ESPON

EUROPEAN UNION

Co-financed by the European Regional Development Fund

Inspire Policy Making with Territorial Evidence

FINAL REPORT //

Quality of Life Measurements and Methodology: ESPON QoL spin-off Slovenia

Development of a case study for measuring TQoL in the cross-border region Slovenia-Croatia-Italy

Final Report // November 2021

This Final report is conducted within the framework of the ESPON 2020 Cooperation Programme, partly financed by the European Regional Development Fund.

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 opinions of members of the ESPON 2020 Monitoring Committee.

Coordination:
Carlo Sessa, Institute of Studies for the Integration of Systems – ISINNOVA (Italy)

Authors
Carlo Sessa, Luca de Stefano, Institute of Studies for the Integration of Systems – ISINNOVA (Italy)

Eva Harmel, Matevž Premelč, Matjaž Harmel, Ivana Šarić, ZaVita (Slovenia)

Oriol Biosca, Harold del Castillo MCRIT (Spain)Kai Böhme, Spatial Foresight (Luxembourg)

Technical Support
Project Expert: Sandra Di Biaggio

Financial Expert: Stefania Rigillo

Acknowledgements
The authors would like to thank Professor Moreno Zago, University of Trieste, Department of Social and Political Sciences, Miha Koderman, PhD, Associated Professor, University of Primorska, Department of Geography, Professor Ines Kersan-Škabić, PhD and Associated Professor Lela Tijanić, University of Pula, Department of National and International Economics, for their support to our pilot research and their help in engaging students in the focus groups' activities..

Information on ESPON and its projects can be found at www.espon.eu.
The website provides the possibility to download and examine the most recent documents produced by finalised and ongoing ESPON projects.

ISBN: 978-2-919816-27-9

Published in Click or tap here to enter text.

Graphic design by BGRAPHIC, Denmark

Contact: info@espon.eu

ESPON

EUROPEAN UNION

Co-financed by the European Regional Development Fund

Inspire Policy Making with Territorial Evidence

FINAL REPORT //

Quality of Life Measurements and Methodology: ESPON QoL spin-off Slovenia

Development of a case study for measuring TQoL in the cross-border region Slovenia-Croatia-Italy

Final Report // November 2021

Table of contents

List of figures and tables

List of figures

List of tables

Abbreviations

Agenda 2030	Agenda for Sustainable Development 2030
BES	Equitable and Sustainable Wellbeing [Benessere Equo e Sostenibile]
CUSPI	Coordinamento Uffici di Statistica Province Italiane
EGTC	European Grouping for Territorial Cooperation
ENFAP FVG	Ente Nazionale per la Formazione e l'Addestramento Professionale – Friuli Venezia Giulia
ESPON QoL	ESPON Quality of Life (2020 project)
EU-SILC	European Union Survey on Income and Living Conditions
FTTH	Fiber To The Home
GDP	Gross Domestic Product
GI	Green Infrastructure
HR STAT	Republic of Croatia Statistical Office
IRES FVG	Institute of Economic and Social Research of Friuli Venezia Giulia
ISTAT	Republic of Italy Statistical Office
LAU	Local Administrative Units
MC	Monitoring Committee
NEET	Not (engaged) in Education, Employment or Training
NUTS 2	Nomenclature of Territorial Units for Statistics - basic regions for the application of regional policies
NUTS 3	Nomenclature of Territorial Units for Statistics - small regions for specific diagnoses
PAs	Pilot Actions
QoL	Quality of Life
SISSA	International School of Advanced Studies
SI-STAT	Republic of Slovenia Statistical Office
SO	Specific Objective
TA2030	Territorial Agenda 2030
TNO	Transnational Outreach
TQoL	Territorial Quality of Life
UN SDG	United Nations Sustainable Development Goals

Foreword by Click or tap here to enter text.

Click or tap here to enter text.

Name,
Job title

Foreword by Click or tap here to enter text.

Click or tap here to enter text.

Name,
Job title

1 Introduction and background of the project

The Annual Work Plan 2021 of the ESPON EGTC mentions implementing services with on- demand activities with a policymaking value at country level.

For the ESPON QoL project, the Monitoring Committee (MC) agreed to implement a case study for Slovenia with a focus on cross-border areas. The overall objective of the additional case study is to support the activities of the Slovenian Presidency of the Council of the EU and to provide inspiration for the implementation of the pilot actions of the Territorial Agenda 2030 (TA2030) by increasing the application of ESPON's evidence in this policy process.

Over recent years, discussions have taken place on how to measure the quality of life (QoL) and how the quality of life indicators can complement economic and social indicators to measure territorial development. Indeed, measuring progress only through Gross Domestic Product (GDP) or income indicators is not enough to address all the issues that matter in the lives of citizens. Enhancing quality of life is a key objective for policymakers at all levels and it becomes more relevant for the policy agenda along with increasing demands for the participation of citizens in the political process.

At the European level, several policy documents include references to the quality of life: Cohesion Reports, Urban Agenda for the EU, Territorial Agenda are some examples. Quality of life is mentioned in the TA2030 as one of the fields where actions are needed to increase citizens' well-being: "*All public policies (...) should go beyond economic performance, living standards, and purely material aspects to include access to quality public services, freedom of movement and healthy, resilient and high-quality architecture and built environments. They also have a territorial dimension ranging from disparities between neighbourhoods such as social exclusion and urban poverty to disparities between regions and countries"(p.8)*[1]. The Slovenian Presidency of the EU focused on quality of life as one of the priorities in their programme and as a cross-cutting issue to be included in sector policies and to be addressed in spatial planning instruments at different geographical levels.

In this context, the ESPON QoL applied research project is the basis for this spin-off activity. The concept of Territorial Quality of Life (TQoL) developed by ESPON and the methodology produced to implement it in practice to any 'place' – includes a participatory process to ensure that the quality of life measurement is legitimised by citizens, reflecting their life needs and expectations – are the key components for this activity.

1.1 The aim of the spin-off project

This spin-off activity aims to implement the methodology developed in the framework of the ESPON QoL project (2020), including the dashboard tool. Focus is given on providing cross-border insight for the cross-border area of three NUTS 3 regions: SI044 Coastal–Karst Statistical Region, HR036 County of Istria and ITH44 Trieste.

This region is a highly integrated cross-border region with historical ties and intense commuting flows related to the labour market, tourism, and education. The aim of this project is to provide a custom-made approach for measuring the territorial quality of life based on the methodology developed in the previous ESPON QoL project (2020). Moreover, the project will seek to provide recommendations on the following five policy questions:

[1] https://territorialagenda.eu/wp-content/uploads/TA2030_jun2021_en.pdf

1. How TQoL can be measured in the cross-border region Slovenia-Croatia-Italy based on the methodology and conceptual map developed by ESPON? What recommendations can be put forward for the measurement of TQoL in cross-border regions?
2. How TQoL can be integrated and monitored in spatial planning instruments and sector policies in this cross-border region?
3. How to develop and implement in practice a TQoL living lab in this cross-border region? How to involve citizens and community initiatives, the younger generation, as well as different public actors and levels of governance?
4. How the prototype (TQoL living lab) could be further developed and adopted in policy implementation on TQoL measurement?
5. Which inspiration can the TQoL living labs provide to the implementation of a citizen-centric approach in the Pilot Actions (PAs) of the TA2030 and other policy implementation processes?

Prototype TQoL living lab activities have been developed in this cross-border region to experiment and suggest ways to measure TQoL and implement cooperation policies, by using a place-based and citizen-centric approach. This experience provides inputs and inspiration for the implementation of the TA2030 pilot actions with a 'tool' that can be used in practice to ensure the participation of communities, civil society, citizens, and different levels of governance in policy implementation, overall bringing Europe closer to citizens.

1.2 Content of the Final Report

This Report summarises in Sections 2 and 3 the territorial specificities of the cross-border region, the existing practices for measuring QoL and the set of indicators suggested for measuring QoL in the whole cross-border functional area, more extensively described in the Task 1 Report. Section 4 illustrates the pilot cross-border quality of life activities undertaken in September and October, and the results emerged from the discussions in the citizen focus group held in Trieste, Koper and Pula and the online workshop with invited experts from Slovenia, Italy and Croatia. Section 5 draws lessons from the pilot experience – answering to the first policy question shown in Section 1.1 above. Section 6 concludes with recommendations answering to the other four policy questions shown above.

2 The cross-border area: main features and state of the art of Quality of Life measurement practices

2.1 Description of the pilot project area

This spin-off activity is implemented across three geographical areas on the NUTS 3 level, providing a cross-border insight:

1. SI044 Coastal–Karst Statistical Region (Slovenia),
2. HR036 County of Istria (Croatia), and
3. ITH44 Trieste (Italy).

This territory is a highly integrated cross-border region with historical ties and intense commuting flows related to labour market, tourism, and education and other services (e.g., shopping, health services).

Urban and rural areas are intertwined within the area. The largest urban area in terms of population density is Trieste in Italy, followed by Pula in Croatia and Koper in Slovenia. This cross-border territory has also geostrategic value since the Bay of Trieste has been identified as an important shipping node to service Southern and Central Europe, and there are also plans towards uniting the ports of Trieste and Koper and improving ground transport between the two cities.

Table 1 Key characteristics of regions: population, area and population density

	Population (Number)	Surface (km^2)	Density (inhabitants/km^2)	Number of municipalities	Number of small municipalities (< 5000 inhabitants)	Population of small municipalities (Number)	Population of small municipalities (%)
Coastal-Karst Statistical Region (SI044): **29.6%** of the project area – Population data 2021							
Municipality of Koper	53,292	303	176	1			
Rest of the region	65,097	740	88	7	4	16,101	13.60%
Total	**118,389**	**1,043**	**114**	**8**			
County of Istria (HR036): **61,8%** of the project area – Population data 2019							
City of Pula	56,349	53.5	1,052	1			
Rest of the county	153,606	2,129.5	72	31+9**	30+2**	68,492	32.62%
Total	**209,955**	**2,183***	**96**	**41**			
Trieste (ITH44): **8,6%** of the project area – Population data 2021							
Central city of Trieste	199,773	85.1	2,347	1			
Rest of the county	29,697	127.4	233	5	2	2,849	1.24%
Total	**229,470**	**212.5**	**1.080**	**6**			

*(land area); **(31 municipalities+9 cities // 30 municipalities+2 cities)

Source: Slovenia (SI-STAT, 2021, except 'density'-obtained by calculation), Croatia (HR STAT, 2019, except 'density'-obtained by calculation), Italy (ISTAT, 2021, except 'density' obtained by calculation)

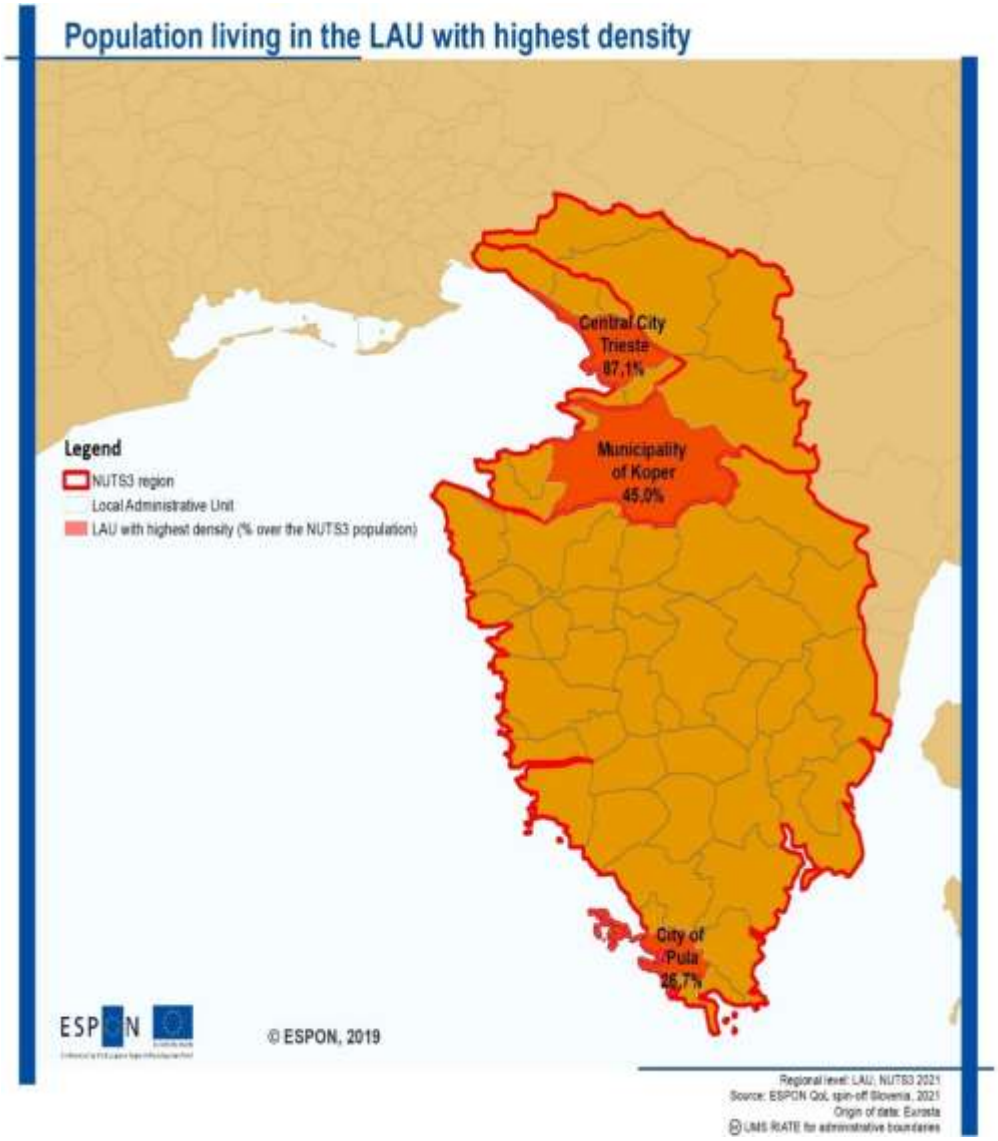


Figure 1 Map of cross-border area with share of population living in the LAU with highest density[2]

Coastal–Karst Statistical Region covers 30% of the cross-border project area and includes eight municipalities: Ankaran, Divača, Hrpelje–Kozina, Izola, Komen, Koper, Piran, and Sežana. Three municipalities are bordering Croatia, and five the Italian border. The region can be geographically divided into two parts: Slovenian Istria and the Karst - Brkini Region. Slovenian Istria is characterised by flat land only along the narrow coastal strip, while the Karst - Brkini Region lies in the south eastern part of sub-Mediterranean Slovenia. The whole area is climatically and geographically very diverse with limited factors for the development of economic activities. The number of inhabitants is growing, mainly due to immigration from abroad. Almost half (45%) of the population in this area is situated in the Municipality of Koper with density of 176 inhabitants/km². However, it should be highlighted that the population density is substantially higher in the city of Koper where nearly half of the inhabitants of the municipality live (26,054). Koper is one of the 107

[2] The LAU units with highest density are the central cities of the three border regions, Trieste, Koper and Pula. The map shows the share of resident population of these three cities on the total population resident in the respective NUTS 3 regions (Province of Trieste; Coastal Kast; Istria)

settlements within the Municipality. The hinterland that represents the major part of the municipal area has low density of population. Around 14% of population in this region is distributed among four small municipalities of less than 5,000 inhabitants.

The County of Istria covers 62% of the cross-border project area. It includes 10 cities and 31 municipalities, of which three cities (Umag-Umago, Buje-Bue and Buzet) and three municipalities (Grožnjan-Grisignana, Oprtalj-Portole and Lanišće) are located in the direct border area with Slovenia. The County of Istria can be divided in three parts: 'White', 'Grey' and 'Red' Istria, named after the main geomorphological characteristics: mountain area of White Istria, fertile inner lands of Grey Istria, and terra rossa of the Red Istria. The coastal part of Red Istria is the most developed part of Istria with high vitality in most of the settlements and high degree of spatial integration. The whole County of Istria has been recording a steady increase in population mainly due to positive net migration from other parts of Croatia and abroad. The population is concentrated around larger centres, while around 33% of the population lives in the small municipalities. The City of Pula, where 27% of population in this area lives, also has the highest density of population with 1,052 inhabitants/km².

The **Province of Trieste** covers 212.5 km² which represents 8.6% of the cross-border project area. It includes only six municipalities – Duino-Aurisina, Sgonico, Monrupino, Trieste, San Dorligo della Valle, Muggia. The provincial territory is included in a narrow (5-10 km) strip of land about 30 km long, which extends between the sea and the plateau of Karst (about 400 meters above sea level). From the social point of view, the demographic structure presents the peculiarity of a strong presence of elderly people: the over 65 are over 28% of the population and of these, the over 75 are about 14% of the population. Trieste is a port city (North Adriatic Sea) and a border one, close to the Slovenian border. It is facing a continuous decrease in population, from 230,644 inhabitants in 1991 to less than 200,000 in the last year. The territory is highly urbanised, with 87% of the population concentrated in the central city, another 12% in three hinterland municipalities with more than 5,000 inhabitants, and a residual 1% in two small municipalities.

The main socio-economic indicators of the three regions are compared in the following table:[3]

Table 2 Principal socio-economic indicators of Coastal-Karst Region, Istria and Trieste

Socio-economic indicators (year of reference) (°)	Coastal-Karst Statistical Region	County of Istria	Province of Trieste
GDP per capita (€)	22,894 (2019)	15,570 (2018)	31,451 (2018)
Life expectancy at birth	79.0 (men), 84.6 (women) (2019)	80.2 years (2019)	82.2 (2020)
Average age	44.9	43.0 (2011)	48.0 (2020)
Share of people over 65	22.1%	22.2% (2019)	28.9% (2020)
The vital index (live births per 100 deaths)	77.2 (2020)	65.9 (2019)	-
Natural increase per 1,000 inhabitants	-2.4 (2020)	-3.9 (2015-2019)	-
Dependency ratio	56.7% (2021)	51.3% (2019)	65.9% (2020)
Unemployment rate	6.2% (2020)	6.3% (2020)	70.6 (2020)

[3] A detailed description of socio-economic conditions, historical background and cultural factors is included in Task 1 report.

People at risk of poverty or social exclusion (%)	15% (data on national level, no data for the Coastal-Karst Statistical Region) (2020)	23.2% (provisional data for Croatia, no data for the County of Istria, 2019)	4.5% (2020)
Net migration per 1,000 inhabitants (within the country)	22.7 (2020)	6.9 (2011-2019)	1.2 (2020)
Share of employed by sector: agriculture, forest and fishing / industry / services	4.8% / 20.7% / 69.4% (2019)	3% / 24% / 73% (2021)	0.4%/15.2%/82,6% (2018)

(°) the year of reference of the indicators (indicated between brackets) is the most recent, based on data available from the national statistical offices of Slovenia, Croatia and Italy

As for the governance aspects, there are obviously three different national systems.

In **Slovenia**, national-level institutions are in charge of developing and implementing strategies, laws, and regulations. There is no regional administrative level, however decentralised bodies of the government are active at regional level. Nevertheless, regional development policy promotes sustainable development in its broadest sense, enables the realisation of development potentials, and overcomes development barriers in all 12 Slovenian development regions, which are the basic functional territorial units for regional policy planning and implementation of regional development tasks. At local level, municipalities are local self-government bodies, with the tasks defined by legislation, and with responsibilities in the implementation of policies.

In **Croatia** there are three levels of governance: central (national), regional (counties) and local (municipalities and cities). National authorities are responsible for the overall legislation and execution, the state budget and annual accounts, economic development, direction of the performance and development of public services, etc. Counties, municipalities, and cities are independent in decision-making matters within their self-governing scope. For counties these include activities of regional importance related to education, health, spatial planning, economic development, transport. Cities and municipalities perform activities which directly meet the local needs of citizens.

In **Italy** there were, until recently, four layers of government institutions: central (national), regional, provincial (counties) and local (municipalities). After the abolition of the provinces, however, government functions are divided in three layers: national (ministries with competences in different sectors, e.g. transport, health, education etc.); regional, with the Friuli Venezia Giulia Region taking over several functions formerly allocated to the province, and granted an autonomous status (along with other four regions in Italy) with more extended regulatory competences as compared to ordinary regions; the municipal level, with the Municipality of Trieste being the greater and central local authority providing a wide range of urban planning and service functions also beyond the municipal boundaries.

2.2 State of the art of QoL measurement practices

A structured approach to the measurement of the QoL at the level of cross-border area is not established yet. There are still differences at the level of monitoring and structuring QoL indicators between the countries. In Italy, advanced system for measuring the QoL has already been established, in Slovenia the first attempt for measurement the QoL at the level of statistical regions is proposed and will be implemented in the near future, while in Croatia, the measurement of QoL in a structured way not yet established and no relevant proposals in this direction currently exist.

2.2.1 QoL measurement practice in Slovenia

In Slovenia, the QoL measurement as proposed by ESPON Methodology and Measurement project is not established yet. Nevertheless, many indicators that contribute to the definition and measurement of the QoL are being monitored at different territorial levels, yet not all of them are publicly available. This is due to the fact that collection of some of the data throughout the country is not established regularly in a harmonised

and centralised manner, thus not offering trends and comparable data, especially at the level of local administrative units or at a more detailed level.[4]

The first attempt for a structured measurement of the QoL at the regional level is proposed within the *Objectives, Guidelines, and Instruments of Regional policy and Strategic basis of Spatial development for the preparation of Regional Development Programmes 2021-2027*[5]. The document has been prepared in line with the Slovenian Development Strategy and Slovenian Spatial Development Strategy as well as sectoral documents at the national level and European Cohesion Policy 2021-2027. The four general regional policy objectives are:

- Objective 1: Increase the quality of life in all regions with balanced economic, social, and environmental development based on the principles of sustainable development;
- Objective 2: Development catch up with European regions;
- Objective 3: Reduction of regional development disparities;
- Objective 4: Achievement of development potentials and exploitation of global opportunities through international interregional integration and cooperation.

The realisation of the first objective will be monitored through twelve areas of quality of life: Work, Housing, Income, Health, Education, Social Exclusion, Environment, Space, Accessibility, Culture, Governance and Security that are directly related to Slovenian Development Strategy 2030 objectives. For individual areas of quality of life, the leading indicators are defined as mandatory indicators for measuring regional policy objectives (one per each area of quality of life):

Table 3 The mandatory indicators for areas of quality of life proposed for measurement on the regional level

Area of Quality of Life	Mandatory Indicator
Work	Working population rate
Housing	Housing deprivation rate
Income	Disposable income per capita
Health	Number of years one can expect to live in good health
Education	Share of population with tertiary education
Social Exclusion	At the risk of social exclusion rate
Environment	Ecological footprint
Space	Number, area, and type of functionally degraded areas
Accessibility	Share of the population within a radius of 1 km from the public passenger transport station with sufficient frequency
Culture	Number of visits to public libraries per capita
Governance	Participation in parliamentary elections
Security	Share of households reporting problems with crime, vandalism, or violence in their living environment

[4] To some extent the data is available on SI-STAT, however some detailed and recent data that are suggested for measurement by the ESPON project is hard to obtain and should be searched at different institutions (e.g., number of libraries, self-esteem indicators).

[5] https://www.gov.si/teme/spodbujanje-regionalnega-razvoja/

Moreover, the indicators related to the quality of life are being continuously monitored by the Statistical Office of the Republic of Slovenia (SI-STAT).[6] The majority of them are measured at the national level, but some also at the level of cohesion and statistical regions. The indicators are divided into seven statistical themes:

- Income, poverty and social exclusion;
- Standard of living
- Household expenditure;
- Consumer survey;
- Health and health care;
- Crime;
- Use of ICT in households.

In addition to that, some subjective indicators of the inhabitants' satisfaction with European Union survey on income and living conditions (EU-SILC) are also measured by the Statistical Office of the Republic of Slovenia. The standard of living, including financial abilities of households, health, household budget survey, housing conditions, occupied and unoccupied dwellings, and poverty and social exclusion within overall life satisfaction is being measured. It offers data mainly at the national level, but some are also available at the level of cohesion and statistical regions.

2.2.2 QoL measurement practice in Croatia

In Croatia, the QoL measurement is not established yet in a structured way. Some indicators of quality of life are monitored in Croatia, but quality of life issues are addressed in strategic documents to a rather limited degree. The Croatian Bureau of Statistics is the main holder, disseminator, and coordinator of the official statistics of the Republic of Croatia and the main representative of the national statistical system to European and international bodies responsible for statistics.

As in the Slovenian case, Croatia has also been involved in the European Union survey on income and living conditions (EU-SILC). In addition, there are some initiatives that are related to the measuring the QoL. One of them is the competition for the Best City Award that has been implemented since 2008 at the national level, and quality of life is one of the categories that has been valued. The main parameter that was compared among the cities was the amount of investments of the cities in communal infrastructure, environmental protection, recreation and sports. Besides that, some other indicators have been used, such as the average income of the population, the rate of poverty, unemployment and employment, the unemployment index, the surtax rate, the efficiency of the city administration, allocations for education, the number of children per kindergarten teacher and students per primary school teacher, as well as the allocation for infant benefits, etc.

2.2.3 QoL measurement practice in Italy

In Italy, the QoL measurement system is well established, since the introduction of the Equitable and Sustainable Wellbeing (BES – Benessere Equo e Sostenibile) survey at the national level, including a range of equitable and sustainable well-being indicators administered by the National Statistical Office (ISTAT) through its network of regional offices.

The BES data, initially available at national and 2) level, have been recently enriched with data collected at NUTS 3 level – for 24 provinces and seven metropolitan cities, by a network of 31 territorial Statistical Offices coordinated by CUSPI (Coordinamento Uffici di Statistica Province Italiane). The administrations involved in the project, through the central role assumed by their Statistical Offices, are working together to collect information and perform data processing and analysis with a harmonised set of indicators for 11 thematic domains, which no longer include only the BES domains related to well-being and sustainability (such as average life of the population, participation in school and working life, use of renewable energies, incidence of volunteering, etc.), but are also linked to the objectives of the UN SDGs Agenda 2030 (e.g. quality,

[6] https://pxweb.stat.si/sistat/en/Podrocja/Index/53/quality-of-life

equitable and inclusive education; promoting peaceful and inclusive societies for development; modern and sustainable energy systems for all, etc.).

The project website[7] is the repository of descriptive metadata, indicators, dynamic graphs and data tables, which display the data of the 2020 publication and of the previous ones (2013, 2014, 2015, 2017 and 2019). In practice, the web platform allows the consultation of data relating to the territory in digitised format, supplying free and constantly updated information on the territories for different sectors and areas of policy concern.

All data are provided at NUTS 3 level, therefore with reference to the total of the provincial territory. Nevertheless, there is a concrete possibility to extend the planning at the municipal level, for example, to plan the provision of separate data for the provincial capital and for the rest of the province, as well as the implementation of *ad hoc* data collection programmes at the level of the individual municipalities, should it be relevant for detecting differences in the quality of life indicators within the province.

In addition to the BES data, **Sole 24 Ore Quality of Living index** (last editions for 2020 and 2021) is another influential source of indicators measuring quality of life, at NUTS 3 level. This is a private source – the main business newspaper in Italy – using public certified data at NUTS 3 level to compute 90 liveability indicators for all 107 provinces in Italy, including Trieste, providing a national ranking for six aggregated dimensions – wealth and consumption, business and employment, environment and services, demography and health, justice and security, culture and leisure – and analytically for each single indicator. Recently, in 2021, the index has been enriched by adding specific rankings for quality of life indicators by age classes: children (0-10 years), young adults (18-35 years), elderly (> 65 years).

2.3 Territorial cooperation programmes contributing to quality of life goals

Given that no cross-border management body is in charge of the development of the cross-border area and promotion of the cross-border cooperation exists, the integration of the quality of life is mainly achieved through regional development plans and cross-border cooperation programs. Even if the cross-border cooperation projects, as well as projects under interregional and transnational cooperation programmes do not address quality of life directly, they could significantly contribute to raising the quality of life in the cross-border area by addressing common issues and challenges. Such projects could be implemented within the various programmes:

Table 4 European territorial cooperation programmes (INTERREG)

Cross-border cooperation	• INTERREG V-A Italy – Slovenia • INTERREG V-A Slovenia – Croatia • INTERREG V-A Italy – Croatia
Interregional cooperation	• Interact • INTERREG EUROPE • ESPON • URBACT
Transnational cooperation	• Alpine region, • Central Europe, • Mediterranean • Danube • Adriatic-Ionian programme

[7] www.besdelleprovince.it

Due to administrative barriers for the implementation of cross-border projects (e.g., establishment of maritime public transport Trieste – Koper) and since the need for better cross-border cooperation and service development is expressed, representatives of all three regions accede to the setting up a **European Grouping for Territorial Cooperation (EGTC)**. This is a cross-border cooperation organisation with legal statute and capacity between two or more territories situated in different EU countries, consisting of public agencies. By setting up an EGTC, municipalities and other participating public agencies can legally organise themselves in a manner that ensures an autonomous existence to the cross-border body, becoming a tool that helps foster cross-border development cooperation. An EGTC organisation is already in place linking the cross-border cities of Gorizia (Italy) and Nova Gorica (SI). A similar organisation is in the pipeline, engaging the Municipality of Koper partnership with the Municipality of Trieste and Croatian municipalities. This new EGTC will be created to overcome the difficulties encountered when carrying out and managing territorial cooperation and having to deal with different legislations and procedures, as well as in order to facilitate common tasks.

3 Towards a harmonised set of indicators to measure cross-border QoL

As a starting point to move towards a robust and harmonised set of indicators tailored for the purpose of measuring cross-border QoL, we have elaborated an example of application of the TQoL dashboard tool using European wide data available at NUTS 3 level to derive quality of life indices and the position of the three regions of Coastal—Karst (SI044), County of Istria (HR036) and Trieste (ITH44) in the Europe-wide ranking of NUTS 3 regions. The results of this exercise are reproduced in Appendix 1.

However, to test the applicability of the dashboard tool at the cross-border area level, using the EU wide data is not enough. Local stakeholders were contacted, and interviews were implemented, to identify a set of indicators more tailored to measure relevant cross-border quality of life aspects and better grounded in the local data sources context.

The engagement strategy targeted two key categories of local stakeholders:

1. Relevant Universities and their departments that are mostly involved in territorial policy and quality of life issues in the three areas, namely the University of Trieste, Department of Social and Political Sciences (Italy), University of Primorska, Department of Geography (Slovenia), and the University of Pula, Department of National and International Economics (Croatia).
2. Representatives of statistical and planning departments of the regional and/or city administrations in the three regions.

The purpose of the interviews was to gather opinions on how the dashboard tool and input indicators should be modified to provide a custom-made list of indicators for this cross-border area.

After the short presentation of the project aims, methodology and indicators gathered within the ESPON QoL project (2020), the interviews were carried out asking respondents to express their opinion on what they considered currently the most relevant QoL sub-domains. To be informative, we suggested to them to concentrate on five sub-domains that on their opinion contribute the most to the high quality of life in the cross-border area. This suggestion was not mandatory, but it worked well gathering a good selection of answers, distributed between all the three domains. They were also encouraged to think about the data gaps, by showing them the Barcelona case as an example of best practice[8], and to define indicators (existing or new proposals of indicators) based on local data that would enable monitoring identified QoL sub-domains in a similar way within the cross-border area.

The outcome of the interviews with local stakeholders on indicators that should be used to measure QoL is presented in the tables 5, 6 and 7 in the following Sections 3.1.1, 3.2 and 3.1.3.

Moreover, the important part of the discussion was addressing the major differences between all three regions that influence quality of life and consequently cross-border flows to access services and opportunities. New lists of indicators were prepared with the support of stakeholders of each NUTS 3 region that would, in their opinion, ensure the measurement and monitoring of the quality of life in the cross-border area. Some of the indicators are already measured at NUTS 3 or at municipal level. However, others are just suggestions for indicators that would better represent the quality of life in the area and show the main reasons for cross-border flows.

[8] It should be reminded here that in the ESPON QoL 2020 Catalonia/Barcelona case study there was a plenty of local data that allowed to apply the TQoL dashboard tool computing local indicators for almost all sub-domains, delivering a quality of life ranking of the districts within the region/city.

3.1.1 Assessment of QoL related data availability and gaps for the Coastal–Karst Statistical Region (Slovenia)

Most frequently highlighted sub-domains presenting relevant challenges and/or opportunities to improve the quality of life in the cross-border area were: *Housing and basic utilities, Education and Personal health indicators*; followed by: *Healthcare, Work, Personal safety, Healthy environment, Self-actualisation and Institutional trust*.

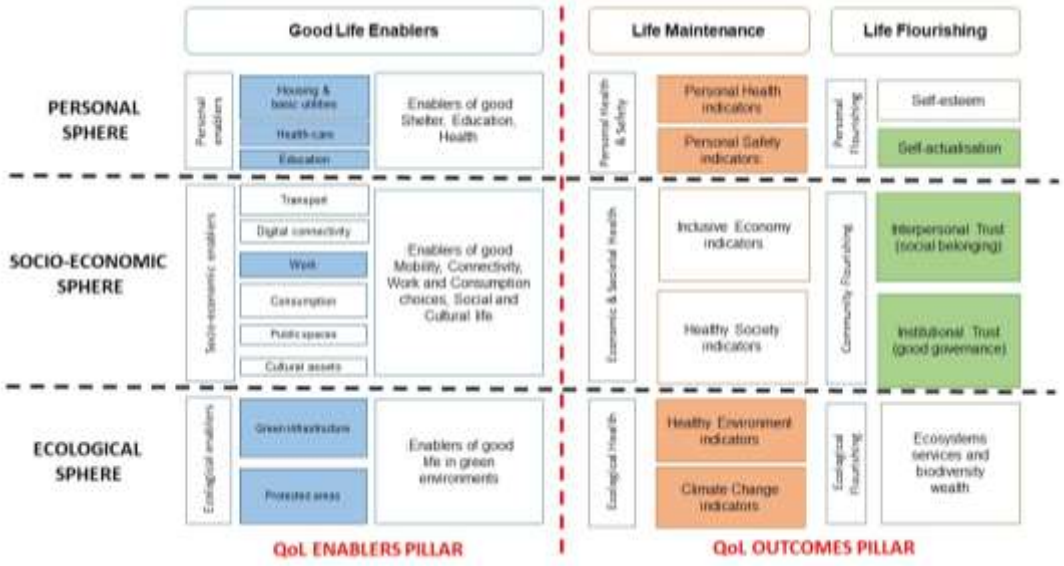


Figure 2 Sub-domains presenting relevant challenges and/or opportunities to improve the quality of life in the cross-border area as seen in the interviews in the Coastal–Karst Statistical Region

In line with these sub-domains some challenges were exposed and/or the background for the differences within the area are described:

- Housing and basic utilities:

Real estate and rental prices in the Coastal–Karst region are higher than in other areas of this cross-border region. This is especially relevant for Koper and its hinterland. Young families are often find housing (either rent of buy) unaffordable and so they move to other municipalities within the region (e. g., municipalities of Kozina and Divača) or over the border, in Croatian Istria.

- Education:

The number of primary school students in the Coastal–Karst Statistical Region has been increasing for several years with 7,754 pupils enrolled in the school year 2013/2014 to 9,986 children attending primary schools in 2020/2021. However, there are fewer secondary school students every year. There are nine secondary schools in the Coastal–Karst Statistical Region, three of which have an Italian curriculum.

It was pointed out that better cooperation between universities in the cross-border area should be established, which could also bring contributions for addressing challenges within the area such as sustainable mobility, availability of services, tourism development.

The area is becoming more and more multicultural. Besides the presence of the Italian minority, in the past the industrial development and growth of the Port of Koper brought along many immigrants from Bosnia, Croatia and other countries that represent a challenge also in the field of education, not only due to language barrier but also due to the need of cultural integration.

- Personal health indicators:

Good personal health could be as well connected to the climate and the 'Mediterranean character' of the population. Due to the COVID-19 it was highlighted that the lack of physical activities resulted in poorer personal health (physical as well as psychological) of the inhabitants. However, it was referred that through the promotion of healthy lifestyle and encouraging sport facilities, the personal health can be improved.

- Healthcare:

There is already, for example, presence of dental tourism. The availability of services generates cross-border flow to Slovenia and especially Croatia since the services there are more affordable than in Italy. However, these are private, specialised clinics that are slowly becoming more a part of commercial services than the healthcare system.

- Work:

Cross-border labour migration has a long tradition in the Slovenian-Italian cross-border region. The flow of daily cross-border commuting is mainly from Slovenia to Italy. Since the beginning of the economic crisis in the year 2008, the number of cross-border labour commuters to Italy has increased. In the year 2006 labour market has opened on both sides of the border, which abolished the main bureaucratic barrier within employment – working permissions. Employment procedures have become simplified, which brings additional stimulation for cross-border mobility of workforce.

Slovenia also attracts cross-border daily labour commuters. Foreign daily commuters are citizens of neighbouring countries (Italy or Croatia) and work in Slovenia but do not have a registered permanent or temporary residence in Slovenia. Based on data from June 2019, there were 165 daily commuters from Croatia and 559 daily commuters from Italy in Coastal-Karst statistical region. Number of daily commuters did not significantly change in the years 2020 and 2021 (171 daily commuters from Croatia and 533 from Italy based on data from June 2021).

Net migration is high in the Coastal–Karst Statistical Region. The lack of workforce generated immigration from the foreign countries which has important impact on the cultural structure of the population. Considering the ageing index, which describes the ratio between the population aged 65 years or more and children up to 15 years of age, from the 2018, the Coastal–Karst Statistical Region had the second highest among Slovenian statistical regions and is expected to grow in the future.

- Life flourishing:

Self-assessment of overall life satisfaction was the lowest among older persons. In 2018 the average score for persons aged 65 years or more on the scale from 0 to 10 stood at 6.7 with the average score for all age groups at 7.3. The challenge of ageing population should be addressed with suitable healthcare services, social services and possibilities for self-actualisation of the elderly population.

The table below presents the proposed list of indicators developed on the basis of the results of the interviews and our research on the current state of the quality of life in the cross-border area, the needs of the area and challenges arising.

Table 5 Proposed list of the indicators for measuring the quality of life on the cross-border area (Slovenia) [9]

Dim.	Dom.	Sub-domain	Proposed list of indicators
Good Life Enablers	Personal Enablers	Housing & basic utilities (b11)	Share of average salary needed for acquiring 1 m^2 of dwelling at average sales price
			Share of occupants in dwellings connected to a public sewage system (agglomerations) (%)
			Share of occupants in dwellings without central heating (%)
			Average useful floor space (m^2) of occupied dwellings per person
			Share (%) of household income used for housing expenses (e.g. rents, utility costs, household maintenance, taxes)
			Number of inhabitants per one general medical practitioner

[9] This list of indicators is the conclusion of the interviews with relevant stakeholders. Some of these have already being measured while some are proposals of indicators hence the precise terminology and methodology of measuring has yet to be defined.

		Healthcare (b12)	Share of the population enrolled in trainings and programs
			Number of hospital beds per 100,000 inhabitants
			Number of pharmacies per 1,000 inhabitants
			Number of inhabitants per one dentist
		Education (b13)	Share of children in pre-school education
			Participants in formal education[10] per 1,000 population
			Tertiary education graduates per 1,000 population
			Share of adults in the age group 25–64 who enrolled in formal or non-formal education (%)
			Number of cooperation cross-border projects between universities
			Performance in knowledge testing (e.g. INVALSI)
	Socioeconomic Enablers	**Transport (b21)**	Cycling paths network in km
			Participation in daily mobility by mode of mobility (%)
		Digital connectivity (b22)	Share of households with broadband internet
		Work opportunities (b23)	Jobs/employment ratio[11]
		Consumption opportunities (b24)	Surface of retail space / inhabitant (m^2)
			Access to basic services (bank, post office, shops)
		Public spaces (b25)	Surface of pedestrian zones (in km^2)
			Surface of green areas (m^2) per inhabitant
			Number of public parks visitors (survey)
		Cultural assets (b26)	Number of multilingual cultural events
			Number of cultural associations
			Share of population attending cultural events
	Ecological Enablers	**Green infrastructure (b31)**	Share of agricultural and forest land in the hinterland (% of total area)
		Protected areas (b32)	Share of Natura 2000 areas, protected areas and areas of natural value
Life Maintenance	**Personal Health and Safety**	**Personal Health (m11)**	Life expectancy at birth
			Sick leave (days)
			Mortality from all types of cancer
			Mortality from cardiovascular disease
			Physical fitness of children[12]
		Personal Safety (m12)	Number of convicted persons per 1,000 population
			Injured in transport accidents per 1,000 population
			Share of households that reported occurrence of crime, violence or vandalism in the local area
	Economic		Disposable household income (€)

[10] Data on enrolment of children in kindergartens and basic schools, of students in upper secondary education and basic music and dance schools and adults in basic and upper secondary education.

[11] The jobs/employment ratio is an indicator of work attraction. It is the ratio between the number of persons in employment (excluding farmers) in a certain territorial unit (municipality, administrative unit, statistical region) by workplace and the number of persons in employment (excluding farmers) in the same territorial unit (municipality, administrative unit, statistical region) by residence multiplied by 100.

[12] In Slovenia there is a national surveillance system for physical exercise and development of children and youth which was formerly known as Sports Educational Chart. It allows measuring progress of physical fitness in recent years.

		Inclusive Economy (m21)	Ability of households to make ends meet (% of households)[13]
			Gender pay gap
			Share of women in senior management positions
			Share of unemployed population
		Healthy Society (m22)	Share of materially deprived people
			At-risk-of-poverty rate (% of persons)
			Young people (15–29 years) neither in employment nor in education and training
			Share of early leavers from education and training (18-24)
	Ecological Health	**Healthy Environment (m31)**	Share of population exposed to noise
			Share of population living in flood areas
			Share of population living in areas where air quality limit or target values are exceeded[14]
		Climate Change (m32)	Generated municipal waste (kg/capita per year)
			Climate change awareness (survey)[15]
			Climate change adaptation actions; €/inhabitant[16]
Life Flourishing	**Personal Flourishing**	**Self-esteem (f11)**	Suicide mortality
			Recipients of medications for mental disorders per 1,000 population
			Self-assessment of overall life satisfaction
		Self-actualisation (f12)	Share of financing social programmes by municipalities
			Share of population active in associations (sport, cultural, touristic, etc. (%)
	Community Flourishing	**Interpersonal Trust (f21)**	Indicators measuring voluntary work
		Institutional Trust (f22)	Share of the population participating in the elections
			Level of citizens' confidence in EU institutions[17]
	Ecological Flourishing	**Ecosystems services and Biodiversity wealth (f31)**	Share of area covered by forests
			Number of cross-border managed protected areas
			Assessment of ecosystem services

[13] The data on ability of households to make ends meet are collected by means of household surveys, asking the head of the household how much he/she pays for all monthly household expenses in relation to all net income sources from all household members.

[14] Considering the target and limit values defined in the Slovenian Decree on ambient air quality and Directive 2008/50/EC of the European parliament and of the council of 21 May 2008 on ambient air quality and cleaner air for Europe.

[15] Suggestion for this indicator was given on the interviews with relevant stakeholders so there is no methodology defined yet. A survey should aim towards gathering on the awareness on climate change and small actions that can be done by individuals (e.g. use of public transport, sustainable use of natural resources).

[16] Implemented measures or projects that mitigate the climate change impact (e.g., renewable energy measures, energy efficiency investments, electric vehicles) and are funded by Eco Fund, Slovenian Environmental Public Fund: https://www.ekosklad.si/english.

[17] The level of citizens' confidence in EU institutions (Council of the European Union, European Parliament and European Commission) is expressed as the share of positive opinions (people who declare that they tend to trust) about the institutions. The indicator is based on the Eurobarometer, a survey which is conducted twice a year.

3.1.2 Assessment of QoL related data availability and gaps for the County of Istria (Croatia)

Most frequently highlighted sub-domains presenting relevant challenges and/or opportunities to improve the quality of life in the cross-border area were: *Health care* and *Work*; followed by: *Education, Transport*, *Green Infrastructure*, *Digital connectivity*, *Personal Health* and *Personal Safety*.

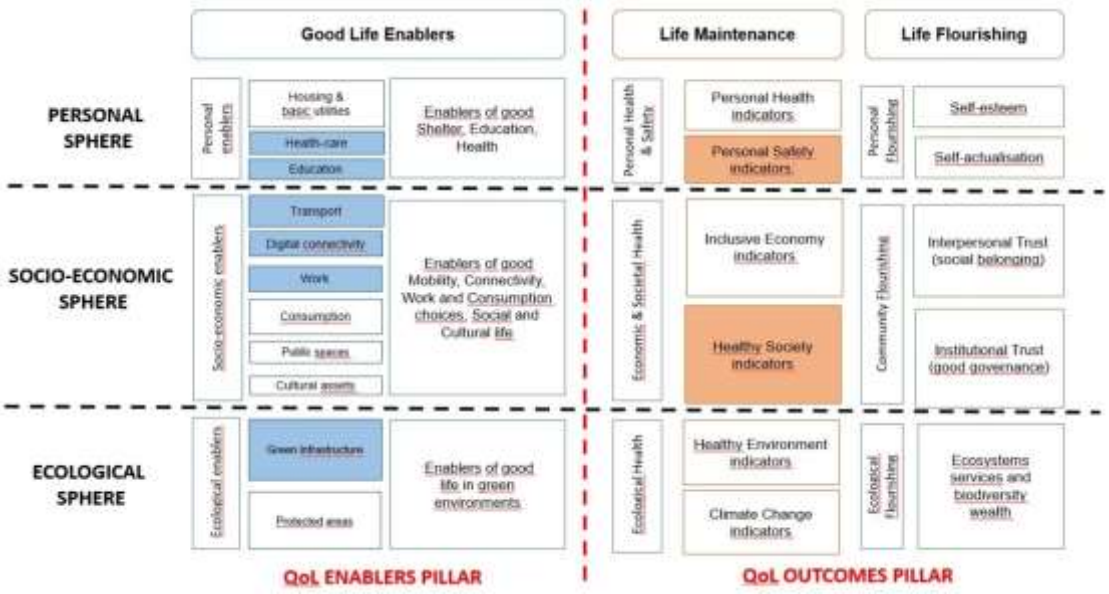


Figure 3 Sub-domains presenting relevant challenges and/or opportunities to improve the quality of life in the cross-border area as seen on the interviews in the County of Istria.

In line with these sub-domains some challenges were exposed and/or the background for the differences within the area are described:

- Health care

The main problem of western Istria is the long distance and therefore time needed to access hospitals for emergency, as very often, especially during the summer tourist season, it can take more than one hour to reach the hospital. At the same time, there are hospitals in Slovenia that are closer, but due to administrative border burden not readily accessible. A hospital was built in Izola (SI) to serve also the northern Istrian municipalities in Croatia (due to proximity), but was never used due to the national border established in 1991. For better quality of life, it is necessary to enable and strengthen the cooperation between hospitals and doctors in the cross-border region in emergency cases and to ensure the open corridors for emergency vehicles, especially during the summer season. Moreover, there is also the need to increase the availability and accessibility of specialised health services, such as oncology, orthopaedic, dental care etc. There were few regional projects in the past aiming to solve the existing problems in primary health care. However, the main obstacle for their implementation were differences between national legislations.

- Education

There is a need to ensure organised public transport for children traveling to school from Istria to Slovenia or Italy.

- Work and Healthy Society

In Croatia, according to the Census conducted in 2011, 1.8% (679) of total daily labour migrants, and 52.7% (911) of total weekly labour migrants have been working in another country (most probably Slovenia or Italy). There is no estimate on how many daily or weekly foreign migrants are working in Croatia. Many workers in the tourism sector are going to work in the region due to better working conditions. That often results to a decreased number of domestic workers in the county and an increase of cheap labour from less developed countries (Western Balkan countries, and more and more often Asian countries) and consequently

imbalances in labour force and wages. When discussing indicators, it is important not only to focus on employment and unemployment rate but also to have in mind working conditions and personal satisfaction with waged work and voluntary work to contribute to the community.

- Transport and connectivity

There is overall need for better connectivity for commuters in this functional cross-border area, through establishing public transport services between regions within this area, not limited only to road transport but also envisaging opportunities for maritime and railway transport. There was one project in the past, a boat route from Italy along the west coast of Istria to the Lošinj Island. Although successful at the beginning, over the time it became mainly a tourist route – hence, not fitting its original purpose of public transport services for local residents.

- Personal safety

One of the problems related to personal safety in the County of Istria recognised by the stakeholders is domestic violence, with the higher rate in the municipalities in the rural hinterlands, than in the seaside. Among others, there is a clear link between domestic violence and dysfunctional families where members live separately during the working days of the week. The role of civil society organisations is crucial for the mitigation of that problem.

In the table below is the proposal that was prepared based on the implemented interviews and research of the current state of the quality of life in the cross-border area, the needs of the area and challenges that should be tackled.

Table 6 Proposed list of the indicators for measuring the quality of life in the cross-border area (Croatia)

Dim.	Dom.	Sub-domain	Proposed list of indicators
Good Life Enablers	Personal Enablers	**Housing & basic utilities (b11)**	Length of water supply and sewage infrastructure (km)
			Share of population covered by water supply and sewage infrastructure (%)
		Healthcare (b12)	Length of open corridors for emergency services (km)
			Number of people using health digital services (e.g. »doctor on-line« for speed diagnostics)
			Number of shared specialised health services (orthopaedic, oncology, dentists..)
			Average time distance to the hospital in emergency cases (Availability of health emergency services)
		Education (b13)	Number of students in exchange programmes between the countries in cross border regions
	Socioeconomic Enablers	**Transport (b21)**	Number of daily commuters (school children, workers) using public transport services
		Digital connectivity (b22)	Number of digital public services
			Share of population using digital public services (e.g. e-health, e-government, etc.)
		Work opportunities (b23)	Number of workers/companies participating in trainings, workshops tailored to the marked needs and/or exchange of knowledge and experience programmes
		Consumption opportunities (b24)	
		Public spaces (b25)	
		Cultural assets (b26)	Number of multilingual cultural events (e.g. in Croatian/Italian/Slovenian languages)
			Number of cultural heritage sites
	Ecological	**Green infrastructure (b31)**	

		Protected areas (b32)	Share of Natura 2000 areas, protected areas and areas of natural value
Life Maintenance	**Personal Health and Safety**	**Personal Health (m11)**	
		Personal Safety (m12)	Number of civil society organisation dealing with domestic violence per households/ municipality/ settlement
			Number of reported domestic violence cases
	Economic and Societal	**Inclusive Economy (m21)**	
		Healthy Society (m22)	Share of population in community work
	Ecological Health	**Healthy Environ-ment (m31)**	Drinking Water Quality
			Sea quality at beaches
		Climate Change (m32)	
Life Flourishing	**Personal Flourishi**	**Self-esteem (f11)**	
		Self-actualization (f12)	Children creativity index[18]
			Number of children engaged in extra-curricular activities
	Community Flourishing	**Interpersonal Trust (f21)**	
		Institutional Trust (f22)	Trust in public bodies and institutions such as the judiciary, police, etc. (according to the results of public surveys)
	Ecological Flourishing	**Ecosystems services and Biodiversity wealth (f31)**	Status of environmental bio-indicators (e.g. bees)[19]
			Results of agricultural ecosystem monitoring (showing the status of soil fertility, soil pollution, use of pesticides, etc.)
			Status of farmland & forest birds population[20]

3.1.3 Assessment of QoL related data availability and gaps for Trieste (Italy)

The range of sub-domains that was suggested to consider for monitoring quality of life in the cross-border area was wider than the sub-domains suggested for the other regions of Slovenia and Croatia, As it is shown in the figure below, highlighted sub-domains include almost all good life enablers (with the exception of digital connectivity – this was seen as a global infrastructure to be monitored at national level – and public space – seen on the contrary as a local factor to be monitored at municipal level, in particular within the city of Trieste), the life maintenance sub-domains (with the exception of personal health indicators, where the lack of data is perceived still as a barrier) and only two life flourishing sub-domains – self-actualisation and institutional trust:

[18] The suggestion came from one of the stakeholders during the interviews and have its rationale in one activity that was previously conducted by civil organisation – at that time, "number of children engaged in extra curriculum activities" was used as an indicator that shows children's creativity. However, the idea was to separate and extend this "creativity" indicator. There are different methods of how to measure it, for example storytelling could be used as useful indicator in measuring creativity.

[19] Bees play an important role in supporting biodiversity and maintaining natural ecosystems and their reduction can be a consequence of environmental pollution. For this reason, their status (e.g., bee colony mortality, changes in wild bee communities) is recognised as an indicator of ecological flourishing. This indicator does not exist, as such. It is a suggestion provided by stakeholders. However, data about bees' colonies and their diseases should be available, through beekeepers' communities.

[20] Farmland birds and insects, particularly pollinators, are key indicators of the health of agroecosystems and are vital for agricultural production and food security: https://ec.europa.eu/eurostat/web/products-eurostat-news/-/edn-20210522-1. However, this indicator is currently only available at national level.

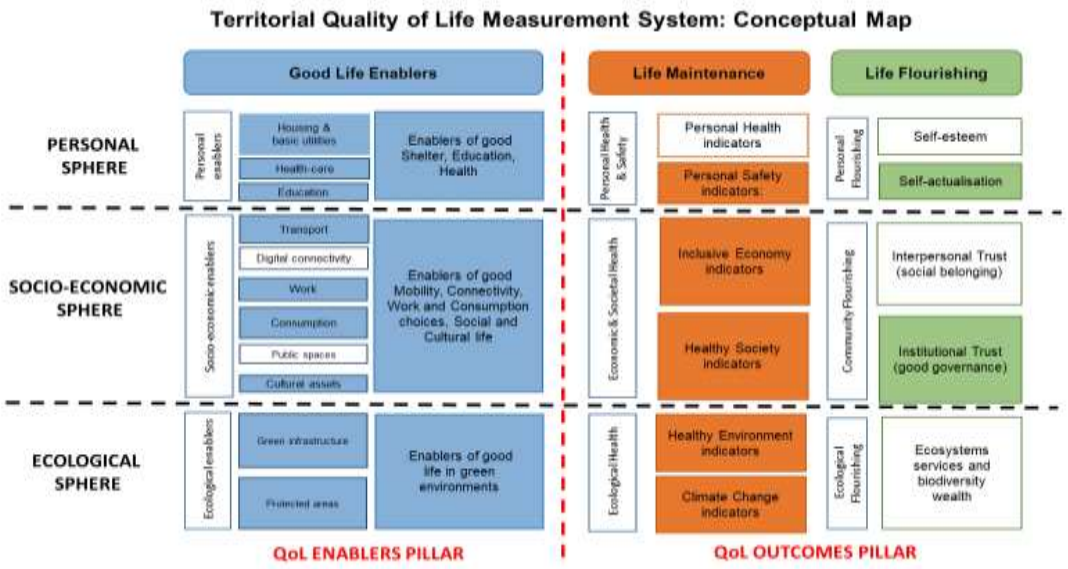


Figure 4 Sub-domains presenting relevant challenges and/or opportunities to improve the quality of life in the cross-border area as seen on the interviews in Trieste.

The most important sub-domains mentioned in the interviews presenting relevant challenges and/or opportunities to improve the quality of life in the Trieste area mostly overlap with those already mentioned for Slovenia and Croatia, which is potentially a good base for finding common interests and set cross-border cooperation programmes aimed to improve the quality of life in the whole area. The following aspects are some key challenges emerging from the interviews that may help to focus on priorities for cross-border initiatives to improve quality of life:

- Integration of quality of life into local development policies

In one interview, the representative of IRES FVG highlighted that local development is an important pre-requisite for a good quality of life in the cross-border area. For this is essential to promote local innovation opportunities, also by means of European projects that exploit new technologies, supported by research centres and technology parks present in the region (e.g., SISSA). As referred in the interview, people today mostly live well in the area, there is a healthy environment and many services, but it is necessary to attract resources and opportunities in the long-term. It is necessary to harmonise some regulations of the labour market – for example with cross-border supply chain contracts – in order to activate business ideas in the cross-border area, by extending or completing manufacturing supply chains (for engineering, wood and furniture, etc.).

- Historical heritage

In this sector one can imagine an interregional project to promote the cultural heritage of war events, for instance organising the access to war heritage places that are widespread in the area.

- Slow/eco/high-quality tourism for the older population

Given the current demographic trends, with the ageing of the population, and the quality and tourist vocation of the area – with significant environmental and landscape resources on the coast and in the hinterland – it is necessary to focus on quality tourist and socio-health services.

- Cross-border capacity and skills building projects

These could be framed in different economic and cultural sectors, organising cross-border training projects at different educational levels and degrees (from primary schools to universities), focused on innovation and the creative and knowledge-intensive sectors. One example of such cooperation in the training field was illustrated in one interview and at the workshop, by the expert representative of ENFAP FVG: the Italy-

Slovenia cross-border project on the implementation of study circles.[21] The study circles were focused on cross-border local development issues, which are obviously strongly related also with the purpose of improving the quality of life of the citizens living in the area.

- The post-COVID-19 'new normal'

We are facing a real watershed between 'before and after COVID-19', with radical transformations from old to new lifestyles. For example, housing choices are changing, and this can be a benefit for the rural territory of Friuli-Venezia Giulia, where the population is declining in recent decades. There could also be a big shift in the retail landscape, for example with online shopping but also proximity shops facilitated by new lifestyles, at the expense of large shopping malls, with ambiguous effects on the quality of life. These effects are particularly felt in a cross-border territory, divided by national borders which closed abruptly in the first months of the pandemic. This aspect is particularly important for steering the measurement of quality of territorial life with a future-proof perspective, looking forward to new and deeper openings of borders and integration of services (for example of territorial health services for the prevention of epidemics and mitigation of hospitalisations) to ensure greater – and not less as it was during the lockdown – freedom of choice to the inhabitants of the cross-border area.

The table below illustrates the proposal that was prepared based on the implemented interviews and research on the current data availability, the assessment of the quality of life needs in the area and challenges that should be tackled.

Table 7 Proposed list of the indicators for measuring the quality of life in the cross-border area (Italy)

Dim.	Dom.	Sub-domain	Proposed list of indicators
Good Life Enablers	Personal Enablers	**Housing & basic utilities (b11)**	Average useful floor space (m^2) of occupied dwellings per person
			Average selling/rental price of new apartments of 100 square metres in the central area of the capitals
			Investments per capita for energy requalification of buildings
			Irregularities in the distribution of water[22]
			Irregularities in the electricity service[23]
		Healthcare (b12)	Intensive care specialty beds per 100,000 inhabitants
			Hospital visits to another region (share of patients treated outside the region)[24]
			Waiver of healthcare services (share of persons declining visits and examples due to long waiting times or other inconveniences)
			Doctors per 1,000 inhabitants

[21] This 2012-2014 project was particularly innovative for the cross-border territory by proposing the training methodology of study circles, already used in adult education both in Slovenia and in Italy (namely in the Tuscany region). Following this experience, the FVG Region promoted between 2015 and 2019 a dissemination of the model in the regional territory by issuing calls for proposals dedicated to the creation of study circles and identifying some strategic thematic areas on which to converge. It then subsequently incorporated in its own regional repertory of qualifications the descriptor of competence relating to the 'planning and guidance of a study circle' associated with the figure of the 'study circle mentor'. This profile is now also included in the Italian Atlas of Labour and National Qualifications (https://atlantelavoro.inapp.org/atlante_lavoro.php). A full account of the study circles' theory and the experience of the Italy-Slovenia cross-border project can be found in Bogataj N., Del Gobbo G., eds. (2015).

[22] Percentage of households reporting irregularities in the water supply out of the total number of households.

[23] Average number per user of unannounced interruptions of more than 3 minutes of the electricity service.

[24] Percentage ratio between hospital discharges carried out in regions other than that of residence and the total discharges of residents in the region. The data refer only to hospital admissions for case considered as 'acute'.

		Education (b13)	Percentage of 4-5 years old children attending kindergarten or the first year of primary school out of the total of 4-5 years old.
			Percentage of 25-64 years old who have completed at least second grade secondary school out of the total of 25-64 years old.
			Percentage of people aged 30-34 who obtained a tertiary level qualification out of the total of people aged 30-34.
			Participation in continuing education[25]
			Inadequate literacy skills (second grade secondary school students)[26]
			Inadequate numerical competence (second grade secondary school students)[27]
			High digital skills (persons aged 16-74 with at least the digital competence framework basic level 2)
	Socioeconomic Enablers	**Transport (b21)**	Seats/km offered by local public transport per inhabitant[28]
			Satisfaction with mobility services[29]
			Frequent users of public transport[30]
		Digital connectivity (b22)	Regular internet users (share of over 11 years old persons using internet at least once a week)
			Internet broadband access (share of families resident in a zone covered by high speed connection: FTTH)
		Work opportunities (b23)	
		Consumption opportunities (b24)	Difficulty accessing basic services (pharmacies, emergency, post office, police station, municipal office, kindergarden and primary school, dairy food shops)
			Number of restaurants and bars per 1,000 inhabitants
			Number of cinemas per 1,000 inhabitants
			Number of gyms and swimming pools per 1,000 inhabitants
		Public spaces (b25)	

[25] Percentage of 25-64 years old who participated in education and training activities in the 4 weeks prior to the interview out of the total of 25-64 year-old.

[26] Percentage of students in lower secondary school (class II) who do not reach a sufficient level (Level I + Level II of 5 levels) of literacy.

[27] Percentage of students in upper secondary school (class II) who do not reach a sufficient level (Level I + Level II of 5 levels) of numerical competence.

[28] Product of the total number of km traveled in the year by local public transport vehicles for their average capacity, compared to the resident population.

[29] Percentage of users aged 14+ who gave a vote equal to or greater than 8 for all means of transport they usually use (several times a week) out of the total of frequent users aged 14 and over.

[30] Percentage of people aged 14+ who use public transport several times a week (buses or trams within their own municipality; buses connecting different municipalities; trains).

		Cultural tangible and intangible assets (b26)	Density and importance of museum heritage (number of sites and museums per 100 km2, weighted by the number of visitors)
			Number of bookshops per 1,000 inhabitants
			Number of libraries per 1,000 inhabitants
			Number of theatres etc. shows per 1,000 inhabitants
			Cultural participation outside the home (share of 6+ years old persons participating at least two cultural activities within the last 12 months)
			Reading books and newspapers (share of persons aged 6+ years reading at least four books for pleasure and/or daily newspapers at least three times per week within the last year)
			Use of libraries (share of persons aged 3+ years using libraries within the last 12 months)
	Ecological Enablers	**Green infrastructure (b31)**	Availability of urban green spaces (m2 per capita in the province's capital city)
		Protected areas (b32)	Protected areas (share of Natura 2000 or EUAP surface on total surface)
Life Maintenance	**Personal Health and Safety**	**Personal Health (m11)**	Life expectancy at birth
			Healthy life expectancy at birth[31]
			Child mortality (number of deaths in the first year of life per 1,000 births)
			Mortality from cancer (20-64 years) per 10,000 inhabitants
			Mortality from dementia and nervous system diseases (65 years and older) per 10,000 inhabitants
			Multiple chronic conditions and severe limitations (75+ years old persons affected by at least three chronic diseases)
			Consumption of drugs for asthma and BPCO
			Consumption of drugs for diabetes
			Consumption of drugs for hypertension
			Consumption of drugs for depression
			Consumption of tranquilisers and sleeping pills
		Personal Safety (m12)	Road accidents mortality rate (15-34) per 10,000 inhabitants
			Incidence rate of fatal occupational injuries [or injuries leading to permanent disability]
			Homicide rate per 100,000 inhabitants
			Number of home burglaries, pickpockets, robberies per 1,000 inhabitants
			Perception of safety walking alone after dark (share of 14+ years old that feel safe when walking at night
			Sexual violence complaints per 100,000 inhabitants
	Economic and Socie-	**Inclusive Economy (m21)**	Available income per households
			Youth employment rate (15-29 years old)
			Employment rate (20-64 years old)

[31] Expresses the average number of years that a child born in a given calendar year can expect to live in good health, using the prevalence of individuals who respond positively ("well" or "very well") to the perceived health question.

			Low-paid employees (share of employees with hourly wage below 2/3 of median average)
			Over-educated employees (share of workers that hold an education degree higher than that owned by the majority of occupied in the same profession)
			Relationship between the employment rates (25-49 years old) of women with preschool children and women without children
			Asymmetry in family work (share of housekeeping duties between genders/partners of 25-44 years old
		Healthy Society (m22)	Pensioners with a low pension
			Absolute poverty (incidence)[32]
			Young people who do not work and do not study (NEET)[33]
			Early exit from the education and training system[34]
	Ecological Health	**Healthy Environment (m31)**	Air quality - PM2.5
			Satisfaction with the environmental situation
			Collected municipal waste
			Separate collection of municipal waste
		Climate Change (m32)	Emissions of CO_2 and other climate-altering gases
			Concern about climate change
Life Flourishing	**Personal Flourishing**	**Self-esteem(f11)**	
		Self-actualisation(f12)	Satisfaction with one's life
			Leisure time satisfaction
			Positive/negative judgment on future prospects
			Mobility of 25-39 years old Italian graduates (net migration rate of holders of tertiary degree/total net migration)
	Community Flourishing	**Interpersonal Trust (societal belonging) (f21)**	Satisfaction with family relationships (share of 14+ years old persons very satisfied with family relations)
			Satisfaction with friendships (share of 14+ years old persons very satisfied with friendship relations)
			Social participation (share of 14+ years old persons that have been engaged in a social participation activity within the last 12 months)

[32] Ratio of individuals belonging to families with total consumption expenditure equal to or lower than the absolute poverty threshold value of the total number of residents.

[33] Percentage of people aged 15-29 who are neither employed nor in an education or training course out of the total number of people aged 15-29.

[34] Percentage of people aged 18-24 with at most a lower secondary school diploma, who do not have regional professional qualifications obtained in courses with a duration of at least 2 years and not included in an education path or training for the total number of people aged 18-24.

			Civic and political participation (share of 14+ years old persons engaged in civic and political participation activity)
			Voluntary activities (share of 14+ years old persons doing voluntary work)
			Generalised trust (share of 14+ years old persons believing that most people is trustful)
		Institutional Trust (good governance) (f22)	EU election participation
			Regional election participation
			Trust in the judicial system[35]
			Trust in political parties[36]
			Share of women in public decision-making bodies and corporation boards
			Duration of civil proceedings
	Ecological Flourishing	**Ecosystems services and Biodiversity wealth (f31)**	Concern about the loss of biodiversity

[35] Average score of trust in the Judicial System (on a scale from 0 to 10) expressed by people aged 14 and over.

[36] Average trust score in parties (on a scale from 0 to 10) expressed by people aged 14 and over.

4 Pilot cross-border quality of life living lab activities and results

The ESPON approach to quality of life measurement can be used at various geographical levels, and also looking at functional areas rather than just administrative regions to integrate QoL targets into spatial planning policies. The approach has been used by ESPON in the applied research project to develop and test a system of indicators in different types of regions in Europe. Case studies have been carried out in Vienna, Barcelona/Catalonia, Helsinki, North-East Iceland, Luxembourg, Gorizia-Nova Gorica, Wales, Holland, Latvia, Lazio-Reatini Mountains Inner Area.

Encouraged by the results of these case studies, the Slovenian EU Presidency in cooperation with ESPON engaged in the further development and deepening of the approach to place-based and citizen-centric quality of life assessment, applying the approach to the cross-border region of Coastal–Karst Statistical Region in Slovenia, County of Istria in Croatia and Trieste in Italy.

However, the case study has a more general value for European regions and the ambition of bringing European Union and its institutions closer to the citizens, their needs and expectations.

At a macro-scale, the EU economic integration is based on the so-called five freedoms of movement: 1) goods, 2) services, 3) people, 4) capital and 5) data which together aim to ensure a fair competition in the single European market.

But at a micro-scale, the European Union project has a more direct and visible impact on the everyday life of the citizens used to live in areas severed by a national border. This is particularly evident when two countries are part of the Schengen area: without border control, people do not perceive crossing the border while moving around the wider cross-border functional area, but they still live under different national governance, law and regulatory systems. It has an impact on many aspects of their life (work, consumption, education, health etc.). All citizens of the EU are “European citizens”, but the European citizenship is potentially felt more in the border areas, where people of different nationalities freely crossing the border can interact in a wider functional area and potentially access to a wider range of opportunities, enhancing their freedom of choice.

As the EU economic integration project aims to ensure the ‘five freedoms of mobility’ in the single market, the cross-border territories can be seen as a pioneering test-bed for a project of EU integration closer to the citizens aiming to enhance people ‘**five freedoms of living**’ in a place, namely:

1. **Freedom to satisfy personal life needs and wants**. A more integrated cross-border functional area can improve the daily life of people living/ working/studying in that area, e.g., by enhancing the access to goods, services, leisure entertainment etc. in the whole area.
2. **Freedom from health and safety threats.** The access to a wider mix of health care services, and the harmonisation of personal health, security and safety measures across the whole area will help people to take better care of their own health and safety. This is particularly important in times of emergency, as for instance during the COVID-19 pandemic, when the access to emergency hospitals in the vicinity is crucial for saving lives.
3. **Freedom of personal development and flourishing**. Multi-lingual school programmes, greater cooperation between nearby universities, shared affordable vocational and long-life training programmes, the harmonisation of labour market rules and contracts, the promotion of cross-border economic activities and specialised value chains (in rural development, manufacturing, eco-tourism, health services, etc.) can contribute to widening options for personal development and self-actualisation of inhabitants.
4. **Freedom of identity and civic participation**. The mix of national identities in a cross-border area – and an increasing transiting population of migrants – can bring identity challenges and risks of segregation, but also opportunities to assert identity rights of minorities and increase multi-cultural conviviality

and civic participation. The EU 'unity in diversity' integration approach can be applied at the micro-scale of the functional cross-border area to help different communities to address common problems and eventually bring people to benefit from living in a healthier social milieu and an open democracy context.

5. **Freedom of living in a healthy and flourishing environment**. A more integrated cross-border functional area can help to better manage environmental commons: land, water and sea resources, risks due to climate change, air quality, and biodiversity – eventually bringing people to live in a greater harmony with nature.

The above five freedoms of living could be considered as achievable goals in any cross-border area of Europe, for improving citizens quality of life.

The selected Trieste, Coastal–Karst, Istria area can be considered as a very special case from the standpoint of quality of life policy implementation, due to the peculiarities described in the box below:

One area, two borders: a champion case to play with the exit-voice dichotomy

The exit-voice dichotomy was defined primarily in the article of the social scientist Alfred O. Hirschman, in 1970, and it is still a key theoretical concept to play with people's quality of life choice, and in particular their attitudes towards private vs. public goods and services consumption to satisfy their desires.

In a nutshell, humans are defined simply as animals with the ability and propensity to transform means into ends, and the means include private consumption of goods and services and/or sharing of public goods. There are essentially two options for those who wish to employ a location strategy to change their access to the satisfaction of their daily needs and wants. **They can move to other places (exit) or they can change the characteristics of the place they presently occupy (voice).**

There is a tradition of urban studies using the exit-voice framework explicitly in order to look at a wide range of public services – municipal services, school systems, day care for children, medical care etc. – that it is not possible to survey here, but the key point is that **the citizen-centric approach proposed for measuring territorial quality of life is exactly pointing to support people voicing for improving the quality of their life in the place where they live, before thinking – or being motivated by worsening circumstances – to move to other places to live better.**

The exit-voice dichotomy has emerged mostly 'bottom-up', that is from the point of view of customers or citizens affected by deteriorating quality, but it has been considered also 'top-down', i.e., from the point of view of top management of various public (states, local authorities) or private (companies) organisations. In this respect, what makes the cross-border area of Trieste-Koper-Pula and surroundings particularly interesting is that there are two national borders separating three regions within three countries, but all near, within the reach of a daily return trip. This means – from the top-down management point of view – that **there are three different states regulating the life of their citizens in the territory, enabling in principle different capacities and choices.**

As mentioned in the introduction (Section 1.1), prototype TQoL living lab activities have been developed in this cross-border region to experiment and suggest ways to measure TQoL and implement cooperation policies, by using a place-based and citizen-centric approach.

The following two sections illustrate the pilot living lab activities (Section 4.1) and their outcomes (Section 4.2).

4.1 The pilot cross-border quality of life living lab process

The ESPON approach to understanding the state of play of quality of life and possible ways to improve it for people living in a territory, is used to:

- delimitate the functional area of interest (in our case the whole cross-border area across the three countries);
- identify the most relevant priorities and quality of life objectives to meet the needs and expectations of citizens in the area;
- select indicators to measure the quality of life objectives for each priority;

- identify data - readily available or feasible to collect - to calculate the indicators; and
- 'map' political will (mission) and delimitation of organisational responsibilities for the supply of the data necessary to calculate the indicators.

This is done along five steps in engaging citizens, stakeholders and policy makers in a living lab process illustrated in the figure below:

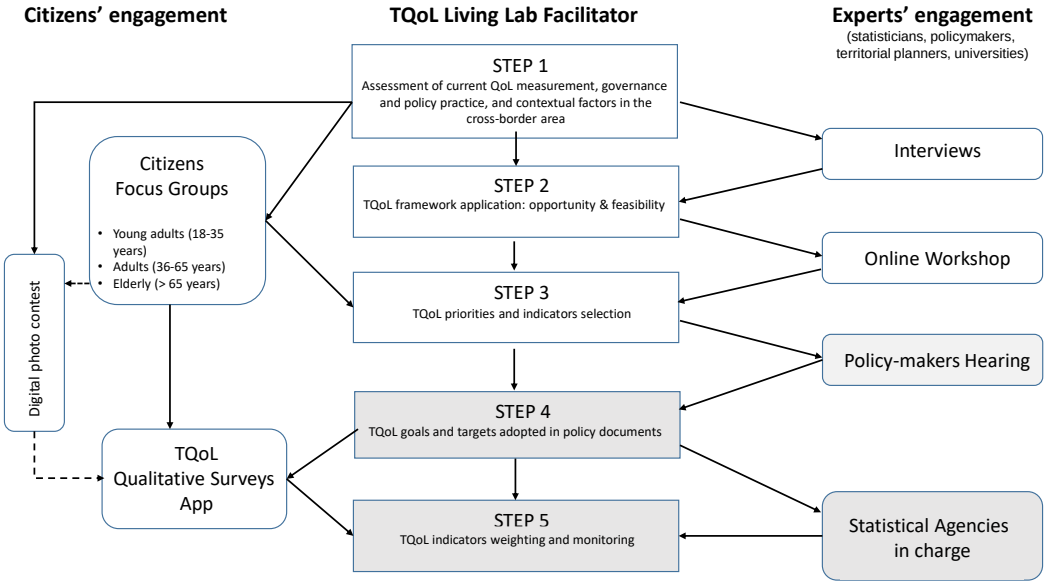


Figure 5 Cross-border Territorial Quality of Life Living Lab flow chart

Within the pilot time frame – from June to October 2021 – the project team acted as cross-border TQoL living lab facilitator, organising activities for the first three steps:

STEP 1: Assessment of current QoL measurement, governance and policy practice, and contextual factors in the cross-border area (desk research, local stakeholders map, identification of citizens target groups).

STEP 2: Analysis of the challenges, opportunities and feasibility of implementing the TQoL methodology in the cross-border area (interviews of key experts).

STEP 3: Selection and recommendations for future development of a harmonised set of quality of life indicators for the cross-border area (engaging local stakeholders in an online workshop).

In addition, the flow-chart shows further steps that should be implemented with the support of the local stakeholders engaged since the beginning in the process, for promoting a permanent cross-border TQoL living lab:[37]

STEP 4: Adoption of harmonised cross-border TQoL indicators within the context of cooperation policies and/or in policy documents and strategies of the three cross-border regions of Trieste, Coastal–Karst, Istria.

STEP 5: Implementation of a continuous process of measuring, weighting and monitoring cross-border TQoL indicators and consequent integration in policy processes and in policy making.

[37] These steps are coloured in grey to mean that they are beyond the pilot project time frame.

The main role and capacity of the TQoL facilitator relates to the texturing of interactions and the facilitation of experts' engagement, by one side, and citizens' engagement on the other side.

As it concerns the **stakeholder engagement activities**, the pilot living lab activities targeted different categories of local stakeholders, including:

- Universities and their political science departments that are mostly involved in territorial policy and quality of life issues in the area, namely the University of Trieste (Italy), University of Primorska (Slovenia), and the University of Pula (Croatia).
- Representatives of statistical and planning departments of the regional and/or city administrations in the area.

A series of **stakeholder interviews** addressed the current quality of life in the cross-border area, future possibilities for measuring and improving the quality of life and the possibilities of a rolling living lab on quality of life in the area. The results of the interviews have been presented and discussed during an **online workshop**, with stakeholders (mostly statisticians, spatial planning experts and managers) in all three countries involved to explore cooperation pathways for the implementation of cross-border quality of life indicators and their use in integrated policies. The workshop was based on a proposed list of harmonised indicators, which emerged from the interviews, and aimed to recommend indicators tailored for cross-border area application.[38]

As it concerns the **citizen engagement activities**, focus groups with citizens should be organised with different categories of citizens, at least different age groups, as the life perspectives and needs of young adults (18-35 years old), adults (36-65 years old) and elderly (> 65 years) are obviously very different, even if they live in the same place. When necessary to address specific quality of life issues, other categories of population should be involved – groups of different social background and education level, minorities, different NGO members, etc. One way to recruit citizen groups could be through institutional social media channels. For instance, in the last eight years, the City of Trieste holds and manages a social media account and implements intense activities to involve the citizens. One of these activities has seen citizens being recruited on a digital platform to check and provide their suggestions on projects of refurbishment of a public space. This channel could be used to recruit focus groups of citizens to discuss different aspects of quality of life, focusing on the most relevant domains on a case by case basis, and this could be extended to cross-border issues if cooperation will be established for this purpose between Trieste and other cities in Slovenia and Croatia in the future.

However, due to the short timeframe (and vacation period) of the pilot project, it was only possible to convene and experiment the approach with a focus group organised engaging students of the University of Trieste in September and later on, in October, with students of the University of Primorska and University of Pula. The focus group participants highlighted quality of life issues and challenges, both from the perspective of living in the cross-border area (e.g., mobility, health, education, work, leisure) and the perspective of personal and collective aspirations to flourishing while living in the cross-border area.

Another innovative mode of digital citizens (netizens) participation was also experimented. A picture says more than 1,000 words. In this spirit, students enrolled in the universities of Trieste, Pula, and Koper have been also invited to a **digital photo contest** on the experience of living in the cross-border area. A website has been set up,[39] where they could upload photos showing any aspect – good or bad – of their cross-border experience. Following the upload of a photo, participants were asked to complete five simple mini games, elaborating further on their point of view. The intention was to test another way to collect qualitative and subjective insights on quality of life in the region. Due to the short timeframe and vacation period[40], the digital contest test did not achieve the planned target of 100 submissions – at the closing date (20th October 2021) 26 submissions have been received of which 19 were accepted as pertinent, with a response rate of 15,5% (computed on 168 web views in total). However, it allowed to draw important lessons about how to implement full scale digital contests in the future and their potential to raise citizens' awareness and involvement in

[38] The list of stakeholders, the online workshop agenda and attendance are provided in Appendix 2.

[39] https://www.nonarchitecture.studio/cross-border-city/

[40] The academic year only starts on 1st October in Croatia and Slovenia.

territorial quality of life actions and policies. These lessons are discussed at the end of Section 5.2, while the digital contest tool, pilot process and outcomes are presented in Appendix 3.

Finally, engaging citizens in providing data that are reliable and sufficiently detailed to measure subjective quality of life and behaviour – on voluntary basis and in a privacy-safe manner – is one possibility to overcome the lack of data in this field. For this purpose, a third way has been envisaged to engage citizens, by developing a **qualitative survey app** tool for collecting decentralised data from citizens. In a nutshell, the app is designed so that, in future applications as part of the territorial quality of life living lab activities, people selected by some criteria[41] will be invited to download the app and will receive brief questions over time, with invitations to provide impressions about what are the 'pluses' and minuses of living in the cross-border area (e.g. positive or negative pictures and photographs...), or requests for capturing data from the phone sensors, or photos that represent quality of life aspects in a meaningful way.

Within the short timeframe[42], it was only possible to develop the proof-of-concept of the qualitative survey, testing it with the students engaged in the University of Trieste focus group, and realise the first prototype app.[43]

4.2 The pilot cross-border quality of life living lab results

4.2.1 The voice of the citizens: focus group discussion and outcomes

As mentioned in Section 4.1 above, within the short time available for the pilot activities, focus group activities could only be organised with small groups of students from the universities in each of the countries within the cross-border area – University of Trieste (IT), University of Primorska (SI) and University of Pula (HR).

The aim of the discussion with the participants was twofold:

- First, to find out and discuss quality of life within the area, their needs and expectations in the whole cross-border area from their specific perspective as young adults. This discussion is replicated in all three student focus groups, in order to gather the different points of view from students respectively living in Italy, Slovenia, and Croatia.
- Second, to discuss with the first focus group – organised with the students from Italy – a prototype of the qualitative survey app, asking them to help us design the questions that they consider more pertinent to include in the app tool.

As regards **the first aim**, the discussion in the focus groups addressed quality of life issues from:

- The perspective of everyday life challenges of living in each area and in particular the needs or expectations associated to cross-border activities (e.g., mobility, health, leisure, etc.). From this perspective the first two territorial QoL dimensions – good life enablers and life maintenance – turned out to be more relevant. The students were asked to highlight the best and the worst quality of life aspects they perceive, and to reflect on what should be measured, if possible suggesting tangible and measurable elements that could be later used to help selecting indicators.
- The perspective of students' life aspirations to flourishing, focusing on the third territorial QoL dimension – personal, community and ecological flourishing domains. From this perspective the students were

[41] Practical ways to do this could be, for instance, inviting all people attending a physical gathering event, or online focus groups, to download and use the app when they are in given place and window of time (e.g. if the questions concern the quality of what is experienced) or for the duration of a survey (e.g. if the questions are related to the future aspirations of people living in a given area).

[42] The academic year only starts on 1st October in Croatia and Slovenia.

[43] A detailed description of this prototype app is provided in Appendix 4.

asked to reflect on fundamental values and aspirations they would like to see realised, and the connection with the place in which they live and the cross-border life opportunities.

The overall conclusions of the three focus groups are the following:

- Challenges to be addressed were similar to the Slovenian and Croatian focus groups. They both highlighted the need to improve public transport connections (especially with the hinterland in both regions) and to address the issues of rising prices (especially housing) due to tourism development.
- It should be highlighted that the focus group in Koper was a group of students in the first year of studies that mainly came from different parts of Slovenia and abroad (Croatia, Serbia). As a consequence, they have limited local experience of the area. Moreover, COVID-19 restrictions added up to it so it was hard for some of them to give an opinion on life maintenance and life flourishing aspects of the quality of life.
- Generally, Slovenian students do not perceive the border between Italy and Slovenia which is regularly crossed by majority of the participants as a barrier, while the opposite applies for the border between Slovenia and Croatia.
- Due to the rather long distance from Pula to the Slovenian and Italian border, Croatian students do not gravitate towards Slovenia and Italy on a regular basis but rather focus their activities on the vicinity of Pula and Istria in general. In addition, poor public transport, expensive tolls, and long waiting time on the borders are seen as obstacles. However, they are interested in participating in potential future joint cross-border programmes and activities with Slovenian and Italian students such as sport and educational events, workshops etc.
- Italian students were highlighting the need and willingness to learn Slovene, while Slovenians are also eager to learn Italian since they believe this would help overcome the language barrier.

A selection of views and messages from the participants are shown in the box below.

Trieste focus group (14 September 2021 – eight participants)

Identity:

"I was born and raised on the Karst plateau, so it has always been normal to live on the border. A strange experience was indeed the closure of the border during the lockdown. The border has never been really a barrier, on the contrary the linguistic and cultural differences coexist in the area are positive factors, involving a greater openness of the individuals towards each other. In fact, cross-border citizens prefer jobs and personal development with an international dimension. There is also an identity issue whereby, even if you have a specific national citizenship, you do not feel as belonging to a single nation." (Nastja)

"As for how I see living in the future in the cross-border area, there is an identity element to consider, i.e., the feeling of belonging and not belonging to a specific nation or culture. A critical issue is the population ageing in the area, the lack of stimulating alternatives for young people and as a consequence their increasingly turning down towards extremism and fragility. I would like to be able to work with local people and those who pass through this territory (migrants, students, etc.), to make them truly participate in territorial development." (Francesca)

"Speaking different languages is obviously an obstacle, it would be useful to teach Slovenian in all schools, not only in those for minorities, in order to have a wider mutual exchange. I suggest orienting all future projects on the integration of all aspects of these territories, from mobility to language, to cultural and educational aspects to make future generations grow with a European rather than national identity – identifying themselves first as Europeans and then as Italians, Slovenes etc." (Federico)

Mobility services:

"A positive aspect of cross-border life is the possibility of having a variety of alternative cultural experiences. While a major obstacle to improving the quality of life is public transport which does not cover the territory sufficiently and efficiently. Mobility in the area remains highly dependent on the car or other personal means of transport." (Mong Kha)

"One priority is the improvement of territorial mobility also in Italy, given that it is very difficult to move even between Verona, Gorizia and Trieste. Improving territorial transport would also mean supporting integrated production chains and job opportunities present throughout the territory" (Annachiara)

Quality of life opportunities and challenges:

"I was always living in the cross-border area, being my family origin from Istria, so I have always perceived myself as a cross-border citizen. The border is mainly crossed for buying petrol, meat and some services at better prices. At the time of Yugoslavia there was even a saying about crossing the border to do shopping. In Friuli-Venezia Giulia there is an excellent quality of life, the cities are lively and the region is very rich, not only from an economic and employment point of view, but also thanks to a rich cultural and environmental heritage. On the border there are many on-going cultural initiatives, also rediscovering past heritages. The border is an opportunity to give expression to different cultures and create an original identity. A negative aspect is the national governance, as the central government does not understand the peculiarities of the territory. Above all, the migration issue which is a very urgent problem in the area being on the Balkan route, is not adequately managed." (Giacomo)

"One of the positive aspects of the quality of life in the cross-border area is the wealth of possibilities that this area offers: you can cross the border for sporting events and activities, often meeting with people who speak another language. To understand and deal with different linguistic and cultural minorities bring a greater mental openness. Slow and sustainable tourism would be a very positive development opportunity for the area. An obstacle, on the other hand, is the difficulty in finding information also due to the linguistic barrier, as there is no border language, a common language to communicate fluently." (Giovanna)

"Two areas need improvement: work, and access to health services. For employment opportunities, it is not so easy to access the labour market across the border. It would be advisable to create intermediaries that support the path to search and find a job on the cross-border territory. Similarly, ease of access to cross-border health services should be improved. Language is certainly a barrier that limits the fluidity of information but also the skills necessary to work across the border." (Adriana)

Koper focus group (13t October 2021– nine participants)

"The border with Croatia is definitely one of the biggest barriers in this cross-border area. This was especially evident previous year when it was impossible to cross the border. My father as a daily commuter, who works in Croatia, had to stay in Croatia for months due to COVID-19 restrictions. Now it is better but the epidemic really had negative impact on daily life. It is different from the border with Italy, where the border does not present an evident barrier. Also, I gravitate more toward Italy than toward Croatia. The biggest positive aspect of this multicultural area is collaboration with other nations. I am a member of Slovenian minority and have a clear insight of this aspect. Connections between Rijeka, Koper and Trieste are quite strong. I am active in a youth organisation with other young representatives of Slovenian minorities. We organise different events and participate in projects (e.g., collaboration with the University of Trieste). Mostly I spend time in Koper, Izola, Piran, I only cross the border when I visit my relatives." (Mateo)

"I come from the municipality of Nova Gorica and I am used to cross the border regularly. The trend of shopping in Italy is still present since the quality of some products there is higher. Living in the cross-border area and having a possibility of crossing the border with no restrictions is a big opportunity for learning more about new things, cultures. It definitely contributes to the quality of life. Last year the restrictions due to COVID-19 mostly impacted the way of life of daily migrants – my grandmother who still works in Italy – and that represented a big issue for her. Considering the mobility and public transport, it is great in Koper and the connections between the bigger coastal towns (Izola, Piran, Portorož) are good. The issue represents crowds in the summer time when it takes way longer to travel along the coast." (Luka)

"I also live close to Nova Gorica and cross the border regularly. Even when I go to Koper, I cross the Italian border since it takes less time to travel this way. The closure of the border made it impossible to go shopping in Italy and we are used to do so since some things are cheaper there. On the other hand, the Italians use the opportunity to buy petrol in Slovenia since the prices are lower here." (Tadej)

"When I compare quality of life in Koper to the one in Serbia, from where I come from, it is quite higher here. The only thing that makes me feel uncomfortable here is the language barrier. I am still learning Slovene. I do understand it, but I am not very comfortable to speak it yet and I had experienced occasions that made me feel unwelcome due to the fact I do not speak Slovene. Apart from that, Slovenia is very organised and cares about the environment which is very well taken care of. I decided to study in Koper because many friends from my hometown told me it is more affordable to live here than in Maribor or Ljubljana. Besides that, I was told that people here are most welcoming also due to the proximity of Italy and Croatia that makes this area considerably multicultural." (Vukašin)

"Trieste as the biggest city in this cross-border area definitely represents a pull factor. Work opportunities and possibilities for studies are better when you live in such area. I visit Trieste and Udine to go out or visit my mother that works in Italy. It is possible to use public transport (combination of bus and train). Compared to the Croatian border, it is way easier to cross the Italian border and is also closer to Koper. One can feel the impact of Italian culture in Koper and surroundings, for example in the architecture of buildings – the city centre of Koper reminds one of Italian cities. The area of Koper is walkable, if I don't go by foot, I cycle. I would be interested in going on student exchange, even in Italy since I would like to learn Italian." (Petar)

"I moved to Koper to study. Unfortunately, it is hard to express my experience of the area since everything was closed last year. It was not difficult to find an apartment last year and the rent is not that high considering the fact it is in the city centre. Public transport is good between the coastal cities but connections to the hinterland are not good enough." (Urška)

"I come from another part of Slovenia (Celje) and I recently moved to Prade (settlement in the Municipality of Koper). Considering public transport, I must say you cannot count on being on time when you use it. Also, the connections at the weekends are rare. I believe it would be much easier to travel around with the car." (Dominika)

Pula focus group (13 October 2021 – seven participants)

"I think here the most important challenges to address for better quality of life are housing and employment. For housing, it is difficult to get a loan because a lot of people do not have a permanent job. Then, loans are huge, while salaries are low – and due to that a lot of people choose renting. On the other hand, renting is not a perfect solution either – many owners forced tenants to leave the apartments during the tourist seasons so that they can rent them to tourists in order to earn more money. As for the working opportunities, I personally do not plan to look for a job in Italy or Slovenia. In my opinion, more important is to find the way to achieve higher standards here, to put the focus on decreasing economic disparities within the cross-border area so that the population in every part of the area has the equal conditions and opportunities for employment." (Isabella)

"I am generally very happy with living in Pula, and even if I go somewhere else to live, I will definitely return back to Pula because, as far as I am concerned, life here is much better than anywhere else. Of course, there are probably better job opportunities and salaries elsewhere, e.g., in Germany. However, the quality of life here is incomparable considering the social aspects and healthy environment (vicinity of the sea, air quality...). In addition to housing, in my opinion, the essential challenge to solve is to improve health care services and raise wages in health care. The health care services are very poor – there are long waiting lists for even regular checks in hospitals. As far as I know, medical staff are underpaid, and that influences their work satisfaction, motivation and consequently the overall services." (Josip)

"I came from Osijek to Pula to study. The advantages of living here are that I live near the sea, fresh air... On the other hand, life in Pula is much more expensive than in Osijek. It would be good to introduce some discounts for students here, or to open a cafe, a club or something similar in a student centre with affordable prices for students. This year, I also faced the problem of finding an apartment

to rent. Most of the owners didn't want to rent me an apartment before December due to the prolonged tourist season." (Marin)

"For transport, while the public transport in the cities is quite well organised, it is not the case with the public transport from the cities to suburban and hinterland areas. Regarding the student's life, it would be good to have more programmes for students and young people such as workshops, places for hanging out with colleagues and peers. I think there are more similar events in Koper, for example, and I would like to attend them. It would be good to have organised transport and more announcements of such events in Slovenia and Italy. As for the working opportunities, I think we focus too much on tourism and renting the apartments to visitors while the other sectors are neglected, there is an urgent need to diversify the economy." (Lara)

"Although we have slightly higher incomes here in Istria than in the rest of Croatia, when compared to Koper and Trieste that is not the case, our standards are lower. Despite higher incomes, the life here is pretty expensive and that is in terms of everything – renting, tolls etc. I never really thought about travelling to Trieste or Koper mainly because of the costs. I often hear from elders how they used to go to Trieste just for a coffee when they "didn't know what to do". Nowadays, that is not the case at all, especially for students, due to poor public transport and costs. What I appreciate here in terms of quality of life are natural beauties, tradition, culture – we really have plenty of that and for me those are very important aspects of life in Istria. Personal safety is also at a very high level. I am from central Istria, I live in the countryside, and I have no need to even lock the car at night, for example. As for the job opportunities in Slovenia and Italy, I guess there are more of them than here. However, at the moment, I am personally not ready to leave family, friends and social life for that - I like it here and would rather sacrifice the financial part in this case. It would probably be different if I was born closer to the border, e.g., Buzet or even further north, Savudrija – in that case I would definitely try to find a job in Italy or Slovenia because it would not be such a problem to migrate daily to and from work." (Vedran)

"I am from Poreč and I travel to Pula to study. In connection to studying, I think we have it all here and it is well organised. However, to better connect and interact with students in Slovenia and Italy, I think it would be a good idea to organise joint lectures with universities in Koper or Trieste. For example, it could be organised as a day trip to Slovenia or Italy (and vice versa) which includes attending the lectures, hanging out with students there, learning more about pros and cons of living and studying there, etc. Although I live closer to the border with Slovenia and Italy, I do not travel much there – the main obstacles for that are expensive tolls (there are no regular bus lines to Slovenia and Italy for half-day or one-day trips so we have to go by car), waiting on the borders, etc." (Magdalena)

"I am also not from Pula, I come from the central part of Croatia. In general, student life here is quite ok for me. For now, I have no need to travel to Slovenia and Italy. I would agree with my colleagues when it comes to tolls. They are definitely too expensive, especially for a student budget. For me personally, since I prefer to be physically active, the negative aspect of the transport is also a lack of the biking lanes. I have to use footpaths or roads which are really dangerous." (Nikolina)

As regards **the second aim**, sharing the first concept of the qualitative survey app with the first focus group has been particularly useful to help refine the qualitative survey design. This is now framed around one key question:

- ✓ ***How do you see your future in the cross-border area? What do you think are the "pluses" that should be maintained and the "minuses" that should be changed for living well here?***

With these questions, the focus of the survey is not the present everyday life experience, but future prospects for living well in the area.[44]

The respondents are presented with the structure of 22 sub-domains of the TQoL framework, and in order to concentrate on the most relevant quality of life priorities, they are asked to select up to three sub-domains for stating concisely what the pluses are, and likewise up to three sub-domains regarding the minuses. They have the option of adding photos to support their concise statements.

The outcome of the survey is therefore qualitative answers about good and bad things in each sub-domain, with the nomenclature of sub-domains following the same structure of the TQoL framework used to compute quantitative indicators in the dashboard tool.

An example of the outcome is illustrated in tables 8, 9 and 10 below, showing some of the statements from the Trieste, Koper and Pula focus group discussions and arranged in the framework of TQoL domains.

Table 8 The "plus" and "minus" of living in the cross-border area (outcome of the Trieste focus group).

Please select your 'plus' (tick up to 3 boxes) and tell us why is a 'plus' (concise statement)	**Please select your 'minus' (tick up to 3 boxes) and tell us why is a 'minus' (concise statement)**
Housing & basic utilities (b11)	
Healthcare (b12)	
	Health services are not integrated across the cross-border area as they could.
Education (b13)	
	1. None or few university teaching programmes in English (compared for instance with the university of Bolzano, providing tri-lingual programmes in Italian, German and English). 2. The Erasmus programme should include more 'local' exchanges, between the universities in Trieste, Slovenia and Istria.
Transport (b21)	
Freedom of mobility across borders (Schengen)	Lack of public transport options (train, bus connections) and sustainable mobility infrastructures (bike lanes) to move in the cross-border area.
Digital connectivity (b22)	
Work opportunities(b23)	
Good potential for slow eco-tourism activities and jobs. But to realise this potential it is necessary to integrate territorial market activities and services for the whole cross-border area which currently are separate for the three regions.	1. Jobs are mostly concentrated in industrial sectors requiring technical skills. Less demand for more knowledge intensive service jobs. Lack of international agencies or NGOs premises that could make the area more attractive and 'globalised' than now (e.g. the impact of SISSA, the scientific park, is limited to an elite of high level workers). 2. Access to job opportunities across the border is difficult, job search intermediaries/ agencies should be integrated across the whole area.
Consumption opportunities(b24)	
Public spaces (b25)	

[44] Obviously, this perspective was very interesting for the students, as they naturally look forward to their adult life aspirations. However, the question would be still valid also for other age groups, e.g., working age adults or the elderly that can focus the remaining life aspirations as well.

Please select your 'plus' (tick up to 3 boxes) and tell us why is a 'plus' (concise statement)	Please select your 'minus' (tick up to 3 boxes) and tell us why is a 'minus' (concise statement)
Cultural assets (b26)	
Good variety of cultural initiatives made available in the area (e.g. Cividale festival). Opportunities for cross-border sport activities are also fairly good.	Poor integration of information and access (e.g. online booking and ticketing) across borders.
Green infrastructure (b31)	
Protected areas (b32)	
Personal Health (m11)	
	People with mental health problems are treated very differently in Italy (Basaglia heritage) and Slovenia, where they are still restricted in mental hospitals.
Personal Safety (m12)	
Inclusive Economy (m21)	
Healthy Society (m22)	
Healthy Environment (m31)	
Climate Change (m32)	
Self-esteem(f11)	
Self-actualisation(f12)	
Interpersonal Trust (societal belonging) (f21)	
Notwithstanding past conflicts, people from the Italian, Slovenian, Croatia communities – and especially young people – are open to each other (the contrary occurs for instance in the Bolzano-South Tirol region where Italian and German speaking communities do not mix).	1. Asymmetry of daily language skills are a barrier: e.g. more Slovenians speak Italian than Italians speak Slovenian. Slovenian should be taught more also in Italian schools. 2. More consideration/options would be needed for the integration of temporary populations (migrants, students from different countries, etc.). The area could become multi-cultural and vibrant as a 'mini New York'!
Institutional Trust (good governance) (f22)	
Ecosystems services and Biodiversity wealth(f31)	

Table 9 The "plus" and "minus" of living in the cross-border area (outcome of the Koper focus group)

Please select your 'plus' (tick up to 3 boxes) and tell us why is a 'plus' (concise statement)	Please select your 'minus' (tick up to 3 boxes) and tell us why is a 'minus' (concise statement)
Housing & basic utilities (b11)	
	Due to high demands for accommodation in the summer period, many students are forced to leave the apartments (end May - end September) so that owner can rent it to tourists. Rental prices are high and get even higher in the summer time when the area attracts many tourists.

Please select your 'plus' (tick up to 3 boxes) and tell us why is a 'plus' (concise statement)	Please select your 'minus' (tick up to 3 boxes) and tell us why is a 'minus' (concise statement)
Healthcare (b12)	
Education (b13)	
Number of students involved in the university – more students reflect the fact that programmes on the universities are interesting and diverse. Cooperation with foreign Universities (on cross-border projects and with foreign professors giving lectures in Koper) that can be even upgraded.	
Transport (b21)	
The border with Italy does not present a barrier anymore.	It takes much longer to travel along the coast during summer months due to congestion – that issue could be further addressed with promotion (and improvement) of public transport. The public transport connections with the hinterland of the region are poor.
Digital connectivity (b22)	
Work opportunities(b23)	
Living in the cross-border area contributes to better opportunities for finding a job - especially in Trieste as the biggest city in the region.	All the available work opportunities for students are in restaurants and bars, no job that could contribute to the development of professional skills is available.
Consumption opportunities(b24)	
Public spaces (b25)	
Cultural assets (b26)	
Green infrastructure (b31)	
Protected areas (b32)	
Personal Health (m11)	
Personal Safety (m12)	
Inclusive Economy (m21)	
Healthy Society (m22)	
Healthy Environment (m31)	
Climate Change (m32)	
Self-esteem(f11)	
Self-actualisation(f12)	
Interpersonal Trust (societal belonging) (f21)	
	Higher share of people speaking foreign language (especially Italian) would help to overcome the language barrier.
Institutional Trust (good governance) (f22)	

Please select your 'plus' (tick up to 3 boxes) and tell us why is a 'plus' (concise statement)	Please select your 'minus' (tick up to 3 boxes) and tell us why is a 'minus' (concise statement)
Ecosystems services and Biodiversity wealth(f31)	
Proximity of the sea and pleasant climate do play important role in the high quality of life in the area.	

Table 10 The "plus" and "minus" of living in the cross-border area (outcome of the Pula focus group)

Please select your 'plus' (tick up to 3 boxes) and tell us why is a 'plus' (concise statement)	Please select your 'minus' (tick up to 3 boxes) and tell us why is a 'minus' (concise statement)
Housing & basic utilities (b11)	
	Due to high demands for accommodation in the summer period, many students are forced to leave the apartments during that period so that owners rent them to tourists. More frequently it is almost impossible to rent a room/ apartment before December due to the prolonged tourist season. Rental prices are high and get even higher in the summer months when the area attracts many tourists.
Healthcare (b12)	
	The health care services are very poor – there are long waiting lists for even regular checks in hospitals, as well as for dentist. As a consequence of flourishing dental tourism, private dentist are prioritising foreign (mainly Italian) patients over the local ones. Accessibility for health care services are also poor especially for people from the northern part of Istria - they are directed to hospitals in Pula or Rijeka. Only basic checks and emergencies are done in cities in the northern part.
Education (b13)	
There is a strong interest in participating in potential future joint cross-border programmes and activities with Slovenian and Italian students such as sport and educational events, workshops etc.	
Transport (b21)	
	Public transport connections with the hinterland of the region are poor. There are no regular bus routes to Slovenia and Italy for half-day or one-day trips. The tolls are too expensive. The waiting time for crossing the border is too long. Lack of safe bike lanes and bike infrastructure in general.
Digital connectivity (b22)	

Please select your 'plus' (tick up to 3 boxes) and tell us why is a 'plus' (concise statement)	Please select your 'minus' (tick up to 3 boxes) and tell us why is a 'minus' (concise statement)
Work opportunities(b23)	
Living in the cross-border area contributes to better opportunities for finding job in the region. However, the focus should be on decreasing economic disparities within the cross-border area so that the population in every part of the area has the equal conditions and opportunities for employment.	All the available work opportunities for students are in restaurants and bars, no job that could contribute to the development of professional skills is available. The majority of work opportunities are related to the tourism and there is an urgent need to diversify the economy. It is very hard to find a permanent job, especially for the young people, since most jobs are related to tourism and limited to the tourist season. Due to same reason, there are very limited work opportunities during the rest of the year (winter time).
Consumption opportunities(b24)	
Public spaces (b25)	
Cultural assets (b26)	
Green infrastructure (b31)	
Protected areas (b32)	
Personal Health (m11)	
Personal Safety (m12)	
People feel safe (in terms of robbery or violence), everywhere even to the point that it is not necessary to lock car doors.	
Inclusive Economy (m21)	
Healthy Society (m22)	
Healthy Environment (m31)	
Proximity of the sea, preserved nature and pleasant climate do play important role in the high quality of life in the area.	
Climate Change (m32)	
Self-esteem(f11)	
Self-actualisation(f12)	
Interpersonal Trust (societal belonging) (f21)	
The family and societal relationships and belonging play very important role in quality of life.	
Institutional Trust (good governance) (f22)	
Ecosystems services and Biodiversity wealth(f31)	

Summing up, **qualitative and quantitative assessments of quality of life can be done in parallel**, by asking people through the survey app to share their opinions on the positive (pluses) and negative (minuses)

aspects, and then using the results to ponder the relevance of the domains in the TQoL dashboard tool, weighting the quantitative indicators.[45]

Finally, two basic ways on how to administer the qualitative survey app have been suggested:

- Use the app simultaneously at one physical or virtual meeting, asking participants to play with the app during the meeting (for instance during a break) or later, for a fixed period (e.g., one week) after the meeting - to let them add photos or refine their statements if they like.
- Use the app individually, with questions sent to people - formerly accredited to ensure the respect of privacy – located in one place/area and for the fixed duration of the survey.

4.2.2 The voice of the experts: online workshop discussion and outcomes

Selected local stakeholders were invited to attend an online workshop on 17 September 2021.

The scope of the workshop was to discuss pathways to cooperate for the implementation of cross-border quality of life indicators and their use in integrated policies. The indicators were listed based on suggestions about quality of life domains and indicators emerged from the interviews, and considering the TQoL framework and dashboard tool as a possible systematic approach to QoL measurement in the cross-border area.

Starting from the TQoL framework and the results of the investigation and interviews undertaken in the first stage of the pilot project, the invited local stakeholders[46] were asked to consider the following questions:

- ✓ ***What are the most relevant aspects to measure for monitoring cross-border quality of life?***
- ✓ ***Which indicators could/should be included in a harmonised list, for each domain?***
- ✓ ***Who could/should be engaged and how to realise a permanent QoL living lab (key actors – research institutes, public bodies, NGOs etc. – opportunities and challenges to be solved)?***

The discussion was framed following a World Café format[47], with the 15 participants divided in smaller groups to discuss the above questions in parallel sessions focusing on different spheres of the Territorial Quality of Life framework, as follows:

- Group 1 – Personal sphere
- Group 2 – Socio-economic sphere
- Group 3 – Ecological sphere

With the help of group moderators, two rounds of discussion have been conducted, offering each participant the opportunity to discuss two spheres of the quality of life framework. The moderators of the three breakout sessions summarised the key messages drawn from both rounds of discussion in the final plenary session.

The outcome of the discussion related to the QoL priorities and suggested indicators – answering the first two questions – are presented in the next three tables 11, 12 and 13 separately for each of the above three spheres. However, it is important to note that all three spheres and sub-domains within the spheres are more or less obviously connected to each other. For instance, in the ecological sphere, the presence of the green infrastructure and protected areas is something that should enable other domains – it contributes to a healthy environment as well as to climate change adaptation and mitigation to a certain extent.

[45] For instance, based on how many times they have been selected to tell plus or minus outcomes, each sub-domain can be multiplied with the number of times the survey respondent ticks the total number of choices for all domains.

[46] Experts of research institutes, statistical offices and planning departments.

[47] The World Café is a method which makes use of an informal setting for participants to explore an issue by discussing it in small groups. The discussion is held in multiple rounds lasting 20-30 minutes, offering relaxed ambiance for open conversations to take place.

Table 11 QoL priorities and suggested indicators for personal sphere

What are the most relevant aspects to measure for monitoring cross-border quality of life? Discussion outcomes:	**Which indicators could/should be included in a harmonised list?** Suggested indicators:
Good Life Enablers	
• Housing and basic utilities ○ Access to apartments (housing): an indicator reflecting % of monthly costs for housing is a good option. ○ What is the influence of tourism on prices of housing, land and living? Here we talk about artificially raised prices. This is very interesting especially for the NUTS 3 regions. Potential indicators would be % of apartments rented to tourists and monitoring of land prices which is done by the national agencies. ○ Differences between generations (needs, capabilities and inequalities in access to first apartment which is especially relevant for Slovenia). Indicators should therefore reflect different age and socio-economic groups' needs.	Share of monthly rent per apartment (one-bedroom) of average monthly net salary (city centre and outside) Average useful floor space (m^2) of occupied dwellings per person Share of population covered by water supply and sewage infrastructure (%)
• Healthcare ○ Monitoring/research on the cross-border access to health services, also in order to monitor healthcare stimulated migrations.	Number of inhabitants per general medical practitioner Number of hospital beds per 100,000 inhabitants Average time / distance to reach the hospital in emergency cases (Availability of health emergency services) Intensive care beds per 100,000 inhabitants Share of patients treated outside the cross-border region Waiver of healthcare services (share of persons declining visits and tests due to long waiting times or other inconveniences)
• Education ○ Educational exchanges at different school levels (student motivated exchanges). ○ Inter-exchange and mobility between universities. ○ Education vs. cultural events, involvement of schools in the territorial cultural life. ○ Enhancement of digital literacy – educational indicator.	Participants in education programmes per 1,000 inhabitants Tertiary education graduates per 1,000 population Number of EU co-funded cross-border projects (cooperation of the universities) Number of students in student exchange programmes between the three cross-border regions
Life Maintenance	
• Personal Health ○ Accessibility to medical services. Number of medical employees in relation to the population and their territorial dispersion. Some hospitals built before the border between Slovenia and Croatia was established (e.g., Izola in Slovenia) have a catchment area that exceed the national borders. ○ Inequalities in health reflect also the behaviour of the population. ○ Inequality of existing sources of pollution and climate change hazards. For instance, living in an area that	Life expectancy at birth Infant mortality (number of deaths in the first year of life per 1,000 births) Mortality from cancer (20-64 years) Mortality from cardiovascular disease

is subject to health risks due to the presence of industries and/or traffic routes that are source of pollution. In addition, the effects on some (yet unaffected) areas due to the consequences of the climate change (e.g., vulnerability to sea level rise). Related indicators would be the types of diagnosis and diseases in population living in exposed areas.	
• Personal Safety ○ Digital safety; potential indicator: number of interventions of cybernetic security. ○ Subjective indicator to measure safety in urban areas (how safe do the residents feel). ○ Traffic safety.	Road accidents mortality rate (15-34) Homicide rate per 100,000 inhabitants Share (%) of 14+ years old persons that feel themselves safe when walking at night
Life Flourishing	
• Self-esteem ○ There were only some ideas that it would be good to measure tolerance and respect, but it is difficult to define how.	Suicide mortality Recipients of medications for mental disorders per 1,000 population
• Self-actualisation ○ Here the general idea was to measure positive indicators rather than negative ones (i.e., share of suicides, etc.). ○ Involvement and inclusion in civil society organisation (this activity is one aspect of self-actualisation, also related to community flourishing). ○ Life satisfaction: beyond subjective surveys it would be interesting to measure shares of private/free time with regard to working hours by means of time surveys and data.	Satisfaction with one's life Leisure time satisfaction Positive/Negative judgment on future prospects Mobility of graduates 25-39 years old (net migration rate of holders of tertiary degree/total net migration)

Table 12 QoL priorities and suggested indicators for socio-economic sphere

What are the most relevant aspects to measure for monitoring cross-border quality of life? Discussion outcomes:	**Which indicators could/should be included in a harmonised list?** Suggested indicators:
Good Life Enablers	
• Transport ○ Very low commute time within the local area, especially when you have to cross the border with Croatia (it will change with Schengen). Improving mobility will contribute to improve also the accessibility to health services and the quality of healthcare for all. This is not only an infrastructural change but also a political and regulatory change. ○ People use car easily, and public transport remains in need of improvement. You need a personal car to live in small villages.	Participation in daily mobility by mode of transport (%) Seats/km offered by local public transport Satisfaction with public mobility services

• Digital connectivity	Internet users (share of over 11 years old persons using internet at least once a week) Internet broadband access (share of families resident in a zone covered by high speed connection: FTTH)
• Work opportunities	Number of enterprises per 1,000 inhabitants Number of self-employed businesses / population of 15-64 years old Percentage of enterprises active in the cultural and creative sectors out of total number of enterprises
• Consumption opportunities ○ Slovenian enquiries have shown that many citizens are used to buy basic goods across the border, but it really depends on the area of analysis. Data evidence shows that there are services very close to the border. Then the analysis is needed to understand how the three countries can complement each other in terms of service to provide citizens living in the whole functional area.	Percentage of families who report great difficulty in reaching three or more basic services (pharmacies, emergency, post office, police station, municipal offices, kindergartens and primary schools, dairy food shops). Number of restaurants and bars per 1,000 inhabitants Surface of retail space / inhabitant (m^2)
• Public spaces	Pedestrian zones (in km^2) Green spaces in urban areas (m^2 per capita)
• Cultural assets ○ Number of multilingual cultural events. ○ Enlarge the cultural exchange e.g., by means of a greater offer of trans-bordering events. ○ Number of joint projects within the entire cross-border area.	Number of multilingual cultural events (e.g., in Croatian/ Italian/ Slovenian languages) Number of cultural associations Number of cultural heritage sites
Life Maintenance	
• Inclusive Economy ○ Slovenia: Net income received by population – it is interesting to measure the influence of the border. There is a direct link with cross-border flows.	Average monthly net salary (after tax) Youth employment rate (15-29) Employment rate (20-64) Low-paid employees (share of employees with hourly wage below 2/3 of median average) Over-educated employees (share of workers that hold an education degree higher than that necessary for the work task) Relationship between the employment rates (25-49) of women with and without children
• Healthy Society	At-risk-of-poverty rate (% of persons) Young people (15–29) not in education, employment or training (NEET)
Life Flourishing	

• Interpersonal Trust (social belonging) ○ Language barriers reduce the opportunity and/or depth of social interactions in the cross-border area, even if people are open to 'others'. ○ Social media interaction to enhance institutional trust by improving communication about public services. ○ How many people are speaking all the cross-border languages? With the teaching of English, people in Slovenia and Istria are losing the use of Italian.	Satisfaction with family relationships (share of 14+ years old persons very satisfied with family relations) Satisfaction with friendships (share of 14+ years old persons very satisfied with friendship relations) Voluntary activities (share of 14+ years old persons doing voluntary work)
• Institutional Trust (good governance) ○ The level of institutional cooperation is insufficient. Improving the exchange and the number of projects in common will improve not only the mutual understanding (in terms of language) but also the governance of the area.	Civic and political participation (share of 14+ years old persons engaged in civic and political participation activity) EU election participation Regional election participation Trust in the judicial system Trust in political parties

Table 13 QoL priorities and suggested indicators for ecological sphere

What are the most relevant aspects to measure for monitoring cross-border quality of life? Discussion outcomes:	**Which indicators could/should be included in a harmonised list?** Suggested indicators:
Good Life Enablers	
• Green Infrastructure (GI) ○ Although GI per se already includes connectivity elements, it is important to emphasise not only the surface of green areas in cities or protected areas outside the cities, but rather to have connected areas, and also ecological connectivity between sea and land (all the three regions share one common border with the sea). ○ Access to green areas should not be generic. Access includes different aspects, we need more specific accessibility indicators (e.g., by target groups).	Share of agricultural and forest land in the hinterland Green areas available per target populations (e.g., m^2 of playground per children)
• Protected areas ○ Connectivity between the protected areas. ○ Share of Natura 2000 areas.	Share of Natura 2000 areas, protected areas and areas of natural value
Life Maintenance	
• Healthy Environment ○ Percentage of tourism enterprises using certification for the environmental sustainability and social responsibility / using recycled water / energy. ○ Number of tourist visitors per 100 inhabitants in order to measure the impact of tourism on the quality of life and mobility. For the latter it would be useful to know the percentage of tourist visitors using different mode of transport to the destination. ○ Number of cross-border cooperation networks created to manage natural resources and areas. ○ Exposure to noise.	Share of population living in urban areas where air quality limit target values are exceeded Satisfaction with the environmental situation

○ Exposure to light pollution – not only in urban but also in suburban and rural areas, because of people's needs of seeing the dark sky over the night. ○ Quality of coastal waters (under the EU Water Directive regulation). ○ Collected municipal waste, and also the waste production of tourist compared to general population. ○ Subjective environmental indicators are also important – such as satisfaction with the environment, in order to complete objective indicators. ○ Air and sea pollution – for instance the cross-border issue of dust pollution coming from ports of Trieste and Koper. ○ Promoting eco/bio-agricultural production and other economic activities in sustainable ways.	
• Climate Change ○ Indicators related to over-heating ('heat islands') and flooding (both river and sea) events due to climate change. ○ Sea level rising, with consequence of sea flooding and erosion – these consequences will be more and more frequent, especially regarding sea flooding; not only related to the potential damages in urban areas but also to the potential loss of natural habitats and protected areas near the sea. We know it will certainly happen but the question is to what extent. ○ Extreme weather events (storms) and natural disasters – we should build up strong civil protection service in cross-border area, maybe combining/uniting rescue services in all three countries. ○ Availability of fresh water in the future: drinking-water supply, agriculture production, wine production, olive groves, tourism etc.	Emissions of CO_2 and other climate-altering gases (balance in the cross-border area) Share of population living in areas at risk of flooding
Life Flourishing	
• Ecosystem services and biodiversity wealth ○ How many pesticides and other chemical substances are used in agricultural production – primarily to monitor soil pollution, but also the harmful impact on biodiversity (bees, birds, etc.) and water quality. ○ Education, for example school programmes to educate children in science and ecology: the children will be the ones to protect the area that they love and spend their life in. ○ It is important to enhance/ promote education of citizens (both children and adults) and increase the knowledge and the value of the local natural capital, as well as increase the sense of responsibility in this respect – for instance by promoting initiatives where citizens take care of the local environment, not only for their present personal health and wellbeing, but also considering the local environment as an asset to be maintained for future generations. ○ Both forests and meadows provide us with a lot of ecosystem services – for walking, recreational services, meditation. Sea grass meadows provide also	Status of environmental bio-indicators (e.g., bees) Results of agricultural ecosystems monitoring (soil contamination) Status of farmland and forest birds population Ecological education indicators: ○ to what extent ecological topics are included in curricula; ○ to what extent children and adults are educated and personally involved in protection of their environment

important ecosystem services (food for other sea species, small barriers for sea-flooding), but may not be well recognised in the cross-border area, which means monitoring should be established.	

Finally, table 14 below, shows the outcomes of the discussion about the ways to implement permanent cross-border quality of life measurement and policy cooperation activities (answering to the third question of the online workshop).

Table 14 Ways to implement a cross-border QoL living lab

Ways to implement a permanent cross-border QoL living lab	**Suggested actions**
• *Who could/should be engaged and how to realise a permanent activity?* ○ National Statistical agencies should be the one to acquire values of the indicators since they are the most competent to do so and have adequate knowledge and resources. These agencies should take care of collecting data and exchanging them, creating a cross-border network. ○ Focus should be to use the existing indicators that are available in the area. ○ Local municipalities. ○ Cultural associations. ○ Local enterprises. ○ Universities, especially Primorska and Trieste, should be also involved, e.g., to develop cross-border citizens' science projects. ○ Improving the exchanges between universities and the number of activities in common – like create university courses in the three languages – will contribute to create a stronger support also for cross-border projects as the TQoL living lab. ○ As for the ecological sphere, universities with study programmes on ecosystem services, nature and environmental protection, ecology experts but also geography experts (in Slovenia) are dealing with protection of environment. ○ Regional agencies for environmental protection. ○ With regard to spatial/green infrastructure connectivity issues, experts in the connectivity area should be involved, but also municipalities and other responsible authorities that have to embed this connectivity issues in their programmes, plans etc. ○ Citizens can have specific needs for accessing green areas, so they should be involved whether they are in smaller or bigger settlements. ○ It is key to ensure that there is a common interest to further develop and maintain the living lab for all agencies and actors involved, perhaps thought a cross-border specific project.	✓ Leadership of the technical work to the National Statistical Institutes (regional offices) ✓ Support of local universities (citizens science projects and spin-off activities) ✓ Creating a cross-border network of actors involved in the TQoL living lab activities on a continuous basis

○ It will be easier to involve the authorities rather than citizens because they already have programmes and plans where similar objectives are addressed.	
• *Opportunities* ○ The TQoL indicators framework should be used for national governments as an important indicator. ○ Potential benefit for monitoring the impact of EU programmes. ○ QoL should be included in evaluations of the EU funded projects, for measuring the impacts of EU funds (national and INTERREG programmes). It could be used therefore in socio-economic analysis of a given area in order to define further priorities for funding. ○ The TQoL framework could be applied within the Alpine convention, to analyse the differences between the urban and rural areas or areas of special characteristics. ○ QoL indicators should focus on the improvement of human and social capital endowments in the territory. ○ Rapid communication, social media and digital applications can support the organisation of cross-board services, events and activities (the City of Trieste social media management experience is a good practice example in this respect). ○ Reduce the complexity by selecting the most relevant domain and indicators. Involve citizens with surveys, focus groups and other activities to investigate future life (aspirations and problems) and the subjective perception of QoL, as well as the freedom of choice of cross-border citizens. ○ Define domain and indicators that are sensible to cross-border flows and peculiarities - namely indicators and data that are able to capture information about what is shaping the cross-border mobility patterns (Why the citizens cross the border? To gather/live which life experience?). ○ Establish a cross-border platform which will deal with these issues, in the long-term, connecting scientists, policy makers, and different experts dealing with spatial planning and cross-border issues. This platform would be useful for sharing and managing the data. In the ecological sphere, it could create the conditions for establishing a cross-border protected area (hence, connectivity of green and protected areas in this region).	✓ Study circles and training of TQoL mentors ✓ Combination of TQoL qualitative surveys and dashboard tool ✓ Social media and digital citizens (netizens) participation
• *Challenges to be solved* ○ There should be one institution that would coordinate data acquired on the national level in the three countries? Is it EUROSTAT? ○ Once we agree on the methodology, could we define targets for QoL? That is where we would like to be and when? In order to do this, the QoL indicators should fulfil the SMART criteria. ○ Data on daily cross-border flow are missing.	✓ Data harmonisation

○ Comparability of data in the cross-border area remains weak. Only with a common set of indicators and data based on the same collecting and calculating procedures it is possible to assess the QoL needs and ambitions across the whole area. ○ Slovenian statistical agency has a lot of data and indicators at NUTS 3 level but it is challenging to have adequate data at a lower level. ○ Identifying the right citizens target group to be involved could be a challenge. They should be selected by age groups and/or the extent to which they are impacted by the quality of life aspects of interest. ○ We can expect to face the challenges due to different needs of individuals in the citizens target group (there can be different needs for accessing the green area, e.g., for disabled people) as well as due to different views on how they see the reality as it is based on their own personal and cultural backgrounds. ○ To have a proper management body since different competences belonging to different institutions in each of the country; differences in the institutional level of responsibilities in each of the country (national, regional, local) and consequently the area they cover. ○ Political willingness and technical capacities to make it a continuous process. ○ Motivation and engagement of e.g., municipality's staff since that is not their 'core business' (it very often depends on the individuals); but also the question is if they have enough human resources that can be allocated to that.	

5 Drawing lessons from the pilot experience

The lessons presented in this Section are put forward for the following three purposes:

- To draw lessons about the most relevant aspects taken into account in measuring quality of life in the pilot cross-border area, that could be generalised to other cross-border areas in Europe as well (section 5.1).
- To indicate ways on how to implement cross-border quality of life measurement and cooperation policies, general enough to be used for other cross-border areas as well (section 5.2).
- Suggesting a strategy for establish a continuous cross-border Quality of Life Living Lab in the pilot area, engaging Italian, Slovenian and Croatian actors (section 5.3).

5.1 'What' are the most relevant aspects to take into account in measuring quality of life in cross-border areas?

The most relevant aspects for measuring quality of life are directly related to the 'five freedoms' of living in a place mentioned in Section 4 above. These could be measured as 'greater freedom' in cross-border areas:

- *To satisfy personal life needs and wants:* Living near permeable national borders can increase the range of consumption opportunities for the people on both sides of the border, although not in a symmetrical way. When there are significant differences in the average net salaries and local purchasing power of people in the border regions, these have an impact on consumption choices of the people. Different national tax systems can also exacerbate or reduce this impact. The issue was and is still today particularly relevant for the cross-border region of Italy-Slovenia-Croatia: in the past the Italian-Yugoslavian border was crossed by Italians to buy petrol, food products (meat) and leisure services (e.g., casinos), while in the other direction people went to Italy to shop quality goods (e.g., clothes and fashion products). Nowadays crossing the border for such purposes is still the case especially due to average net salaries differences and high cost of living in Trieste compared to Koper in Slovenia and Pula in Croatia, as it is extensively shown in Appendix 5 using the NUMBEO data source.[48] The reverse applies to housing costs, with apartment rent and purchase prices in Trieste lower than in Koper (see Appendix 5). This influences the household and business location choices to such an extent that the housing costs factor is not cancelled out by factors constraining cross-border location mobility (e.g., different tax regulations and social integration).
- *To move thanks to integrated cross-border mobility infrastructures and services:* When the administrative controls at the national borders are removed – as it happened between Slovenia and Italy, and it will happen soon between Slovenia and Croatia when the latter enters the Schengen area – people immediately benefit from reduced time delays to cross the border. Rail and bus services, and other forms of mobility services (e.g., car sharing) are not adequately integrated across the border, making traveling around without a car less convenient. There is a need for coordinated actions in establishing cross-border public transport services, to improve the accessibility to health-care services, education, daily and weekly commuters etc. This should satisfy not only the residents' demand, but also contribute to tourism development and accessibility to numerous attractions within the cross-border area.
- *To enjoy more personal health and fear less safety threats*: All EU citizens share the same European Health Insurance Card, so potentially the health systems in these three countries could be better coordinated to provide a wider range of health-care and emergency options for all the people living in the cross-border area, independently from the country they live. In case of specialised treatments, integrating the systems could also help to achieve a greater efficiency, enlarging the catchment area of potential

[48] The situation constantly evolves with the development of the national economies, and changes are expected especially for Croatia when it will enter in the Schengen area and adopt the Euro currency as Slovenia did already.

users (a case in point is the hospital of Izola, near the border with both Italy and Croatia). Engaging actions of civil society organisations to assist the more vulnerable groups (e.g., care for elderly, women victims of domestic violence) could help to increase the protection of different categories of citizens in the cross-border area.

- *To achieve own personal development and flourishing*: Since the first steps of the territorial quality of life framework design, it was decided to measure the factors of cohesion and quality of life for citizens, without focusing on competitiveness.[49] However, this somehow shadowed the role of innovation to foster local development, which remains a pre-requisite to achieve a better quality of living in a territory, providing a wider range of opportunities for work and personal development. This choice should be revised while applying the framework to the cross-border area (and in general also to other territories in Europe) considering that forms of territorial innovation – in the agricultural, manufacturing and services sectors – in addition to increasing specialisation and competitiveness on the market are also essential aspects for a better quality of life in the area. A better integration of cross-border value chains in local development sectors – e.g., eco-tourism, local food production, creative and cultural activities – and coordinated active labour policies and regulations (e.g. similar labour contracts) in the cross-border area would help from the supply side, eventually providing a wider range of work opportunities especially for the young. On the demand side, greater economies of scale can be achieved by integrating local markets across the borders, for instance amplifying the demand for cross-border cultural events and festivals, etc. Finally, more personal and self-actualisation opportunities could emerge from integrating formal/informal education and research activities, increasing for instance the number of exchanges and cooperation activities engaging together the institutions present in the three regions (universities, regional training centres and research institutes) to deliver common projects with a cross-border scope.
- *To enhance identity and civic participation*: A better coexistence of different identities and cultures could be ensured by increasing multi-lingual training programmes and cross-border civil participation activities and dialogues. Language skills are key to enable people interact and share experiences, values and knowledge. The EU aims to reinforce language training by increasing the share of European citizens speaking three languages – their mother tongue, coupled with an internationally used *lingua franca* (usually English) and a third language. In the cross-border regions the 'third' language should be that of the bordering region, so for instance Slovenian for Italians and *vice versa* (as a matter of fact more Slovenians speak Italian than the contrary). Multilingualism is in many ways already present in the cross-border area (the minorities in all three countries have the kindergartens and schools in their own languages, bilingual signs and tables etc.). However, it would be desirable also to introduce the learning of the bordering region's language at all school levels and for all pupils and to increase multilingual university programmes. For instance, as an example the University of Bozen in the Italian border region Trentino Alto Adige delivers tri-lingual programmes: in Italian, English and German. The other suggestion which could be realised in the short term, is to enhance short-distance exchange school and university programmes between Slovenia, Italy and Croatia.
- *To live in a healthy and flourishing environment*: More sustainable use of environmental resources and services could be better achieved if these are managed as 'commons' in the cross-border area. Indeed, climate change and environmental pollution do not respect 'borders'. Another element that should not be severed by borders is the biodiversity and ecological connectivity of natural areas. Moreover, one important environmental common for the Trieste, Koper-Karst and Istria cross-border area is the sea, but marine resources are usually regulated under different and even conflicting national regulations. In addition, the northern Adriatic and the gulf of Trieste is heavily burdened by maritime traffic, which is constantly increasing. There is now a pressing need for a common approach to sea rise level

[49] The ambition was to produce a TQoL measurement system complementary to the measurement of GDP and other factors of local productivity.

vulnerability challenges, and a common approach across the three countries should be promoted for the quality of coastal waters, coastal tourism and water mobility services.

5.2 'How' to implement cross-border quality of life measurement and cooperation policies?

- *Data harmonisation is key*. Proposing a list of harmonised indicators for the measurement of quality of life in the cross-border area is useful for policy purposes. That would trigger the interest of policy makers, citizens, statistical agencies and experts towards the matter. In practice, a harmonised list of indicators could work only if data sources, procedures used to compute those indicators and frequency of measurement are the same across the three countries, as well if measurement and monitoring is considered as long-term activity. This means that – instead of collecting and just placing side by side for each QoL domain, similar indicators computed by the three different national statistical agencies, whose definition or data sources are not the same – the only robust approach would require to identify jointly the metadata set necessary for having comparable indicators across the border.[50] Moreover, it would allow to monitor trends of the quality of life. The only institutions with the competence and technical capability for doing this work are indeed the national or regional statistical agencies or offices in Trieste, the Coastal–Karst region and Istria.
- *Study circles as a way to concretely structure continuous cross-border QoL living lab activities.* In the study circles, small groups of citizens are engaged in a long-life learning setting and programme of meetings usually lasting over some months (they could meet several times). Personal training objectives are harmonised with those of the group focusing on the topic of common interest (namely local development, or in our case territorial quality of life). A facilitator – the study circle 'mentor' – moderates the discussion, manages the dialogue and the dissemination of the outcomes to a wider audience. This approach is therefore particularly pertinent and has been suggested as a way to guide the implementation of future **citizen-centric Territorial Quality of Life living lab projects**, in the Trieste Coastal–Karst Istria region. The same approach could now be replicated in other cross-border territories or regions in Europe, to improve INTERREG programmes' governance. Moreover, this model of participation could be inserted in a coherent manner within the next programming cycle of the EU cohesion policy, which aims to promote sustainable and competitive territorial development, with particular regard to the policy objective 5 - "A Europe closer to citizens", integrating the various social, economic, environmental and cultural components.
- *Citizens participation on digital platforms*: Broadly speaking, there are two important functions that social media can perform effectively: 1) collecting, communicating and disseminating information in an understandable way for the entire population, informing clearly and at the same time in a complete and reliable way, events affecting citizens life within the whole cross-border area; 2) another function, more complex but no less important and urgent, would be to build up a sort of 'digital civic education', targeting different segments of the population with *ad hoc* participation processes related to several quality of life aspects in the cross-border area. In this case it is necessary to reach different categories of users in relation to the different themes for participation to be effective. One common thread for linking different citizen engagement events would be introducing outcome indicators for measuring the quality of life for the whole cross-border area, asking participants included in online focus groups to say which are the key quality of life priorities, discuss the existing indicators and results, and provide suggestions about what should be further monitored and implemented to improve their quality of life.[51]
- *Combination of TQoL qualitative surveys and dashboard tools*. The results of qualitative surveys undertaken with the help of the TQoL app can be used to weigh the relevance of the different quality of life domains and sub-domains, based on the answers collected in the surveys indicating which are the

[50] In principle, this should be already done for statistical data subject to harmonised EUROSTAT regulations about data definitions – as for instance in the field of demographic and trade statistics – but efforts are required for local quality of life indicators that are not included in EUROSTAT surveys or other Europe-wide territorial datasets.

[51] The Outcome Based Accounting (OBA) approach was suggested in the ESPON QoL Final Report to support this activity.

crucial areas to monitor – either because they are the best or the worst aspects of quality of life as perceived by the respondents. The recurrence (frequency) of qualitative survey answers for the TQoL framework domains can be used as an indirect indicator of popularity and used to weigh the domains when calculating composite QoL indices in the dashboard tool. In this way qualitative aspects that could not be captured well by using only quantitative indicators are considered as well.

- *Digital contests can be useful to raise citizens' awareness on territorial quality of life issues*. The digital contest experiment – despite not reaching the participation stretch-goals established in the pre-launch phase – proved to be a valuable learning experience for future awareness raising practices that could implement digital photo contests at a larger scale. For future initiatives, the following strategies are suggested:
    - Direct outreach can be optimised by directly travelling to key locations and spending time approaching participants in person. This would build a better connection and visibility to the citizen's community and provide deeper understanding of the scope of the contest. That will also result in a faster and more focused effort.
    - An ambassador system for future contests can ensure getting proper representation right where participants are. This can be done through a referral system – citizens can invite other citizens – by collaborating with local influencers or establishing on very early stages a formal partnership with prominent institutions, like universities and municipalities.
    - Media partnerships and advertisements can be placed on local newspapers and platforms. Also, use familiar mediums: like social media, so participants find themselves operating in familiar environment.
    - Use of familiar formats: there are currently multiple diffuse practices of digital contents adopted by corporations, institutions and online influencers for promotional reasons. By mimicking their wording and procedures we might provide a format that is already known and familiar to most participants.
    - Make the topic resonate: simpler and more straightforward requests might trigger a sense of easiness and more motivation in potential participants. In the case of a photo contest, a widely interpretable theme like 'cross-border city' might sound discouraging or abstract, while 'your trip across the border' could be more palatable. Anyhow, a too simplistic theme might backfire and produce low-quality inputs, so a careful balance is advised.
    - The contest could become a sort of preliminary activity to more traditional workshops and participation procedures. Participants could first prepare visual material, and then be selected to discuss further and elaborate in an interview or workshop.
    - The results of the contest can become an engagement tool by itself through exhibitions, live events and roundtables, having others to comment and discuss the images collected.

5.3 A strategy to implement a continuous cross-border QoL living lab in the pilot area

A guiding idea suggested as a practical conclusion of the main ESPON QoL project was to invite all relevant actors in a given territorial context to contribute to a continuous **Territorial Quality of Life living lab activity**, using the TQoL 'citizen-centric approach' and dashboard tool.[52]

Following this approach, experts and citizens are engaged by TQoL living lab managers – i.e., any organisation taking the lead in a local context – in a systematic co-creation approach integrating research and policy innovation in one flow of activities. The lab activity can focus on territorial policy agendas, aiming to identify the measurement priorities – and select, rank and monitor related indicators – that match the citizens' needs and quality of life improvement desires.

The approach is illustrated in the figure below:

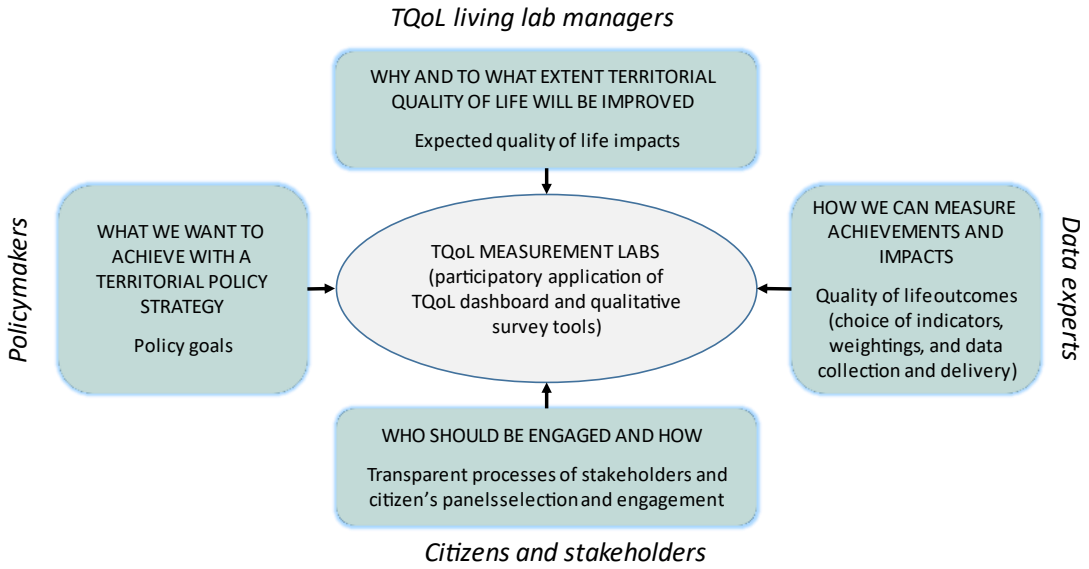


Figure 6 Territorial Quality of Life Living Labs infrastructure

The following are the key questions that should be addressed by the TQoL living lab:

- **What we want to achieve with a territorial policy programme/policy**?
  - To identify spatial integration and development strategies and cross-border policies, programmes or projects with a relevant potential impact on citizens' quality of life, by means of desk research and interviews to policy makers, civil servants.
- **Why and to what extent territorial quality of life will be improved**?
  - To analyse and describe the expected impacts for the different spheres (personal, socio-economic, ecological) and domains of the territorial quality of life framework, as well as to identify the local actors (stakeholders and citizens) that are most affected in the different domains, and to engage them in the assessment of QoL impacts and co-design of monitoring indicators.

[52] The idea is partially inspired by the Outcome-Based Accountability (OBA) framework, which introduces outcome indicators for measuring the quality of life for the whole population living in or visiting a territory. The measurement is referred to the whole population, so from the citizens' everyday life perspective, not only that of the users of a certain service or facility.

- **How can we measure achievement and impacts**?
    - Based on the TQoL conceptual framework and dashboard tool developed by ESPON, identify the measurement priorities and feasibility of cross-border data collection plans to monitor quality of life in the cross-border areas on a continuous basis.
- **Who should be engaged and how**?
    - The list of stakeholders should be compiled and groups of citizens willing to participate in the pilot activities (e.g., workshops, contests, questionnaires) should be identified.

The following are the key categories of actors that should be involved in the TQoL living lab and their role:

- **Citizens** to help identifying the needs, priorities and objectives of quality of life. Questions for the citizens may include: What is quality of life for you personally? What are the best and worst aspects of living in the area? What would contribute to a better quality of life in your region? What is the most important challenge to solve and how do you suggest it should be measured to achieve a better future?
- **Experts/statisticians** to identify the data and indicators that should be measured to gauge the TQoL objectives. Questions for the experts may include: Which data is available? Is it feasible to collect date to measure different aspects of the quality of life in the area?
- **Territorial policy makers** in charge of delivering policies with relevant impact on the quality of life of the citizens. Questions for the policy makers may include: Considering the existing policies, how could they contribute in improving the quality of life in this specific region, and for which aspects? Are there QoL aspects that are not sufficiently considered? What could be done to better coordinate policies and actions at different levels and to include QoL in planning instruments on the ground and in the policy cycle?

Finally, the following are the potential benefits of being engaged in the living lab:

- **Citizens** have the opportunity to influence and focus the selection of policy priorities and objectives on their quality of life needs.
- **Statisticians** will benefit from knowing better citizens' perceptions, values and expectations in order to advance quality of life data collection and production.
- **Territorial planners** will be able to develop a more coherent planning of public space, land uses, mobility, and access to basic services using quality of life targets and indicators that have been discussed, agreed and partly suggested by citizens.
- **Policy makers** will have the opportunity to engage in a dialogue with the citizens and learn about the quality of life expectations better than they could have using only (passive) quality of life polls. This will enable monitoring implementation of the various policies and also support their coordination and alignment to the needs of the citizens.

As for the pilot cross-border area of Slovenia, Croatia and Italy which includes the Coastal–Karst, Istria and Trieste regions, and is based on the results of the pilot activities, we suggest to initially trigger a continuous cross-border QoL Living lab by establishing an informal body consisting of the most interested stakeholders, based on a voluntary approach that can evolve later in a cross-border EGTC institution. In this respect, the forthcoming EGTC mentioned in Section 2.3 between municipalities in Italy, Slovenia and Croatia could become the coordinator.

The following figure shows the example of partners that could be the backbone of a cross-border network for implementing the QoL living lab activities, involving initially Italian and Slovenian counterparts since in those countries the QoL data are more mature and cross-border cooperation practices better established.

The partners have been identified based on the information acquired through the interviews and other pilot research activities.[53]

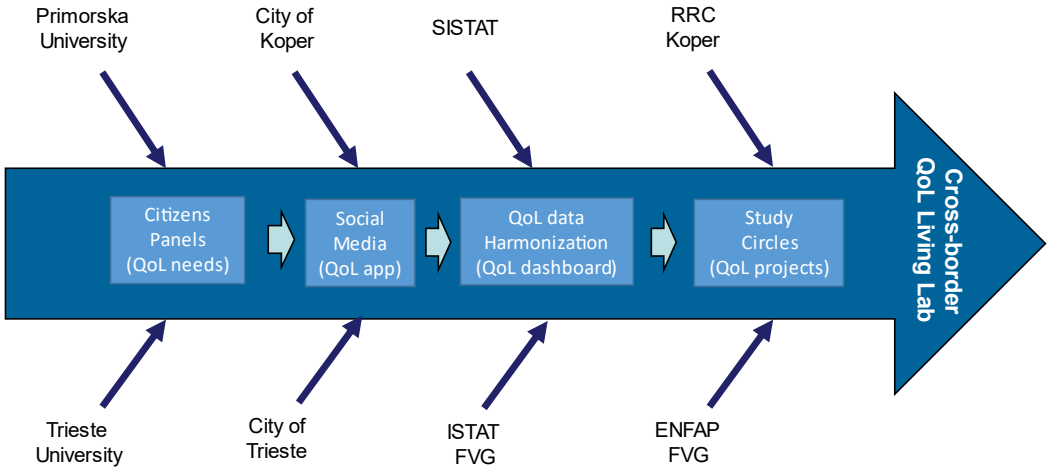


Figure 7 Backbone cross-border QoL living lab network

For Italy and Slovenia, cooperation could be established between specific partners as follows:

- The two universities of Trieste and Primorska could promote and support cross-border citizens' science projects, involving **panels of citizens** to evaluate quality of life needs on a more continuous basis.
- The City of Trieste currently holds and manages a successful social media platform. This good practice could be extended to the cross-border area, engaging the City of Koper as counterpart in Slovenia, to organise digital citizens (netizens) participation in future TQoL living lab activities. This cross-border social media channel could help to disseminate the **qualitative survey app** to produce instantaneous polls on topics relating to cross-border quality of life.
- The national statistical offices in Italy (ISTAT) and Slovenia (SI-STAT) – and in particular the regional offices in Trieste – could design a harmonised QoL data set and a survey to feed the list of cross-border indicators suggested as a result of our pilot project with robust and comparable data, e.g., on a yearly basis. This would enable the systematic application of the **dashboard tool** to monitor the quality of life in the cross-border area.
- Finally, the main partner of the Italy-Slovenia study circles project (ENFAP FVG) could work again together with the Regional Development Agency of Koper (RRC Koper) to apply the same participatory approach – which was used to address local development cases in the study circles project – to the implementation of cross-border cases of **integrated QoL policies** (e.g., for health services, environmental commons, local innovation chains etc.).

As noted, this networking approach should be extended to the entire pilot area – including also partners from Croatia. Potentially interested stakeholders from Croatia include:

[53] This scheme is only indicative, it will be enriched by adding partners from Croatia as well. Indeed, since the QoL measurement in Croatia is not established yet in a structured way and limited participation of stakeholders from Croatia due to very short time available within the timeframe of this pilot activity that also coincided with the summer tourist season and the preparation and implementation of Census 2021, we suggest to approach and possibly also interview the representatives of municipalities and cities (especially those in border area), universities, regional offices and statistical body in order to check their interest and availability to join this informal body as interested stakeholders.

- Bordering Municipalities and Cities: Umag-Umago, Buje-Bue, Buzet, Grožnjan-Grisignana, Oprtalj-Portole and Lanišće
- Other Municipalities and Cities: Labin, Novigrad-Cittanova, Pazin, Poreč-Parenzo, Pula-Pola, Rovinj-Rovigno, Vodnjan-Dignano, Bale-Valle, Barban, Brtonigla-Verteneglio, Cerovlje, Fažana-Fasana, Funtana, Gračišće, Kanfanar, Karojba, Kaštelir-Labinci - Castellier-Santa Domenica, Kršan, Ližnjan-Lisignano, Lupoglav, Marčana, Medulin, Motovun-Montona, Pićan, Raša, Sveti Lovreč, Sveta Nedelja, Sveti Petar u Šumi, Svetvinčenat, Tar-Vabriga, Tinjan, Višnjan-Visignano, Vižinada-Visinada, Vrsar-Orsera i Žminj.
- Universities of Pula and Rijeka
- Regional agencies: Public Institution, 'Regional Coordinator of the County of Istria for European programmes and funds'
- Croatian Bureau of Statistics Regional Office, Branch Unit for Statistics Rijeka, Sub-unit Pula.

The public bodies which will express their interest should then be included in the activities of the Living Lab according to their field and competences. The ESPON Contact point from Croatia, the Ministry of Physical Planning, Construction and State Assets fully supports this approach and could provide support to them in the process.

6 Policy conclusions

In this final Section policy conclusions are drawn answering to the spin-off project research questions mentioned in the introduction of the report (Section 1.2).

The first three questions related to what recommendations can be provided for the measurement of TQoL in the cross-border region Slovenia-Croatia-Italy (question 1), how TQoL can be integrated and monitored in spatial planning instruments and policies in this cross-border region (question 2), and how to develop and implement in practice a TQoL living lab in the cross-border region, involving citizens and community initiatives, younger generations, as well as different public actors and levels of governance (question 3).

These research questions are addressed in Section 6.1, in order to provide practical recommendations on how to implement the TQoL methodology and living lab activities in the cross-border region.

The remaining two questions related to how the prototype TQoL living lab could be further developed and adopted in policy implementation (question 4), and provide inspiration for the implementation of a citizen's centric approach in the PAs of the TA2030 and other policy implementation process across Europe (question 5).

Question 4 is addressed in section 6.2, providing strategic recommendations to turn the TQoL measurement and living lab approach into a research mission to support EU cohesion policy making.

Finally, question 5 is addressed in section 6.3, suggesting the EU policy areas and ongoing initiatives that could take inspiration from the ESPON TQoL approach to focus policy objectives and implementation on a place-based understanding of quality of life in all its complexity.

6.1 Practical recommendations to implement the TQoL methodology and living lab activities in the cross-border region

A 'Territorial Quality of Life Living Lab' builds a policy innovation milieu where experts from competent and trusted institutions (departments of national, regional and local governments, statistical agencies, universities, business associations, civil society organisations and NGOs) work together with citizens (small groups of self-selected active citizens or randomly selected citizens juries). In cooperation, through co-creation and lateral thinking they jointly define quality of life.

But how can this be implemented in practice in the cross-border region?

The following are some practical recommendations, stemming from the pilot experience illustrated in the previous chapters:

- Establish a **cross-border Territorial Quality of Life living lab** articulated in three national cells in Slovenia, Croatia and Italy, plus a coordination mechanism to let the three cells meet systematically and discuss common objectives and the harmonisation of relevant tasks.
- This TQoL Living Lab **should be created with a cooperation agreement** between key actors in the cross-border region, including:
    - National statistical offices, through their regional offices, as they can contribute to produce harmonised statistical information.
    - Bordering (and often twinned) municipalities and cities, usually in charge of providing services and implement policies at local level strongly related with QoL.
    - Regional development agencies in the area, usually in charge of monitoring key socio-economic data and coordinating development.
    - Other relevant public or private operators, e.g. main public transport and healthcare services providers.

- Main universities in the area (Primorska, Pula, Trieste), as they have big potential for contributing in QoL related research activities (i.e. set up local “citizens science” projects and/or cross-border education exchange programmes).

In practice, such cooperation agreement could be formalised as a task for a **European Grouping for Territorial Cooperation** – an already existing or a new one - with the purpose of implementing the TQoL living lab activities.

- The TQoL living lab activities should be coordinated by a **taskforce of experts** from the participating institutions, in charge of:
  - Taking stock of the QoL measurement priorities and related indicators for the cross-border area that emerged from the pilot living lab focus groups and stakeholders workshop discussions – as reported in the previous sections of the report – to define the TQoL priorities, including: public transport (better services will help to reduce car dependency of daily commuting travel and also reduce traffic congestion in attractive coastal destinations during the high season), access to health care services, affordable housing, consumption and work opportunities, education (exchange programmes) and cultural activities, green areas and their cross-border connectivity, ecological services, protection against climate change impacts.
  - Designing and implementation of harmonised data collection procedures (e.g. new harmonised surveys) and the computation of comparable TQoL indicators. A first set of indicators that should be harmonised and used to monitor QoL in the cross-border region has been discussed in the pilot project, and is presented in Section 4 (Table 11).
  - Designing and implementation of citizens engagement activities (online and face-to-face) in QoL measurement and policy design and evaluation.
- The operational activities of the TQoL living lab should be performed by a **management unit**, including one appointed **TQoL lab coordinator**, in charge of project management tasks, and one **TQoL lab mentor**, in charge of facilitating citizens and stakeholders’ engagement activities. These management profiles could be conflated in one person or outsourced to a specialised company. The ESPON national contact point in each member country could play a role of overall coordination and support of these TQoL management units.
- The TQoL lab management unit should have access to the necessary **financial resources** (e.g. funding from an INTERREG project), **knowledge resources** (in particular the access to the ESPON TQoL dashboard tool and the qualitative survey app), **institutional in kind resources** (e.g. premises for citizens gatherings) and **media channels for dissemination** (e.g. city social media platforms).
- The TQoL lab activities should be of two main kinds:
  - **Ordinary flow of QoL monitoring activities** and periodic (e.g. yearly) publication of cross-border QoL reports and informing main stakeholders (municipalities, regional development agencies, statistical offices and competent authorities and stakeholders) with results.
  - ***Ad hoc* QoL investigations and projects**, for instance related to specific QoL spheres (personal well-being, social or ecological sphere) or even single TQoL domains (e.g., the quality of healthcare in the cross-border area).
- All TQoL activities – ordinary and *ad hoc* – **should ensure active and visible engagement of citizens and concerned stakeholders**. Citizens’ and stakeholders’ engagement in the ordinary TQoL monitoring activities could be activated by organising **annual citizens and stakeholders conferences** where TQoL measurement programmes and indicators are discussed and updated to take into account the evolving needs of the population. During these there will be the opportunity to test with the citizens their perceptions of quality of life and discuss the QoL policy priorities. Different target groups of citizens should be engaged in *ad hoc* QoL investigations, depending on their purpose, by organising **citizens’ focus groups and QoL surveys** using the TQoL app,

- **Citizens' engagement should always be scientifically and ethically sound**. This means to ensure a careful and unbiased recruitment of well-balanced citizens groups (by sex, age, research fields and other specific categories depending on the QoL analysis and policy targets) in focus groups activities and citizens conferences, to provide them with adequate and transparent information, to moderate discussions and deliberations with fair rules and the help of good moderators, to evaluate the satisfaction of the citizens with the engagement process and – last but not the least – to ensure that the conclusions of the citizens are considered and somehow fairly processed in the QoL policy making process. In practice, a sound citizens' engagement approach of this kind should be ensured by the above mentioned TQoL mentor profile – i.e. a specialised moderator expert or team.
- In the longer term, **the TQoL living lab should develop its own digital platform and social media channel** – for instance following the experience of the City of Trieste – to enhance its visibility and the participation of the citizens in the cross-border area. This could be achieved by establishing an operational unit properly maintained and managed[54], in charge of disseminating systematically information on quality of life problems and achievements in the area, administering quality of life surveys (using the TQoL app) and other activities online (e.g. online focus groups), answering to citizens' requests related to cross-border services, etc. – contributing in this way to raise citizens awareness of cross-border quality of life issues and their trust in the TQoL lab activities.
- **TQoL conceptual map**, with the identification of 22 sub-domains covering the personal, socio-economic and ecological spheres, providing a universal framework for measuring quality of life. It can be used across different territorial levels in the three nations – Slovenia, Croatia, Italy – to coordinate sectoral policies and actions at different spatial planning levels – local, regional, national – by sharing a same framework of indicators across the three countries as a benchmark to assess the impact of planned measures and interventions on the citizens' quality of life.

6.2 How the prototype TQoL living lab could be further developed and adopted in policy implementation on TQoL measurement?

The prototype TQoL living lab activities experimented in the cross-border Slovenia-Croatia-Italy region – and the practical recommendations to implement permanent TQoL lab activities presented in Section 1 – can be applied to other cross-border areas or, even more broadly, to other typologies of territories in Europe.

Indeed, the TQoL living lab is an example of **territorial governance approach linking the actors of a functional area** by means of a cooperation mechanism – and we have suggested the European Grouping of Territorial Coordination as a natural instrument to consider of in the context of INTERREG cooperation programmes. This cooperation mechanism should connect all the institutions, acting at different territorial scales (local, regional and national level), that are relevant to implement place-based quality of life policies in a region. The TQoL measurement task, the conceptual framework of TQoL domains, the dashboard tool and qualitative survey app, the citizens-centric approach demonstrated in our pilot project activities are all elements that can be in principle replicated in any territorial context.

Consider the metaphor of living organism and ecosystems: if life is naturally the result of a network of cells and organisms working together for the whole organism to sustain and flourish – and the same can be said for the cooperation of different species in an ecosystem – so territorial quality of life is the result of a network linking different agents in a functional area by means of a territorial governance mechanism (the metabolism) controlled by a brain and nervous system (the TQoL measurement approach).

Stated in this way it may seem too abstract, but the model could work and be implemented step by step starting with the common management of specific quality of life aspects, for instance mobility (where TQoL lab activity outcomes could help to introduce, for instance, an integrated public transport ticket and coordinated schedules), environment protection, cultural activities, etc. that are the most urgent and relevant to consider in a certain territory.

[54] It could be a task delegated to one partner of the European Grouping of Territorial Cooperation – for instance a National Statistical Office.

There are several examples of formalised coordination mechanisms in different countries of Europe.[55] In this respect, Territorial Quality of Life living labs could be introduced as a new family of territorial governance mechanisms in Europe, using the territorial coordination forms enabled by different national legislations in the EU Member States. For cross-border regions, as mentioned, transnational TQoL living labs could be formalised by setting up European Groupings for Territorial Coordination, eventually contributing to improve INTERREG programmes governance.

The TQoL living labs could be inserted as model of participation within the next programming cycle of the EU cohesion policy, to promote sustainable and competitive territorial development with particular regard to the policy objective 5 - "A Europe closer to citizens", integrating the various social, economic, environmental and cultural components.

But how this can be done in practice?

The TQoL living lab approach aims to establish an innovative policy practice in Europe, so one practical recommendation for scaling up to a Europe-wide diffusion is to **turn it into an EU research 'mission' for enhancing quality of life policy making across Europe**.

EU Missions are a novelty of the Horizon Europe research and innovation programme for the years 2021-2027.[56] They are a new way to bring concrete solutions to some of the greatest economic, societal and environmental challenges. They have ambitious goals and will deliver concrete results by 2030.

EU Missions are a coordinated effort by the Commission to pool the necessary resources in terms of funding programmes, policies and regulations, as well as other activities. They also aim to mobilise and activate public and private actors, such as EU Member States, regional and local authorities, research institutes, entrepreneurs and investors to create real and lasting impact. Missions will engage with citizens to boost societal uptake of new solutions and approaches.

All EU missions will have to share some key features:

- be bold, inspirational and widely relevant to society
- be clearly framed: targeted, measurable and time-bound
- establish impact-driven but realistic goals
- mobilise resources on EU, national and local levels
- link activities across different disciplines and different types of research and innovation
- make it easier for citizens to understand the value of investments in research and innovation

They aim to bring tangible benefits to people in Europe and engage Europeans in their design, implementation and monitoring. In practice, following these criteria, each mission will operate as a portfolio of actions – such as research projects, policy measures or even legislative initiatives – to achieve a measurable goal that could not be achieved through individual actions.

[55] For instance the "GALs" (Gruppi di Azione Locale) in Italy are a form of networking adopted in Italy, to connect different public bodies and private stakeholders to coordinate interventions in rural areas.

[56] https://ec.europa.eu/info/research-and-innovation/funding/funding-opportunities/funding-programmes-and-open-calls/horizon-europe/missions-horizon-europe_en

Existing[57] and possible new EU missions will support European Commission priorities, such as – to mention an example of priority aiming to improve the quality of living environment in Europe – the New European Bauhaus initiative.[58]

A new EU mission could support the implementation of Territorial Quality of Life living labs, coordinating research, policy actions and legislative agendas aiming to enhance territorial quality of life in Europe.

This new EU mission should:

- Fund TQoL living lab projects that follow the approach presented in Section 5.3, engaging experts, statistical and government agencies, citizens in the measurement and evaluation of territorial quality of life policies.
- Provide measurable outcomes, using the TQoL framework as a shared yardstick to monitor quality of life impacts in the territories of Europe.
- Be jointly managed by DG Research and Innovation, DG Regio and ESPON managers, to coordinate the funding programmes and the access to other resources – for instance the ESPON database that could work as common repository of TQoL studies and reports and made available open-source tools (e.g. the TQoL dashboard tool and qualitative survey app)
- Support EU cohesion priorities and a wide range of territorial policy agendas and initiatives, as those mentioned in the next section.

6.3 Which inspiration can the TQoL living labs provide to the implementation of a citizen-centric approach in the PAs of the TA2030 and other policy implementation processes?

Policies aiming at improving people's quality of life need to better understand what is important to people. A citizen-centred and place-based approach defining and measuring quality of life is necessary to understand people's needs, values and expectations and what/how policies can deliver it.

The ESPON approach to Quality offers great potential to:

- design and implement policies reflecting a place-based understanding of quality of life;
- make public policies accountable in terms of delivering on the dimensions that are important to citizens in a particular place and time; and
- reduce the subjective impression of people and their places being 'left behind' and thus to address the 'geography of discontent'.

'Territorial Quality of Life Living Labs' are great tools to move policy thinking 'beyond GDP', economic output and living standards. They allow to focus policy making on a place-based understanding of quality of life in all its complexity.

'Territorial Quality of Life Living Labs' help to operationalise abstract policy objectives through reflecting place-specific perceptions of quality of life. They can help better understand how people see:

- 'a future for all places and people' (Territorial Agenda 2030), and 'the transformative power of cities for a common good' (New Leipzig Charter),
- 'cohesion as economic, social and territorial preconditions for people's well-being' (EU Cohesion Policy), 'a vibrant tapestry of life and landscapes' (Long-term vision for the EU's rural areas),

[57] There are 5 EU missions currently running: Adaptation to climate change; beating cancer; restore our ocean and waters; 100 climate-neutral and smart cities; a soil deal.

[58] https://europa.eu/new-european-bauhaus/index_en

- quality of life in specific spatial setting in urban as well in rural area (Slovenian national spatial development Strategy),
- ‘quality of life for all’ (the Development Strategy of Slovenia), or
- other policy objectives.

Overall, ‘Territorial Quality of Life Living Labs’ can be a tool for policy initiatives that aim at place-based and citizen-centric improvements of people’s quality of life and future perspectives. In more concrete terms, the pilot actions under the Territorial Agenda 2030 could make use of ‘Territorial Quality of Life Living Labs’ to understand …

- … quality of life in the context of a cross-border vision for the transition to a zero-carbon functional region. ‘Territorial Quality of Life Living Labs’ might help to understand which quality of life aspects are essential to keep in mind for ensuring that people embrace and support the transition.
- … what quality of life features are most valued by people living in small places or lagging regions, and what motivates especially younger people to stay there. ‘Territorial Quality of Life Living Labs’ might help to formulate citizen-centric and place-specific answers on how a quality of life perspective can help the transformation of lagging regions and small places.
- … how integrated approaches for vulnerable and declining rural areas could look like, bringing together the relevant thematic spheres and conceptual dimensions. ‘Territorial Quality of Life Living Labs’ could bring different societal groups – e.g. those still living there with the leavers and new incomers – to identify their perceived quality of life. A rolling approach can help to monitor the factors that enable good quality of life and reverse the population decline.
- … how citizens envisage the future of towns in the climate vulnerable Alpine region. ‘Territorial Quality of Life Living Labs’ can help to identify the relevant ‘good life enablers’ in this area and provide a platform for the development of bottom-up actions.
- … how a wide range of policies affect local and regional development. The conceptual framework for quality of life put forward by ESPON can serve supporting territorial impact assessments by understanding how the interplay of various policies affects a certain place. ‘Territorial Quality of Life Living Labs’ as rolling approaches can help to assess and monitor different types of impacts – e.g. based on citizen data – and how this improves the perceived quality of life.

In a similar way ‘Territorial Quality of Life Living Labs’ can be used to flagship initiatives of the EU Rural Action Plan, thematic partnerships and action plans under the Urban Agenda for the EU, flagship projects of EU macro-regional strategies, as well as other policy initiatives.

References

Bogataj N., Del Gobbo G., eds. (2015), Lifelong learning devices for sustainable local development. The study circles experiences in the crossborder area Italy- Slovenia, Ets, Pisa. http://www.edizioniets.com/scheda.asp?n=9788846744340

EC, 2017. European Commission: Cross-border cooperation: Cross-border Review. Source: https://ec.europa.eu/regional_policy/en/policy/cooperation/european-territorial/cross-border/review/#1

IMAD, 2020. Institute of Macroeconomic Analysis and Development: Indicators od Well-Being. Source: https://www.umar.gov.si/en/publications/indicators-of-well-being/

IMAD, 2021. Institute of Macroeconomic Analysis and Development: Slovenia's development. Source: https://www.umar.gov.si/en/slovenias-development/

MGRT, 2019. Ministry of Economic Development and Technology: Objectives, Guidelines, and Instruments of Regional policy and Strategic basis of Spatial development for the preparation of Regional Development Programs 2021-2027. Source: https://www.gov.si/teme/spodbujanje-regionalnega-razvoja/

Perković, 2007. Ksenija Perković, diplomsko delo: Čezmejne delovne migracije v Slovensko-Italijanskem obmejnem prostoru. Source: http://dk.fdv.uni-lj.si/diplomska/pdfs/Perkovic-Ksenija.PDF

RRC Koper, 2021. Regionalni razvojni center Koper: Regionalni razvojni program. Source: https://www.rrc-kp.si/sl/regionalni-razvoj.html

RRD, 2020. Regionalni razvojni program Regije Istra, Brkini, Kras za obdobje 2021-2027, Regionalni razvojni center Koper.

SiSTAT, 2019. Republic of Slovenia Statistical Office: Well-being, Slovenia, 2018. Source: https://www.stat.si/StatWeb/en/News/Index/8358

SiStat, 2020. Republic of Slovenia Statistical Office: Self-assessment of overall life satisfaction by statistical regions, Slovenia, annually. Source: https://pxweb.stat.si/SiStatData/pxweb/en/Data/-/0872040S.px/table/tableViewLayout2/

SI-STAT, 2021. Source: https://www.stat.si/obcine/en/Region/Index/12; https://pxweb.stat.si/SiStatData/pxweb/sl/Data/Data/2640005S.px/table/tableViewLayout2/

Slovenian Development Strategy

SURS, 2019. Republic of Slovenia Statistical office: International Day of Older Persons. Source: https://www.stat.si/StatWeb/en/News/Index/8374

SURS, 2020. Republic of Slovenia: Labour Market – Labour migrations, Slovenia, 2020. Source: https://www.stat.si/StatWeb/en/news/Index/9458

Appendix 1 – Zooming-in to the cross-border areas performance in the European TQoL analysis

This appendix describes an example of application of the TQoL dashboard tool using Europe-wide data at NUTS 3 level[59] to elaborate quality of life indices and the position of the three regions of Coastal–Karst (SI044), County of Istria (HR036) and Trieste (ITH44) in the Europe-wide ranking of NUTS 3 regions.

The analysis is based on the data collected for the whole ensemble of the NUTS 3 regions in Europe in the ESPON QoL Measurements and Methodology project, implemented in 2020. These data include indicators covering all the domains of the Territorial Quality of Life framework, allowing to compute and compare quality of life indices for sub-domains, domains, and aggregate for the three dimensions – good life enabler, life maintenance and flourishing and global).

The indicators collected at European level are consistent enough for comparisons across Europe, but not detailed enough for a robust analysis of quality of life at local level. However, they are sufficient to demonstrate how the Territorial Quality of Life framework is applied in practice to a set of existing indicators and trigger the discussion about which data and indicators are available at local level for a better representation and analysis of the quality of life in the cross-border functional area.

So, the analysis shows the initial picture emerging from computing quality of life indices based on data harmonised at European level which local stakeholders may confront with their more precise knowledge of the local reality. The results of the analysis are briefly summarised below for the three cross-border areas:

- The **Coastal**–**Karst region** shows a leading position in terms of Quality of Life in its national context, but also has a good position at the European level. Looking to the components of the index, this is caused by: 1) high performance of services to people and the basic infrastructure, with high scores in healthcare, education, consumption opportunities, cultural assets, green infrastructure and protected areas; 2) above average performance in Life Maintenance, particularly in life expectancy and societal health (inclusiveness, risk of poverty), while it is at average in personal safety (crime and road safety) and inclusive economy (disposable family income, unemployment); 3) excellent performances of its ecological domains (e.g. proportion of natural and protected areas, and biodiversity).
- **Istria** is the region with more components of the Quality of Life index underperforming. Istria shows relatively low Life Maintenance and Life Flourishing indicators, the first ones driven by lower socioeconomic indicators like unemployment, disposable family income, NEETs, or people at risk of poverty, and with lower levels of personal safety (high traffic death rates), and the second one by low self-esteem and interpersonal and institutional distrust.
- **Trieste** shows high quality of life levels in the national context of Italy, being in the top ten provinces of the country, but has an average performance at the European context being amongst the first half of the European regions. Trieste performs relatively well in Life Enablers indicators, with prominent results in consumption opportunities, cultural assets and education endowment. Trieste also has good indicators in Life Maintenance, particularly high levels of life expectancy, and relatively good levels of societal indicators (e.g. at risk of poverty), and air quality. Environmental indicators of exposure and preparedness for climate change are instead a challenge for Trieste. In Life Flourishing, Trieste is generally below average in the European context, particularly in ecological flourishing, but with strong levels of interpersonal trust (societal networks and trust) and self-esteem (low suicide rates).

[59] Interpolated with NUTS 2 data when the information is missing at NUTS 3 level.

In principle, these results could be used to request local planning experts and statisticians to compare the European ranking data and information available on quality of life at local level, to find out convergences as well as inconsistencies. However, in practice, there was the need to avoid that the experts' attention was trapped into discussing single discrepancies without really knowing if such discrepancies were real or could be attributed to the not enough robust quality of input data used for some domains in the European ranking exercise.

In future applications of the dashboard tool on a robust list of QoL harmonised indicators for the cross-border area, citizens engaged in focus groups could also be asked to compare the ranking based on indicators with their own qualitative perceptions about the quality of living in the local context.

Discussions should lead to asking ourselves: Are we asking the proper questions to assess quality of life at this level of territorial scale? Are we using the best possible indicators? Can we find better datasets in the region, or can we complete datasets in some way? How to involve residents from this region in this process and how can they contribute to the collection of alternative datasets (such as surveys…)? This process of investigating counterintuitive results with stakeholders or at citizen focus groups should allow us to better understand the real challenges a region is facing regarding the different components of quality of life, to investigate what kind of policies are being applied to address these challenges, what are the perceptions of local stakeholders and hopefully, it will give place to new optics and perspectives driven by the European Dashboard, forcing a rethink of how to measure and improve quality of life in the region.

The list of indicators used for all three regions and detailed dashboard outcomes for each region are illustrated in the following pages.

Table 15 Territorial Quality of Life coding of indicators for all the three regions

Dir	Do	Sub-domain	Data sources	NUTS level	Recent period	Units	Trieste (ITH44)	Koper (SI044)	Istria (HR036)
Good Life Enablers	Personal Enablers	Housing & basic utilities (b11)	*Uncollected sewage*	NUTS 2	2010	% of general load	0,00	16,00	0,00
			Sewage treatment	NUTS 2	2010	% of collected wastewater	75,00	13,00	29,00
			Lack of adequate heating	NUTS 2	Average 2011-2013	% · 100	1,12	0,70	1,00
			Overcrowding	NUTS 2	Average 2011-2013	% · 100	15,20	16,27	43,92
			Burdensome cost of housing	NUTS 2	Average 2011-2013	% · 100	47,94	33,52	62,57
		Healthcare (b12)	*Hospital beds*	NUTS 2	2016	beds/100.000 hab	332,09	533,61	504,16
			Share of regions overlaid by pharmacies	NUTS 3	2016	% · 100	3,27	1,63	5,16
			Share of regions overlaid by doctors	NUTS 3	2016	% · 100	0,00	5,91	9,54
			Share of regions overlaid by hospitals	NUTS 3	2016	% · 100	0,00	0,00	0,25
		Education (b13)	*Share of regions overlaid by primary schools*	NUTS 3	2016	% · 100	3,27	12,18	6,42
			Share of regions overlaid by secondary schools	NUTS 3	2016	% · 100	0,00	0,00	0,00
	Socioeconomic Enablers	Transport (b21)	*Access to high-level passenger transport infrastructure*	NUTS 3	2012	Index (0 - 200)	17,73	24,29	-
		Digital connectivity (b22)	*Network Efficiency*	NUTS 3	2015	-	1,57	1,57	1,85
			Internet at home	NUTS 2	2019	number of households	88,00	92,00	84,00
			Online interaction with public authorities	NUTS 2	2018	% · 100	28,00	62,00	35,00
		Work opportunities(b23)	*Daily Accessibility*	NUTS 3	2015	persons	40820300	38988500	21585200
		Consumption opprotunities(b24)	*Share of regions overlaid by shops*	NUTS 3	2016	% · 100	0,00	10,41	9,58
			Share of regions overlaid by banks	NUTS 3	2016	% · 100	0,00	6,50	4,42
		Public spaces (b25)	-	-	-	-	-	-	-
		Cultural assets (b26)	*Number of sites in the World Heritage List*	NUTS 3	2020	number of sites	0,00	1,00	0,00
			Share of regions overlaid by cinemas	NUTS 3	2016	% · 100	0,00	0,00	1,92
	Ecological Enablers	Green infrastructure (b31)	*Proportion of Natural Areas*	NUTS 3	2018	%	0,57	0,68	0,58
			% of abandoned land	NUTS 3	2015	% · 100	19,10	0,00	0,20
		Protected areas (b32)	*Proportion of Protected Areas*	NUTS 3	2019	%	0,11	3,01	0,13
Life Maintenance	Personal Health and Safety	Personal Health (m11)	*Life expectancy*	NUTS 2	2015	years	82,80	82,30	78,60
		Personal Safety (m12)	*Standarised traffic accident death rate*	NUTS 2	Las available 2013-2016	deaths/year	6,59	6,59	9,33
			Standarised homicide death rate	NUTS 2	Las available 2013-2016	deaths/year	0,35	0,79	0,79
	Economic and Societal Health	Inclusive Economy (m21)	*Disposable income of private households*	NUTS2	2016	disposable income/inhabitant	6,70	4,80	9,20
			Gender employment gap	NUTS 2	2019	people employed (20-64)/total polulation (20-64)	19400,00	13700,00	9800,00
			Unemployment rate	NUTS 2	2019	% · 100	17,20	6,60	9,40
		Healthy Society (m22)	*People at risk of poverty rate*	NUTS 2	2016	% · 100	8,90	4,10	2,50
			Early Leavers from education (18-24)	NUTS 2	2018	% · 100	21,10	37,70	26,60
			NEET 15-24 (Total)	NUTS 2	2018	% · 100	7,98	12,46	19,46
			Tertiary Educational Atteinment (25-64)	NUTS 2	2018	% · 100	11,80	6,00	14,80
	Ecological Health	Healthy Environment (m31)	*Air Quality Index*	NUTS 3	2015	-	0,90	0,88	0,37
		Climate Change (m32)	*Aggregate impact of climate change on Europe's regions*	NUTS 3	2071-2100	%population covered/total population	0,23	0,00	0,37
			Population covered by Sustainable Energy (and Climate) Actio	NUTS3	2018	-	0,69	0,59	0,48
Life Flourishing	Personal Flourishing	Self-esteem(f11)	*Standarised suicide death rate*	NUTS 2	2016	suicides/year	7,10	7,00	5,80
			Attitudes toward people with disabilities	NUTS 2	2014	0-10	8,07	16,83	13,55
		Self-actualization(f12)	-	-	-	-	-	-	-
	Community Flourishing	Interpersonal Trust (societal belonging)(f21)	*% Population that believe voluntary work is very important*	NUTS0	2014	%	0,22	0,19	0,23
			% Population in associative life	NUTS0	2010	% · 100	17,00	7,85	7,85
		Institutional Trust (good governance)(f22)	*European Quality of Government Index*	NUTS 2	2017	Index (0 - 6)	1,78	-	1,11
			Trust in the political system	NUTS 2	2013	% · 100	27,27	12,78	15,42
			Trust in the legal system	NUTS 2	2013	% · 100	7,64	5,96	12,25
			Trust in the police	NUTS 2	2013	% · 100	68,20	52,57	0,00
			Quality and accountability of government services	NUTS 2	2013	Index (0 - 6)	3,23	2,56	1,68
			Corruption	NUTS 2	2013	Index (0 - 6)	2,51	2,28	1,44
	Ecological Flourish	Ecosystems services and Biodiversity wealth(f31)	*Worst Invasive Alien Species (IAS)*	NUTS0	2010	Nº species	103,00	32,00	37,00
			Ecosystem services net value (Suppy-Demand)	NUTS3	2018	% · 100	6,96	9,53	9,06

COASTAL-KARST REGION, Slovenia (SI044)

In the national context of Slovenia, Coastal–Karst region is one of the leading regions in terms of Quality of Life, and the region does also have a good position in the European level.

The level of services to people and the basic infrastructure (Good Life Enablers) is generally high, following similar patterns to the ones observed in Trieste. It scores particularly well in healthcare, education, consumption opportunities, and cultural assets.

Coastal–Karst region performs well also in Life Maintenance, particularly in life expectancy and societal health (inclusiveness, risk of poverty), while it is within the average in personal safety (crime and road safety) and inclusive economy (disposable family income, unemployment).

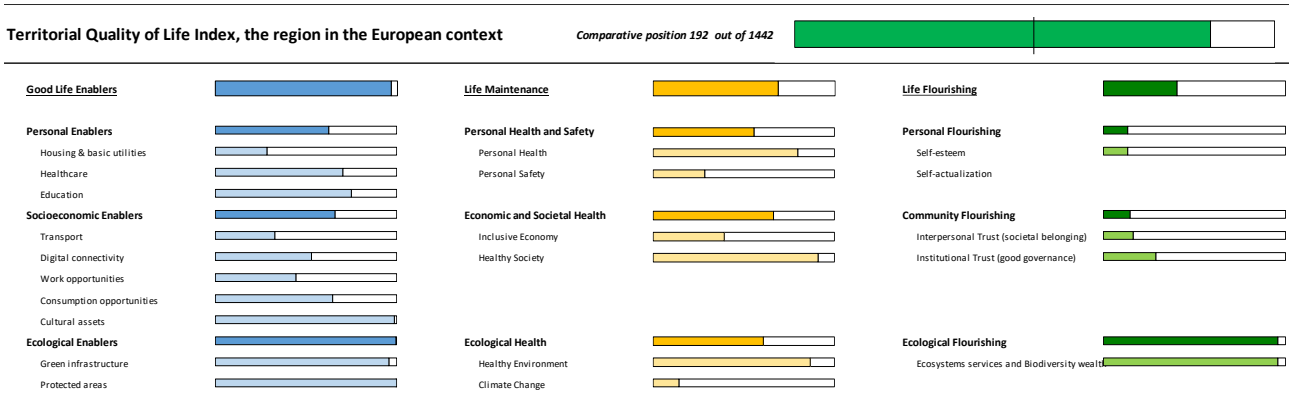
The available data at Europe-wide level show excellent levels of ecological enablers, for example the proportion of natural and protected areas, which should be confirmed by the analysis at a more local level.

High levels of performance in ecological indicators complemented with and over average performance in many other dimension of the Quality of Life indicator, help the Coastal–Karst region to achieve very high overall levels of Quality of Life.

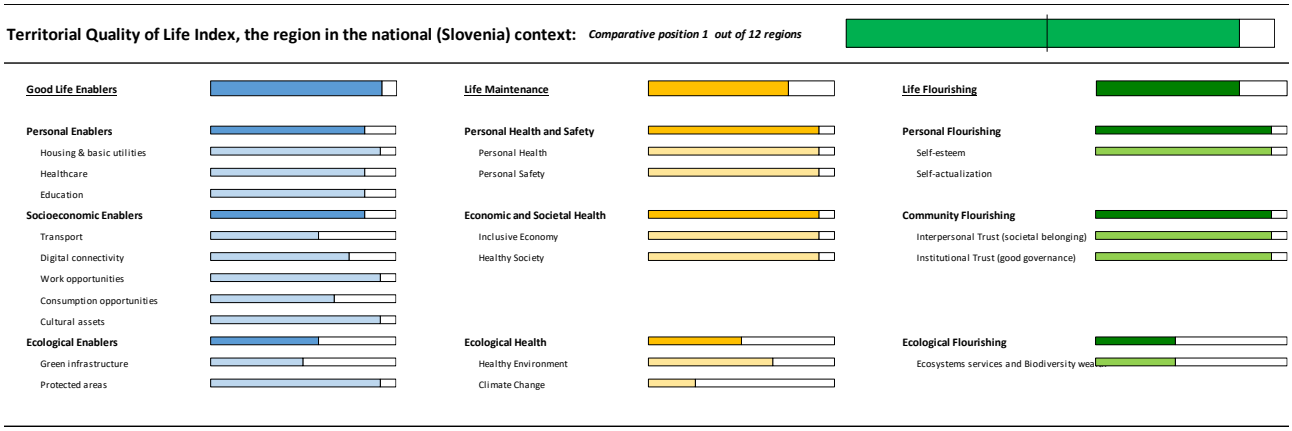
Territorial Quality of Life in the European Context

Territorial Quality of Life Index, the region in the European context *Comparative position 192 out of 1442*

Good Life Enablers	32	Life Maintenance	452	Life Flourishing	859
Personal Enablers	542	**Personal Health and Safety**	640	**Personal Flourishing**	1252
Housing & basic utilities	1034	Personal Health	292	Self-esteem	1252
Healthcare	430	Personal Safety	1034	Self-actualization	-
Education	356				
Socioeconomic Enablers	488	**Economic and Societal Health**	485	**Community Flourishing**	1231
Transport	970	Inclusive Economy	876	Interpersonal Trust (societal belonging)	1212
Digital connectivity	676	Healthy Society	127	Institutional Trust (good governance)	1030
Work opportunities	802				
Consumption opportunities	508				
Public spaces	-				
Cultural assets	16				
Ecological Enablers	5	**Ecological Health**	562	**Ecological Flourishing**	62
Green infrastructure	46	Healthy Environment	194	Ecosystems services and Biodiversity wealth	62
Protected areas	1	Climate Change	1239		



Territorial Quality of Life in the National Context (Slovenia)



ISTRIA, Croatia (HR036)

Out of the three regions under analysis, Istria is the one with more open challenges related to the components of the Quality of Life index in the European context.

Istria shows relatively low Life Maintenance indicators, driven by lower socioeconomic indicators like unemployment, disposable family income, NEETs, or people at risk of poverty, and with lower levels of personal safety (high traffic death rates).

Like the Coastal–Karst region in Slovenia, numbers tend to show challenges in the dimension linked to Life Flourishing (related to self-esteem, interpersonal and institutional trust, and biodiversity.

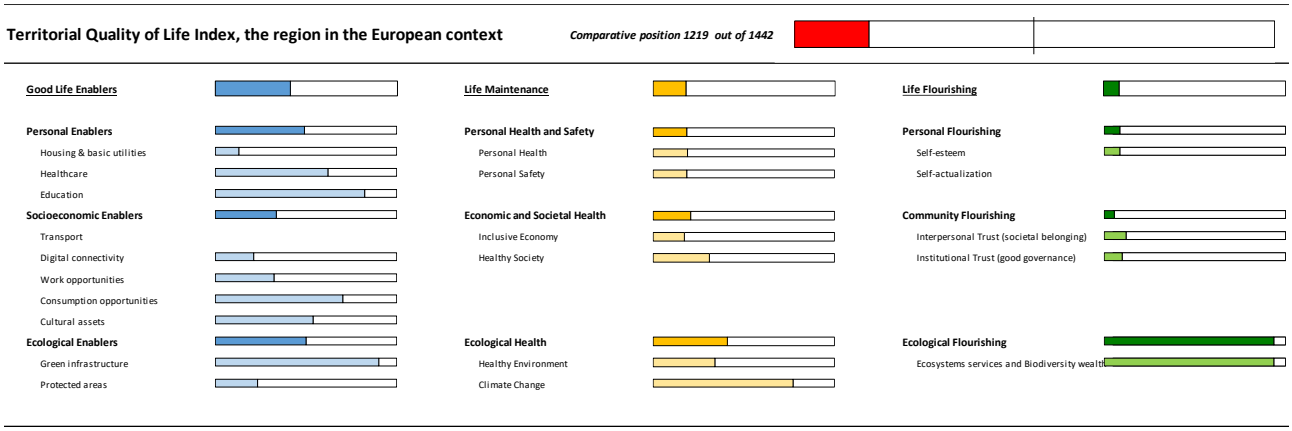
On the other hand, Istria shows a good performance in relation to public services in the Good Life Enablers sections, much in line with those of Trieste and the Coastal–Karst region: for example, good performance in the European context related to education and healthcare, consumption opportunities and cultural assets, and green infrastructure.

In the national context, we can identify significant differences in some sub-domains performances, especially for the Life Maintenance dimension. Showing a much better performance in personal health and safety, but also inclusive economy, driven by disposable income, gender employment gap and unemployment rate.

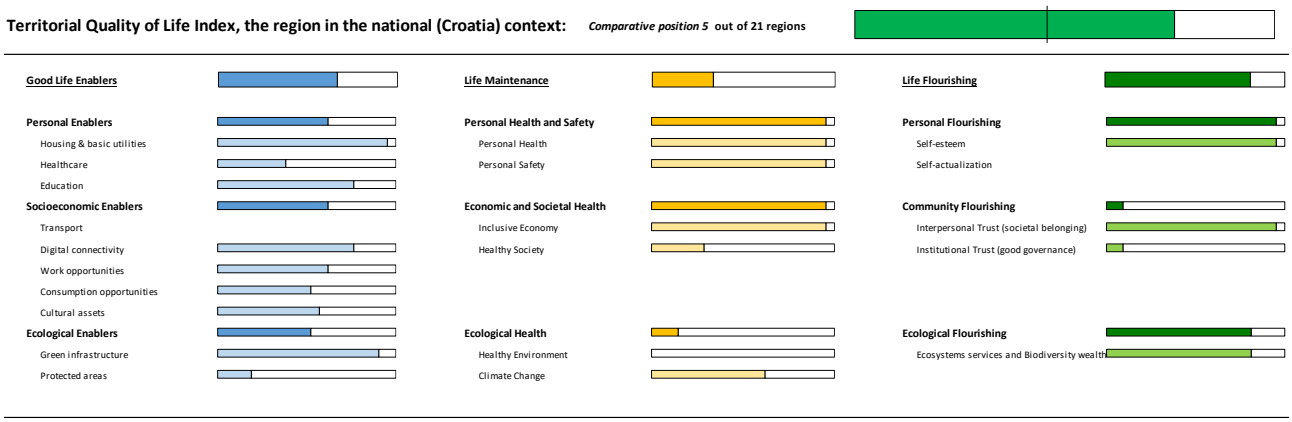
Territorial Quality of Life in the European Context

Territorial Quality of Life Index, the region in the European context — *Comparative position 1206 out of 1442*

Good Life Enablers	721	Life Maintenance	1183	Life Flourishing	1318
Personal Enablers	730	Personal Health and Safety	1176	Personal Flourishing	1314
Housing & basic utilities	1258	Personal Health	1167	Self-esteem	1314
Healthcare	546	Personal Safety	1176	Self-actualization	-
Education	255				
Socioeconomic Enablers	955	Economic and Societal Health	1145	Community Flourishing	1357
Transport	-	Inclusive Economy	1192	Interpersonal Trust (societal belonging)	1266
Digital connectivity	1139	Healthy Society	992	Institutional Trust (good governance)	1297
Work opportunities	978				
Consumption opportunities	429				
Public spaces	-				
Cultural assets	665				
Ecological Enablers	594	Ecological Health	849	Ecological Flourishing	95
Green infrastructure	299	Healthy Environment	949	Ecosystems services and Biodiversity wealth	95
Protected areas	853	Climate Change	327		



Territorial Quality of Life in the National Context (Croatia)



TRIESTE, Italy (IT044)

Trieste shows high quality of life levels in the national context of Italy, ranking 12th out of 110 regions in the country. Trieste also performs relatively well at the European level, slightly below the European average position.

Trieste has relatively Good Life Enablers indicators, situated in a European average position, with prominent results in consumption opportunities, cultural assets and education endowment. In the national context, Trieste tends to perform well, with better services than other Italian regions for instance in terms of education, healthcare and housing.

Trieste also has good indicators in Life Maintenance, particularly high levels of life expectancy, and relatively good levels of personal safety (crime, road safety), societal indicators (eg. at risk of poverty), and air quality. Environmental indicators of exposure and preparedness to climate change are instead a challenge for Trieste. In the national context, we can identify a performance improvement in housing and health.

In Life Flourishing, Trieste is generally below average in the European context, particularly in ecological flourishing, but with strong levels of interpersonal trust (societal networks and trust) and self-esteem (low suicide rates).

In the national context, we can identify a significant performance improvement in all three dimensions. For instance in housing, health, societal health and the institutional trust.

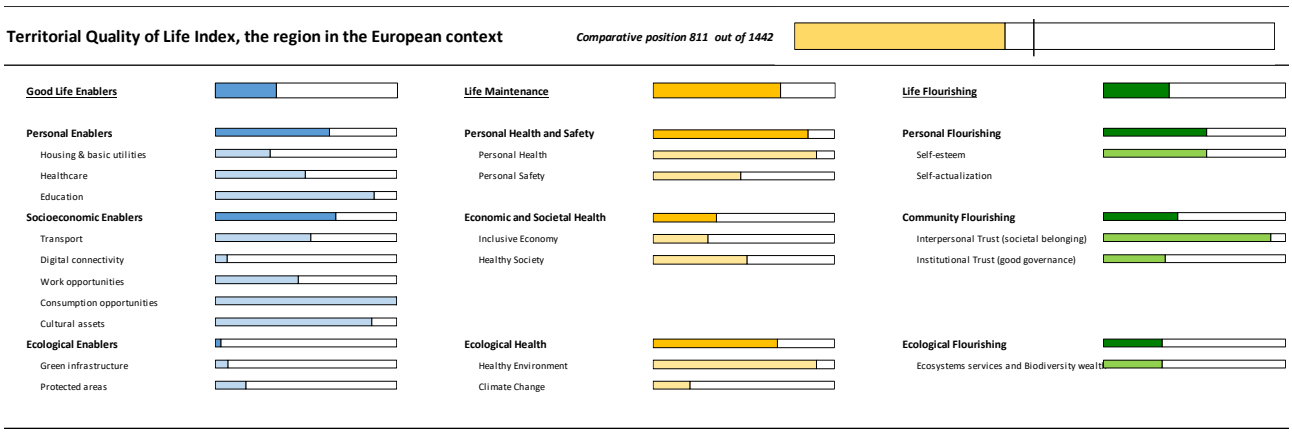
Territorial Quality of Life in the European Context

Territorial Quality of Life Index, the region in the European context — *Comparative position 811 out of 1442*

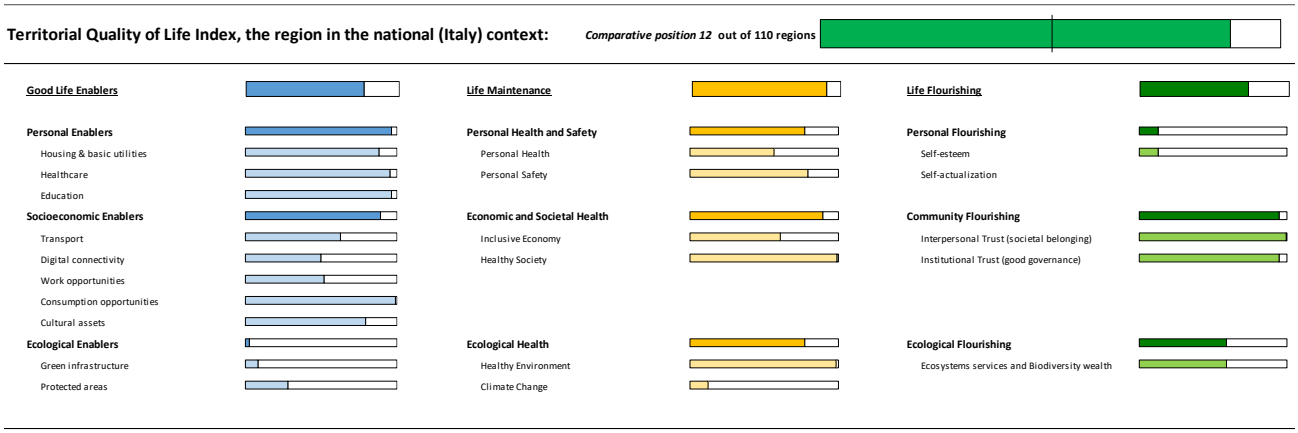
Good Life Enablers	634
Personal Enablers	534
Housing & basic utilities	1009
Healthcare	726
Education	177
Socioeconomic Enablers	483
Transport	684
Digital connectivity	1350
Work opportunities	783
Consumption opportunities	1
Public spaces	-
Cultural assets	197
Ecological Enablers	990
Green infrastructure	907
Protected areas	923

Life Maintenance	430
Personal Health and Safety	211
Personal Health	144
Personal Safety	742
Economic and Societal Health	939
Inclusive Economy	1008
Healthy Society	696
Ecological Health	455
Healthy Environment	142
Climate Change	1151

Life Flourishing	923
Personal Flourishing	624
Self-esteem	624
Self-actualization	-
Community Flourishing	853
Interpersonal Trust (societal belonging)	117
Institutional Trust (good governance)	954
Ecological Flourishing	981
Ecosystems services and Biodiversity wealt	981



Territorial Quality of Life in the National Context (Italy)



Appendix 2 – List of invited stakeholders, agenda and attendance

Table 16 List of stakeholders

Experts	Name	Surname	Organization	Function
Slovenia:	Slavko	Mezek	Regional Development Centre Koper	
	Sabina	Mozetič	City of Koper	Director of the municipal administration
	Timotej	Pirjevec	City of Koper	Department Manager of the Social Activities Office
	Gregor	Kovačič	University of Primorska; Department od Geography	Associate professor, Head of the Department of Geography
	Mojca	Poklar	University of Primorska;Faculty of Mathematics, Natural Sciences and Information Technologies; Department of Information Sciences and Technologies	Assistant Professor
	Miha	Koderman	University of Primorska; Department od Geography	Associate professor, Vice Head of the Department of Geography
	Janja	Pečar	Institute of macroeconomic analysis and development	
	Janez	Nared	Research Centre of the Slovenian Academy of Sciences and Arts	
	Blanka	Bartol	Spatial Planning, Construction and Housing Directorate, Ministry of the Environment ans Spatial Planning	
	Tomaž	Miklavčič	Spatial Planning, Construction and Housing Directorate, Ministry of the Environment ans Spatial Planning	
	Rihard	Inglič	Statistical Office of the Repubilc of Slovenia	
Croatia:	Patrizia	Bosich	Public Institution "Regional Coordinator of the County of Istria for European programs and funds"	Interim Director
	Sanja	Labinjan	Public Institution "Regional Coordinator of the County of Istria for European programs and funds". Department of Regional Development and Strategic Planning	Head of Department
	Ines	Kersan-Škabi	Univeristy of Pula. Faculty of Economics and Tourism "Dr.Mijo Mirković". Department of National and International Economics	Full professor
	Lela	Tijanić	Univeristy of Pula. Faculty of Economics and Tourism "Dr.Mijo Mirković". Department of National and International Economics. Department of tourism	Associate professor
	Sabrina	Quarantotto	City of Buje-Buie. Administrative Department for Spatial Planning and City Property Management	Senior Project Management Advisor
	Vanja	Gorički Milčir	City of Novigrad. Administrative Department for the Affairs of the Mayor's Office, General Affairs and Social Activities	Advisor for EU Projects and International Relations
	Corinne	Pozzeco	City of Novigrad-Cittanova	Independent administrative officer for project implementation and entrepreneurship
Italy:	Moreno	Zago	University of Trieste. Department of Political and Social Sciences	Associate Professor Sociology of Environment and Territory. Tourism Analysis and Planning: Cross-border Relations and Local Development
	Ornella	Urpis	University of Trieste. Department of Political and Social Sciences	Assistant Professor
	Morena	Mauro	IRES - Istituto di Ricerche Economiche e Sociali Friuli Venezia Giulia	Ufficio progettazione e comunicazione
	Gianluca	Masotti	IRES - Istituto di Ricerche Economiche e Sociali Friuli Venezia Giulia	
	Roberto	Costa	ISTAT	Ufficio ISTAT Friuli Venezia Giulia
	Christian	Tosolin	Municipality of Trieste	City of Trieste Social Media Manager
	Elena	Slanisca	ENFAP Friuli Venezia Giulia	Training programme manager
	Giorgio	Kosic	City of Trieste	Ufficio Statistico Comunale
	Lucio	De Marco	City of Trieste	Ufficio Affari Europei, Internazionali e della cooperazione

Table 17 Agenda – Online Workshop on 17th September 2021 – Towards a harmonised Cross-border Quality of Life measurement and policy approach

Time	Agenda item	Speaker	Detailed script
10.00	**Welcome** and introduction to the agenda	*Giorgia Galvini ISINNOVA*	
10.05	Presentation of proposed quality of life indicators for the cross-border area and living lab approach	*Carlo Sessa, ISIN-NOVA*	The starting point is the presentation of the Territorial Quality of Life measurement framework, followed by the results of the investigation and interviews undertaken in the first stage of the pilot project.
	Breakout rooms discussion: Cross-border Quality of Life measurement and management approach (10:20 – 12:00)		
10.20	Posting the question for the breakout rooms discussion Q&A and introduction to the MURAL board	*Facilitator: Giorgia Galvini - ISINNOVA*	**<u>Questions for discussion</u>:** **What are the most relevant domains to measure for monitoring cross-border quality of life? Which indicators could/should be included in a harmonized list for each domain (up to 4 key indicators)? Who could/should be engaged and how to realize a permanent QoL living lab (key actors – research institutes, public bodies, NGOs etc. – opportunities and challenges to be solved)?** Questions collected via chat about the question and/or aims of the discussion – if any – are answered by the speaker. The MURAL board supporting the discussion is shared with the moderators and participants.

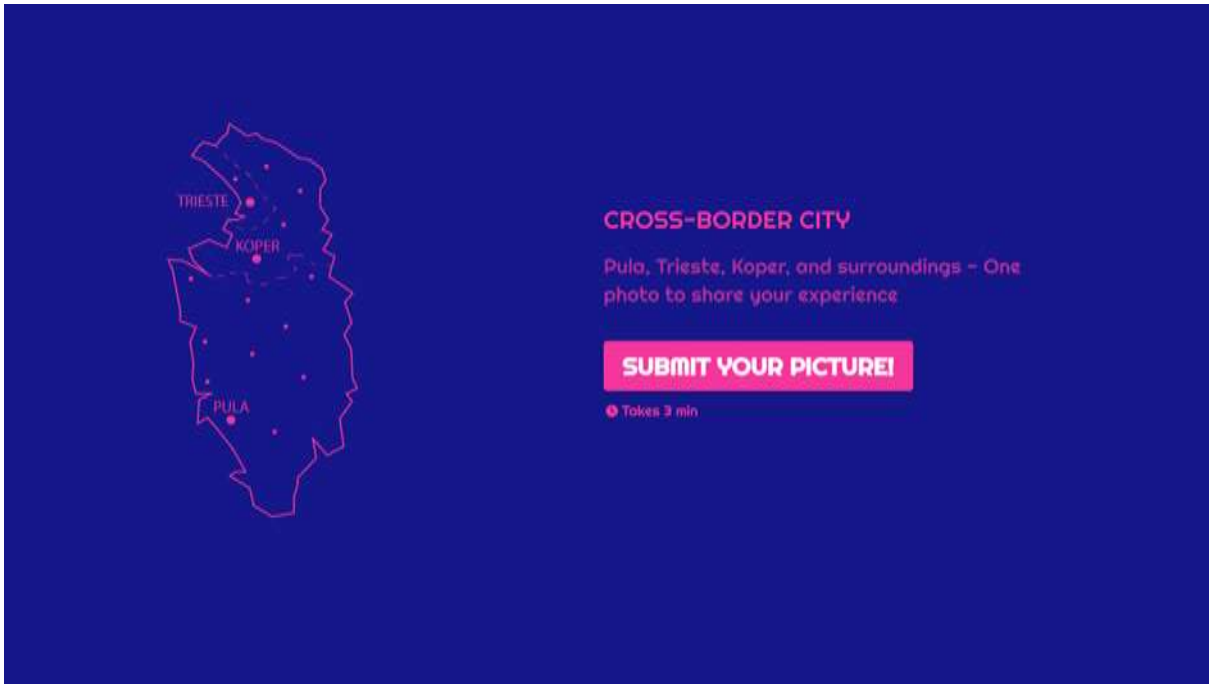
10.35	Breakout sessions: Towards a harmoni~~z~~sed set of key QoL indicators in the cross-border area and co-operation approach: 1st round: 10.35-11.15 Break: 11.15-11.20 2nd round: 11.20-12.00	*Group 1 Moderator: Matevž Premelč - ZAVITA* *Group 2 Moderator: Carlo Sessa - ISINNOVA* *Group 3 Moderator: Ivana Šarić - ZAVITA*	**World Café discussion in breakout groups**: Participants are allocated in the breakout rooms to discuss the proposed list of indicators for different domains of the Territorial Quality of Life framework, as follows: • Group 1 – Personal sphere • Group 2 – Socio-economic sphere • Group 3 – Ecological sphere Each breakout group includes up to 6 experts (2 from each cross-border area). While the moderators will remain always in the same group, participants will be rotated in two rounds of 40 minutes discussion, with a 5 minutes break in between, in order to let each participant to contribute to two spheres of the framework. Moderators of each group open in the first round the discussion reminding the question and the proposed lists of indicators from Italy, Slovenia and Croatia, coming out from the interviews, which is also shown on the MURAL board. In the second round the moderators tell what emerged from the first round of discussion to the new group of participants, asking to add their own insights and recommendations. Comments and suggestions emerging in the two rounds of discussion are shared on the MURAL board, to help the moderator to report the outcomes to the plenary.
	Conclusions (12:00-12:30)		
12.00	Plenary wrap-up session: takeaways from the discussion	*Facilitator: Giorgia Galvini - ISINNOVA*	The moderators of the three breakout sessions summarize the key messages taken from both rounds of discussion, about the proposed list of indicators and about the living lab implementation (7 minutes for each moderator to tell).
12:30	*End of the workshop*		

Table 18 Participants List_ESPON QoL spin-off

Participants List_**ESPON QoL spin-off** **Online Workshop** 17th September 2021			
First Name	**Last Name**	**Organisation**	**Country**
Lucio	De Marco	Comune di Trieste	IT
Moreno	Zago	University of Trieste	IT
Roberto	Costa	Istat	IT
Elena	Slanisca	ENFAP FVG	IT
Vanja	Gorički	City of Novigrad	HR
Corinne	Pozzeco	City of Novigrad	HR
Ines	Kersan-Škabić	University of Pula	HR
Lela	Tijanić	University of Pula	HR
Gregor	Kovacic	University of Primorska	SI
Janez	Nared	ZRC SAZU	SI
Martina	Stare	SURS	SI
Mojca	Poklar	University of Primorska	SI
Janja	Pecar	Institute of macro economic analysis and development	SI
Tomaz	Miklavcic	Ministry of Environment and Spatial Planning	SI
Blanka	Bartol	Ministry of Environment and Spatial Planning	SI
Sandra	Di Biaggio	ESPON EGTC	

Appendix 3 – Digital contest

The Digital Contest: Overview



A digital contest has been organised to gather bottom-up inputs in the definition of Quality of Life indicators. In particular, the initiative targets university students in the area of interest. Such target group is identified as one of the most dynamic segments of population, and therefore more suitable to have cross-border experience on a daily basis, in relation to studies, free-time and income opportunities.

Hosted on the web-platform Non Architecture, the digital contest is branded to be approachable, and it operates on a few engagement principles to trigger participation around mediums that are already familiar to university students: photos. The initiative titles “Cross-border city: Trieste (IT), Koper (SI), Pula (HR) and surroundings”, with the claim “Do you often cross the border to study, work, or spend some free time? Tell us your experience with one photo and get a 20€ Amazon Card”.

The communication is immediate and straightforward, targeted to young students used to fast messages and social media. Similarly, the contest requires a very low effort from students while it offers a clear reward, suggesting the exchange of their experience for a budget to buy a book of their choice.[60]

[60] This reward is chosen for practical reasons, as a feasible option in the very short time frame of the pilot. However, for future applications, it would be better to consider a more specific reward, for instance public transport subscriptions or other forms of rewards that could be decided by public authorities or other sponsors in the cross-border area. The reward is given only to submissions that respect the requisites of the contest, i.e. submission of pertinent photos from students living in the cross-border area. The pilot digital contest is hosted on the proprietary Non Architecture platform, and not under the umbrella of the ESPON official web-site, as the ESPON EGTC is in no way involved in this decision.

Participants are encouraged to share an image related to any aspect of their experience – for example – their commute, daily life, the places and the qualities that bring them across the border, or simply the means of transportation and the struggles they encounter. They can use this as an opportunity to show anything they appreciate or anything they would like to change.

"Photos can show any aspect good or bad of your cross-border experience. Frame a moment with one image and share it with us. This is not an art contest; your mobile camera will do just fine! Photos do not have to be beautiful or special, they only have show something important for you. After submitting your photo and playing a 5 minutes Q&A game you will receive an amazon gift card for the value of 20 euros. Just enough to buy a book of your choice. This initiative is open till 20/10/2021 only for students currently enrolled in any university in Trieste, Pula and Koper."

Process is shaped to get unbiased participation and through gamified survey – 5 mini games – reconnect it to inputs for the definition of Quality-of-life indicators. Following this logic, the contest interface is structured around eight steps.

The Digital Contest: Results

At closing date, on 20 October 2021, the following results were achieved:

- **26 submissions**, of which
- **19** submissions were accepted and rewarded with the Gift Card
    - **14** photos from Italy
    - **2** photos from Croatia
    - **2** photos from Slovenia

Seven submissions were rejected because they didn't manage to comply with all the requirements, despite raising interesting points either through visuals or through answers in the mini games. Participants were asked to resubmit with more complete info but most of them did not follow up.

Additionally, the following indicators were collected:

FROM ALL DEVICES	COMPUTER	MOBILE	TABLET
Views	Views	Views	Views
168	120	48	0

Figure 8 Web views to the contest page

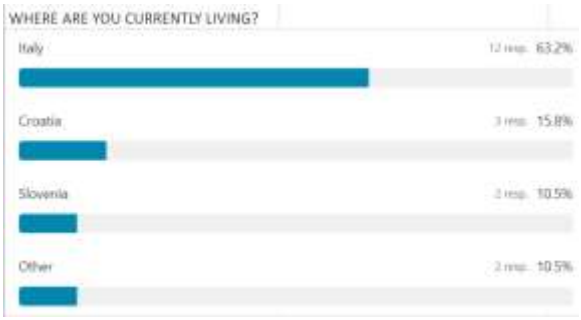


Figure 9 Current location of participants

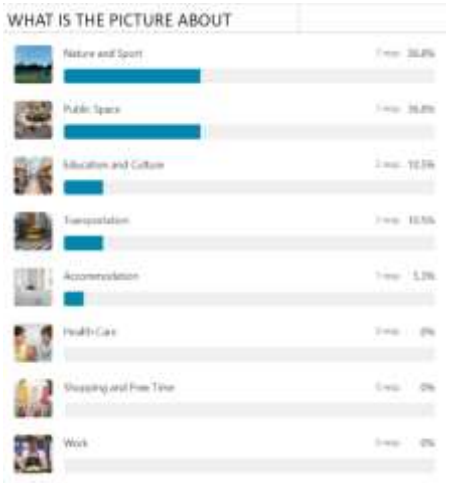


Figure 10 Macro-topic of submission

Figure 11 Feedback on quality of life

Overall the stretch goals for participation settled at the beginning of the project (100 participants) were not fully met, yet, in comparison to other digital contests operated by Non Architecture, the Cross-border city seemed to be very effective.

The “Shandong Mines landscape design” (2020) contest was selected as a benchmark. The contest was also free for participants, but in this case, the reward would be much higher but only for winners selected by the jury. Winners would have a much higher workload compared to the one required for the Cross-border City. In the Shandong Mines: 9,473 single users visited the webpage while only 288 submitted (3.04%) **For Cross-border city, 168 single users visited the page, 26 responded (15.5%)**.

The Digital Contest: Process updates

On the first week of September the web-interface for the contest was published online, open for university students only. In the same week the communication officers of university of Trieste (IT), Pola (HR) and Primorska (SI) were approached through email and social media and asked to help sharing the contest through their internal channels. There was no response from either of them.

The contest was first circulated to potential participants on 14 September 2021, when it was presented to the ten students who participated in the Trieste workshop. Presentation was done in Italian, and some of the participants were formerly enrolled in university, so that condition would limit their participation. Also in that occasion, it was attempted to reach out to university and student organisations to gain exposure, but that was also unsuccessful.

Following the Trieste workshops, two adjustments were made to the contest.

First, the need of a university email was removed to allow also former students and recent graduates to participate. All submissions were later reviewed according to relevance to ensure that no irregular participation would take place.

Second, it was launched a direct outreach campaign through social media. Instagram users that publicly geo-localized their photos in the university of Trieste were contacted and invited to participate to the Cross-border City contest, in line with the limitations of the social media platform and EU privacy policy. Messages were sent in Italian and the native language of the users.

While being time-consuming, this practice proved to be quite successful, considering that almost one out of two people that saw the message on social media ended up submitting a proposal.

In Slovenia and Croatia a direct outreach campaign started later, in combination with the joined workshop which took place on October 13 2021. Before then, additional attempts were made to find institutional support in sharing the contest but that was unsuccessful.

The contest was also presented to participants in the Primorska – Pula workshop, this time in English. Similarly, direct outreach via social media for Slovenian and Croatian participants was done in English, reaching approximately 40 students, with a less successful outcome compared to the Italian campaign.

Observations and lessons learned on the process

As an experimental venture, the contest provided some useful process-related insights. Despite not reaching the participation stretch-goals established in the pre-launch phase, this prototype initiative proved to be a valuable learning experience for future practice.

The key threats/success factors that emerged according to our assessment are:

- Language
- Exposure
- Brevity
- Familiarity

Language:

Due to the short time available for the Cross-border City contest, all communication and participation process was done in English. Both in the outreach and in the submission process, that seemed to be a strong defining factor.

Most of Italian participants were easily convinced by a targeted communication in Italian. On the contrary, Croatian and Slovenians, exposed to the same kind of communication but in a foreign language did not respond so well.

While submitting, many Italians were for the first time confronted with communication in English. Consequently, they sometimes struggled to fully understand the scope and requirements of the contest, or they had difficulty expressing their opinion throughout the mini games.

For future initiatives, it is recommended to use native language to facilitate participation and diffusion of the contest.

Exposure:

Since the early stages we were aware that proper visibility was vital to the success of the contest. To face this issue, two strategies were applied. First, high reward system – € EUR gift card – to motivate participation. Second, establishing direct collaboration with universities to gain visibility through their channels.

While the reward system seemed to perform well in motivating single individuals to participate, it did not generate word of mouth around the contest. Participants didn't encourage their peers to participate as well.

Also, collaboration with universities proved to be challenging, and, outside planned workshops, unsuccessful, probably due to the bureaucratic limits of institutions or the prohibitive timing of the contest, developed and launched across summer holidays.

Direct outreach *via* Instagram was instead successful but extremely demanding in terms of workload, and still limited by the language adopted.

Direct outreach in comparison to participation.

CONTACTED ON INSTAGRAM	VISUALIZED MESSAGES	RECEIVED SUBMISSIONS	DISCARDED SUBMISSIONS
183	64	26	7
100%	34.97%	14.21%	3.83%

For future initiatives, the following strategies are suggested:

1. Direct outreach can be optimised by directly travelling to a key location and spend time approaching participants in person. This might build a better connection and visibility to the student's community and deeper understanding of the scope of the contest. That will also result in a faster and more focused effort from them.
2. An ambassador system for future contests can ensure to have proper representation right where participants are. This can be done through a referral system – students can invite other students – by collaborating with local influencers or establishing on very early stages a formal partnership with prominent institutions, like universities and municipality.
3. Media partnerships and advertisements can be placed on local newspapers and platforms.

Brevity

Despite being relatively low-effort, the contest could still be improved in terms of steps and actions taken. Participants were approached on social media and asked to go to a dedicated website, submit a photo previously taken and then fill in the questionnaire through mini games.

In case of future iterations of the Digital Contest, it could be interesting to test a simpler workflow, requiring only the image or the questionnaire, and using only one platform, like social-media, to carry out all the actions required.

This also reflects on the length and complexity of instructions provided. Fewer instructions means higher chances to attract participants.

Familiarity

The Cross-border City contest had a few elements of novelty that could be addressed. Since planning phase, it was attempted to balance the complexity of the brief with expected quality of the material received. Nevertheless, many participants got confused, discouraged, or submitted non relevant inputs.

This could be mostly related to the theme of Cross-border quality of life and the structure of the submission, which might sound too abstract for someone that comes across it for the first time. To support this assumption, we consider that participants in the workshop are the ones that provided most compelling submissions, probably because they were exposed to more detailed instructions and they had more context to work with.

To further improve future attempts of the contest, we suggest three strategies:

Use familiar mediums: like social media, so participants find themselves operating in a workflow they already know.

Use familiar formats: there are currently multiple diffuse practices for digital contents adopted by corporations, institutions and online influencers for promotional reasons. By mimicking their wording and procedures we might provide a format that is already known and familiar to most participants.

Make the topic resonate: simpler and more straightforward requests might trigger a sense of easiness and increase motivation in potential participants. In the case of a photo contest, a widely interpretable theme like “Cross-border city” might sound discouraging or abstract, while “Your trip across the border” could be more palatable. Anyhow, a too simplistic theme might backfire and produce low-quality inputs, so a careful balance is advised.

Observations and lessons learned on content output

The Cross-border city was also experimental in the mode of feedback requested.

Through visuals, participants were asked to provide a spontaneous and qualitative feedback, building a narrative rather than raw information.

Through the mini games, they were asked to elaborate on their visuals in order to grasp some more tangible parameters to be turned into indicators.

While the first aspect seemed to be very successful and somehow self-conclusive in its scope, the second showed superficial results which require an additional layer of live facilitation to reach a fully measurable indicator.

This would advocate a number of suggestions for future developments.

The contest could become a sort of preliminary activity to more traditional workshops and participation procedures. Participants could first prepare visual material, and then be selected to discuss further and elaborate in an interview or workshop.

The contest can provide a visual narrative of a condition, filtered through the perception of those that live it in first person. The same works for their aspiration or desires. In one of the mini games we asked them to google images that would somehow show an improved condition compared to the one portrayed in their

photo. The comparison of the two photos is very interesting. One comes from their imagination, the other portrays what they recognise as desirable.

In relation to the previous points, images might show a feedback that verbally would not emerge. If asked to phrase their input, participants often oversee aspects that in photos seem to be dominant. This was particularly relevant comparing mini games' answers and photos.

The results of the contest can become an engagement tool in itself through exhibitions, live events and roundtables, having others to comment and discuss the images collected.

Appendix 4 - TQoL Qualitative Survey App for indicators ranking and subjective data collection

Collecting reliable and enough detailed data to measure subjective quality of life and behavioural aspects is key to implement in full the advocated 'citizen-centric' approach to territorial quality of life measurement. To address this issue part of the pilot activities were devoted to develop a proof of concept tool for collecting decentralised data from citizens in a territory.

This tool could help to collect data on subjective perceptions, and values and opinions by means of *ad hoc* questions on different quality of life aspects, and possibly behavioural and environmental data through smartphone sensors.

Getting started – installing the Collaborative APP

The objective of this application is that the users in a recreated space have an open channel to actively participate in the management and monitoring of this territory.

How to install the App?

Step 1. Users will receive an email with a link to download the APP

Step 2. Users will have to download the APP using the smartphone in which they want to install it.

Step 3. After the downloading is finished the users will be asked if they want to install it.

Step 4. Once the APP is installed the survey icon will appear in your smartphone ready to go

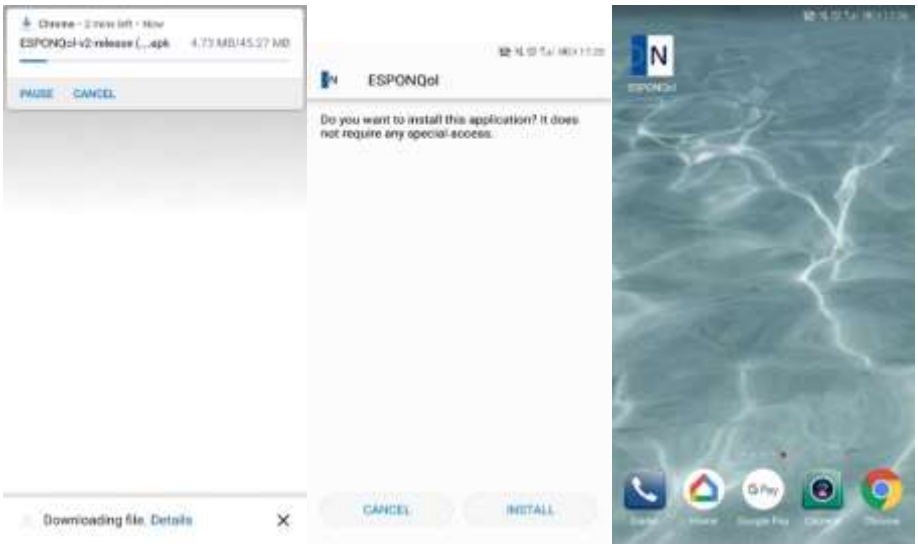


Figure 12 Step 2 (left), Step 3 (centre) and Step 4 (right) on how to install the app.

Data share protocol Agreement (data commons)

App users today are used to sharing personal data with App developers or distributers. Larger tech corporations like Google or Amazon own large volumes of data from users who have agreed to given it in exchange of the services provided. The exploitation and use of this data is restricted and reserved to internal corporate

uses. The access to this data from the public sector or even from the civil society is difficult and costly. Its use for better planning public policies is still very limited (potential uses of this data could be e.g. for monitoring citizen habits, personal preferences, mobility patterns, health conditions…).

The potential of using personal data to monitor Quality of Life in a territory is huge, as many of the most difficult variables to be surveyed could be proxy based on the monitoring of citizen behaviour or from launching quick quizzes easy to be answered. The private sector is already engaged on this: e.g. Google Quick Opinion Rewards will send questions and quizzes to users, happy to contribute as they will earn €0.05 to €0.50 per answer provided, depending on the relevance of the question. Money earned will be available for purchasing new apps on GooglePlay.

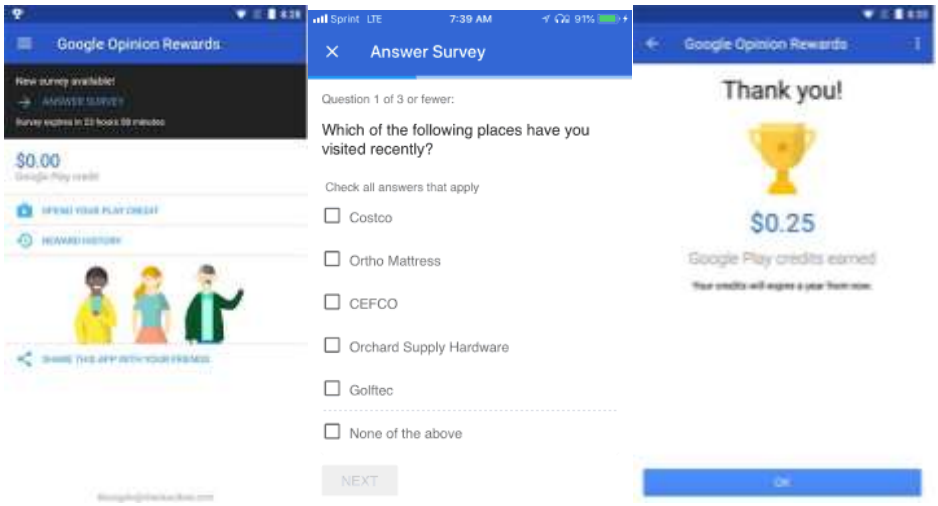


Figure 13 Google Opinion Rewards application.

We have recently seen several initiatives to address this weakness, with new solutions addressing the possibility to exchange data in an agile way between citizens themselves, or between citizens and institutions. One of these initiatives was the DECODE H2020 project (2016-2019).

DECODE has developed practical alternatives by creating and testing a distributed and open architecture for managing online identity, personal and other data, and collective governance in a citizen- and privacy-friendly way. DECODE has developed pilot tools that give people ownership of their data combining blockchain technology with attribute-based cryptography, this allows the data owners to have control over how their data is accessed and used.

One of the products of DECODE was a pilot that formalised standards-based data governance agreements (modelled on Creative Commons licences). The following figure shows the “Digital Data Commons Privacy Pledge” by DECODE which provides a set of commitments aiming to strengthen the powers of the data owner.

Annex C: Digital Data Commons Privacy Pledge

This Annex offers the Digital **Data Commons Privacy Pledge** to be undertaken by the User Data Recipient in order to access datasets including personal data.
The Digital **Data Commons Privacy Pledge** provides a set of commitments that can strengthen the powers of the data subject as set up by the EU GDPR.

Digital Data Commons Privacy Pledge

1. Definitions
For the purposes of this Digital Data Commons Privacy Pledge (hereinafter "**Pledge**"), the following definitions apply:
"**Data**": the personal data indicated in the Information.
"**Dataset**": the dataset of the Promisor including the Data.
"**Group of Data Subjects**": all the data subjects to which the personal data included in the Dataset are referred.
"**GDPR**": the Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, and repealing Directive 95/46/EC (General Data Protection Regulation).
"**Information**": the text, to which this Pledge is attached, including the information provided by the Promisor to the Promisee according to Article 13 or Article 14 of GDPR at the time when the Data are obtained.
"**Process**": the act of processing.
"**Promisee**": the data subject provided with the Information and this Pledge.
"**Promisor**": the person or entity undertaking the Pledge.
"**Safe Place**": the territory of Member States within the European Union whose laws (i) provide that its intelligence services are subject to adequate judicial and/or parliamentary control mechanisms; (ii) do not allow public authorities to perform mass surveillance practices, and/or the creation of "back doors" or any other techniques to weaken or circumvent security measures or exploit their existing weaknesses; (iii) only allow public authorities to process personal data for the prevention, investigation, detection or prosecution of criminal offences or the execution of criminal penalties following a court order granted on the basis of reasonable suspicion of the target being involved in criminal activity, and (iv) effectively comply with the Directive (EU) 2016/680 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data by competent authorities for the purposes of the prevention, investigation, detection or prosecution of criminal offences or the execution of criminal penalties, and on the free movement of such data, and repealing Council Framework Decision 2008/977/JHA.
"**Unsafe Place**": the territory of Countries that cannot be considered Safe Place and international organisations.
All the definitions set by Article 4 of the GDPR apply, such as "**personal data**", "**data subject**", "**processing**", "**controller**", "**processor**", "**third party**" and "**consent**".

2. Promise to respect privacy
The Promisor irrevocably promises to process the Data complying with the GDPR, other applicable laws, and the provisions of this Pledge.

3. Data deletion
The Promisor promises to **delete** the Data at the end of the period indicated in the Information, waiving the right to process the Data for any further period of time eventually allowed by applicable laws, except for the case the Promisee gives her consent.

4. No further purposes
The Promisor promises to process the Data exclusively for the **purposes** expressly indicated in the Information, waiving the right to any processing for further purposes eventually allowed by applicable laws, except for the case the Promisee gives her consent.

5. List of processors
The Promisor promises to process the Data using exclusively processors that are expressly indicated, with their details, in the Information, waiving the right to use any further processor eventually allowed by applicable laws, except for the case the Promisee gives her consent.

6. No Unsafe Place
The Promisor promises to store the Data in a Safe Place and to **store or transfer** the Data to an Unsafe Place only if the Promisee gives her consent, waiving the right to any further transfer eventually allowed by applicable laws.

7. Notice of disclosure
If the Promisor is legally requested to disclose the Data by any authority, the Promisor shall promptly provide the Promisee with a written notice so that the Promisee may seek for a protective order or other appropriate remedy.

8. Jurisdiction
The Promisor promises to submit to the exclusive **jurisdiction** of the courts of any and all of the EU Member States selected by the Promisee.

Figure 14 Digital Data Commons Privacy Pledge elaborated by DECODE

In the case of the ESPON QoL Qualitative Survey, the app will require, when running for the first time, that users read and agree to use a data commons protocol (for illustrative purposes, we use DE-CODE Digital Data Commons Privacy Pledge), when registering their email addresses in the platform.

Step by step in practice

Main page 1. In the main page the users will have to identify themselves (e.g. email, first and last name, code etc., by authenticating you as user you acknowledge the 'Data Digital Data Commons Privacy Pledge' that is available. This allows us to link responses to a single user. It could also be used to allow only a certain group of users to have access to the application.

Main page 2. After identifying yourself, you will be able to start the survey by clicking the "GO!" button that will appear in the centre of the screen.

Figure 15 Main page 1 (left) and Main page 2 (right).

Quality of Life Qualitative Survey

The current Qualitative Survey App content was designed in a co-creation workshop with students in Trieste (September 2021), its contents are framed around one key concept:

- ✓ ***How do you see your future in the cross-border area? What do you think are the 'pluses' that should be maintained and the 'minuses' that should be changed for living well in the Cross-Border area?***

The survey is comprises four questions, the first two relating to the best aspects of living in the area and the last two to the worst aspects.

- In the first question of both sets, the user is presented with the TQoL sub-domains (language and the number of questions has been adjusted to 12 aspects for communication purposes). Users will have to select the best performing aspect (Question 1.1) and the worst performing aspect (Question 2.1) in the cross-border region, among all the TQoL sub-domains.
- In the second question of both sets, they will be able to add a qualitative explanation on why they have chosen those aspects (Question 1.2 and 2.2) and provide real life examples illustrating them.

The first of question allows us to perform an assessment of the relative importance of each of the quality of life sub-domains, by taking into account that aspects selected iteratively (for the good or for the bad) could have higher weights in the TQoL Framework and fit in the TQoL dashboard.

The second question allows us to better understand qualitative aspects and subjective perceptions.

Step by step in practice

Question 1.1. After clicking the "GO!" button the question "*What do you think are the best aspects of living in the cross-border area?* will appear.

Users will be able to select up to three items from a Dropdown list. The list contains different Quality of Life aspects extracted from the TQoL Dashboard framework.

Quality of housing and basic services	Social protection and inclusive society
Health System quality	Urban vitality and landscape
Educational System quality	Quality of social relations
Job opportunities	Capacity of self-fulfilment
Transport and mobility	Reliability and trust in the public administration
Digital infrastructure	Environmental quality

Users will not be able to go to the next question until they select at least one Quality of Life aspect, the warning message “Please, select at least 1 aspect” will appear if they have not selected any yet.

Question 1.2. After clicking the “Next” button the question “*Could you explain why these aspects are the best??* will appear.

This one is an open question where the users will be able to explain with detail why they have selected those aspects.

Figure 16 Questions 1.1 (left) and 1.2 (right) referring to the best aspects of living in the cross-border area.

Question 2.1. After clicking the “Next!” button the question “*What do you think are the worst aspects of living in the cross-border area*? will appear.

Users will be able to select up to three items from a Dropdown list, same as the one in the Question 1.1. Users will not be able to go to the next question until they select at least one Quality of Life aspect, the same warning message as in the Question 1.1 will appear if they have not selected any yet.

Question 2.2. After clicking the “Next” button the second question “*Could you explain why these aspects are the worst?* will appear.

This one is an open question where the users will be able to explain with detail why they have selected those aspects

Figure 17 Questions 2.1 (left) and 2.2 (right) referring to the worst aspects of living in the cross-border area.

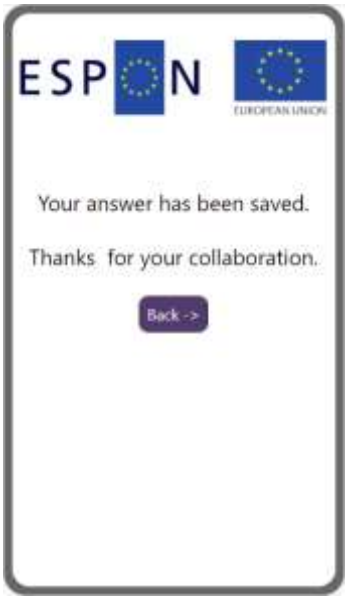


Figure 18 Last page.

Once the user answers the last question, the system collects the answers in a centralised database where all data is accessible for post-processing.

Last page. After clicking the “Next” button in the last question, all the answers will be send and saved in the database. The message “Your answer has been saved. Thanks for your collaboration” will appear. From this page users will be able to go back to the “Main Page”. The survey allows users to answer the questions again, the previous ones will be discarded.

Implemented app functionalities for qualitative QoL surveying

Besides the survey presented above, several additional tools are built in the ESPON QoL Qualitative Surveys app for customised Quality of Life surveys. These functionalities are presented next:

- Questions where users state their level of agreement with a stated idea (indicative example: “How much, do you think, would your neighbours help you if you had a problem?” a) Totally sure they would help; b) not very sure; c) uncertain d) sure they would not help).
- Questions where users state an option between pairs of preferences (indicative example: “Which statement do you feel more comfortable with (state magnitude of relative preference): a) I would rather secure a well equipped apartment; b) I would rather have good, reliable and friendly neighbours).
- Boolean questions (indicative example: “Do you trust your elected representatives? a) Yes; b) No).
- Collecting data from smartphones (indicative example: “Daily amount of hours where phone screen is active”). This could help create new indicators when used at a larger scale. The users should give permission for the collection and use of their data by accepting a "terms and conditions agreement" through the application (this is the ordinary procedure for the use of any app).
- Requesting a qualitative contribution related to a statement (indicative example: “State you concerns related to cross-border work-related commuting)

- Requesting a multimedia contribution (e.g., send a picture or a voice message related to a certain problematic).
- Set the time in which the user will receive questions, could be fixed (certain days and time) or periodic (e.g. every day at midday).
- Programme place-based questions, questions will be sent when users are at certain key locations, the app will need access to smartphone location.
- Schedule questions according to the user's profile, users will have to first answer profiling questions regarding age, nationality, study level, etc.

This functionalities can be used to produce new qualitative Quality of Life surveys in a flexible way.

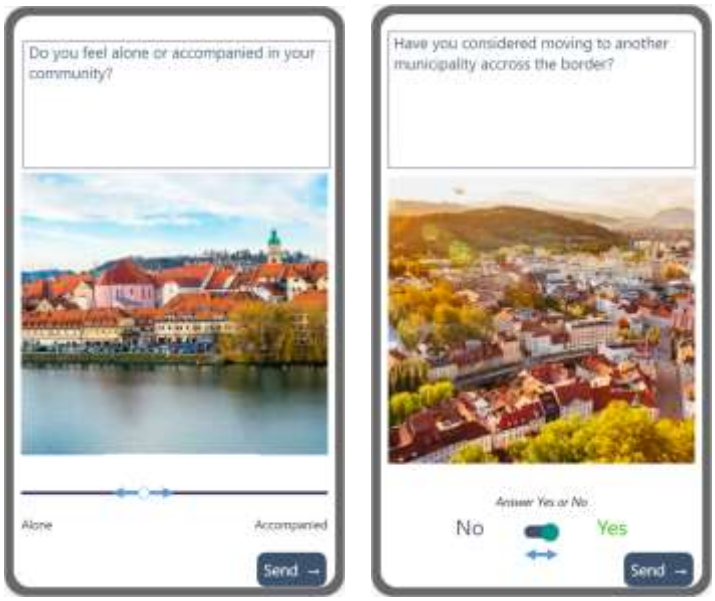


Figure 19 Rating scale (left) and Yes/No (right) questions.

Technology features

Standard technology is used, with high compatibility with different smartphone models. The options analysed so far for the development of the App comply with the following development characteristics:

- Distributable (available on App store...)
- Intuitive (visual development environments, block programming)
- Visual development environments (easy to programme and modifiable with a low cost in resources and time)

It should be noted that the above conditions, especially the last two points, may lead to a decrease in the number of design options as well as in the amount of functionalities available to the App developers.

We initially considered four tools, which are currently the most widespread on the market: App Inventor, Thunkable, Kodular and Appybuilder. Their features are presented in the table below.

Aplicación	App Inventor	Thunkable	Kodular	Appybuilder
Developer	MIT	Thunkable	Makeroid	
Country	(launched by Google)	USA	Netherlands	
Compatible Android	USA	x	x	x
iOS Compatible	x	x		

Aplicación	App Inventor	Thunkable	Kodular	Appybuilder
Open Source			x	
License	x	200_USD/year	Free	No future security
Extensions	Creative Commons 3.0	(during development phase)	x	x
Components (approximate number)	x	x	150	150
Possibility to customise the design	85	> 150	Media	Media
Minimum Android OS version	Low	High	4.0+	4.1+
Full documentation	2.2 (4.0+ recommended)	(Material design)	x	x
Examples	x	4.0+	x	x
Testing	x	x	smartphone/emulator with limitations	smartphone
Users	smartphone/emulator with limitations	x	180.000	160.000
Developments	8 million	smartphone/emulator with limitations	430.000	550.000

App Inventor is the tool created by the Massachusetts Institute of Technology (MIT) for educational purposes and open source on which the other three are based. Thunkable, Kodular and Appybuilder use the App Inventor platform and protocols based on the ".aia" format. App Inventor enjoys technological robustness and a high rate of updates, although its visual interface is less attractive than that of the other applications. These, in turn, are based on the development of visual and functional add-ons implemented on top of the App Inventor standard, improving the presentation and capacity of the applications generated, but making use of App Inventor updates at all times.

Among all the available options, we used "Thunkable" as it allows agile developments with a wide range of functionalities. In turn, the applications generated with this package are compatible with both Android and iOS, which makes it possible to reach a larger target user audience.

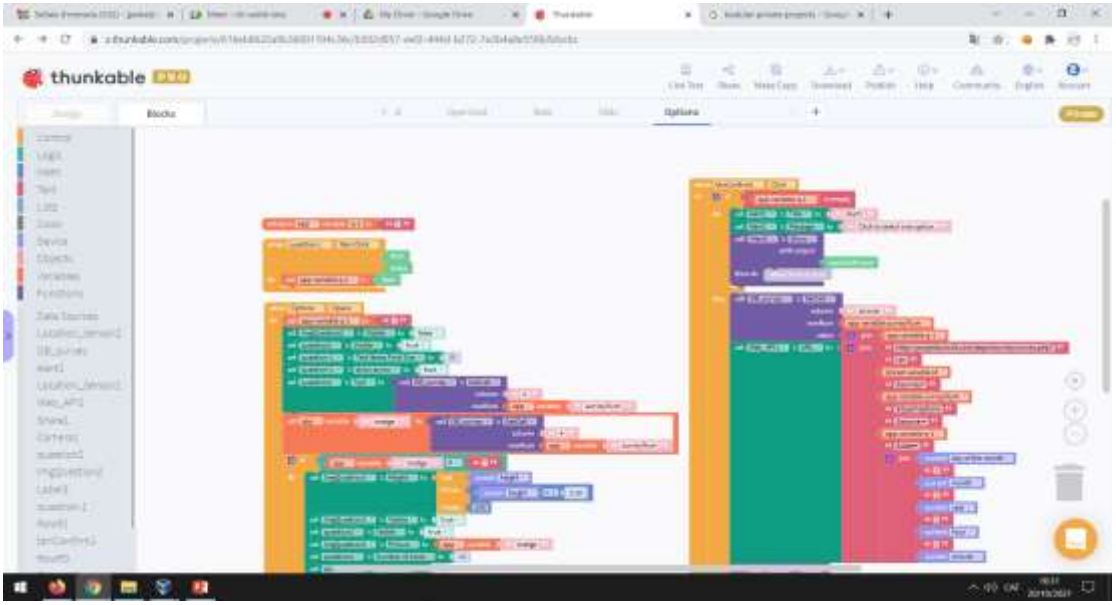


Figure 20 Thunkable system development environment.

Appendix 5 - NUMBEO cost of living indices in Trieste, Koper, Pula

Before NUMBEO was created (April 2009),[61] there was no other free Internet databases for personal usage where users could easily compare cost of living around the world (with structured data and indices). Cost of living reports had the data behind their research hidden or expensive to purchase. Their research was very limited in the number of cities included, and it was difficult to scale up without a significant increase in expenses since they relied on manually collected data. Also, there was no insight about the error rate in their manually collected data. Manual collection of cost of living data is prone to errors:

- There is a different price during the year – price fluctuation/volatility (e.g. cheaper fruits and vegetables during the summer; high fluctuation of potato price because of lack of storage and high moisture; supermarkets running a temporary discount on some items).
- Different supermarkets, bars and restaurants have usually different prices of the same or similar items.
- There are different types of milk, cheese, etc. with different prices even in the same supermarket.
- The country could face temporary shortages of a given item which could drive the price up temporarily (e.g. rice shortages).
- If only one or a few people collect price data, the information is not statistically reliable and should be taken with caution.
- Free reports available before 2009 usually include just an index, which is not enough for a personal estimate since a person cannot be considered as an *average* person due to different lifestyles such as:
    - the size of a family (number of dependent persons);
    - dining out or eating at home;
    - renting or owning an apartment;
    - driving a car or using a public transport.

Before the Great Recession (World Economic Crisis of 2007-2009) a real estate bubble became evident. It widely influenced decisions that people make regarding relocation. To the founder of this website, it seemed that the world needed more tools to analyse that bubble. So, that is how NUMBEO was born. Now it:

- provides many free information about consumer prices;
- allows a person to estimate their own expenses;
- uses the wisdom of the crowd to get the most reliable data;
- provides a system for various systematic research on a big dataset with a global coverage.

[61] This description of the NUMBEO methodology has been taken from the NUMBEO website accessed on October 2021: https://www.numbeo.com/common/motivation_and_methodology.jsp

NUMBEO METHODOLOGY

Collecting and processing data

To collect data NUMBEO relies on user inputs and manually collected data from authoritative sources (web-sites of supermarkets, taxi company websites, governmental institutions, newspaper articles, other surveys, etc.). Manually collected data from established sources are entered twice per year.

Automatic and semi-automatic filters filter out noise data. User behaviour and previous data for the city/country are used to determine the likelihood of a certain input whether it is considered as spam. There are more than 30 sophisticated filters in use. The performance rate of the filter is enhanced once more inputs are included. In a nutshell, NUMBEO uses heuristic technology to get the data quality. Using the existing data NUMBEO periodically discards data which are most likely incorrect statistically.

NUMBEO also archives the values of old data (default data deprecation policy is 12 months, although data up to 18 months old are used when no fresh data are available and indicators are suggesting that inflation is low in a particular country). The values of old data are preserved to be used for historical purposes.

Aggregating data for a country

To aggregate data for a country, all entries (for all cities) are used to calculate average country data. Note that it is different from the averaging calculated data for all cities in that country. So, in calculations for the country, we are weighing a city by the number of contributors. Since there are higher number of inputs for a country than for a city, aggregate data showed on a country level consist, in general, of much more data points.

Cost of Living Indices

Cost of Living Indices are built based on our 'best guess' of average expenses in a given city for a four-person family. Weights used in averaging are subject to change over time.

These indices are **relative to New York City (NYC)**. Which means that for New York City, each index should be 100%. If another city has, for example, rent index of 120, it means that on an average in that city rents are 20% more expensive than in New York City. If a city has a rent index of 70 that means on average rent in that city is 30% less expensive than in New York City. The following are the cost of living indices available in the dataset:

- **Cost of Living Index (excluding rent)** is a relative indicator of consumer goods prices, including groceries, restaurants, transport and utilities. Cost of Living Index does not include accommodation expenses such as rent or mortgage. If a city has a Cost of Living Index of 120, it means NUMBEO has estimated it is 20% more expensive than New York (excluding rent).
- **Rent Index** is an estimate of prices of renting apartments in the city compared to New York City. If Rent index is 80, NUMBEO has estimated that rents in that city is on average 20% less than the rents in New York.
- **Groceries Index** is an estimate of grocery prices in the city compared to New York City. To calculate this section, NUMBEO uses weights of items in the "Markets" section for each city.
- **Restaurants Index** is a comparison of prices of meals and drinks in restaurants and bars compared to NYC.
- **Cost of Living Plus Rent Index** is an estimate of consumer goods prices including rent comparing to New York City.
- **Local Purchasing Power** shows relative purchasing power in buying goods and services in a given city for the average net salary in that city. If domestic purchasing power is 40, this means that the inhabitants of that city with an average salary can afford to buy an average of 60% fewer goods and services than New York City residents with an average salary.

Currencies

Multiple currency feeds including European Central Bank feed are used to update our internal currency exchange rates almost every hour. For each entry of the contributors, the value is stored in the database in EUR, USD and currency of the input (using current exchange rates). When calculating averages, one of

those entries are reused, based on currency stability and predominant currency in the country to try to minimise cross currency comparison errors.

Monthly historical exchange rates are used to calculate historical data (mid-month currency exchange rate). If end users choose a custom display currency for displaying historical data in a year, the mid-year currency exchange rate is used to calculate displayed data.

Taxes

Data about prices have sales tax (such as VAT) included. Average salary data contain the value after income taxes. These data are used directly to estimate local purchasing power.

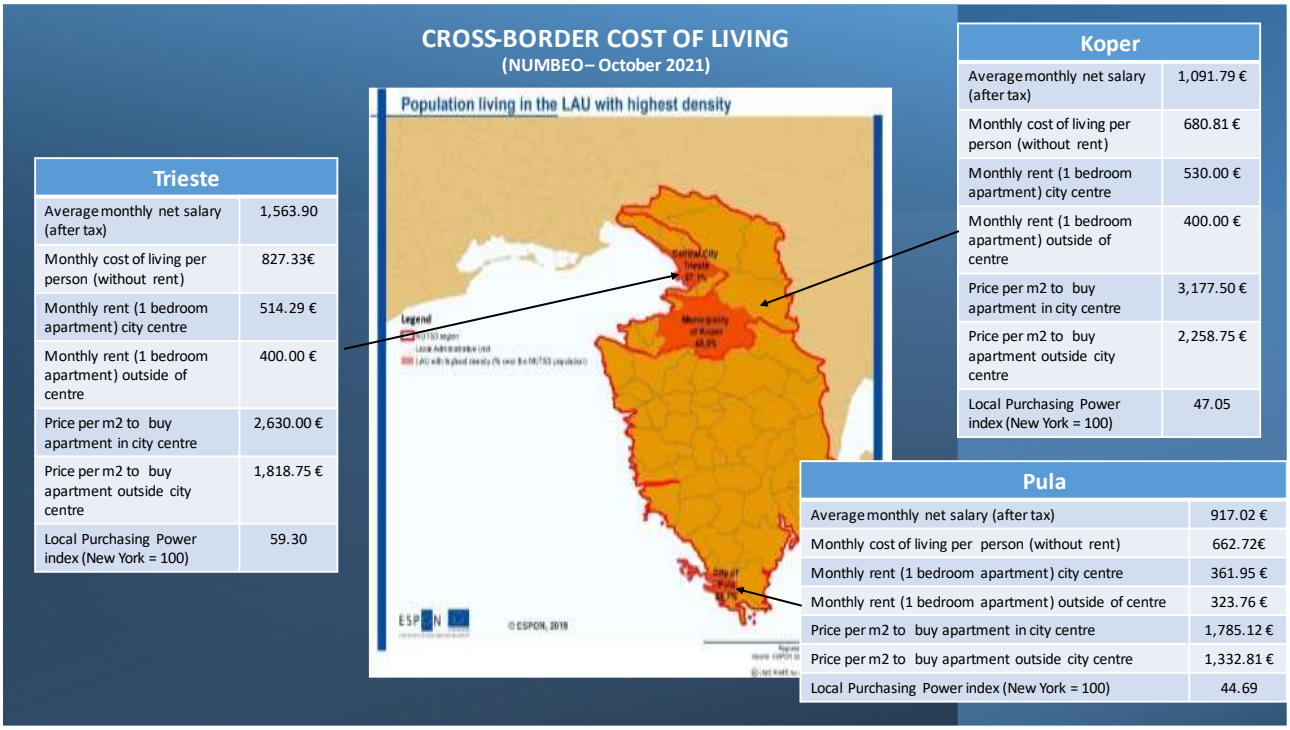
Comparison of cost of living between Trieste, Koper and Pula: synthetic indices

In the following figure seven cost of living parameters are compared across the border, between Trieste, Koper and Pula.

In Trieste the local purchasing power index (59.30) is 12 points greater than in Koper (47.05) and almost 15 points greater than in Pula (44.69). This means that people living in Trieste have on average a purchasing power 26% higher than people in Koper, and almost 33% higher than in Pula. This is mostly due to the difference in the average monthly net salary, which is 43% higher in Trieste (€1,564) than in Koper (€1,092) and again 70% higher in Trieste than in Pula (€917). The monthly cost of living per person is also higher in Trieste, but not so much: 827 € against €681 in Koper (+ 21%) and €663 in Pula (+ 25%).

In practice, the most relevant purchasing power difference is between Trieste and Koper, as the gap is high and the two cities are very near, making daily commuting for shopping, leisure or other activities convenient. It is much less relevant between Koper and Pula – the difference being very low and the cities at greater distance – and between Trieste and Pula, due to the longer distance – currently augmented by the time it takes to cross the Croatian border – that definitively reduces the convenience of daily commuting (but not for short week-end leisure trips on the attractive coastal and rural areas in Istria). In substance, people living in Trieste gain from the open border with Slovenia, their purchasing power being augmented by crossing the border to buy basic goods (e.g. petrol, food) and services (e.g. sport and leisure) that cost less. For people living in Koper it is not the same, the relation is not symmetrical: if they cross the border for shopping it is not for buying cheaper products, but higher quality products, which eventually reduces their purchasing power but still increase the portfolio of consumption opportunities for the wealthier (one exception however is in the sector of fashion goods, where Zara and other chains present in Trieste sell at lower prices than in Koper).

Finally, it is interesting to note the opposite dynamics in the housing market. To buy an apartment in Trieste city centre (€2,630 per square metre) costs on average 17% less than in the Koper city centre (€3,177), making it convenient to move from Koper to Trieste, at least to buy a property. The same dynamic is observed for the relative prices of apartments outside the city centres.



Comparison of cost of living between Trieste, Koper and Pula: detailed data[62]

Consistent differences in average net salaries and cost of living have a direct impact by raising the cross-border flows of people living near the border for buying basic goods (e.g. petrol), shopping, leisure, as it happens between the Trieste and Koper. One the one hand, most of the people living in the wealthier region (Trieste) benefit from an even greater purchasing power when buying goods and services in the less wealthy region (Koper). On the other hand, at least the wealthier people living in Slovenia benefit from a wider portfolio of consumption opportunities, e.g. crossing the border to buy fashion products in Trieste.

The following tables compare the prices for single items between the cities of Trieste, Koper and Pula.

Table 19 Cost of living comparison between Koper and Trieste

RESTAURANTS:	Koper (€)	Trieste (€)	Difference (%)
Meal, Inexpensive Restaurant	7.00	15.00	+114.29
Meal for 2 People, Mid-range Restaurant, Three-course	35.00	60.00	+71.43
McMeal at McDonalds (or Equivalent Combo Meal)	5.25	8.50	+61.90
Domestic Beer (0.5 litre draught)	2.35	4.00	+70.21
Imported Beer (0.33 litre bottle)	2.50	4.00	+60.00
Cappuccino (regular)	1.45	1.50	+3.45
Coke/Pepsi (0.33 litre bottle)	2.00	2.28	+13.89
Water (0.33 litre bottle)	1.38	1.23	-10.91

[62] Information available on the NUMBEO web-site, with data updated at September 2021

FOOD MARKETS:	**Koper (€)**	**Trieste (€)**	**Difference (%)**
Milk (regular), (1 litre)	0.97	1.17	+21.03
Loaf of Fresh White Bread (500g)	0.92	1.90	+107.73
Rice (white), (1kg)	1.83	2.03	+10.91
Eggs (regular) (12)	2.21	2.61	+18.46
Local Cheese (1kg)	9.80	11.92	+21.66
Chicken Fillets (1kg)	6.00	9.54	+59.06
Beef Round (1kg) (or Equivalent Back Leg Red Meat)	10.50	19.99	+90.34
Apples (1kg)	1.30	2.07	+59.54
Banana (1kg)	1.40	1.60	+14.20
Oranges (1kg)	1.30	2.34	+79.81
Tomato (1kg)	2.23	2.40	+7.87
Potato (1kg)	0.70	1.54	+120.63
Onion (1kg)	1.24	2.26	+82.83
Lettuce (1 head)	1.25	1.30	+3.84
Water (1.5 litre bottle)	0.50	0.45	-10.25
Bottle of Wine (Mid-Range)	5.00	5.00	0.00
Domestic Beer (0.5 litre bottle)	1.12	1.30	+15.89
Imported Beer (0.33 litre bottle)	1.62	2.27	+39.85
Cigarettes 20 Pack (Marlboro)	4.05	5.75	+41.98
TRANSPORT	**Koper (€)**	**Trieste (€)**	**Difference (%)**
One-way Ticket (Local Transport)	1.50	1.35	-10.00
Monthly Pass (Regular Price)	10.00	35.62	+256.25
Taxi Start (Normal Tariff)	1.00	3.50	+250.00
Taxi 1km (Normal Tariff)	1.10	1.20	+9.09
Taxi 1 hour Waiting (Normal Tariff)	15.00	25.00	+66.67
(1 litre)	1.28	1.56	+21.59
Volkswagen Golf 1.4 90 KW Trendline (Or Equivalent New Car)	20,500	26,500	+29.27

Toyota Corolla Sedan 1.6l 97kW Comfort (Or Equivalent New Car)	19,100	29,250	+53.14
UTILITIES (Monthly)	**Koper (€)**	**Trieste (€)**	**Difference (%)**
Basic (Electricity, Heating, Cooling, Water, Garbage) for 85m2 Apartment	201.07	176.51	-12.21
1 min. of Prepaid Mobile Tariff Local (No Discounts or Plans)	0.10	0.12	+17.07
Internet (60 Mbps or More, Unlimited Data, Cable/ADSL)	30.50	27.67	-9.29
SPORT & LEISURE:	**Koper (€)**	**Trieste (€)**	**Difference (%)**
Fitness Club, Monthly Fee for 1 Adult	43.33	52.78	+21.79
Tennis Court Rent (1 Hour on Weekend)	22.00	18.20	-17.27
Cinema, International Release, 1 Seat	6.00	10.00	+66.67
CHILDCARE:	**Koper (€)**	**Trieste (€)**	**Difference (%)**
Preschool (or Kindergarten), Full Day, Private, Monthly for 1 Child	400.00	571.43	+42.86
International Primary School, Yearly for 1 Child	6,000	13,800	+130.00
CLOTHING & SHOES:	**Koper (€)**	**Trieste (€)**	**Difference (%)**
1 Pair of Jeans (Levis 501 or Similar)	62.50	83.74	+33.99
1 Summer Dress in a Chain Store (Zara, H&M, ...)	32.00	30.87	-3.52
1 Pair of Nike Running Shoes (Mid-Range)	71.67	88.12	+22.97
1 Pair of Men's Leather Business Shoes	95.00	158.75	+67.11
RENT per Month:	**Koper (€)**	**Trieste (€)**	**Difference (%)**
Apartment (1 bedroom) in City Centre	530.00	514.29	-2.96
Apartment (1 bedroom) Outside of Centre	400.00	400.00	0.00
Apartment (3 bedrooms) in City Centre	1,050.00	850.00	-19.05
Apartment (3 bedrooms) Outside of Centre	800.00	669.29	-16.34
BUY APARTMENT PRICE:	**Koper (€)**	**Trieste (€)**	**Difference (%)**
Price per Square Metre to Buy Apartment in City Centre	3,177.50	2,630.09	-17.23
Price per Square Metre to Buy Apartment Outside of Centre	2,258.75	1,818.75	-19.48
SALARIES & MORTGAGE	**Koper**	**Trieste**	**Difference**

	(€)	(€)	(%)
Average Monthly Net Salary (After Tax)	1,091.79	1,563.90	+43.24
Mortgage Interest Rate in Percentages (%), Yearly, for 20 Years Fixed-Rate	2.47	1.89	-23.54 %
Last update:	*October 2021*	*October 2021*	
Contributors in the past 12 months:	*9*	*38*	

Table 20 Cost of living comparison between Koper and Pula

RESTAURANTS:	**Koper (€)**	**Pula (€)**	**Difference (%)**
Meal, Inexpensive Restaurant	7.00 (52.49 kn)	9.33 (70.00 kn)	+33.35
Meal for 2 People, Mid-range Restaurant, Three-course	35.00 € (262.47 kn)	30.00 € (225.00 kn)	-14.28
McMeal at McDonalds (or Equivalent Combo Meal)	5.25 (39.37 kn)	5.60 (42.00 kn)	+6.68
Domestic Beer (0.5 litre draught)	2.35 (17.62 kn)	2.67 (20.00 kn)	+13.49
Imported Beer (0.33 litre bottle)	2.50 (18.75 kn)	2.40 (18.00 kn)	-3.99
Cappuccino (regular)	1.45 (10.87 kn)	1.41 (10.57 kn)	-2.78
Coke/Pepsi (0.33 litre bottle)	2.00 (15.00 kn)	2.13 (16.00 kn)	+6.68
Water (0.33 litre bottle)	1.38 (10.31 kn)	1.38 (10.33 kn)	+0.21
FOOD MARKETS:	**Koper (€)**	**Pula (€)**	**Difference (%)**
Milk (regular), (1 liitre)	0.97 (7.25 kn)	0.99 (7.41 kn)	+2.19
Loaf of Fresh White Bread (500g)	0.92 (6.87 kn)	0.97 (7.25 kn)	+5.47
Rice (white), (1kg)	1.83 (13.75 kn)	2.35 (17.62 kn)	+28.16
Eggs (regular) (12)	2.21 (16.54 kn)	2.53 (18.99 kn)	+14.87
Local Cheese (1kg)	9.80 (73.49 kn)	15.89 (119.17 kn)	+62.15
Chicken Fillets (1kg)	6.00 (44.99 kn)	14.80 (110.96 kn)	+146.61
Beef Round (1kg) (or Equivalent Back Leg Red Meat)	10.50 (78.74 kn)	12.82 (96.17 kn)	+22.13
Apples (1kg)	1.30 (9.75 kn)	1.57 (11.74 kn)	+20.46

Banana (1kg)	1.40 (10.50 kn)	1.61 (12.08 kn)	+15.05
Oranges (1kg)	1.30 (9.75 kn)	1.47 (11.00 kn)	+12.80
Tomato (1kg)	2.23 (16.69 kn)	0.86 (6.42 kn)	-61.51
Potato (1kg)	0.70 (5.25 kn)	0.83 (6.25 kn)	+19.06
Onion (1kg)	1.24 (9.28 kn)	0.64 (4.80 kn)	-48.28
Lettuce (1 head)	1.25 (9.37 kn)	1.00 (7.47 kn)	-20.26
Water (1.5 litre bottle)	0.50 (3.75 kn)	1.23 (9.25 kn)	+146.65
Bottle of Wine (Mid-Range)	5.00 (37.50 kn)	5.67 (42.50 kn)	+13.35
Domestic Beer (0.5 litre bottle)	1.12 (8.42 kn)	1.56 (11.67 kn)	+38.60
Imported Beer (0.33 litre bottle)	1.62 (12.19 kn)	2.00 (14.98 kn)	+22.96
Cigarettes 20 Pack (Marlboro)	4.05 (30.37 kn)	4.27 (32.00 kn)	+5.36
TRANSPORT:	**Koper (€)**	**Pula (€)**	**Diffe-rence (%)**
One-way Ticket (Local Transport)	1.50 (11.25 kn)	1.47 (11.00 kn)	-2.21
Monthly Pass (Regular Price)	10.00 (74.99 kn)	30.67 (230.00 kn)	+206.70
Taxi Start (Normal Tariff)	1.00 (7.50 kn)	3.00 (22.50 kn)	+200.04
Taxi 1km (Normal Tariff)	1.10 (8.25 kn)	1.07 (8.00 kn)	-3.02
Taxi 1hour Waiting (Normal Tariff)	15.00 (112.49 kn)	6.67 (50.00 kn)	-55.55
Petrol (1 litre)	1.28 (9.60 kn)	1.33 (9.94 kn)	+3.51

Volkswagen Golf 1.4 90 KW Trendline (Or Equivalent New Car)	20,500.00 (153,731.16 kn)	20,135.80 (151,000.00 kn)	-1.78
Toyota Corolla Sedan 1.6l 97kW Comfort (Or Equivalent New Car)	19,100.00 (143,232.45 kn)	20,446.95 (153,333.33 kn)	+7.05
UTILITIES (Monthly):	**Koper (€)**	**Pula (€)**	**Difference (%)**
Basic (Electricity, Heating, Cooling, Water, Garbage) for 85m2 Apartment	201.07 (1,507.84 kn)	144.37 (1,082.61 kn)	-28.20
1 min. of Prepaid Mobile Tariff Local (No Discounts or Plans)	0.10 (0.77 kn)	0.09 (0.70 kn)	-8.93
Internet (60 Mbps or More, Unlimited Data, Cable/ADSL)	30.50 (228.72 kn)	35.33 (264.94 kn)	+15.83
SPORTS & LEISURE:	**Koper (€)**	**Pula (€)**	**Difference (%)**
Fitness Club, Monthly Fee for 1 Adult	43.33 (324.96 kn)	32.96 (247.14 kn)	-23.95
Tennis Court Rent (1 Hour on Weekend)	22.00 (164.98 kn)	10.67 (80.00 kn)	-51.51
Cinema, International Release, 1 Seat	6.00 (44.99 kn)	5.33 (40.00 kn)	-11.10
CHILDCARE:	**Koper (€)**	**Pula (€)**	**Difference (%)**
Preschool (or Kindergarten), Full Day, Private, Monthly for 1 Child	400.00 (2,999.63 kn)	115.01 (862.50 kn)	-71.25
International Primary School, Yearly for 1 Child	6,000.00 (44,994.49 kn)	2,666.99 (20,000.00 kn)	-55.55
CLOTHING & SHOES:	**Koper (€)**	**Pula (€)**	**Difference (%)**
1 Pair of Jeans (Levis 501 Or Similar)	62.50 (468.69 kn)	71.68 (537.50 kn)	+14.68
1 Summer Dress in a Chain Store (Zara, H&M, ...)	32.00 (239.97 kn)	36.00 (270.00 kn)	+12.51
1 Pair of Nike Running Shoes (Mid-Range)	71.67 (537.43 kn)	87.53 (656.43 kn)	+22.14

1 Pair of Men's Leather Business Shoes	95.00 (712.41 kn)	96.68 (725.00 kn)	+1.77
RENT per Month	**Koper (€)**	**Pula (€)**	**Difference (%)**
Apartment (1 bedroom) in City Centre	530.00 (3,974.51 kn)	361.95 (2,714.29 kn)	-31.71
Apartment (1 bedroom) Outside of Centre	400.00 (2,999.63 kn)	323.76 (2,427.91 kn)	-19.06
Apartment (3 bedrooms) in City Centre	1,050.00 (7,874.04 kn)	583.72 (4,377.33 kn)	-44.41
Apartment (3 bedrooms) Outside of Centre	800.00 (5,999.26 kn)	457.20 (3,428.57 kn)	-42.85
BUY APARTMENT PRICE:	**Koper (€)**	**Pula (€)**	**Difference (%)**
Price per Square Metre to Buy Apartment in City Centre	3,177.50 (23,828.33 kn)	1,785.12 (13,386.73 kn)	-43.82
Price per Square Metre to Buy Apartment Outside of Centre	2,258.7 (16,938.55 kn)	1,332.81 (9,994.85 kn)	-40.99
SALARIES & MORTGAGE	**Koper (€)**	**Pula (€)**	**Difference (%)**
Average Monthly Net Salary (After Tax)	1,091.79 (8,187.40 kn)	917.02 (6,876.84 kn)	-16.01
Mortgage Interest Rate in Percentages (%), Yearly, for 20 Years Fixed-Rate	2.47	4.35	+76.35
Last update:	*October 2021*	*September 2021*	
Contributors in the past 12 months:	9	24	

Table 21 Cost of living comparison between Trieste and Pula

RESTAURANTS:	**Trieste (€)**	**Pula (€)**	**Difference (%)**
Meal, Inexpensive Restaurant	15.00 (112.49 kn)	9.33 (70.00 kn)	-37.77
Meal for 2 People, Mid-range Restaurant, Three-course	60.00 (449.94 kn)	30.00 (225.00 kn)	-49.99
McMeal at McDonalds (or Equivalent Combo Meal)	8.50 (63.74 kn)	5.60 (42.00 kn)	-34.11
Domestic Beer (0.5 litre draught)	4.00 (30.00 kn)	2.67 (20.00 kn)	-33.33
Imported Beer (0.33 litre bottle)	4.00 (30.00 kn)	2.40 (18.00 kn)	-39.99
Cappuccino (regular)	1.50 (11.25 kn)	1.41 (10.57 kn)	-6.02
Coke/Pepsi (0.33 litre bottle)	2.28 (17.08 kn)	2.13 (16.00 kn)	-6.33
Water (0.33 litre bottle)	1.23 (9.19 kn)	1.38 (10.33 kn)	+12.49
FOOD MARKETS:	**Trieste (€)**	**Pula (€)**	**Difference (%)**
Milk (regular), (1 litre)	1.17 (8.77 kn)	0.99 (7.41 kn)	-15.57
Loaf of Fresh White Bread (500g)	1.90 (14.28 kn)	0.97 (7.25 kn)	-49.23
Rice (white), (1kg)	2.03 (15.25 kn)	2.35 (17.62 kn)	+15.56
Eggs (regular) (12)	2.60 (19.59 kn)	2.53 (18.99 kn)	-3.03
Local Cheese (1kg)	11.92 (89.41 kn)	15.89 (119.17 kn)	+33.29
Chicken Fillets (1kg)	9.54 (71.57 kn)	14.80 (110.96 kn)	+55.04
Beef Round (1kg) (or Equivalent Back Leg Red Meat)	19.99 (149.87 kn)	12.82 (96.17 kn)	-35.84
Apples (1kg)	2.07 (15.55 kn)	1.57 (11.74 kn)	-24.49

Banana (1kg)	1.60 (11.99 kn)	1.61 (12.08 kn)	+0.75
Oranges (1kg)	2.34 (17.53 kn)	1.47 (11.00 kn)	-37.27
Tomato (1kg)	2.40 (18.00 kn)	0.86 (6.42 kn)	-64.32
Potato (1kg)	1.54 (11.58 kn)	0.83 (6.25 kn)	-46.04
Onion (1kg)	2.26 (16.97 kn)	0.64 (4.80 kn)	-71.71
Lettuce (1 head)	1.30 (9.73 kn)	1.00 (7.47 kn)	-23.21
Water (1.5 litre bottle)	0.45 (3.37 kn)	1.23 (9.25 kn)	+174.82
Bottle of Wine (Mid-Range)	5.00 (37.50 kn)	5.67 (42.50 kn)	+13.35
Domestic Beer (0.5 litre bottle)	1.30 (9.76 kn)	1.56 (11.67 kn)	+19.59
Imported Beer (0.33 litre bottle)	2.27 (17.04 kn)	2.00 (14.98 kn)	-12.08
Cigarettes 20 Pack (Marlboro)	5.75 (43.12 kn)	4.27 (32.00 kn)	-25.79
TRANSPORT:	**Trieste (€)**	**Pula (€)**	**Diffe-rence (%)**
One-way Ticket (Local Transport)	1.35 (10.12 kn)	1.47 (11.00 kn)	+8.66
Monthly Pass (Regular Price)	35.62 (267.15 kn)	30.67 (230.00 kn)	-13.91
Taxi Start (Normal Tariff)	3.50 (26.25 kn)	3.00 (22.50 kn)	-14.28
Taxi 1km (Normal Tariff)	1.20 (9.00 kn)	1.07 (8.00 kn)	-11.10
Taxi 1hour Waiting (Normal Tariff)	25.00 (187.48 kn)	6.67 (50.00 kn)	-73.33
Petrol (1 litre)	1.56 (11.67 kn)	1.33 (9.94 kn)	-14.87

Volkswagen Golf 1.4 90 KW Trendline (Or Equivalent New Car)	26,500.00 (198,725.65 kn)	20,135.80 (151,000.00 kn)	-24.02
Toyota Corolla Sedan 1.6l 97kW Comfort (Or Equivalent New Car)	29,250.00 (219,348.12 kn)	20,446.95 (153,333.33 kn)	-30.10
UTILITIES (Monthly)	**Trieste (€)**	**Pula (€)**	**Difference (%)**
Basic (Electricity, Heating, Cooling, Water, Garbage) for 85m2 Apartment	176.51 (1,323.69 kn)	144.37 (1,082.61 kn)	-18.21
1 min. of Prepaid Mobile Tariff Local (No Discounts or Plans)	0.12 (0.90 kn)	0.09 (0.70 kn)	-22.21
Internet (60 Mbps or More, Unlimited Data, Cable/ADSL)	27.67 (207.47 kn)	35.33 (264.94 kn)	+27.70
SPORTS & LEISURE	**Trieste (€)**	**Pula (€)**	**Difference (%)**
Fitness Club, Monthly Fee for 1 Adult	52.78 (395.78 kn)	32.96 (247.14 kn)	-37.56
Tennis Court Rent (1 Hour on Weekend)	18.20 (136.48 kn)	10.67 (80.00 kn)	-41.38
Cinema, International Release, 1 Seat	10.00 (74.99 kn)	5.33 (40.00 kn)	-46.66
CHILDCARE	**Trieste (€)**	**Pula (€)**	**Difference (%)**
Preschool (or Kindergarten), Full Day, Private, Monthly for 1 Child	571.43 (4,285.19 kn)	115.01 (862.50 kn)	-79.87
International Primary School, Yearly for 1 Child	13,800.00 (103,487.32 kn)	2,666.99 (20,000.00 kn)	-80.67
CLOTHING & SHOES	**Trieste (€)**	**Pula (€)**	**Difference (%)**
1 Pair of Jeans (Levis 501 Or Similar)	83.74 (627.98 kn)	71.68 (537.50 kn)	-14.41
1 Summer Dress in a Chain Store (Zara, H&M, ...)	30.87 (231.52 kn)	36.00 (270.00 kn)	+16.62
1 Pair of Nike Running Shoes (Mid-Range)	88.12 (660.86 kn)	87.53 (656.43 kn)	-0.67
1 Pair of Men's Leather Business Shoes	158.75 (1,190.48 kn)	96.68 (725.00 kn)	-39.10

RENT per Month	**Trieste (€)**	**Pula (€)**	**Difference (%)**
Apartment (1 bedroom) in City Centre	514.29 (3,856.67 kn)	361.95 (2,714.29 kn)	-29.62
Apartment (1 bedroom) Outside of Centre	400.00 (2,999.63 kn)	323.76 (2,427.91 kn)	-19.06
Apartment (3 bedrooms) in City Centre	850.00 (6,374.22 kn)	583.72 (4,377.33 kn)	-31.33
Apartment (3 bedrooms) Outside of Centre	669.29 (5,019.03 kn)	457.20 (3,428.57 kn)	-31.69
BUY APARTMENT PRICE:	**Trieste (€)**	**Pula (€)**	**Difference (%)**
Price per Square Metre to Buy Apartment in City Centre	2,630.00 (19,722.58 kn)	1,785.12 (13,386.73 kn)	-32.12
Price per Square Metre to Buy Apartment Outside of Centre	1,818.75 (13,638.95 kn)	1,332.81 (9,994.85 kn)	-26.72
SALARIES & MORTGAGE	**Trieste (€)**	**Pula (€)**	**Difference (%)**
Average Monthly Net Salary (After Tax)	1,563.90 (11,727.81 kn)	917.02 (6,876.84 kn)	-41.36
Mortgage Interest Rate in Percentages (%), Yearly, for 20 Years Fixed-Rate	1.89	4.35	+130.65
Last update:	*October 2021*	*September 2021*	
Contributors in the past 12 months:	*38*	*24*	

Inspire Policy Making with Territorial Evidence

ESPON 2020

ESPON EGTC
4 rue Erasme, L-1468 Luxembourg
Grand Duchy of Luxembourg
Phone: +352 20 600 280
Email: info@espon.eu
www.espon.eu

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, the United Kingdom and the Partner States, Iceland, Liechtenstein, Norway and Switzerland.