



**European Committee  
of the Regions**

**Commission for  
Territorial Cohesion Policy  
and EU Budget**

**COTER**

# **State of the art and challenges ahead for Territorial Impact Assessments**



© European Union, 2020

Partial reproduction is permitted, provided that the source is explicitly mentioned.

More information on the European Union and the Committee of the Regions is available online at <http://www.europa.eu> and <http://www.cor.europa.eu> respectively.

Catalogue number: QG-04-19-758-EN-N; ISBN: 978-92-895-1031-8; doi:10.2863/797486

**This file note was written by Roland Gaugitsch, Erich Dallhammer,  
Chien-Hui Hsiung (ÖIR), Frank Holstein, Flavio Besana,  
Sabine Zillmer (Spatial Foresight), Dubravka Kruljac and  
Andreu Ulied (Mrcit)**

**It does not represent the official views of the European Committee  
of the Regions.**

# Table of contents

- Executive Summary ..... I
  - Advantages and limitation of key EU TIA methodologies..... I
  - Lessons from other TIA methodologies..... II
  - Obstacles and opportunities to further develop TIA ..... III
- 1 Understanding of Territorial Impact Assessments..... 1
- 2 Review of key EU TIA methodologies ..... 3
- 3 Lessons from other TIA methodologies..... 7
  - 3.1 Advantages and limitation of other TIA methodologies ..... 7
  - 3.2 Alternative possibilities to assess territorial impacts ..... 11
- 4 Main obstacles to further develop TIA ..... 17
  - 4.1 Technical limitations ..... 17
  - 4.2 Awareness..... 18
  - 4.3 Limitations of the policy process ..... 19
- 5 Main opportunities to further develop TIA ..... 21
  - 5.1 Further integration of approaches..... 21
  - 5.2 New data possibilities ..... 22
    - 5.2.1 Further integration of statistical and geospatial information ..... 22
    - 5.2.2 Big data and unofficial statistics..... 24
  - 5.3 Awareness-raising and alignment with policy processes ..... 25
    - 5.3.1 TIA in the Better Regulation Guidelines and toolbox..... 25
    - 5.3.2 Seeking alignment with new policy processes ..... 26
    - 5.3.3 TIA platform and guidebook ..... 27
- Literature ..... 29
- Annex 1 - Factsheets of selected TIA methodologies..... 33
  - QUICK Check ..... 33
  - RHOMOLO ..... 34
  - LUISA ..... 36
  - ESPON TEQUILA ..... 37
  - ESPON EATIA..... 38
  - TARGET\_TIA..... 40
  - ESPON TIA-CBC..... 41
- Annex 2 CBA categories ..... 43

# Executive Summary

Legislations, policies and directives have different effects on territories, depending on their history, culture and socio-economic, demographic, geographic and environmental characteristics. Territorial impact assessments (TIA) aim to better understand these differences and support evidence-based policy and decision making.

Since the adoption of the European Spatial Planning Document (ESPD) in 1999 and the acknowledgement of Territorial Cohesion as EU objective in the Lisbon Treaty in 2007 TIA gained more attention. This led to different understandings and various approaches to TIA.

This file note adopts a broad understanding of TIA. It includes any methodology designed to assess territorial effects of legislations, policies and directives. This can be modelling tools using quantitative methodologies as well as rather qualitative methodologies using expert judgements and participatory approaches.

The file note discusses selected TIA methodologies with the aim to further develop the assessment approaches. The selected variety shows the main advantages and limitations of TIA methodologies. This file note reviews the three main methodologies currently used at EU level (Chapter 2), other TIA methodologies (Chapter 3) and discusses main obstacles (Chapter 4) and main opportunities (Chapter 5) to further develop TIA.

## **Advantages and limitation of key EU TIA tools**

The EU level mostly applies the ESPON Quick Check, LUISA, and RHOMOLO to assess potential territorial impacts of policies and directives. Each tool has specific characteristics and consequently different scopes of applications.

The ESPON Quick Check provides a user-friendly way to depict the territorial impact at NUTS 3 levels. It makes use of participatory approaches for expert inputs and calculations based on quantitative data. This provides a glance of the potential impact on the EU and beyond in a relatively short timeframe. The analysis represents a broad overview of several thematic fields for a first review .

RHOMOLO is a spatial computable general equilibrium model estimating mainly economic impacts at NUTS 2 level expressed in changes with respect to a baseline scenario which can be expressed either in percentage change or in absolute values (for instance, millions of euros or thousands of persons employed). The model provides results at the level of the NUTS 2 regions of the EU. The model has a focus on micro- and macroeconomic foundations. .

LUISA is a modelling platform to assess regional and local impacts of European policies and trends. The tool develops a baseline scenario until 2050 based on the assessment of land functions at 100 x 100 m grid level. Grid level data makes the results applicable to a wide variety of territories, including functional areas and cross-border regions. The sophisticated modelling approach performed by researchers can provide spatial analyses on which policy decisions can be informed especially about general developments. As territorial development usually is based on local characteristics as e.g. landscape details, zoning plans, behavioural economics etc. a zooming in to a small region can lead to misleading interpretations.

## **Lessons from other TIA tools**

Various other TIA tools have been developed at European and national levels. A selection of these tools has been reviewed in depth to provide lessons to further develop TIA.

The ESPON programme made considerable contributions to developing TIA methodologies at European level. The ESPON TEQUILA methodology is one of the most comprehensive methodologies covering all dimensions and considering all components of the territorial cohesion concept. Results are based on quantitative assessments of forecast models performed by external experts and expert judgements collected via interviews. The comprehensive results of the TEQUILA methodology limit the methods' usefulness for policy makers. The EATIA methodology aims to overcome this challenge by adopting a rather bottom-up approach using predominantly qualitative inputs from participatory approaches. The TIA-CBC developed by the ESPON programme is a methodology designed for cross-border regions' programmes. The methodology focuses on desk research and participatory approaches allowing experts to verify and adapt the findings of the desk research. Compared with TEQUILA, both the EATIA and the TIA-CBC considerably simplify the assessment and allow policy makers at national, regional and local levels to be directly involved. They are, however, less comprehensive and robust than TEQUILA.

Outside the ESPON programme, the TARGET\_TIA methodology developed by Eduardo Medeiros is the most developed methodology at European level. While producing comprehensive results, the processes of the TARGET\_TIA are often considered as lengthy and cumbersome.

Other methods applied at European and national levels to assess territorial impacts are, for instance, Cost Benefit Analysis, Enriched Environmental Impact Assessments and territorial foresight approaches. This shows the variety of ways to assess territorial implication of policies. Moreover, it suggests that elements of single methodologies may be used or aligned with other methodologies to assess territorial impacts.

## **Obstacles and opportunities to further develop TIA**

TIA face principally three types of obstacles, namely 1) technical limitations mostly due to data availability and access, 2) perceptions on the use and applicability of TIA, such as limited knowledge on TIA added value or a fear of explicit results, and 3) limitations in the policy process mainly related to the voluntary character to perform a TIA for EU policy processes.

To address data related obstacles, regional level data can be further integrated and national statistical offices can further cooperate and harmonise data collection methods. Policy makers and programme stakeholders can be included to a larger extent in the impact assessment process, which also addresses awareness related obstacles. Additional material on TIA and clearer instructions for individual methodologies could also overcome some obstacles. A verification of territorially differentiated impacts in the standard impact assessment procedure could overcome policy process related obstacles.

TIA methodologies can be improved by combining the opportunities of existing methods, new data possibilities and the alignment with ongoing policy processes. Existing TIA methodologies can be further integrated and related to each other. New data possibilities, for instance improving data available at regional and grid levels as well as big data can positively influence the robustness of results of TIA in the future. The added value and benefits of TIA can be promoted by seeking alignment with ongoing policy processes. Such processes provide a momentum to highlight once more the benefits of TIA.

All opportunities together illustrate that TIA provides valuable insights into possible territorial implications of policies regardless of the methodology applied. Addressing unbalancing effects or enhancing effects in favour of territorial cohesion early in the process supports better policy making. The variety of TIA methodologies illustrates that this does not necessarily imply making the processes lengthier or more complicated.

Furthermore, territorial analysis can be important for many types of policy analysis, for instance, evaluations. Public consultations should also better capture the local and regional dimension. This may help to address territorial aspects in the whole policy cycle.



# 1 Understanding of Territorial Impact Assessments

Since the 1990s there has been a growing interest of policy makers to analyse territorial impact of Legislations, Policies and Directives (LPDs), specific seminars (e.g. Amsterdam 2009) were conducted and documents (these include e.g. the TA2020<sup>1</sup> or the ESDP<sup>2</sup>) were published (OIR, AIDICO, 2013). As Fischer et al. point out: Territorial Impact Assessment (TIA) was “*first discussed in the mid and late 1990s with the European Spatial Development Perspective (ESDP) (...), calling for TIA to be undertaken in relation to large infrastructure projects (notably in the field of transport), large-scale water management projects and in relation to cross-border spatial development*” (Fischer et al., 2014: 3).

Impact assessment (IA) in general describes an ex-ante methodology that “*prepares evidence for political decision makers on the advantages and disadvantages of possible policy options by assessing their potential impact*” (EC, 2009:4). This relates to the fact, that even if LPDs have a positive purpose, they may still have unintended effects on regions and their development. IA aims to identify processes to propose necessary changes/additions to the policy (Fischer et al., 2014). As such IA supports decision making processes. Differing from a classical evaluation, an impact assessment does not judge on a policy’s success in terms of e.g. potential achievement of set quantitative targets, but rather aims to identify impacts causally linked to the actions of the policy (EC, 2009 and ESPON, 2018b). While common methodologies applied in those IAs are set up to disaggregate impacts thematically, they usually distinguish impacts on the territorial dimension at country level at best.

Not least because of the territorial cohesion objective added to the Lisbon Treaty, considering impacts below national level became more important. Territorial impact assessment (TIA) enriches the IA process by showing such territorial differentiations of the policies’ impacts (OIR, AIDICO, 2013). In the context of the EU policy process TIA aims to identify if a policy, regulation or legislation has “*a large asymmetric territorial impact*” (EC, 2013: 2). “Territorial impact” in this context is always related to a specific geographic area and its properties, defining the susceptibility towards policy actions. In respect of territorial aspects, TIA often applies a holistic approach and considers the fields of other (thematic) impact assessments such as economy, environment, society and governance (ESPON, 2012b). Thus, the assessment relating to the territorial dimension

---

<sup>1</sup> BMU 2007, [https://ec.europa.eu/regional\\_policy/sources/policy/what/territorial-cohesion/territorial\\_agenda\\_leipzig2007.pdf](https://ec.europa.eu/regional_policy/sources/policy/what/territorial-cohesion/territorial_agenda_leipzig2007.pdf)

<sup>2</sup> European Commission 1999, [https://ec.europa.eu/regional\\_policy/sources/docoffic/official/reports/pdf/sum\\_en.pdf](https://ec.europa.eu/regional_policy/sources/docoffic/official/reports/pdf/sum_en.pdf).

should limit the risk of “*causing an unbalanced territorial or spatial distribution of costs and benefits for different types of territories*” (ESPON 2012b: 7).

With TIA methods striving to cover a wide range of thematic areas and types of LPDs, one of the main challenges is to include all relevant elements in one coherent assessment. TIA methodologies need to be flexible and adaptable to a larger degree, both to the assessed LPD and to the depth of assessments aligned to the policy makers’ needs. The balance between the soundness and depth of assessed impacts and the practicability of the approach is challenging under such circumstances. It requires to take into account time and cost restrictions and external factors such as data availability (Medeiros 2014: 15).

While in principle any impact assessment method within a specific thematic field can encompass a territorial dimension, the concept of a dedicated *Territorial Impact Assessment* relates to tools and methods with the explicit goal on providing information on the territorial distribution of impacts for a multitude of thematic fields. This has led to the development of several such dedicated methodologies and tools, ranging from quantitative modelling to participative, stakeholder driven approaches. In many cases, methodologies originate in a project concerned with a specific policy (e.g. the CAP post 2013) and have subsequently been further developed to encompass policies or types of policies on a broader scale (Essig, Kaucic 2017: 2 and Fischer et al., 2014: 4).

While some Member States already apply ex-ante assessments for policies with explicitly focussing on the territorial dimension, the term “Territorial Impact Assessment” is mainly linked to the EU level. The explicit territorial cohesion objective is one of the main drivers for applying TIA. However, TIA provides more added value and should not be limited to policies with an explicit spatial dimension. TIA increases awareness that region intrinsic characteristics matter for policy impacts and are key to create policies fostering the regional potentials and applying corrective action where needed (Golobic, Marot 2008: 2 and Fischer et al., 2013: 1). TIA illustrates how different policies interact in the territory. Finally, it allows to discuss the variety of impacts early in the policy process and to involve and engage all relevant actors.

Based on these developments the file considers as TIA any methodology designed to assess territorial effects of legislations, policies and programmes.

The following chapters present several TIA approaches. Chapter 2 focuses on widely accepted methods applied regularly on the EU level. Chapter 3 presents a wider number of approaches. These methods do not constitute a complete list but provide an overview of different types of approaches that have been developed and tested in order to provide input on future developments. Thereafter, the remaining chapters take a closer look into obstacles for TIA (Chapter 4) and further TIA development opportunities (Chapter 5).

# 2 Review of key EU TIA tools

Three tools are most frequently used to assess territorial policy implications at EU level, namely the TIA Quick Check, RHOMOLO and LUISA. These three methodologies within the file note serve as basis for comparing other selected methodologies presented and investigating further TIA development options. Annex 1 presents additional details about the characteristics of these three methodologies.

The **TIA Quick Check**<sup>3</sup> is an ex-ante territorial impact assessment method specifically developed to depict potential effects of a legislation or policy in a comparably easy way. It serves as discussion basis for further analysis. It is based on the vulnerability concept that combines qualitative judgements on the effects caused by a policy (“exposure”<sup>4</sup>) with quantitative data on the susceptibility of each region to those effects (“sensitivity”<sup>5</sup>) to calculate territorial impact patterns in the fields of economy, environment, society and governance (OIR, AIDICO 2013). The methodology is embedded in an expert workshop setting and aided by the ESPON TIA Webtool which simplifies which quantitative indicators to select, to calculate regional impacts and to map the resulting territorial patterns. Maps on the distribution of impacts are subsequently used to facilitate the expert discussion on the mechanisms behind the impacts (i.e. the logical link to the policy action), the needs for adjusting the policy in order to reduce undesired impacts and foster desired ones, and finally, the need for more in depth research on specific dimensions when the Quick Check does not allow for sufficient conclusions.



The methodology is easy to apply at comparably low cost in a short timeframe, which makes it attractive to policy makers. Within the EU policy process, a main advantage of the TIA Quick Check is that the regulatory scrutiny board recognises the methodology as suited for ex-ante policy impact assessment improving acceptance of the results by the relevant authorities. Practical tests on multiple directives and policies have allowed for a continuous improvement of the

<sup>3</sup> <https://www.espon.eu/tia-tool-upgrade>  
<sup>4</sup> Exposure defines whether a region is affected by the policy.  
<sup>5</sup> Sensitivity defines to what extent the territory is affected.

method<sup>6</sup>. In particular the workshop procedure has been subject to numerous changes, to improve participants' understanding of the method. This includes, for example, the introduction of the mathematical and conceptual background of the Quick Check at the start of each workshop session, the division of work between two moderators (direct interaction with participants vs. handling of the webtool and background tasks) and the introduction of a more transparent impact voting process. Furthermore, the webtool itself has been upgraded several times. This included new functionalities (e.g. allowing the selection of single typologies of regions for a more targeted assessment) and the redesign of the user interface and workshop flow.

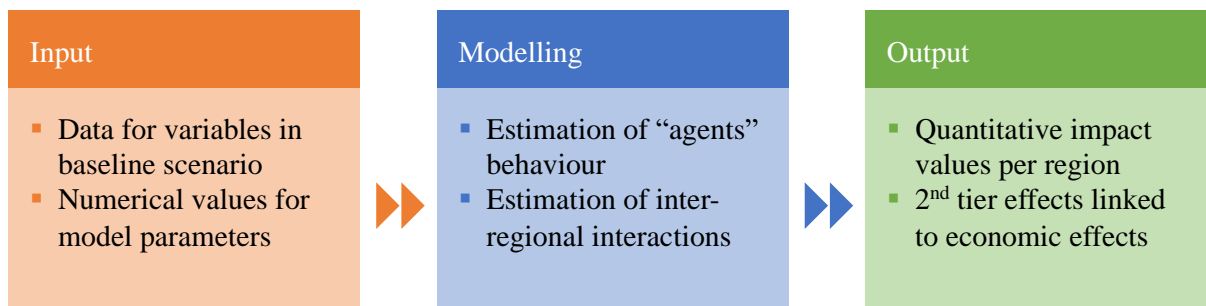
One disadvantage of the method is the lack of an in-depth assessment, which requires other methodologies. The Quick Check, however, can give a first indication for subsequent more detailed assessments. It is important to keep in mind, that even though it uses quantitative data as basis for calculating territorial impacts, the results are exclusively qualitative. At the same time, data input needs to be of high-quality covering (almost) all regions affected by the policy, thus creating some limitations in terms of availability. Finally, results of the Quick Check depend to some extent on the selection of participating experts and the detail of explanation and understanding of the role and relevance of indicators in the specific context.

**RHOMOLO**<sup>7</sup> is a so called dynamic “Spatial Computable General Equilibrium Model” developed by the JRC and DG REGIO with the intention of assessing impacts of cohesion policy on regional level. By now it is used for broader policy assessments in several fields, with multiple modules expanding its capabilities beyond the assessment of purely economic impacts. The model is based on the decision making of three types of “agents”, namely households, firms and governments, who earn, spend and save money and who produce and consume goods. Interlinkages between regions are depicted in the model as flows of goods and services (trade matrices) and people and investments (factor mobility). RHOMOLO introduces policies as “shocks” to a baseline scenario, estimating their influence on key parameters (such as e.g. transportation cost between regions) and subsequently modelling the policy impacts. The model produces quantitative impact estimations at NUTS 2 level expressed as relative changes in relation to the baseline scenario, e.g. an increase in GDP in % per region, which can also be expressed in absolute values (e.g. millions of euros or thousands of persons employed).

---

<sup>6</sup> A list of examples is provided in the annex.

<sup>7</sup> <https://ec.europa.eu/jrc/en/rhomolo>

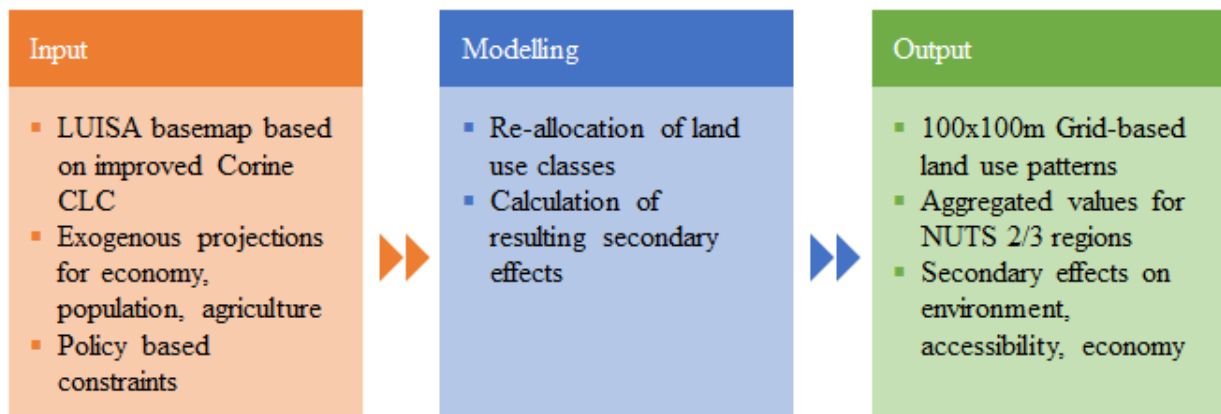


Similar to the ESPON TIA Quick Check, RHOMOLO is a well-tested and established methodology. Being recognised by the Regulatory Scrutiny Board, it is well suited for impact assessments of EU policies in the ordinary legislative procedure. RHOMOLO to this day is the only available model tailored to EU policies that can produce results with a territorial resolution at NUTS 2 level.

The NUTS 2 level can be problematic, nonetheless, if territorial impacts are compared to other TIA methodologies applying other analytical levels, e.g. in relation to the urban-rural diversification of impacts. Apart from the capital cities, in most Member States NUTS 2 regions are rather large and often encompass highly urbanised as well as rural areas, hampering such a differentiation. The modelling approach relies to a large extent on classical market theories although some market imperfections are included in the model. The model has not been used so far to analyse environmental effects. The modelling approach is complex and requires an effort in terms of communication of the results and a translation into the sphere of policy makers.

The **LUISA**<sup>8</sup> Territorial Modelling Platform is an integrated, cross-sectoral model for “land function” projections going beyond traditional “land cover” models. At its core, it is a grid-based approach modelling the change in land function for each grid cell over time based on a number of input factors and subsequently calculating secondary effects based on the resulting land functions. Projections for the development of the economy, population, agriculture and energy use from other calculations feed into a “baseline scenario”. LUISA subsequently allocates land uses to grid cells. Several constraints (such as e.g. the limitations of land use possibilities within environmentally protected areas) can be considered as well. Based on the resulting distribution of land uses, further modules of LUISA are able to calculate e.g. projections for the accessibility of regions, settlement structures, sectoral employment etc. To assess specific policy impacts, the input factors are modified corresponding to the policy (e.g. a policy-induced change in productivity influences economic projections) and the resulting scenario is calculated. By comparison of the “baseline scenario” with the “policy scenario” the potential impacts of the policy can be identified.

<sup>8</sup> <https://ec.europa.eu/jrc/en/luisa>



The LUISA model has been applied to EU policy scenarios (e.g. the post 2013 CAP and the ENER-CLIMA reference scenario) and is used to provide inputs to the periodic EC reporting on economic, social and territorial cohesion. It is a comparably specialised and integrated approach and is mentioned in the better regulation toolbox as an ex-ante territorial impact assessment method. It has a rather long-term perspective and bases projections on several other coherent models (such as TRANSTOOLS<sup>9</sup>) respectively projections (such as EUROPOP<sup>10</sup>). It can also use inputs produced by RHOMOLO, an integration effort which the JRC has been undertaken in recent years.

LUISA is currently based upon a rather straightforward top-down approach. This allows to achieve a harmonised and complete coverage of the whole EU (and beyond) territories. It includes several assumptions for estimating policy impacts. The baseline scenario is building on a policies. Additional policies can be implemented through several validation steps. The results are produced on a 100x100m grid, which provides detailed territorial patterns. As territorial development usually is based on local characteristics as e.g. landscape details, zoning plans, behavioural economics etc. a zooming in to a small region can lead to misleading interpretations.

<sup>9</sup> TOOLS for TRansport Forecasting ANd Scenario testing, a model for the European transport network by the JRC and DG TREN.

<sup>10</sup> A population projection for EU population calculated by EUROSTAT.

## 3 Lessons from other TIA methodologies

Several other TIA methodologies have been developed, mostly throughout the past two decades. Especially the ESPON programme played a major role in this by encouraging the development of TIA methodologies at European level through several projects.

This chapter discusses the advantages and limitations of several examples of TIA methodologies. Although other TIA methodologies exist, for example the Sustainable Territorial Environmental Management Approach (STeMA)<sup>11</sup> as well as different variations and applications by Member States, this chapter focuses on those methodologies that provide clear lessons for further TIA development (chapters 4 and 5). For the same purpose the TIA methodologies described in section 3.1 are complemented by additional useful methods presented in section 3.2.

### 3.1 Advantages and limitation of other TIA methodologies

The following presents four distinct TIA methodologies that provide lessons for further development, namely TEQUILA, EATIA, TIA-CBC and TARGET. These four methods highlight different challenges and solutions for TIA related to comprehensiveness, participatory approaches, data challenges and different time perspectives of TIA. The following paragraphs present the main advantages and limitations per methodology. Factsheets with the main characteristics of the methodology are presented in Annex 1.

The **TEQUILA**<sup>12</sup> methodology aims to evaluate the efficiency of a given European policy to improve territorial cohesion, encompassing impacts across regions in terms of the economic competitiveness, environment and climate change, society and land-use (ESPON 2006). The ESPON TIPTAP<sup>13</sup> project tested the methodology with regards to the Common Agriculture Policy (CAP) and the Common Transport Policy (CTP) (ESPON 2013). A multicriteria analysis (see section 3.2) and forecast models serves as basis for the methodology, by defining the most relevant indicators. Selected indicators help to measure policy impacts, in doing values are normalised (0-1) to allow for comparison and aggregation. Next, three “summative” macro-criteria (weighted by political

---

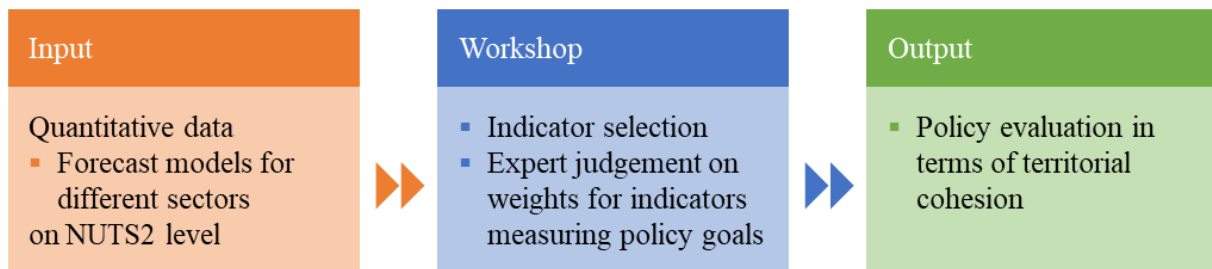
<sup>11</sup> <https://economia.uniroma2.it/dmd/STeMA-lab/> ??

<sup>12</sup> <https://www.espon.eu/programme/projects/espon-2006/COORDINATING-CROSS-THEMATIC-PROJECTS/SPATIAL-SCENARIOS-RELATION-ESDP>

<sup>13</sup> <https://www.espon.eu/programme/projects/espon-2013/applied-research/tiptap-territorial-impact-package-transport-and>

preferences obtained from stated-preference surveys among experts) are defined, namely: territorial efficiency, territorial quality and territorial identity (all adding up to the concept of territorial cohesion).

- Territorial efficiency refers to resource-efficiency with respect to energy, land and natural resources; competitiveness and attractiveness; internal and external accessibility of each territory.
- Territorial quality refers to the quality of the living and working environment; living standards across territories; access to services of general interest and to knowledge.
- Territorial identity refers to enhancing “social capital”; developing a shared vision of the future; safeguarding specificities, strengthening productive “vocations” and competitive advantage of each territory.



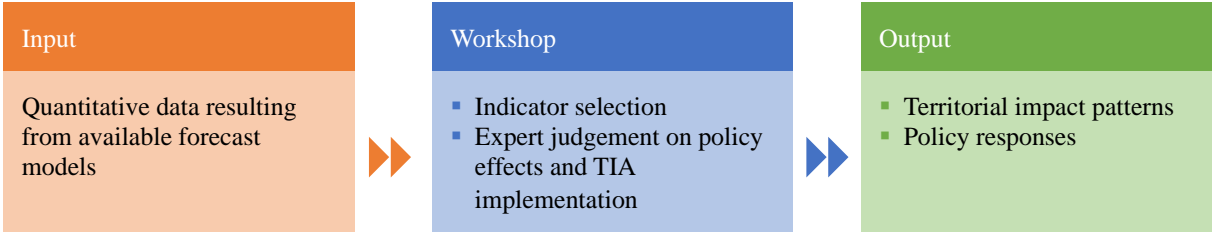
The methodology is rather comprehensive in assessing different perspectives of territorial cohesion. It uses predominantly statistical calculations performed by external researchers. Although this provides detailed results, the outcomes are not always easy to interpret by policy makers in particular due to use of normalised scales and the summative macro-criteria.

The **ESPON EATIA**<sup>14</sup> provides a participative bottom-up TIA methodology. The EATIA assesses the possible territorial impact of draft directives and other policies using expert knowledge during workshops (ESPON 2012a). The methodology has been tested in the UK, Slovenia and Portugal. It includes four stages to assess the territorial impact of policies at subnational levels. The stages allow participants to determine the nature of the possible impact, the interrelations between different factors defining the nature of the impact and finally assessing the extent to which different territories are affected in an Impact Assessment Matrix. The matrix synthesises impacts assessed by each workshop participant from highly positive (+2) to highly negative (-2). The results of the Impact Assessment Matrix are visualised in maps and other graphics such as spiderwebs.

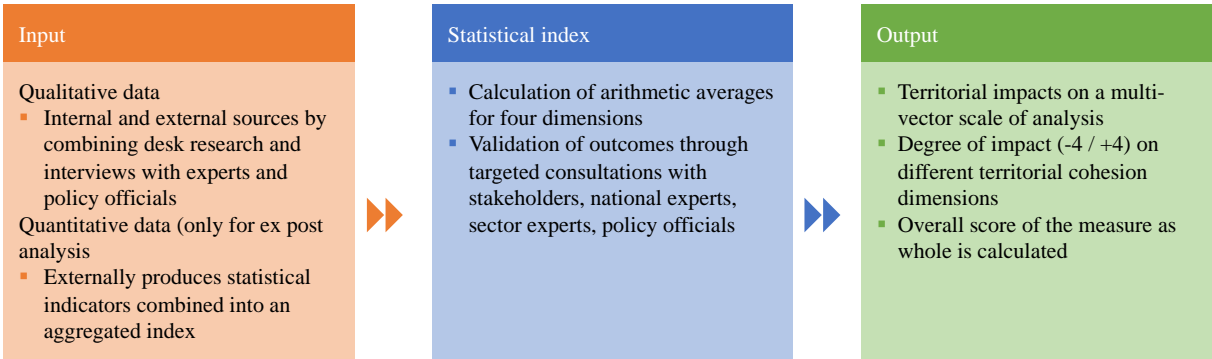
<sup>14</sup> <https://www.espon.eu/programme/projects/espon-2013/targeted-analyses/eatia-espon-and-territorial-impact-assessment>



The participatory approach provides policy makers ownership of the results which may smoothen follow-up processes to minimise negative impacts or enhance positive impacts. Limited access to detailed statistical evidence can make this methodology less robust compared to other approaches.



The **TARGET\_TIA**<sup>15</sup> approach can be applied in ex-ante and in ex-post situations, though with a major distinction. Ex-ante assessments use only qualitative inputs, while ex-post assessments combine quantitative and qualitative inputs. The methodology applies a multi-vector approach relying on quantitative (statistical) and qualitative (interviews) data to assess the impacts of a measure on four predefined territorial cohesion dimensions: socioeconomic, environmental sustainability, governance/ cooperation, and polycentricity. The elaboration of inputs allows to calculate arithmetic averages for the four dimensions, combining them in a statistical index and, finally, a numerical impact of the policy as a whole is derived. Similar to the TIA Quick Check, the TARGET\_TIA adopts the vulnerability concept in the calculation (see Chapter 2). The concepts of “Policy Intensity” and “Regional Sensibility”<sup>16</sup> are adaptive elements of the assessment in view of the specific territorial conditions of the targeted territory (Medeiros, 2014).



The TARGET\_TIA has the advantage of producing a comprehensive value as a result of the assessment, therefore allowing for comparison between alternative measures. The methodology can be applied in different situations (ex-ante and ex-post and at different territorial scales. Also, it is designed to include multiple

<sup>15</sup> [https://repositorio.ul.pt/bitstream/10451/35570/1/Medeiros%20Eduardo\\_2014.pdf](https://repositorio.ul.pt/bitstream/10451/35570/1/Medeiros%20Eduardo_2014.pdf) .  
<sup>16</sup> The concepts of policy intensity and regional sensibility are similar to the vulnerability concepts of “exposure” and “sensitivity” used in the Quick Check (see Chapter 2). They define the territories that are affected and the extent to what they are affected based on their characteristics.

dimensions enriching the scope of the assessment. At the same time, the model is the result of a complex and articulated procedure. The identification of reference objectives and related dimensions can be challenging, especially in territorial cohesion policies, as well as the selection of appropriate indicators and their territorial scale and time frame. Moreover, the process may be lengthy if conducted by unexperienced experts resulting in high financial costs. Finally, the aggregation of values over multiple dimensions can be problematic in case of an uneven thematic distribution of impacts, essentially averaging out impact values. This limitation could possibly be overcome using a composite indicator methodology.

The **TIA-CBC**<sup>17</sup> is a structured 5-step methodology specifically designed for cross-border region programmes. The methodology combines desk research and participatory approaches in which findings from desk research are adapted and verified by experts. The combination of quantitative and qualitative methods allows to overcome data shortages while still providing evidence-based assessments necessary for a sound and reliable result. The methodology is not to be understood as a “recipe” that can be copied for any CBC programme. It is rather a “toolbox” out of which certain elements can be selected (ESPON, 2019).



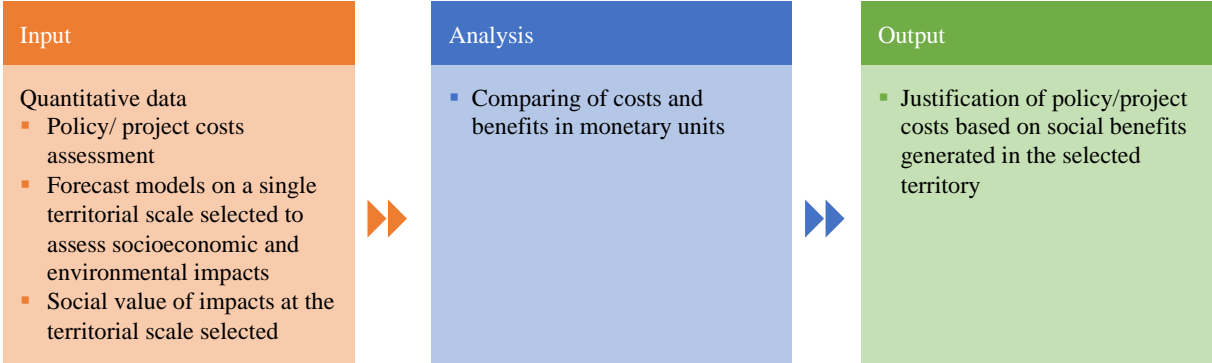
Even if TIA-CBC is specifically designed for cross-border programmes, the approach can be transferred to other contexts (ESPON, 2019). The combination of desk research, expert validation, and focused discussions makes the assessment solid and reliable. The participatory nature of the process enables a multi-faceted assessment based on different expertise. On the downside, TIA-CBC only allows for ex-post analyses, which facilitates a learning by mistake process, but not a foresight approach. The high specialisation of the methodology can make the transposition of the process into other contexts a burdensome procedure, both in terms of capacities and costs.

<sup>17</sup> <https://www.espon.eu/TIA-CBC>

### 3.2 Alternative possibilities to assess territorial impacts

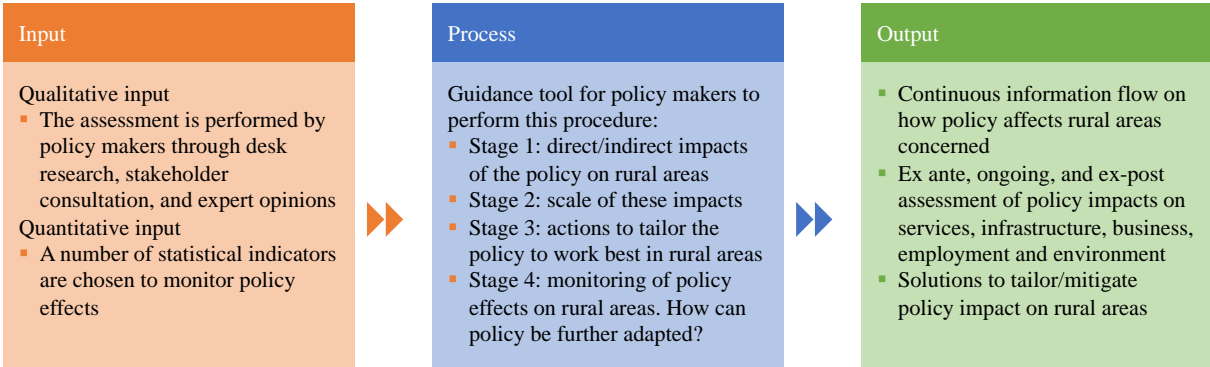
Different territorial implications of policies can also be illustrated by other methods. In fact, some of the above-described methodologies use elements of other assessment methods and TIA methodologies inspired strategies and approaches developed at national levels. These practices also provide relevant lessons to further develop TIA.

**Cost Benefits Analyses (CBA)** assess the impact of an investment decision or regulatory change, in terms of social welfare. As such the method covers various thematic fields, similar to TIA. Unlike TIA, CBA assesses the net benefits in monetary terms obtained from a policy by consumers, producers, administrations and the rest of society. In doing so, CBA use results of demand forecast models as inputs and assess how much the cost of a given policy is justified by the welfare improvement generated for the whole society. CBA do not consider the distribution of improvements among social groups, economic sectors or territories. CBA, therefore, assume a given territory as a reference. This is, for example the “European Union” when the EC/DGREGIO Cost-benefit guidelines 2014 are applied to assess investments related to Cohesion policies by INEA. A given “country”, “region” or even “municipality” is the territorial reference when specific guidelines for a certain territory and/or sector are applied.

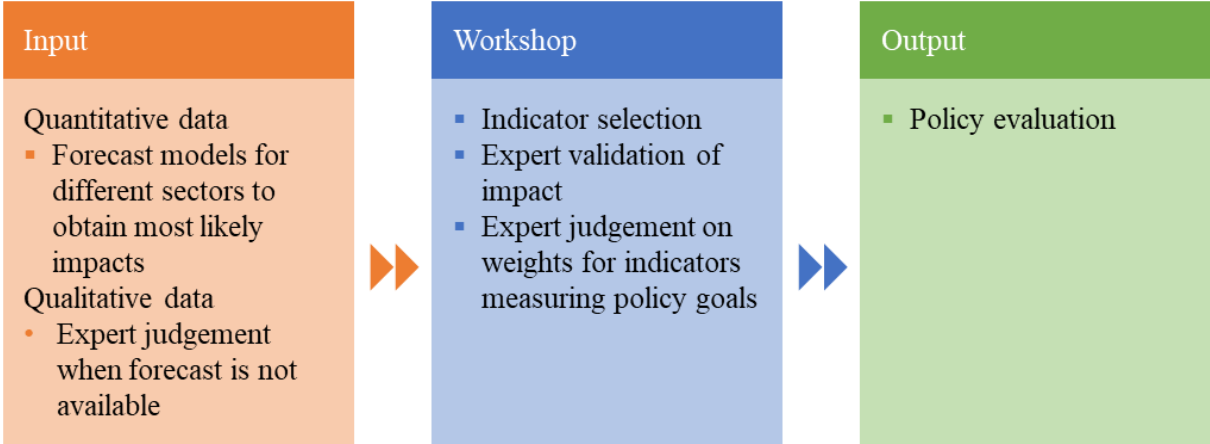


Based on CBA, **rural proofing** was developed in the UK. Rural proofing provides policy makers with insights into the impact of policies in a certain rural area. This indicates the need for adjusting policies when risks for rural communities and citizens are not sufficiently considered. It can be applied ex-ante and ex-post, offering the possibility to continuously assess possible territorial impacts and consequently actions smoothening unwanted effects. Rural proofing assesses impacts among others on services, infrastructure, business, employment, and environment in four stages. A guidance tool presents users the four stages, outlining the steps, questions and indicators (UK Government Department for environment, food & rural affairs, 2017). The user is free to select methods or instruments for each of the processing stages. This selection is often place and

context specific, making the methodology less suitable to transfer between territories and to learn from previous experience.



**Multi-criteria analysis** aims to establish preferences between alternative options by referring to an explicit set of policy objectives that are translated into criteria. Policy analysts select the criteria per policy objective and select the most suitable indicators to measure each criterion. Indicators are subsequently aggregated to get values for each criterion. This is achieved by weighting the criteria against their relative political relevance. Results are expressed in “plusses” and “minuses” against the policy objective. As such the methodology supports to identify relevant determinants that can be used to define the scope of TIA. For example, TEQUILA is partly based on multi-criteria analysis by adding such elements to territorialise impacts, i.e. considering the intensity of a given policy in any territory and the sensitivity of the territory.



Compared to CBA, multi-criteria analysis offers more transparent procedures to get the values of criteria. While multi-criteria weights are obtained by any kind of stated preference among decision makers, CBA uses “shadow prices” derived for preferences revealed by consumers and producers on the marketplace. At the same multi-criteria analysis is often perceived as more subjective as CBA due to the use of expert opinions to establish objectives, criteria and weights. This method has been widely applied for the assessment of infrastructure projects and in

environmental impact assessments. It is used complementarily to CBA or as single method to provide a systematic justification of public interests in a given project or policy. For instance, all Impact Assessment studies developed according to the European Commission guidelines use multi-criteria analysis to compare alternative policy options. Similar guidelines exist in many European countries and regions.

EU Member States enriched other impact assessment methodologies to better capture territorial implications. A few selected examples illustrate this. In Finland, **enriched environmental impact assessments** consider a wider range of possible impacts similarly to TIA. For example, the Finnish EIA Act (468/1994) refers to “the direct and indirect effects inside and outside Finnish territory of a project or operations on:

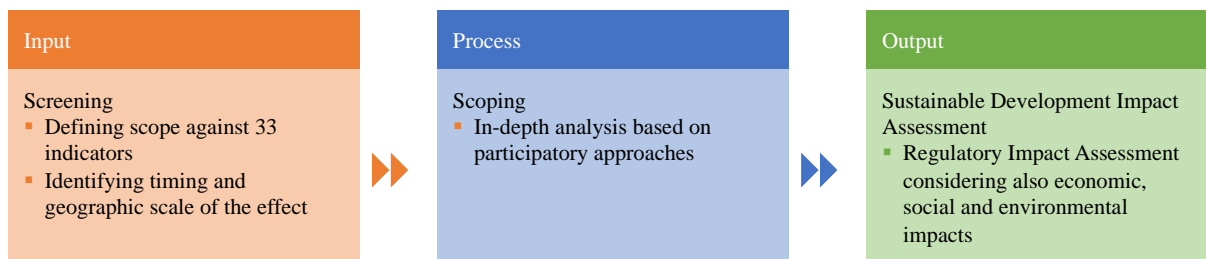
- a) human health, living conditions, and amenity;
- b) soil, water, air, climate, organisms, and biological diversity;
- c) the community structure, buildings, landscape, townscape, and the cultural heritage;
- d) utilisation of natural resources; and
- e) interactions between the factors mentioned in items a) to d).” (Jalava, 2014).

In Poland and Belgium the **enriched regulatory impact assessments (RIA)**<sup>18</sup> consider territorial effects. In Poland, guidelines have been developed building upon CBA. As such it has enriched RIA with the requirement to also assess economic, social, and environmental impacts (Polish Ministry of Economy, 2015). In Belgium, the RIA was the basis for the Sustainable Development Impact Assessment (SDIA). This assessment tool covers economic, social and environmental impacts, evaluates short- and long-term effects, and seeks to address the full range of territorial effects. The assessment includes two major steps:

- The first step (**screening**) defines the scope by assessing measures against 33 indicators. For each indicator, policy makers analyse the timing and the geographical scale (from local to global level) of the effect.
- The second step (**scoping**) is the SDIA itself, which is done when the screening step indicated the need for an in-depth analysis, based on participatory approaches.

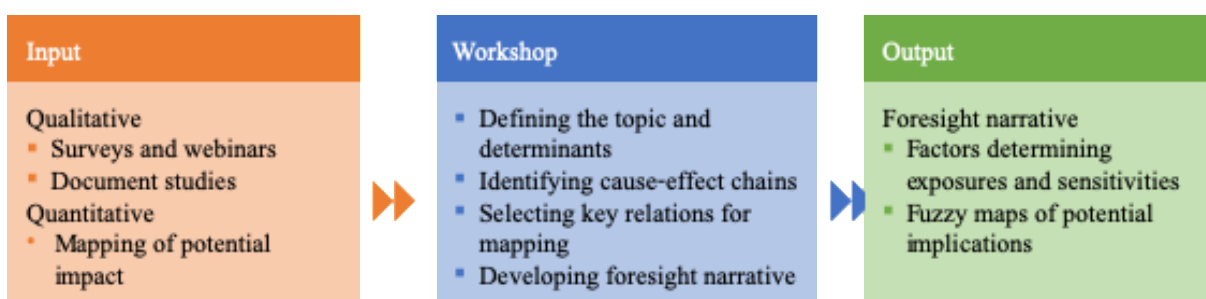
---

<sup>18</sup> RIA assesses a wide variety of themes and seeks to address territorial effects. RIA is an ex-ante and integrated assessment of potential consequences (collateral impacts) of regulatory projects on economic, social and environmental domains and on public authorities (OECD, 2010). For an overview of worldwide practices of Regulatory Impact Assessments, see <http://documents.worldbank.org/curated/en/905611520284525814/Global-Indicators-of-Regulatory-Governance-Worldwide-Practices-of-Regulatory-Impact-Assessments.pdf>.



Both examples of enriched impact assessment methodologies have the advantage that the original methodologies are applied by policy makers. The familiarity with the environmental or regulatory impact assessment makes it easier to accept and apply territorial impact assessment. These examples also illustrate that assessing territorial implications is not necessarily more burdensome than other impact assessments. At the same time enriching existing methodologies demands a flexible attitude towards changing established practices.

**Territorial foresight approaches<sup>19</sup>** help to better understand territorial implications of trends. Territorial foresight is a future-oriented approach characterised by (a) critical, lateral thinking concerning long-term developments and their impacts on territorial development, (b) wider participatory engagement and (c) informing public and/ or private decision making (Holstein et al., 2019). Participatory approaches play a central role to support critical thinking in a constructive and structured way in the territorial foresight approach developed in the frame of the ESPON Possible Territorial Futures project (ESPON, 2018a). Three main steps lead to formulating foresight narratives and sketching “fuzzy” maps of possible futures in this approach. The preparatory phase defines the foresight topic, collects evidence on possible indicators, selects participants and interacts with them to get first inputs on possible implications. During workshops the topics, their main determinants and causalities are defined. In doing so, approaches from the TIA Quick Check are used. After the workshops the foresight narratives are completed by complementing the workshop results with additional quantitative and qualitative information.



The approach is thus of rather qualitative nature and uses quantitative data mostly as input at different stages of the approach. Nevertheless, it supports policy

<sup>19</sup> <https://www.espon.eu/territorial-futures>

making processes by dealing with uncertainty and complexity and creates ownership on possible actions to avoid unwanted implications or enhance desired implications.

Besides the use of distinctive methodologies or instruments, several European countries introduced **strategies and guidelines to encourage assessing territorial impacts** during policy making processes. For example, the Swiss Sustainable Development Strategy 2016-2019 encourages cross-sector coordination similar to some TIA methodologies (Nosek, 2019). In the Netherlands practical guidelines support the territorial assessment of impacts of EU policies (Evers, 2011). Six steps encourage policy makers to consider territorial aspects (Tennekes and Hornis, 2008). The guidelines recommend to start with rather broad understanding of TIA at early stages of policy processes to capture the entire range of possible directions EU-policy can take. At later stages, as the range of possibilities has narrowed down, more detailed research can be carried out on the most likely, or already established, policy options. Even after the policy making phase at the EU level has been completed, a TIA can explore the potential impacts of choices made during implementation at the national and regional level (Tennekes and Hornis, 2008).





## 4 Main obstacles to further develop TIA

The description of main methodologies and alternative ways to assess territorial impacts allows to identify obstacles for further TIA development that can be grouped in several categories. The main categories are technical limitations, awareness issues and limitations of policy processes. Their significance depends on the intended application. The following thus focuses on the obstacles in relation to **general methodological issues** and the **uptake in the EU policy process**. While TIA is principally capable to be applied at different territorial scales, the document at hand aims to provide input for EU level processes and thus focuses on this level only.

### 4.1 Technical limitations

Most TIA approaches described above rely either completely or partly on quantitative data. Thus, the availability of regionally disaggregated data is a crucial issue for conducting an evidence based impact assessment. Depending on the methodology applied and the policy/ legislation assessed, the required level of spatial resolution of data in most cases corresponds to either NUTS 2 or NUTS 3 level. Some approaches require even LAU or grid-level data. Although Eurostat, the JRC, ESPON or the OECD produce various datasets for the European Union (and beyond), they often correspond to rather general information (e.g. GDP, employment per sector, population age groups) or highly specialised information produced for specific projects (e.g. many ESPON indicators). This leads to a mismatch between data availability and the broad range of topics to be assessed in the EU policy and legislation context by TIA.

**Action:** Further integration of EU-wide regional level datasets.

Some TIA methodologies circumvent this issue by working with “hybrid data”, where quantitative data is combined with or serves as backing for qualitative expert assessments. Other approaches apply quantitative bridging methods, e.g. through statistical estimation techniques or modelling. While decentralised data sources can be tapped on, e.g. from national statistical offices, this creates comparability and harmonisation issues due to different collection approaches and definitions. Existing datasets on a higher level (e.g. NUTS2) can be broken down to a lower level (e.g. NUTS3) via spatial analysis and modelling.

**Action:** Further harmonisation of cooperation between national statistical offices and harmonisation of data collection methods.

Participatory approaches working with hybrid data may overcome some data limitations but have other constraints. TIA applications at European level often require sectoral and regional expertise to judge on likely effects of a given policy. To find suitable workshop participants, interviewees etc. to combine this expertise can be challenging, especially when covering a broad range of regions and/ or sectors. Including policy makers (if the TIA addresses a policy) and programme stakeholders (if the TIA addresses a programme) in expert groups contributes to covering the expertise required and creating “ownership” of the results.

**Action:** Include policy makers and programme stakeholders to a larger extent in TIA processes.

## 4.2 Awareness

Territorial impacts of policies often suffer from a lack of awareness. In contrast to mandatory assessments, such as environmental impact assessments, for various actions from policy to project development, a “territorial impact assessment” is not mandated by any EU policy. In consequence, the territorial dimension of impacts is often overlooked, especially for abstract policies which do not clearly address specific regions or types of regions. For instance, a legislative act creating harmonised rules for the banking sector in the EU might be assumed to create territorially even impacts. This overlooks first and second tier effects depending on the regional importance of the banking sector implying clear territorial differentiations. Experience with from the ESPON Quick Check shows, that workshop participants frequently show this issue, and only the workshop raised first awareness of such effects.

Differentiated territorial impacts of policies addressing specific regions or types of regions might be seen as “clear cut” needing no detailed assessment, as the territorial differentiation is part of the policies design. This may ignore secondary effects created by such a policy. For instance a policy addressing port regions impacts on other regions through trade relations and flows of people. Similarly, some territorially differentiated impacts can be assumed to be clear from the outset. For example, some regional properties such as economic eastern-western or northern-southern divides in the EU are accepted as something which is apparent and is addressed by cohesion policy in any case. A policy which creates

differentiated impacts along such a divide therefore might not be seen to need adjustments.

**Action:** Provision of information material on territorial impacts (e.g. by ESPON) and clearer instructions on TIA in Better Regulation Guidelines.

Sometimes the explicit publication of information on territorially differentiated impacts of a policy may be detrimental to the objective of the TIA when creating opposition. If, for example, a programme is assessed to create territorially different extents of positive impacts, stakeholders of regions benefitting less may be dissatisfied and oppose the programme despite an overall beneficial impact. An option to overcome such issues is the more extensive stakeholder inclusion in the policy drafting and impact assessment to create “ownership” of results.

**Action:** Inclusion of different regional stakeholders in policy drafting and impact assessment.

### 4.3 Limitations of the policy process

As conducting a Territorial Impact Assessment is not a mandatory element of the EU legislative procedure, but rather a suggestion mentioned in the Better Regulation Guidelines as well as encouraged by the Regulatory Scrutiny Board, it is not conducted as a standard element of policy drafting. Legislative procedures are already rather complex and time consuming. Thus, responsible authorities are prone to not create an additional burden through making non-mandatory assessments mandatory.

The perception of TIA as costly and time consuming procedure that is not formally included in the policy process is a major obstacle for the uptake in practice. Simple mandatory verification procedures could overcome this obstacle by increasing awareness of territorial impacts without insurmountable burden. The broader inclusion of policy makers in such impact assessments can “advertise” the added value in the policy drafting, especially compared to externally contracted impact assessments in other assessment fields.

**Action:** Inclusion of a verification for the existence of territorially differentiated impacts in the standard impact assessment procedure. Provision of information and assistance with regard to “easy” TIA methods limiting costs and additional burden.



# 5 Main opportunities to further develop TIA

Based on the assessment of the TIA methodologies described above, three ways of development opportunities at different levels can be defined. Firstly, the TIA instrument can be further developed in policy processes by integrating different approaches. Secondly, new data offers possibilities to further develop individual TIA methodologies. Thirdly, increased awareness and better alignment with policy processes addresses the political dimension of TIA development.

## 5.1 Further integration of approaches

TIA methodologies share methodological elements and instruments. At the same time, each methodology presented in this file note has different characteristics and approaches with specific advantages and disadvantages. Further integration of approaches could address some current shortcomings. Using the key advantages of single methodologies by combining them in a coherent may result in a variety of methodologies. The establishment of a single methodology is not encouraged due to the variety of detailed intentions and characteristics of each approach. Instead, further integration of approaches implies using single elements of different approaches to enrich methodologies and to use different methodologies at different stages of policy development and for different types of policies.

The reviewed TIA methodologies illustrate how specific methodological elements of one methodology may contribute to make other methodologies more robust. For example, rural proofing builds upon CBA and environmental and regulatory impact assessment have been enriched to better consider territorial aspects. TEQUILA uses elements of multi-criteria analysis and territorial foresight uses elements of the TIA Quick Check. To increase the level of in-depth analysis for the TIA Quick Check several theme-specific forecast models<sup>20</sup> could be applied at early stages to provide more evidence to workshop participants.

A first step to enhance TIA methodology integration by using specific elements of different methodologies is to acknowledge the limitations of each specific methodology. Then other methodologies addressing these limitations need to be sought. Particular attention needs to be paid to the specific outcomes of the intermediate steps of methodologies. Understanding these outcomes helps to adapt the methodology and align the different elements.

---

<sup>20</sup> Examples of such models include MULTIPOLES for demographic trends, REMOVE for energy, TRANSTOOLS for transport or MASST 3. MASST 3 is a macro-economic structural and socio-economic model that can provide additional evidence on economic implications of policies. For more information see (ESPON, 2014a) and (ESPON, 2014b).

Existing methodologies can be used in sequence at different stages of policy development processes and policy cycles. The use of specific methodologies depends on their characteristics and intention. Inspired by the Dutch TIA guidelines (see Evers, 2011 and Tennekes and Hornis, 2008), early stages of policy development benefit from detailed and analytical evidence on potential impacts, whereas later stages may benefit from participatory approaches encouraging ownership among different stakeholders. After policy implementation, TIA can provide further insights to improve future policy processes.

For instance, multi-criteria analysis can support the identification phase of policy development processes by illustrating the variety of policy fields affected by the policy. Quantitative modelling approaches, such as TEQUILA, LUISA, or RHOMOLO can provide more detailed evidence on potential impacts. Participatory approaches could be used to discuss TIA outcomes with involved and affected following the examples of EATIA or the TIA Quick Check. In addition, some TIA methodologies, such as the TARGET TIA and TIA CBC allow for ex-post assessments with the aim to complete the cycle.

**Action:** Encourage further integration of TIA methodologies according to their specific benefit at the appropriate step of the legislative process.

## 5.2 New data possibilities

Data availability and quality are crucial for TIA methodologies. In general, harmonised data available across Europe, at low territorial levels, with regular updates support TIA. Different initiatives aim to overcome existing data challenges addressed in Chapter 4. This section discusses new opportunities in view of the integration of official statistical and geospatial information and big data. Both opportunities inhibit specific advantages and disadvantages to further development TIA.

### 5.2.1 Further integration of statistical and geospatial information

The trend towards more detailed and harmonised datasets of geospatial information continues. This includes ongoing efforts by the ESPON programme<sup>21</sup>,

---

<sup>21</sup> Although ESPON provides many relevant datasets at regional level, evidence is collected by projects, which challenges a continuous collection of comparable datasets for multiple years.

the JRC Knowledge Centre for Territorial Policies (KCTP)<sup>22</sup> and Eurostat. Particularly the latter provides increasing numbers of harmonised datasets at low geographical levels in line with their commitment to the Global Statistical Geospatial Framework. This framework facilitates the integration of statistical and geospatial information and encourages the production of harmonised and standardised geospatially enabled statistical data, and informs and facilitates data-driven and evidence-based decision making (UN Statistical Commission, 2019). Eurostat and the European Statistical System (ESS) work on the implementation and adaption of this global framework in Europe in the GEOSTAT projects.

GEOSTAT encourages national statistical offices to further integrate statistical and geospatial information (GEOSTAT 3, 2019). It focuses, inter alia, on defining policy concepts and identifying indicators to measure them. For example, the latest GEOSTAT project defined and tested suitable indicators for the UN Sustainable Development Goals<sup>23</sup>. These tests show the benefit of using standardised definitions and data collection and analysis methods.

Another example of integrating statistical and geospatial data by GEOSTAT is the production of population data at 1 km<sup>2</sup> grid level. Previous GEOSTAT projects have collected and published population data at grid level for 2006 and 2011<sup>24</sup>. This data is currently updated and broken down by sex and economic age groups. The 2021 population and housing census will make this data available.

Inspired by the Global Statistical Geospatial Framework, more data will be geocoded and broken down to 1 km<sup>2</sup> grid level. This concerns information on employed persons, place of birth (in reporting country, other EU country, elsewhere) and place of residence (EUROSTAT, 2019). Compared to previous censuses this implies a more detailed breakdown of population data that will be geocoded and better harmonised across European countries.

For TIA methodologies, grid level data, such as produced by the LUISA platform, can be relevant to better understand population dynamics across administrative boundaries such as functional areas or cross-border regions. It can directly support the TIA CBC with additional harmonised statistical population data for specific cross-border regions. It also provides detailed information supporting all other TIA methodologies. Grid level data is independent from changes in geographic delineations of NUTS regions. In addition, grid level data can be aggregated to administrative units, making it suitable for most TIA methodologies.

---

<sup>22</sup> KCTP aims to support territorial development policies by promoting better knowledge management and dissemination, and by releasing new spatial datasets, territorial indicators and tools for their interactive visualisation on the web.

<sup>23</sup> cf: [https://www.efgs.info/wp-content/uploads/geostat/3/GEOSTAT3\\_WP2\\_SDG\\_findings\\_report\\_v1.0.pdf](https://www.efgs.info/wp-content/uploads/geostat/3/GEOSTAT3_WP2_SDG_findings_report_v1.0.pdf)

<sup>24</sup> This data is available at : <http://ec.europa.eu/eurostat/statistical-atlas/gis/viewer/?config=REF-GRID.json&mid=2,3,6,7&o=1,0,5,1,1&ch=4,5&center=50.03696,19.9883,3&lcis=6&>

**Action:** Modify existing methodologies to allow for frequent data updates and the integration of new types of data, e.g. grid data in the Quick Check.

### 5.2.2 Big data and unofficial statistics

Big data can be defined as the large amount and diverse information generated and collected by ICT services (Batista e Silva et al., 2019). Most of the information originates directly from the population using these services. Thus, it is a means to overcome current data challenges by providing continuously updated information at low geographical levels. Big data can be collected by various platforms, for example

- **Communication platforms**, e.g. social media and mobile phone data;
- **Websites**, e.g. web searches, businesses websites, e-commerce, job advertisements, real estate websites;
- **Sensors**, e.g. traffic loops, smart meters, vessel identifications, satellite images;
- **Process generated data**, e.g. flight booking transactions, supermarket cashier data, financial transactions;
- **Crowd sourcing**, e.g. voluntary geographic websites (OpenStreetMap), community picture collections (European Commission, DG REGIO, 2019).

These examples highlight the variety of themes and nature of data that can be collected. Themes include for example information society, tourism, population, housing, transport, energy efficiency, labour market and employment. Most sources provide raw data that illustrate geographic points of interest, flows, behaviour and development trends (Batista e Silva et al., 2019; Jæger et al., 2013). Each information source generally provides a harmonised bulk information that is continuously updated. This information requires data mining and geocoding of information to retrieve geospatial data.

For territorial analysis the geospatial information retrieved from big data can be aggregated to statistical regions or grid level. Considering the representation of the sample is crucial (Jæger et al., 2013), since big data provides often an unbalanced representation of the population. This needs to be considered when using big data in quantitative TIA methodologies such as LUISA, RHOMOLO, TEQUILA, TARGET. Thus, big data might be more suitable to complete existing datasets or illustrate population trends. It can complement data for methodologies combining quantitative and qualitative inputs, such as the ESPON Quick Check, EATIA or territorial foresight approaches.



Accessibility constraints still limit the likelihood of using big data in all TIA methodologies in the near future. Private enterprises own most of this data and do not publish it free of charge. Communication platform data is particularly challenging, since it is costly even if obtained via intermediaries such as mobile network operators (Batista e Silva et al., 2019). In addition, datasets might be incomplete if stored voluntarily (Jæger et al., 2013). Current initiatives by Eurostat, the European Commission, ESPON and the UN seek ways to overcome these challenges (European Commission, DG REGIO, 2019). EU Member States also launch initiatives for the use of big data. For instance, statistical offices in the Netherlands, Italy, the United Kingdom, Ireland, Finland and Slovenia have launched projects to combine national and big data<sup>25</sup>.

**Action:** Cooperate and coordinate with national statistical offices to encourage the use of big data.

## 5.3 Awareness-raising and alignment with policy processes

Further developing TIA methodologies could benefit from a wider application of the instrument. The review of TIA methodologies illustrated its limited uptake in current policy processes. Besides the application of the three methodologies at European levels described in Chapter 2, few other methodologies are applied to improve policy development. Most methodologies described in Chapter 3 are predominantly tested and applied for research purposes. To increase the use of TIA methodologies for policy and decision making purposes, alignment with existing processes should be sought. This could increase awareness of these methodologies and their added value in policy and decision-making processes. The following presents three ways to increase awareness on TIA methodologies by seeking alignment with policy processes, namely by better resonating TIA methodologies in the Better Regulation Guidelines and toolbox, by continued efforts to promote the benefits of TIA and by setting up a TIA platform and develop TIA guidelines.

### 5.3.1 TIA in the Better Regulation Guidelines and toolbox

The Better Regulation Guidelines and toolbox set out key principles to prepare new legislation and proposals for the European Commission. Tool #33 is explicitly related to territorial impact assessment, more specifically to three methodologies, the TIA Quick Check, LUISA and RHOMOLO. However, TIA

---

<sup>25</sup> <https://ec.europa.eu/jrc/sites/jrcsh/files/j3-bigdata-02-Wirthmann.pdf>

could be explicitly referred to in other sections to encourage more frequent use of such assessments.

The Better Regulation Guidelines aim to support better policy making by providing insights into the variety of implications of policies (European Commission, 2019). However, territorial implications are not explicitly mentioned in line with the territorial cohesion objective of the EU, only the section on impact assessment refers to territories as potentially affected parties of policies (SWD(2017) 350, 2017: 25). In addition, this section hints at other elements that relate to TIA methodologies, such as the mapping of positive and negative economic, societal and environmental impacts as well as specific impacts, for instance, on businesses and citizens. At the same time, foresight and forward-looking tools are mentioned in the toolbox under Tool #4: “Evidence-based better regulation”. A reference to TIA, respectively Toolbox #33 could be included in this Tool as well as in Tool #9: “When is an impact assessment necessary”. The benefits and added value of TIA could be presented more clearly as well as their relevance for the territorial cohesion objective.

Furthermore, since TIA is currently only encouraged rather than compulsory, the Regulatory Scrutiny Board (RSB) can emphasise the need for such assessments during the policy drafting of the Commission. While the RSB is already highlighting the existence of such methodologies (e.g. by mentioning territorial impacts in their annual report<sup>26</sup>), further measures encouraging their uptake could be taken.

**Action:** Better reflect TIA as relevant approach for evidence based policy making in the Better Regulation Guidelines and toolbox. Examples are the updating of Tool #33, adding clearer references in other parts of the guidelines and toolbox.

### 5.3.2 Seeking alignment with new policy processes

Especially ESPON, DG REGIO, CoR and the JRC have made considerable efforts to develop, improve and promote the use of TIA. To continue these efforts the benefits and added value of TIA demands continuous reflection against new policy processes and political objectives. This requires timely communication about newly developed or upgraded TIA methodologies. The renewal of the Territorial Agenda and the EU Green Deal are examples suitable for promoting TIA.

---

<sup>26</sup> [https://ec.europa.eu/info/sites/info/files/rsb\\_report\\_2018\\_en.pdf](https://ec.europa.eu/info/sites/info/files/rsb_report_2018_en.pdf)

The Territorial Agenda is a strategic policy document for Europe and its regions that aims at a sustainable future for all people and places by strengthening territorial cohesion (MSPTD, 2011). The Member States' Ministers responsible for spatial planning and territorial development have agreed to renew the current Territorial Agenda 2020 and first ideas for the new Territorial Agenda have been published<sup>27</sup>. The current draft argues for a more widespread use of TIA at European and national levels to stimulate cross-sectoral coordination. In addition, it proposes pilot actions committing players to contribute to the Agenda's objectives. Pilot policy actions under discussion propose to perform TIA for EU and national policies. These activities are an opportunity to promote and highlight the use of TIA.

President-elect of the European Commission, Ursula von der Leyen mentioned an EU Green Deal as one of the new Commission's priorities to make Europe a frontrunner in climate policies while ensuring balanced effects of climate change actions for society<sup>28</sup>. The EU Green Deal demands policy coordination between environmental, energy and social policies. It could serve as basis to promote the use of TIA by illustrating the relations between different policy fields and the variety of territorial effects. Ex-ante insights could be used to further specify the EU Green Deal.

**Action:** Encourage alignment with new policy processes for continuous promotion of TIA.

### 5.3.3 TIA platform and guidebook

Different TIA methodologies have different purposes and use different methods to illustrate the variety of effects of policies on territories. Depending on the question at stake policy makers may choose to adopt different methodologies. To illustrate the variety of approaches, a TIA platform and guidebook would be useful. A platform could function as a one-stop-shop for policy makers seeking more information on TIA, including benefits, different methodologies and examples of their implementation and outcomes. A TIA guidebook could supplement this information. Publications of TIA applications should highlight that performing a TIA is not necessarily a burdensome step in policy making. In fact, several of the methodologies presented in Chapters 2 and 3 illustrate this. This could also encourage policy makers at national and regional levels to perform

---

<sup>27</sup> <https://www.territorialagenda.eu/home.html>

<sup>28</sup> In her opening statement in the European Parliament Plenary session on 16 July 2019, Ursula von der Leyen sketched her ideas and ambitions for a European Green Deal that shall make Europe the first climate-neutral continent by 2050 by revitalising Europe's industry and ensure long-term growth and jobs. [https://ec.europa.eu/commission/presscorner/detail/en/speech\\_19\\_4230](https://ec.europa.eu/commission/presscorner/detail/en/speech_19_4230)

a TIA. The CoR could be a suitable host for such a platform based on experience in the field and networks with all relevant institutions and authorities. The CoR's EGTC platform could be an example for hosting a TIA platform.

**Action:** Explore the possibilities to set up a TIA platform and guidebook to disseminate examples and illustrate the benefits of the methodology.

# Literature

Batista e Silva F, Barranco R, Rosina K, et al. (2019) New territorial analyses enabled by emerging sources of geospatial data - use cases and challenges. ESPON Scientific Report - Building the next generation of research on territorial development: 95–101.

BMU - Bundesministerium für Umwelt, Naturschutz, Bau und Reaktorsicherheit (2007): Territorial Agenda of the European Union.

ESPON (2006) ESPON project 3.2 Spatial Scenarios and Orientations in relation to the ESDP and Cohesion Policy, Final Report, European Union.

ESPON (2012a) EATIA ESPON and Territorial Impact Assessment, Final Report, European Union.

ESPON (2012b) ESPON ARTS. Assessment of Regional and Territorial Sensitivity.

ESPON (2013) TIPTAP: Territorial Impact Package for Transport and Agricultural Policies, Final Report, European Union.

ESPON (2014a) ET2050 - Integrated Spatial Scenarios until 2050. Scientific Report Volume 6. Luxembourg: ESPON.

ESPON (2014b) Progress on a European Platform for Applied Territorial Science. Luxembourg: ESPON CU edited by Kai Böhme, Erik Gløersen, Cliff Hague, Frank Holstein and Sabine Zillmer.

ESPON (2018a) Possible European Territorial Futures. Guidelines to Territorial Foresight. Luxembourg: ESPON. Available at: <https://www.espon.eu/territorial-futures> (accessed 19 October 2018).

ESPON (2018b) Territorial Impact Assessment for Cross-Border cooperation

ESPON (2019) Territorial Impact Assessment for Cross-Border Cooperation: Targeted Analysis. Final Report.

EC (2019): LUISA - Technical Description, Accessed 25 October 2019, available from: <https://ec.europa.eu/jrc/en/luisa/technical-description>.

- European Commission (1999): ESDP - European Spatial Development Perspective. Towards Balanced and Sustainable Development of the Territory of the European Union.
- European Commission (2013): Commission Staff Working Document. Assessing territorial impacts: Operational guidance on how to assess regional and local impacts within the Commission Impact Assessment System.
- European Commission (2019) Better regulation ‘Toolbox’. Brussels: European Commission. Available at: [https://ec.europa.eu/info/law/law-making-process/planning-and-proposing-law/better-regulation-why-and-how/better-regulation-guidelines-and-toolbox/better-regulation-toolbox\\_en](https://ec.europa.eu/info/law/law-making-process/planning-and-proposing-law/better-regulation-why-and-how/better-regulation-guidelines-and-toolbox/better-regulation-toolbox_en) (accessed 11 August 2019).
- European Commission, DG REGIO (2019) City data from LFS and Big Data. Luxembourg: Prepared by Statistics Netherlands, INSEE, Destatic, Statistics Austria, Statbel. Available at: [https://ec.europa.eu/regional\\_policy/sources/docgener/studies/pdf/city\\_data\\_en.pdf](https://ec.europa.eu/regional_policy/sources/docgener/studies/pdf/city_data_en.pdf) (accessed 28 October 2019).
- EUROSTAT (2019) EU legislation on the 2021 population and housing censuses - Explanatory notes. Luxembourg: Eurostat. Available at: <https://ec.europa.eu/eurostat/documents/3859598/9670557/KS-GQ-18-010-EN-N.pdf/c3df7fcb-f134-4398-94c8-4be0b7ec0494> (accessed 28 October 2019).
- Evers D (2011) Territorial Impact Assessment: a critical examination of current practice. The Hague, The Netherlands: PBL Netherlands Environmental Assessment Agency, The Hague. Available at: [https://www.pbl.nl/sites/default/files/downloads/PBL-2011-Territorial\\_Impact\\_Assessment\\_a\\_critical\\_examination\\_of\\_current\\_practice.pdf](https://www.pbl.nl/sites/default/files/downloads/PBL-2011-Territorial_Impact_Assessment_a_critical_examination_of_current_practice.pdf).
- Fischer, Thomas B., Olivier Sykes, Thomas Gore, Naja Marot, Mojca Golobic, Paulo Pinho, Bas Waterhout & Anastassios Perdicoulis (2014) Territorial Impact Assessment of European Draft Directives - The Emergence of a New Policy Assessment Instrument, European Planning Studies.
- GEOSTAT 3 (2019) GSGF Europe - Implementation guide for the Global Statistical Geospatial Framework in Europe; proposal from the GEOSTAT 3 project. Stockholm: EFGS and Eurostat.

- Golobic M, Marot N (2008): Territorial Impact Assessment: a policy development tool for territorial cohesion. University of Ljubljana.
- Holstein F, Böhme K and Lür C (2019) Future-oriented approaches - the case of territorial foresight. Building the next generation of research on territorial development: 76–80.
- Jæger S, Böhme K and Gløersen E (2013) Exploring Big Data for analysing territorial development. In: Science in Support of European Territorial Development and Cohesion. Second ESPON Scientific Report. Luxembourg: ESPON, pp. 146–152. Available at: [http://www.espon.eu/export/sites/default/Documents/Publications/ScientificReports/SecondFebruary2014/ESPON\\_SCIENTIFIC\\_REPORT\\_2.pdf](http://www.espon.eu/export/sites/default/Documents/Publications/ScientificReports/SecondFebruary2014/ESPON_SCIENTIFIC_REPORT_2.pdf) (accessed 20 February 2016).
- Jalava K (2014) Quality of Environmental Impact Assessment in Finland. JYVÄSKYLÄ STUDIES IN BIOLOGICAL AND ENVIRONMENTAL SCIENCE. University of Jyväskylä.
- Medeiros E (2014) Territorial Impact Assessment (TIA): The Process, Methods and Techniques. Lisbon: University of Lisbon.
- MSPTD (2011) Territorial Agenda of the European Union 2020. Towards an Inclusive, Smart and Sustainable Europe of Diverse Regions. Agreed at the Informal Ministerial Meeting of Ministers responsible for Spatial Planning and Territorial Development on 19th May 2011 Gödöllő, Hungary.
- Nosek Š (2019) Territorial Impact Assessment – European context and the case of Czechia. AUC GEOGRAPHICA: 133–144. DOI: 10.14712/23361980.2019.12.
- OECD (2010) Better Regulation in Europe: Belgium. Paris. Available at: <http://www.oecd.org/gov/regulatory-policy/betterregulationineuropebelgium.htm>.
- OIR, AIDICO (2013): ESPON TIA Quick Check - Moderator's Guide and Methodological Background.
- Polish Ministry of Economy (2015) Guidelines for the Regulation Impact Assessment (RIA).
- SWD(2017) 350 (2017) Commission Staff working Document - Better regulation Guidelines. Brussels: European Commission.

Tennekes J and Hornis W (2008) Ruimtelijke-effectanalyses van EU-beleid: een leidraad. Den Haag: Ruimtelijk planbureau.

UK Government Department for environment, food & rural affairs (2017) Rural proofing: practical guidance to assess impacts of policies on rural areas. [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/600450/rural-proofing-guidance.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/600450/rural-proofing-guidance.pdf)

UN Statistical Commission (2019) The Global Statistical Geospatial Framework. New York: UN - GGIM.

Zonneveld W and Waterhout B (2009) EU Territorial Impact Assessment: Under What Conditions? In: European Congress of the Regional Science Association, Lodz, Poland, 25 August 2009.



# Annex 1 - Factsheets of selected TIA methodologies

## TIA Quick Check

Main characteristics	TIA Quick Check
Intention	<i>Development of a method capable of depicting potential territorial impacts in a comparably easy way serving as a discussion basis for further analysis.</i>
Assessment method	<ul style="list-style-type: none"> <li>• <i>Hybrid. Insights created by an expert workshop is combined with quantitative data to calculate territorial impact patterns</i></li> </ul>
Data basis	<p><i>The methodology in principle can make use of any non-categorical indicator, therefore:</i></p> <ul style="list-style-type: none"> <li>• <i>Externally produced/quantitative (e.g. EUROSTAT GDP statistics)</i></li> <li>• <i>Externally produced/qualitative (e.g. EU-level survey)</i></li> <li>• <i>Internally produced (e.g. programme internal indicators)</i></li> </ul>
Thematic fields covered	<ul style="list-style-type: none"> <li>• <i>Economy, Environment, Society, Governance</i></li> </ul>
Action assessed	<ul style="list-style-type: none"> <li>• <i>Policies</i></li> <li>• <i>Programmes (these assessments are possible, but not the intention behind the methodology)</i></li> </ul>
Timing	<ul style="list-style-type: none"> <li>• <i>Ex-ante</i></li> </ul>
Institutions involved	<ul style="list-style-type: none"> <li>• <i>Self-assessment</i></li> <li>• <i>External assessment</i></li> </ul>
Examples of applications	<ul style="list-style-type: none"> <li>• <i>Territorial Impact Assessment on Energy Poverty (ex-ante, May 2019)</i></li> <li>• <i>Territorial Impact Assessment on Climate Neutrality (ex-ante, April 2019)</i></li> <li>• <i>Territorial Impact assessment on the Bioeconomy (ex-ante, April 2019)</i></li> <li>• <i>Territorial Impact Assessment on a Place-based Industrial Strategy (ex-ante, March 2019)</i></li> <li>• <i>Territorial Impact Assessment – establishment of the European Labour Authority (ex-ante, July 2018)</i></li> <li>• <i>Territorial Impact Assessment – UK's withdrawal from the EU (ex-ante, February 2018)</i></li> <li>• <i>Territorial Impact Assessment – EGTC Regulation – Regulation (EU) No 1302/2013 amending Regulation (EC) No 1082/2006 (ex-post, March 2018)</i></li> <li>• <i>Cross-border Impact Assessment Report / European Territorial Cooperation post-2020 (ex-ante, March 2018)</i></li> <li>• <i>Urban Impact Assessment - Implementation of the 2030 Agenda; The influence of SDG 11.3 on urban development through spatial planning (ex-post, May 2018)</i></li> <li>• <i>Clean Vehicles Directive (CVD) (ex-ante, 2017)</i></li> </ul>

	<ul style="list-style-type: none"> <li>• <i>Territorial Impact Assessment - Smart Specialisation (ex-ante, 2017)</i></li> <li>• <i>Minimum Quality Requirements for Reused Water in Agricultural Irrigation and Aquifer Recharge (ex-ante, 2017)</i></li> <li>• <i>Directive on Port Reception Facilities for Ship Generated Waste and Cargo Residues (ex-ante, 2017)</i></li> <li>• <i>Territorial Impact Assessment – Work-Life Balance Directive (ex-ante)</i></li> <li>• <i>Territorial Impact Assessment - Remotely Piloted Aircraft Systems (ex-ante, 2016)</i></li> <li>• <i>Urban Impact Assessment – New Skills for Europe (ex-ante, 2016)</i></li> <li>• <i>Urban Impact Assessment - Sharing economy (ex-ante, 2016)</i></li> <li>• <i>Territorial Impact Assessment - Birds and Habitats Directives (ex-post, 2015)</i></li> <li>• <i>Analytical note - Port reception facilities Directive (ex-post, 2015)</i></li> <li>• <i>Urban Impact Assessment - Energy performance of Buildings Directive (ex-post, 2015)</i></li> <li>• <i>The Resource Efficiency and Waste Package – towards a circular economy: a zero waste programme for Europe (ex-ante, 2014)</i></li> <li>• <i>“Smooth Phasing-out of the Milk Quotas in the EU” (ex-ante, 2014)</i></li> <li>• <i>“Port’s package” (ex-ante, 2013)</i></li> </ul>
Advantages	<ul style="list-style-type: none"> <li>• <i>The methodology is easy to apply and an ex-ante impact assessment can be conducted at comparably low cost in a short timeframe, thus it is attractive to policy makers</i></li> <li>• <i>The regulatory scrutiny board recognises the methodology as suited for ex-ante policy impact assessment, thus the results are likely to be accepted in the EU-policy process</i></li> <li>• <i>The method is already applied in practice thus not only a theoretical creation</i></li> </ul>
Disadvantages	<ul style="list-style-type: none"> <li>• <i>Only a quick “glance” at territorial impacts is possible, in depth assessments require other methodologies</i></li> <li>• <i>The results depend both on a well composed group of experts and high quality quantitative data backing, thus e.g. mitigating data availability issues via qualitative assessments is not possible</i></li> </ul>

## RHOMOLO

Main characteristics	RHOMOLO
Intention	<i>Regionalised assessment of EU Cohesion Policy</i>
Assessment method	<ul style="list-style-type: none"> <li>• <i>Only quantitative</i></li> </ul>
Data basis	<ul style="list-style-type: none"> <li>• <i>Externally produced/quantitative (e.g. EUROSTAT GDP statistics)</i></li> <li>• <i>Internally compiled (regional Social Account Matrices for the NUTS 2 regions of the EU)</i></li> </ul>
Thematic fields covered	<ul style="list-style-type: none"> <li>• <i>Economy (environment, society as a “2nd tier analysis” based on economic effects)</i></li> </ul>

Action assessed	<ul style="list-style-type: none"> <li>• <i>Policies</i></li> <li>• <i>Programmes</i></li> </ul>
Timing	<ul style="list-style-type: none"> <li>• <i>Ex-ante</i></li> <li>• <i>Ex-post</i></li> </ul>
Institutions involved	<p><i>High amount of expertise in running the model is necessary in order to create meaningful results therefore it does not lend itself to a self-assessment of e.g. programmes. Thus:</i></p> <ul style="list-style-type: none"> <li>• <i>External assessment</i></li> </ul>
Examples of applications	<ul style="list-style-type: none"> <li>• <i>Impact Assessment of Horizon Europe</i></li> <li>• <i>Evaluation of the European Fund for Strategic Investments</i></li> <li>• <i>Impact Assessment of the European Social Fund</i></li> <li>• <i>Impact Assessment of the European Regional Development Fund and the Cohesion Fund.</i></li> <li>• <i>Ex-post evaluation of the ERDF and Cohesion Fund 2007-2013</i></li> <li>• <i>Assessing the macroeconomic impact of the EIB Group</i></li> <li>• <i>The impact of the Grand Paris Express on the European regions</i></li> <li>• <i>European NUTS 2 regions: construction of interregional trade-linked Supply and Use tables with consistent transport flows</i></li> <li>• <i>Assessing the regional socio-economic impact of the European R&amp;I programme</i></li> <li>• <i>The impact of Cohesion Policy 2007-2015 in EU regions</i></li> <li>• <i>The third pillar of the Investment Plan for Europe</i></li> </ul>
Advantages	<ul style="list-style-type: none"> <li>• <i>Rhomolo is the only readily available model on the pan-European level capable of modelling sector specific economic interlinkages on this scale</i></li> <li>• <i>The method is well tested and has been applied in numerous cases of impact assessments</i></li> <li>• <i>Similar to the TIA Quick Check the method is recognised by the Regulatory Scrutiny Board thus accepted as producing valid and reliable results for the purpose of the EU policy making process</i></li> </ul>
Disadvantages	<ul style="list-style-type: none"> <li>• <i>Compared to the other available methodologies, the spatial resolution is relatively low. NUTS 2 for example does not allow for a differentiation between urban and rural regions which is oftentimes requested</i></li> <li>• <i>Similar to LUISA the effort in running and calibrating the Rhomolo model is comparably high</i></li> <li>• <i>The model, as any modelling framework, relies on a number of assumptions which are grounded on the current economic literature on general equilibrium modelling</i></li> </ul>

# LUISA

Main characteristics	LUISA
Intention	<i>Land-function based ex-ante assessment of EU policies, especially agricultural and cohesion policy with larger cross-sectoral integration of input and output factors.</i>
Assessment method	<ul style="list-style-type: none"> <li>• <i>Only quantitative</i></li> </ul>
Data basis	<ul style="list-style-type: none"> <li>• <i>Externally and internally produced/quantitative (e.g. demographic data from EURPOP 2010, regional economic data from RHOMOLO, transportation data from TRANSTOOLS)</i></li> </ul>
Thematic fields covered	<ul style="list-style-type: none"> <li>• <i>Economy, demography, agriculture, energy</i></li> </ul>
Action assessed	<ul style="list-style-type: none"> <li>• <i>Policies</i></li> <li>• <i>Programmes</i></li> </ul>
Timing	<ul style="list-style-type: none"> <li>• <i>Ex ante</i></li> </ul>
Institutions involved	<ul style="list-style-type: none"> <li>• <i>EC Services</i></li> <li>• <i>External assessment</i></li> </ul>
Examples of applications	<ul style="list-style-type: none"> <li>• <i>Integrated Coastal Zones Management (input to Impact Assessment)</i></li> <li>• <i>Common Agricultural Policy (post 2013, formal Impact Assessment)</i></li> <li>• <i>Blueprint to Safeguard Europe's Water Resources (formal Impact Assessment)</i></li> <li>• <i>Implementation of the ENER-CLIMA Reference Scenario</i></li> <li>• <i>Assessment of Shale Gas extraction in Poland and Germany (formal Impact Assessment)</i></li> <li>• <i>Resource Efficiency Roadmap</i></li> <li>• <i>Inputs to Cohesion Reports</i></li> </ul>
Advantages	<ul style="list-style-type: none"> <li>• <i>Very well suited to depict demographic, infrastructural and agricultural effects</i></li> <li>• <i>The only tool that provides results in grid format</i></li> <li>• <i>Potential territorial impacts are provided on a grid basis, which is far more detailed than the results other methods achieve</i></li> <li>• <i>Long-term trend projections based on likewise long-term historic data is possible</i></li> </ul>
Disadvantages	<ul style="list-style-type: none"> <li>• <i>To create reliable results, sound calibration is necessary, with potential high workload</i></li> <li>• <i>The baseline scenario concentrates on policies, concerning agriculture, biodiversity, energy and TEN-T. The implementation of other policies requires calibration work.</i></li> <li>• <i>As territorial development usually is based on local characteristics as e.g. landscape details, zoning plans, behavioural economics etc. a zooming into a small region can lead to misleading interpretations.,</i></li> <li>•</li> </ul>

# ESPON TEQUILA

Main characteristics	ESPON Tequila model
Intention	<i>The intention is to assess the efficiency of a given European policy to improve territorial cohesion, encompassing impacts across regions in terms of the economy and competitiveness, on environment and climate change, on society and on landscape.</i>
Main approach	<ul style="list-style-type: none"> <li>• <i>The general methodology – namely a Multi-criteria analysis – and the criteria taken into consideration for calculating the territorial impacts were consistent with the EU Guidelines concerning Impact Assessment (SEC(2009)92)</i></li> <li>• <i>The method is quantitative, integrating both quantitative assessment by forecast models and qualitative assessment by expert opinion. Values are normalised to 0-1 scale by different type of functions. Thresholds are identify to indicate values in a given indicator so poor no to be compensated by other indicators.</i></li> <li>• <i>Three “summative” macro-criteria (weighted by political preferences obtained e.g. from stated-preference surveys) were defined, namely: territorial efficiency, territorial quality, and territorial identity (all adding up to the concept of territorial cohesion)</i></li> </ul>
Geographic coverage	<ul style="list-style-type: none"> <li>• <i>EU (NUTS 3)</i></li> </ul>
Assessment method	<ul style="list-style-type: none"> <li>• <i>The territorial impact (TIM) is defined as <math>TIM = PIM \cdot D \cdot V</math>, namely the product of a Potential Impact - PIM (defined by each region using statistical indicators or a forecast model) times an indicator of Desirability - D (in order to take into account the fact that, for example, a similar growth in employment has a different priority in advanced and lagging regions) times an indicator of Vulnerability – V (in order to take into consideration, for instance, of the higher vulnerability of urban areas to pollution or of natural areas to landscape fragmentation).</i></li> <li>• <i>The single criteria on which impacts (PIM) were defined for the two policies as follows:</i> <ul style="list-style-type: none"> <li>○ <i>CAP: Economic growth, Unemployment, Tourism diversification, Environmental quality, Community viability, Emissions, Risk of soil erosion, Landscape diversity, Community identity, Heritage products;</i></li> <li>○ <i>TRANSPORT: Productivity of inland infrastructure, Productivity of airports, Economic growth, Congestion costs, Traffic passing through, Emissions, Safety, Market opportunities, Landscape fragmentation, Exposure to external visitors, Regional integration.</i></li> </ul> </li> </ul>
Thematic fields covered	<ul style="list-style-type: none"> <li>• <i>All fields are covered since the assessment is comprehensive.</i> <ul style="list-style-type: none"> <li>○ <i>impacts on the economy</i></li> <li>○ <i>impacts on competitiveness</i></li> <li>○ <i>impacts on society</i></li> <li>○ <i>impacts on environment and climate change</i></li> </ul> </li> </ul>

Main characteristics	ESPON Tequila model
	<ul style="list-style-type: none"> <li>○ <i>impacts on landscape and local identities</i></li> </ul>
Data basis	<ul style="list-style-type: none"> <li>● <i>Data used on the CAP and CTP test application was obtained from specialised databases and modelling tools.</i></li> <li>● <i>Impact indicators to be selected were indicated by sectoral experts and then discussed and adjusted based on data availability and modelling tools.</i></li> <li>● <i>In the case of CTP, TRANSTOOL model (2009 version, by DGMOVE) was applied to simulate scenarios on market regulatory and investment policies and obtain the 11 indicators (or proxies) to compute PIM, and then the macro-criteria leading to the overall assessment.</i></li> </ul>
Timing	<ul style="list-style-type: none"> <li>● <i>Ex ante</i></li> </ul>
Institutions involved	<ul style="list-style-type: none"> <li>● <i>The method was developed by POLIMI, a research institution, and applied by a University with expertise on CAP and a consultancy expert on transport policies.</i></li> </ul>
Examples of applications	<ul style="list-style-type: none"> <li>● <i>TEQUILA was applied for the Agricultural policies as well as the Transport policies in the ESPON Tequila project</i></li> </ul>
Advantages	<ul style="list-style-type: none"> <li>● <i>The method includes all dimensions needed to assess the improvement of European territorial cohesion generated by a given policy, and then facilitates a comprehensive political discussion in relation to how efficient is in this respect.</i></li> <li>● <i>Transparent aggregation procedure of the method that can be relatively easy understand by decision makers and other stakeholders. The difference between scientific assessment of indicators and political choice of criteria and preferences among them is clear.</i></li> </ul>
Disadvantages	<ul style="list-style-type: none"> <li>● <i>Data scarcity and conceptual ambiguity may produce controversial results that are highlighted when displaying results in maps. Integrating results in graphics and aggregated by types of regions may reduce this possible disadvantage.</i></li> <li>● <i>Difficulty to use it on an ex-post evaluation mode. Hardly can be applied to assess the territorial impacts of EU policies after their completion</i></li> </ul>

## ESPON EATIA

Main characteristics	ESPON EATIA model
Intention	<i>The intention is to assess the potential territorial impacts of European draft directives and to support their implementation processes.</i>
Main approach	<ul style="list-style-type: none"> <li>● <i>The EATIA framework / methodology has been developed through the following 4 stages:</i> <ul style="list-style-type: none"> <li>○ <i>(1) Establishing differences and similarities of existing assessment tools and TIA</i></li> <li>○ <i>(2) Designing a preliminary TIA framework:</i></li> <li>○ <i>(3) Testing the applicability of the TIA framework and refining it:</i></li> </ul> </li> </ul>

Main characteristics	ESPON EATIA model
	<ul style="list-style-type: none"> <li>○ (4) Assessing the usefulness and benefits, as well as associated costs of applying the TIA framework; further refinement of the framework.</li> <li>● The framework has been developed around three complimentary strands; procedural, technical and governance.</li> </ul>
Geographic coverage	<ul style="list-style-type: none"> <li>● National and tested for UK, Portugal and Slovenia</li> </ul>
Assessment method	<ul style="list-style-type: none"> <li>● There are four main stages of the TIA process: <ul style="list-style-type: none"> <li>○ Stage 1 – Screening aims to determine the necessity for TIA on a case-by-case basis, that is, whether the approach should be employed or not employed for a specific policy proposal.</li> <li>○ Stage 2 - Scoping aims to steer the entire TIA process by determining: whether major territorial impacts are likely to result from the proposed policy; what the nature of these impacts is; and where these impacts are likely to emerge geographically.</li> <li>○ Stage 3 – Impact Assessment, the assessors need to complete the IAM, developed during scoping, by considering the impact of the policy proposal (or of each policy proposal element) on the locality in question in terms of the territorial characteristics used in scoping and possibly other, local characteristics.</li> <li>○ Stage 4 – Impact Evaluation aims to be able to determine whether the potential impacts identified in the assessment stage are significant, both, positively and negatively, and to comment, in particular, on how any undesirable impacts could be avoided or mitigated though e.g. changing the wording of a directive proposal or altering the transposition approach.</li> </ul> </li> </ul>
Thematic fields covered	<ul style="list-style-type: none"> <li>● Employment, Investment in research and development, Greenhouse gas emissions, Renewable Energy, Energy Efficiency, Educational attainment, Poverty and social exclusion</li> </ul>
Data basis	<ul style="list-style-type: none"> <li>● The data was collected through workshops with three national stakeholders; the national government departments / ministries responsible for spatial planning of the UK, Portugal and Slovenia.</li> <li>● ESPON documents and projects such as ARTS project and the TEQUILA model</li> </ul>
Timing	<ul style="list-style-type: none"> <li>● Ex-ante</li> <li>● Ex-post</li> </ul>
Institutions involved	<ul style="list-style-type: none"> <li>● Institutions involved are the departments and ministries responsible for spatial planning from three member states; the UK, Slovenia and Portugal (the Stakeholders), impact assessment expert teams of four universities (Liverpool, Ljubljana, Porto and Delft) and ‘learning networks’ of between 15 and 20 public and private sector practitioners from each of these countries.</li> </ul>
Examples of applications	<ul style="list-style-type: none"> <li>● During the development, the methodology has been tested in the UK (including local testing in Dover and Leeds, regional testing in Northern Ireland and Scotland), Slovenia and Portugal (at national level and regional in the Norte region).</li> </ul>

Main characteristics	ESPON EATIA model
Advantages	<ul style="list-style-type: none"> <li>Highly participatory methodology, which allows the involvement of national, regional and local departments responsible for spatial planning</li> </ul>
Disadvantages	<ul style="list-style-type: none"> <li>Does not define all dimensions and components of Territorial Cohesion.</li> </ul>

## TARGET\_TIA

Main characteristics	TARGET_TIA
Intention	Assess and compare territorial impacts of a selected measure by applying a multi-vector approach on predefined territorial cohesion dimensions.
Assessment method	Hybrid: qualitative (degree of impact: +4 / - 4); and quantitative (aggregated statistical index). For ex-ante evaluation only the qualitative assessment is viable.
Data basis	<p><b>Qualitative assessment</b></p> <ul style="list-style-type: none"> <li>Both internally and externally produced information resulting from: report and bibliography readings; interviews to national experts and policy officials; stakeholder and expert consultations; project analysis. The information collected is used to produce a TIA qualitative assessment.</li> </ul> <p><b>Quantitative assessment</b></p> <ul style="list-style-type: none"> <li>Externally produced statistical indicators, used and combined in an aggregated statistical index.</li> </ul>
Thematic fields covered	Applicable to different thematic fields. Available examples focus mainly on territorial cohesion and EU cohesion policy impacts at different levels.
Action addressed	<ul style="list-style-type: none"> <li>Policies</li> <li>Programmes</li> <li>Projects</li> </ul>
Timing	<ul style="list-style-type: none"> <li>Ex-ante</li> <li>Ex-post</li> </ul>
Institutions involved	<ul style="list-style-type: none"> <li>The TARGET_TIA should be performed by a service provider and a consistent share of the work is carried out via desk research and elaboration</li> <li>National experts and policy officials are also involved in the qualitative assessment.</li> </ul>
Examples of applications	<ul style="list-style-type: none"> <li>EU Cohesion Policy in the Iberian Peninsula (ex-post)</li> <li>EU Cohesion Policy in Algarve, Portugal (ex-post)</li> <li>Portuguese and Spanish cross-border programmes (ex-post)<sup>29</sup></li> <li>EU Cohesion Policy in Sweden (ex-post)<sup>30</sup></li> </ul>

<sup>29</sup><https://www.evaltep.cz/inpage/cross-border/>  
<https://www.tandfonline.com/doi/pdf/10.1080/21681376.2014.999108>

<sup>30</sup> <https://estif.lexxion.eu/article/ESTIF/2015/4/8>



Advantages	<ul style="list-style-type: none"> <li>• <i>Both ex-ante and ex-post evaluation;</i></li> <li>• <i>It produces a TIA value, therefore allowing for comparability with other territories or policies;</i></li> <li>• <i>It allows to assess multiple dimensions. Not only socio-economic-environmental but also all territorial development dimensions</i></li> <li>• <i>Facilitated application. Impact elements all together in excel spreadsheet with predefined formula and coefficients.</i></li> </ul>
Disadvantages	<ul style="list-style-type: none"> <li>• <i>Identification of concrete goals and related dimensions can be challenging, especially in territorial cohesion policies.</i></li> <li>• <i>Selection of appropriate territorial scale and time frame in relation with statistic indicators availability.</i></li> <li>• <i>The assessment can be financially costly due to the large data collection, especially if an ex-post evaluation is chosen.</i></li> <li>• <i>Process can become overly lengthy for non-experienced evaluators.</i></li> </ul>

## ESPON TIA-CBC

Main characteristics	TIA-CBC: Cross-Border Cooperation
Intention	<p><i>The methodology will allow policy makers and practitioners to obtain evidence on the territorial impact of CBC programmes and help on developing better-informed cross-border policies.</i></p> <p><i>The working steps follow a sequence of desk research by the TIA service provider which is then reflected on with an expert panel in the next step, whose input again is relevant to the following desk research step by the service provider.</i></p>
Assessment method	<ul style="list-style-type: none"> <li>• <i>Quantitative, Semi-quantitative, Qualitative</i></li> <li>• <i>The approach follows a structured procedure:</i> <ul style="list-style-type: none"> <li><i>Step 1: Programme Characterisation</i></li> <li><i>Step 2: Identification of programme effects</i></li> <li><i>Step 3: Indicator Assessment</i></li> <li><i>Step 4: Impact assessment</i></li> <li><i>Step 5: Reporting</i></li> </ul> </li> </ul>
Data basis	<p><i>Mixed combination of:</i></p> <ul style="list-style-type: none"> <li>• <i>Externally produced quantitative data – indicators</i></li> <li>• <i>Internally produced qualitative data - panel discussion and workshops</i></li> <li>• <i>Produced by TIA in the form of semi-quantitative and quantitative net assessment – also done through panel discussion and workshops.</i></li> </ul>
Thematic fields covered	<i>Adaptable to the specific objectives of the cross-border cooperation scheme that is under evaluation.</i>
Action addressed	<i>Cross border cooperation programmes</i>
Timing	<i>Ex post</i>
Institutions involved	<i>The TIA is a joint exercise between a service provider, programme authorities, and key stakeholders and experts involved in the workshops.</i>
Examples of applications	<ul style="list-style-type: none"> <li>• <i>The methodology has been tested during its methodology in 5 cross-border regions, namely Germany-Netherlands, Sweden-Norway,</i></li> </ul>

	<i>Romania-Bulgaria, Ireland-Northern Ireland-Scotland, and Spain-Portugal</i>
Advantages	<i>It is an ad-hoc methodology for Cross-Border programmes at EU level. The tool is therefore highly specialized and can be easily considered the best option available when dealing with such programmes. Nonetheless, the general approach, strengthened by a double expert validation, can be transposed into other contexts as well.</i>
Disadvantages	<i>It allows only for Ex post assessment, therefore activating a learning by mistake process, but not a foresight approach. The high specialization of the methodology, which originates already in the very design of the methodology, does not allow TIA-CBC to be applied in different contexts as it is; it would require a supplementary effort for its adaptation.</i>

# Annex 2 CBA categories

## Synthesis of impacts and cost-benefit categories based on DG REGIO (2014)

COSTS/BENEFIT CATEGORY	METHODOLOGICAL APPROACH	BASIC DATA	SOURCES OF INFORMATION
Investment costs	Quantitative estimation	Detailed accounting of all investment costs. Includes measures to mitigate negative impacts.	Project data
Disruption during the construction period	Quantitative estimation of the impact and monetisation if possible. Alternatively, qualitative assessment if disruption is relevant.	For existing traffic, during the construction period, changes on: Time and operating costs; accidents; emissions; noise	Hypotheses based on the number of vehicles and citizens affected by disruptions during the construction period.
Transport providers' operating costs	Quantitative estimation	Detailed accounting of all transport providers' operating costs	Project data, project promoters' data.
<b>User benefits</b>			
Travel time savings	Quantitative estimation of the effect on travel time of various categories of users and monetisation through corresponding value of time	Values of time savings (segmentation of users if possible) and Travel time estimates	Travel time is generally an output of the traffic model. Social values (shadow prices) may be used if consistent and politically accepted.
Comfort improvement	Monetisation through travel time on affected parts of the journey, or qualitative description (depending on data availability).	Changes on the adopted values of time due to the modification of comfort conditions.	Qualitative investigations about perceived comfort conditions
Congestion	Quantitative estimation of the impacts on travel time, reliability, additional environmental, safety, etc. if transport data allows.	Additional travel time, additional emissions, accidents, etc. Monetary valuation consistent with the overall valuation of the two impact categories.	Transport model
Vehicle operating and maintenance costs	Quantitative estimation	Detailed accounting of all vehicle operating and maintenance costs.	Project data, project promoters' data.
Safety	Quantitative estimation of accidents (deaths, injuries, etc) and monetisation.	Number and severity of accidents and casualties by mode. Direct and indirect economic costs, and value of statistical life.	The number and severity of accidents is generally taken from national/ international statistics
Fares, tolls and other charges	Quantitative estimation in the financial analysis. Results presented in the Stakeholders-Effect Matrix. No economic impacts beyond those in investment and operating costs of revenue collection.	Detailed data on current fares and other tariffs and traffic forecasts.	<i>Ad hoc</i> surveys of existing tariff system. Forecasts on the evolution of tariff policy are based on the strategy decided by the project promoter.
Taxes and subsidies	Quantitative estimation in the financial analysis. Results presented in the Stakeholders-Effect Matrix. No economic impact.	Detailed accounting of current taxes and subsidies system and forecasting.	<i>Ad hoc</i> surveys of existing and planned taxation and subsidisation systems.
<b>Environmental impacts</b>			
Air pollution	Quantitative estimation of the impact through monetisation.	- Pollutants' emissions (NOx, VOCs, SO <sub>2</sub> , PM <sub>10</sub> and PM <sub>2.5</sub> , CO) by mode and type of vehicle related to the urban cycle. - Unit costs for the various pollutants.	Emission data from environmental agencies or national/international databases.

<b>COSTS/BENEFIT CATEGORY</b>	<b>METHODOLOGICAL APPROACH</b>	<b>BASIC DATA</b>	<b>SOURCES OF INFORMATION</b>
Global warming	Quantitative estimation of the impact through monetisation.	- Emissions of greenhouse gases (CO <sub>2</sub> , N <sub>2</sub> O and CH <sub>4</sub> in CO <sub>2</sub> equivalents). - Unit cost for ton of CO <sub>2</sub> .	Emission data from environmental agencies or national/international databases
Noise	Quantitative estimation of the impact through monetisation.	- Perceived noise levels. - Number of persons exposed, by noise levels. - Unit costs for changes in exposure.	Project data. Unit costs are drawn from <i>ad hoc</i> surveys or from international research.
<b>Territorial impacts</b>			
Impacts on land use and land consumption	Qualitative description.	Land consumption is considered if value not properly reflected in investment costs. The degree of detail of this analysis depends on whether these impacts are the focus of the project.	Included in Multi-criteria analysis
Severance and visual intrusion	Qualitative description.	Changes in property values due to the project, residents and visitors' preferences concerning visual intrusion.	Included in Multi-criteria analysis
Impacts on economic development	Qualitative description.	Added value and jobs created during the construction, directly created after works finalised, and induced indirectly	Included in Multi-criteria analysis
<b>Social impacts</b>	Qualitative description.	Information about project impacts in terms of social cohesion and quality of life	Included in Multi-criteria analysis
<b>Analysis of the distribution of impacts</b>	Stakeholder analysis based on the Stakeholders-Effect Matrix.	Identification of the relevant stakeholders and effects. Disaggregated results CBA	The same sources indicated for the other impact categories.

EN

ISBN 978-92-895-1031-8  
doi:10.2863/797486

QG-04-19-758-EN-N



**European Committee  
of the Regions**

Created in 1994 following the signing of the Maastricht Treaty,  
the European Committee of the Regions is the EU's assembly of 350 regional and  
local representatives from all 28 Member States, representing over 507 million Europeans.

Rue Belliard/Belliardstraat 101 | 1040 Bruxelles/Brussel | BELGIQUE/BELGIË | Tel. +32 22822211  
[www.cor.europa.eu](http://www.cor.europa.eu) | [@EU\\_CoR](https://twitter.com/EU_CoR) | [/european.committee.of.the.regions](https://www.facebook.com/european.committee.of.the.regions)  
[/european-committee-of-the-regions](https://www.linkedin.com/company/european-committee-of-the-regions)