency to notice the bad more than the good, and have the feeling that as long as things are bad it's heartless to say that they are getting better.	Recognising when we get negative news, and remembering that information about bad events is much more likely to reach us. When things are getting better, we often don't hear about them. This gives us a systematically too-negative impression of the world around us. To control the negativity instinct, expect bad news, and practice distinguishing between a level (e.g. bad) and a direction of change (e.g. better). Convince yourself that things can be both better and bad. Consider that: a) good news is almost never reported (so

[49] The full list of questions of questions can be accessed at: http://forms.gapminder.org/s3/test-2018

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	news is almost always bad); b) more bad news is sometimes due to better surveillance of suffering, not a worsening world.
Straight line instinct: when looking at a line graph, it is nearly impossible not to imagine a straight line that stretches beyond the end of the trend, into the future.	Recognising the assumption that a line will just continue straight, and remembering that such lines are rare in reality. Some lines are indeed straight, but to control the straight-line instinct, remember that curves come in different shapes, e.g. S-bends, slides, humps, or doubling lines.
Fear instinct: fears of physical harm (violence caused by people, animals, sharp objects, or forces of nature), captivity (entrapment, loss of control, or loss of freedom), contamination (by invisible substances that can infect or poison us) are hardwired deep in our brains for obviously evolutionary reasons. In modern times, perceptions of these dangers still trigger our fear instinct.	Recognising when frightening things get our attention, and remembering that these are not necessarily the riskiest. Fear can be useful, but only if it is directed at the right things. The fear instinct is a terrible guide for understanding the world. It makes us give our attention to the unlikely dangers that we are most afraid of (violence, captivity and contamination) and neglect what is actually most risky. To control the fear instinct, calculate the risks (which depend on how dangerous something is and how much are you exposed to it).
Size instinct: getting things out of proportion, or misjudging the size of things, is something that we humans do naturally. It is instinctive to look at a lonely number and misjudge its importance. It is also instinctive to misjudge the importance of a single instance or an identifiable victim.	Recognising when a lonely number seems impressive (small or large), and remembering that you could get the opposite impression if it were compared with or divided by some other relevant number. To control the size instinct, get things in proportion, e.g. by looking for comparisons, or computing rates per person, especially when comparing between countries and regions. When you have been given a long list of items, look for the few largest items and deal with those first (this is the 80/20 rule, they are quite likely more important than all the others put together).
Generalization instinct: everyone automatically categorizes and generalizes all the time. Unconsciously. It is not a question of being prejudiced or enlightened. Categories are absolutely necessary for us to function. They give structure to our thoughts. But the necessary and useful instinct to generalize, like all the other instincts, can also distort our worldview. It can make us mistakenly group together things, or people, or countries that are actually different. It can make us assume everything or everyone in one category is similar. And, maybe most	Recognising when a category is being used in an explanation, and remembering that categories can be misleading. We can't stop generalizations and we shouldn't even try. What we should try to do is to avoid generalizing incorrectly. To control the generalization instinct question your categories: Look for differences within groups: especially when they are large, look for ways to split them in smaller, more precise categories. Look for similarities across groups, and if you find striking similarities between different categories, consider whether your categories are relevant. Look for differences across groups: do not assume that what applies for one group applies for another.

unfortunate of all, it can make us jump to conclusions about a whole category based on a few, or even just one, unusual example.	Beware of vivid examples: vivid images are easier to recall but they might be the exception rather than the rule. Beware of the "majority": the majority just means more than half. Ask whether it means 51 percent, 99 percent, or something in between.
Destiny instinct: this the idea that innate characteristics determines the destinies of people, countries, religions, or cultures. It is the idea that things are as they are for ineluctable, inescapable reasons: they have always been this way and will never change.	Recognising that many things (including people, countries, religions, and cultures) appear to be constant just because the change is happening slowly, and remembering that even small, slow changes gradually add up to big changes. To control the destiny instinct, remember slow change is still change, e.g. by keeping track of gradual improvements, updating your knowledge and collecting examples cultural change.
Single perspective instinct: We find simple ideas very attractive. We enjoy that moment of insight, we enjoy feeling we really understand or know something. And it is easy to take off down a slippery slope, from one attention-grabbing simple idea to a feeling that this idea beautifully explains, or is the beautiful solution for, lots of other things. The world becomes simple. All problems have a single cause – something we must always be completely against. Or all problems have a single solution – something we must always be for. Everything seems simple, but we completely misunderstand the world. This preference for single causes and single solutions is called the "single perspective" instinct.	Recognising that a single perspective can limit your imagination, and remembering that it is better to look at problems from many angles to get a more accurate understanding and find practical solutions. To control the single perspective instinct, get a toolbox, not a hammer to fix always the same nails (simple solutions). This would mean: beware of simple ideas and simple solutions, test your ideas with people who disagree, don't claim expertise beyond your field, be open to ideas and tools from other fields, and about using tools for investigating causes and searching for solutions, remember that the world cannot be understood without numbers, but it cannot be understood with numbers alone.
Blame instinct: this is the instinct to find a clear, simple reason for why something bad has happened. It seems that it comes very naturally for us to decide that when things go wrong, it must be because of some bad individual with bad intentions. We like to believe that things happen because someone wanted them to, that individual have power and agency: otherwise, the world feels unpredictable, confusing and frightening.	Recognising when a scapegoat is being used and remembering that blaming an individual often steals the focus from other possible explanations and block our ability to prevent similar problems in the future. To control the blame instinct, resist finding a scapegoat: look for causes, not villains, and accept that bad things can happen without anyone intending them to. Instead spend your energy on understanding the multiple interacting causes, or system, that created the situation.

Urgency instinct: this makes us want to take immediate action in the face of a perceived imminent danger. It must have served us humans well in the distant past, and today we still need the urgency instinct – for example, when a car comes out of nowhere and we need to take evasive action. But now that we have eliminated most immediate dangers and are left with more complex and often more abstract problems, the urgency instinct can also lead us astray when it comes to our understanding the world around us. It makes us stressed, amplifies our other instincts and makes them harder to control, blocks us from thinking analytically, tempts us to make up our minds too fast, and encourages us to take drastic actions that we haven't thought through. On the contrary, we do not seem to have a similar instinct to act when faced with risks that are far off in the future. In fact, in the face of future risks, we can be pretty slothful.	Recognising when a decision feels urgent and remembering that it rarely is. To control the urgency instinct, take small steps: take a breath, ask for more time and more information; insist on the need of relevant and accurate data to decide about the urgency; be wary of any prediction about the future that fails to acknowledge that is uncertain, and insist for a full range of scenarios, never just the best or the worst case; be wary of drastic action, and ask what the side effects will be. (step-by-step practical improvements, and evaluation of their impact, are less dramatic but usually more effective).

By identifying the 10 basic instincts which tend to bias the human beings perception of reality, Rosling shows how data from existing sources - in particular information from the World Bank database that allow to compute and compare indicators for four levels of income across the different countries of the world - can be used to support factfulness and fact-based critical thinking.

At the global level, he shows a way to overcome in particular the gap and the generalization instincts, something that is relevant also for the analysis at regional and sub-regional level we are going to make. Instead of dividing the world in two groups – "rich" or "developed" vs "poor" or "developing" countries – a better way is diving it into four income groups as shown in the figure below:

Each figure in the chart represents 1 billion people, and the seven figures show how the current world population is spread across four income levels, expressed in terms of dollar income per day. Most people are living on the two middle levels, where people have most of their basic human needs met.

The kind of meta-modelling analyses that can be produced using the existing UN and World Bank data are exemplified by means of bubble diagrams (each bubble on the charts represents a country, with the size of the bubble showing the size of the country's population – what is interesting is to see how bubbles evolve over time, when you show in sequence the values for different years, as Rosling does for instance in this video: https://www.youtube.com/watch?v=jbkSRLYSojo).

The diagrams may show different kinds of curves that can fit with different phenomena as we pass from low income (Level 1) to high income (Level 4) countries: straight lines, S-bends, slides, humps (e.g. the Kuznets curve). **But numbers do not tell the whole story**. To each income level a narrative can be associated that tells how living is, with living features being similar mostly everywhere in the world within each income range. A table reproduced below shows how Hans Rosling illustrates the issue in the form of a computer game. And to have an idea of how four income level representation to be visualized at "street level", visit the Dollar Street site here: www.dollarstreet.org....

Playing the dollar street game …	Think of the four income levels as the levels of a computer game. Everyone wants to move from Level 1 to Level 2 and upward through the levels from there. Only, it's a very strange computer game, because Level 1 is the hardest. Let's play.
	**LEVEL 1.** You start on Level 1 with $1 per day. Your five children have to spend hours walking barefoot with your single plastic bucket, back and forth, to fetch water from a dirty mud hole an hour's walk away. On their way home they gather firewood, and you prepare the same grey porridge that you've been eating at every meal, every day, for your whole life—except during the months when the meager soil yielded no crops and you went to bed hungry. One day your youngest daughter develops a nasty cough. Smoke from the indoor fire is weakening her lungs. You can't afford antibiotics, and one month later she is dead. This is extreme poverty. Yet you keep struggling on. If you are lucky and the yields are good, you can maybe sell some surplus crops and manage to earn more than $2 a day, which would move you to the next level. Good luck! (Roughly 1 billion people live like this today)
	LEVEL 2. You've made it. In fact, you've quadrupled your income and now you earn $4 a day. Three extra dollars every day. What are you going to do with all this money? Now you can buy food that you didn't grow yourself, and you can afford chickens, which means eggs. You save some money and buy sandals for your children, and a bike, and more plastic buckets. Now it takes you only half an

	hour to fetch water for the day. You buy a gas stove so your children can attend school instead of gathering wood. When there's power they do their homework under a bulb. But the electricity is too unstable for a freezer. You save up for mattresses so you don't have to sleep on the mud floor. Life is much better now, but still very uncertain. A single illness and you would have to sell most of your possessions to buy medicine. That would throw you back to Level 1 again. Another three dollars a day would be good, but to experience really drastic improvement you need to quadruple again. If you can land a job in the local garment industry you will be the first member of your family to bring home a salary. (Roughly 3 billion people live like this today).
	**LEVEL 3.** Wow! You did it! You work multiple jobs, 16 hours a day, seven days a week, and manage to quadruple your income again, to $16 a day. Your savings are impressive and you install a cold-water tap. No more fetching water. With a stable electric line, the kids' homework improves and you can buy a fridge that lets you store food and serve different dishes each day. You save to buy a motorcycle, which means you can travel to a better-paying job at a factory in town. Unfortunately, you crash on your way there one day and you have to use money you had saved for your children's education to pay the medical bills. You recover, and thanks to your savings you are not thrown back a level. Two of your children start high school. If they manage to finish, they will be able to get better-paying jobs than you have ever had. To celebrate, you take the whole family on its first-ever vacation, one afternoon to the beach, just for fun. (Roughly 2 billion people live like this today.)
	**LEVEL 4.** You have more than $64 a day. You are a rich consumer and three more dollars a day makes very little difference to your everyday life. That's why you think three dollars, which can change the life of someone living in extreme poverty, is not a lot of money. You have more than twelve years of education and you have been on an airplane on vacation. You can eat out once a month and you can buy a car. Of course, you have hot and cold water indoors. But you know about this level already. Since you are reading this book, I'm pretty sure you live on Level 4. I don't have to describe it for you to understand. The difficulty, when you have always known this high level of income, is to understand the huge differences between the other three levels. People on Level 4 must struggle hard not to misunderstand the reality of the other 6 billion people in the world. (Roughly 1 billion people live like this today.)

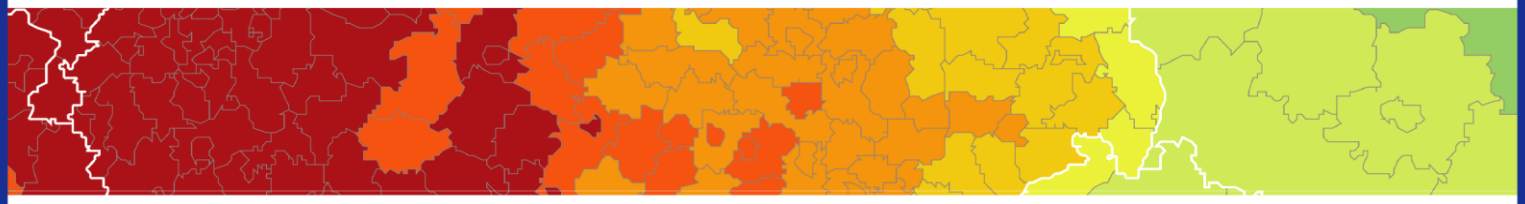
What the game tells us …	I've described the progress up the levels as if one person managed to move through several levels. That is very unusual. Often it takes several generations for a family to move from Level 1 to Level 4.1 hope though that you now have a clear picture of the kinds of lives people live on different levels; a sense that it is possible to move through the levels, both for individuals and for countries; and above all the understanding that there are not just two kinds of lives.

Annex 5 – Short biographies of Advisory Group members

Expert	Short biography
Enrico Giovannini (Chair)	Enrico Giovannini is an Italian economist and statistician, member of the Club of Rome. Since 2002, he has been a full professor of economic statistics at the University of Rome Tor Vergata. He is Senior Fellow of the LUISS "School of European Political Economy", member of the “Commission Economique de la Nation” of the French Government, and co-chair of the "Independent Expert Advisory Group on the Data Revolution for Sustainable Development" established by the Secretary-General of the United Nations. He is also chair and member of several boards of Italian and international organisations. From April 2013 to February 2014 he was Minister of labour and social policies in the Italian government. From August 2009 to April 2013 he was President of the Italian Statistical Institute (Istat). From January 2001 to July 2009, he was Director of Statistics and Chief Statistician of the Organisation for Economic Co-operation and Development (OECD).
Tomas Hanell	Tomas Hanell is a postdoctoral researcher partaking in the JustDe project. He is a leading European authority on regional and local level indicators stemming from over two decades of experience of urban and regional development in the EU, the Baltic Sea Region and the Nordic countries. He has conducted applied quantitative research for supranational development organisations (e.g. the European Commission, DG Regio, DG Internal Policies, the OECD, the Nordic Council of Ministers), numerous national ministries throughout Europe, several cross-border cooperation bodies, and a vast number of regional and local level development organisations. He is a frequently used speaker at international seminars and conferences. He has had responsibility for statistics education in several international PhD programmes (incl. FP7 ITN and he is a member of the advisory board for the Postgraduate programmme Eastern Europe Center of Excellence in Planning. Recently he has been involved in developing a set of well-being indicators for the European Commission (Eurostat), constructing indicators for measuring Territorial Cohesion in the Baltic Sea macro region (ESPON), and developed the List of Common Output Indicators for external EU CBC programmes (EEAS). In his Doctoral Dissertation he constructed an instrument for measuring quality of life and well-being in EU regions.
Kathrin Riedler	Kathrin Riedler is a policy officer for youth employment in the European Commission, DG Employment, Social Affairs and Inclusion. In this position, she has gained expertise about the situation of young people on European labour markets. The quality of life of young people is highly affected by their opportunities to access employment and the quality of their jobs. Kathrin Riedler has a Bachelor degree in Economics and a Master degree in Socio-ecological Economics and Policy from the Vienna University of Economics and Business. In her Master degree, she specialized in Social Policy and Heterodox Economics, and she wrote her Master thesis on Ethnic Discrimination on the Austrian Labour Market
Flavia Terribile	Ms. Flavia Melchiorri Terribile has been the Chair of the OECD Regional Development Policy Committee since 2018 and a member of the Bureau for ten years. As Senior Advisor at the Programming, Evaluation and Analysis Unit of the Presidency of Italy’s Council of Ministers (Prime Minister’s Office), she oversees high-level inter-institutional groups aimed at assessing the impact of regional development programs on targeted

	geographical areas and elaborating macroeconomic scenarios and forecasts for allocation of EU financial resources to Italy's Regions. Ms. Flavia Melchiorri Terribile has held several senior positions as a Government Official in the Italian Public Administration since 1998. Key responsibilities in the field of regional policies have included activities such as: supporting Italy's position within EU political negotiations on 2014-2020 and 2007-2013 Multiannual Financial Frameworks; selecting Italy's investment projects for EU funding; planning and monitoring innovative financial instruments for SMEs; providing evaluation and policy advice on the access to and quality of public services at territorial level; designing the economic development strategy of Italian Regions devastated by earthquakes; serving as senior expert in the 2013-2014 Spending Review setting out Italy's long-term vision for public services at central and regional level and key reforms. She is also member of the Secretariat of the Italian Alliance for Sustainable Development (ASviS) and member of several civil society associations and networks.
Johannes Krassnitzer	Johannes Krassnitzer since 2016 is the International Coordinator of the UNDP ART – Articulation of Territorial Networks - Initiative. For the last thirteen years working with UNDP in various roles and locations: 2006 to 2012 managing ART programs in Sri Lanka and Senegal. Since 2012 part of the International Coordination team of UNDP ART in Geneva/Brussels responsible for policy and partnership development. Key role in elaborating UNDP's integrated strategy for Local Governance and Local Development, implementing the UNDG's dialogues on localizing the 2030 agenda and the UNDP/UN-HABITAT/UCLG Toolbox on implementing the SDGs at local level. Responsible for establishing UNDP's Hub for Territorial Partnerships/Brussels and co-responsible for launching and implementing the World Forum on Local Economic Development process, and co-leading UNDP's work on localizing the 2030 sustainable development agenda. From 1999 to 2006 UNOPS Portfolio Manager responsible for a programme portfolio in the Balkans, Eastern Europe and Central Asia and Latin America. 1995 – 1999 working with various NGOs, e.g. in Guatemala and Colombia. Within the localizing workstream we have accompanied various Local and Regional Governments and their associations in implanting the SDGs at the local level, including the identification of relevant local indicators. Overall, we are promoting the territorial approach to development for more than fifteen years and see it also as the conceptual basis for implementing the SDGs at the local level. Within the overall framework of the UCLG - UNDP cooperation on the localization of the SDGs, we are currently launching a cross-institutional workgroup on local level indicators and monitoring.
Georgios Petras	Georgios has been working with the European Committee of the Regions since July 2018. His position is at the Commission for Social Policy, Education, Employment, Research and Culture (SEDEC), and his thematic files are social policies, employment, gender equality and demographic changes. Before joining the CoR, Georgios has worked for the European Central Bank, Bank of Greece and the private sector. He possesses an MSc in Information Management from the University of Wales, Aberystwyth.
Michael Green	Michael Green is Chief Executive Officer of the Social Progress Imperative. An economist by training, he is co-author (with Matthew Bishop of 'The Economist') of Philanthrocapitalism: How Giving Can Save the World and The Road from Ruin: A New Capitalism for a Big Society. Previously Michael served as a senior official in the U.K. Government's Department for International Development, where he managed British aid programs to Russia and Ukraine and headed the communications department. He taught Economics at Warsaw University in Poland in the early 1990s. His TED Talks have been

	viewed more than two million times, and his 2014 Talk was chosen by the TED organization as one of the 'most powerful ideas' of 2014 and by The Telegraph as one of the 10 best ever. In 2016, he was named one of "The 100 Most Connected Men in Britain" by GQ Magazine and one of the NonProfit Times's "Power & Influence Top 50."
Walter Rademarcher	Walter J. Radermacher has been Director General of Eurostat and Chief Statistician of the European Union between 2008 and 2016. He has worked in Destatis, the German Federal Statistical Office, for 30 years, finally as President and Federal Returning Officer. He was the first Chair of the UN Committee of Experts on Environmental-Economic Accounting (UNCEEA) between 2005 and 2008. Since 2017 he is a Researcher at the Department of Statistical Sciences, Sapienza University, Rome and the President of FENStatS, the Federation of European National Statistical Societies.
Rudina Toto	Rudina Toto (PhD) is a senior expert in spatial environmental planning and territorial governance. She is head of planning unit at Co-PLAN, Institute for Habitat Development, where she also leads a permanent workshop on territorial governance. She is engaged in academia for 15 years, initially at the Polytechnic University of Tirana and currently at POLIS University. She is co-editor of the Habitat Magazine and chief-editor of the Annual Review of Territorial Governance in Albania, both POLIS University imprints; holds the Albanian Architecture Award 2018; has management, technical and research experience in urban and spatial planning, city development strategies, territorial information systems, regionalization and regional development, strategic environmental assessments; is co-author of the planning legislation reform during 2010-2016 and was external advisor to the process of drafting the National Territory Plan of Albania. She conducted her studies in Albania, the Netherlands and Italy. She holds an MSc in Architecture and Urban Planning, MSc in Urban Environmental Management and conducted postgraduate studies in housing and land management. Rudina is coordinator of the Western Balkan Network on Territorial Governance.
Maros Finka	Maroš Finka is a professor in the field of urbanism, he works at Institute of Management at the Slovak University of Technology in Bratislava. He is director of SPECTRA Centre of Excellence EU and the main guarantee of study programme Spatial planning in Slovakia, he works as a Vice-Chancellor at the Slovak University of Technology, he is a member of Akademie fur Raumforschung und Landesplanung in Hannover. Prof. Finka has participated in more than 40 national and more than 35 international research projects, in more than 50 projects as the project or team leader. Author or co-author of 41 books, more than 80 published papers, more than 100 papers presented at the international scientific events and co-author of many architectural projects. In 2003 and 2018 he was awarded as Scientist of the Year in Slovakia. He received several other international and national awards.
Norry Schneider	Trained in natural sciences and system analysis (ETH Zurich), Norry Schneider has been working with social and environmental NGOs for more than 10 years in Luxembourg. His motivation to explore ways to improve our personal and societal ecological footprint led him to become active in the Transition movement. He is cofounder of the citizen initiative Transition Minett (South of Luxembourg) and works since 2015 with the Centre for Ecological Learning Luxembourg (CELL) as coordinator of the Luxembourg Transition platform. In 2016 he got appointed as member of the Luxembourg High Council for sustainable development (CSDD).



ESPON 2020 – More information

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The ESPON EGTC is the Single Beneficiary of the ESPON 2020 Cooperation Programme. The Single Operation within the programme is implemented by the ESPON EGTC and co-financed by the European Regional Development Fund, the EU Member States and the Partner States, Iceland, Liechtenstein, Norway and Switzerland.