ESPON

EUROPEAN UNION

Co-financed by the European Regional Development Fund

Inspire Policy Making with Territorial Evidence

"ESPON portal - interactive mapping and dashboards"
Preliminary Market Consultation Report

Contents

1 Description of the preliminary market consultation

1.1 Context

This is the final report of the preliminary market consultation that was aimed to acquire information regarding potential solutions to be envisaged for redesigning ESPON tools overall architecture.

This consultation has been conducted in preparation of a future public procurement aimed at selecting a service provider to support development of "ESPON portal - interactive mapping and dashboards".

Currently, the ESPON website hosts 5 online tools[1] which are part of the "ESPON toolbox". Online tools which have been developed during the ESPON 2013 program have been archived, but are still accessible (with limited functionalities). The ESPON EGTC intends to develop a new single online portal which shall provide a single access point to all the ESPON online tools and shall integrate all the existing ESPON tools to the extent possible. The new portal shall be built around a new and innovative mapping interface which is supported by interactive dashboards which showcase ESPON's knowledge base.

1.2 Objectives

Looking ahead at the ESPON post-2020 programme, the intention of the EGTC is to offer a radically new approach to ESPON tools architecture. The new ESPON portal, containing interactive mapping and dashboards, shall address the challenge that ESPON online tools become outdated and lack integration.

The purpose of this Preliminary Market Consultation was to acquire information regarding the potential solutions to this overall architecture which shall be built around a single technological platform, providing a single access point. The idea is to avoid having separate self-contained online tools where each of them function according to their own logic and access terms. The new solution should provide an incentive and technological means to ensure the long-term uptake and visualisation of outcomes produced by the programme thematic activities.

The EU open call for selecting a service provider to support development of "ESPON portal - interactive mapping and dashboards" will be published by the end of second Quarter 2021.

1.3 Implementation of the market consultation

The consultation was opened on 16 December 2020 (announce and supporting materials on the website[2], notice published on the Luxembourg Public Procurement Portal and Official Journal of EUf[3]);

Economic operators and/or natural persons were invited to provide inputs on "ESPON portal - interactive mapping and dashboards" via an online questionnaire until 31 January 2021;

The questionnaire was an opportunity for market parties to provide their feedback on the scope of the new ESPON portal and to be involved in and co-create the future development of innovative mapping and dashboards.

The survey contained the following questions, with no obligation to respond to all of them:

- Given the context of ESPON's work, how feasible is it to design a digital platform from a technological point of view which is multipurpose and provides single access point to users?

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[1] Database Portal, Online MapFinder,TIA web application, European and Macro-regional Territorial Monitoring Tool (Mrs ESPON) and Functional areas tool (FUORE). Please note that the list will change due to the fact that the EGTC is integrating additional tools developed during the ESPON 2020 programme.

[2] https://www.espon.eu/participate/calls/open-calls/preliminary-market-consultation-espon-portal-interactive-mapping

[3] https://ted.europa.eu/udl?uri=TED:NOTICE:617387-2020:TEXT:EN:HTML

- Is it possible to avoid having multiple self-contained online tools, given the variety of ESPON evidence and products which could be showcased via such tool?

- What are the key challenges? Which challenges are the highest priority and why?

- How to ensure that information is constantly updated in such a digital platform in automated way?

- How to ensure that the platform enhances the uptake of any outcomes/results produced by users?

- Can mapping interface be at the heart of such digital platform? Can it accommodate different kind of users, depending on their level of expertise?

- Are you aware of solutions that are available on the market or that are already under development (by yourself or by others) that can address the ESPON's need for such a platform?

- What would be the desired approach in terms of the software which could be used – open access or proprietary? Can you name any examples of the software which could be used?

During this period the ESPON EGTC received 18 written replies from 10 countries: 13 companies, 2 universities (CH and ES), 1 ministry (RO), EU Commission and Eurostat-GISCO.

During the Market Consultation, the interested parties had opportunity to ask questions to the ESPON EGTC, by sending questions to the e-mail address: tenders@espon.eu, before the end of the Market Consultation.

No questions were addressed during the preliminary market consultation.

In the notice of the preliminary market consultation, it was mentioned that provided that there will be a sufficient interest from the market participants, the ESPON EGTC may organize an online webinar during mid-February 2021 to further explore the potential solutions, by engaging in a more direct discussions with the market participants.

Considering that feedback from the market was considered sufficient following the written consultation by means of the abovementioned survey, it was deemed not necessary to organize a webinar.

The preliminary market consultation was closed on 28 February 2021.

The feedback received in the frame of this Market Consultation has been used in the preparation of the "ESPON portal - interactive mapping and dashboards" procurement following the principles of equal treatment, transparency, and non-discrimination, taking diligent care for avoidance of distorting competition. The ESPON EGTC strived to ensure that the obligations expressed in the replies would not unduly bias its procurement and the resulting Terms of Reference would ensure as wide a competition as possible.

Responding to this Market Consultation was entirely voluntary and without prejudice to the right of participation in the future procurement,

Neither the present Market Consultation nor the answers to it were in any way binding on the ESPON EGTC in its preparation of the procurement documentation.

2   Outcome of the preliminary market consultation

2.1   Overall general architecture

As many online tools are the inheritance of the ESPON 2013 programme, the current ESPON 2020 Cooperation Programme foresees that these tools are updated and become integrated with any new tools which are being developed in this programme period. However, there is generally a lack of integration among tools – the ESPON website in principle provides the single access point to all tools, but each tool has its own logic, technological platform and approach to the user experience. Thus, inevitably it is hard to navigate among the tools and, moreover, the integration of data flow among the tools is very weak, with each tool being more like a self-contained system.

Although a lot of efforts have been made to update the online tools during the ESPON 2020 programme, the fact that most of the tools are still the stand-alone tools creates a basis for them to become outdated again in near future. The necessity for constant update cycles poses a huge challenge for the ESPON programme as that would imply launching new projects again and again for updating the existing tools or creating new ones.

Thus, the overall architecture in future should be built around one technological platform which provides a single access point (a portal). The idea of having a portal is to avoid dealing with separate self-contained tools where each functions according to their own logic and access terms. Moreover, the ESPON portal should be built on a platform which serves multiple purposes, most prominently, going beyond the standard expectation of showcasing data in a uniform way.

Across the contributions to the online survey, there is a common agreement that such a portal can be established and would improve the use and uptake of ESPON tools. However, it would be practically impossible to integrate all the existing stand-alone ESPON tools into "one tool", realistically recreating the same or similar functionalities as components embedded into the portal could be considered. Therefore, the portal could be built around **two main solutions** – **Business intelligence tools** (BI) for dashboards/data analysis and a **Mapping solution**. For BI there are multiple propriety tools like Tableau or Power BI and open source ones, like Apache Superset. For mapping solutions it is the same, ESRI ArcGis, for instance, or   open source, like the GeoServer.

Overall, one monolithic system for the overall tools architecture would be undesirable. Instead, the contributors have pointed out that a modular system of interacting software components is more desirable as it would provide flexibility in terms of avoiding lock-in effects and being adaptive over time. The ESPON 2020 Database should be one of the main building blocks regardless of any solutions eventually selected.

2.2   Functioning of the portal in terms of interfaces and user experience

By now, the EGTC has collected some statistics on which online tools are being used the most – data shows that *Online MapFinder*, *Database Portal* and the *TIA tool* are the most familiar and used tools, while the rest have been used occasionally. In general, often the tools are considered being too general to be used in the daily work of policy makers and practitioners, hard to navigate, with data in many cases being outdated.

The new portal should provide an incentive and technological means which increase the uptake of results produced by the thematic activities via the tools. Thus, a cutting-edge visualization should be introduced which would allow the results of analysis to be seamlessly inserted in publications, presentations, policy documents, etc. and would make user experience more satisfactory

At the heart of the platform could be a mapping interface which allows not only to visualize data on a map but can pull together and visualize different evidence ESPON has produced.

According to contributions received via the online survey, **mapping as a central element of the portal did not receive unanimous support** – some think that nowadays, given the technological options and user demand, ESPON's offer needs to go beyond such standard approach and provide options for more unconventional and innovative interface. In addition, it is important to have good tracking tools which can monitor the web traffic

regarding the users by monitoring what is being used more and what less – this is the only way how to make the portal relevant for users and constantly improve the user experience over time,

2.3 Functionalities and types of software to be used

Overall, the portal should serve multiple purposes, most prominently, going beyond the standard expectation of showcasing data. The platform should provide means to access the wide range of ESPON documentation which comes in a form of data, maps, projects reports, handbooks, case studies, tutorials, atlases, policy briefs, scientific and methodological materials. The user should be provided with an opportunity to experience the wealth of knowledge ESPON possesses.

In this context, the contributors mentioned that portal would benefit from tools which can communicate ESPON evidence base beyond maps and dashboards, for instance, use of infographics and story-telling solutions should be considered[4]. In addition, more unconventional functionalities in terms of analysis should be offered as well, for instance GapMinder is a good example (https://www.gapminder.org/tools/).

According to contributors, **open-source and propriety** solutions are equally powerful to service the ESPON needs in terms of establishing a well-functioning portal**.** However, a complete reliance on open-source softwares is not desirable because of the lack of technical support available at request.

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[4]   See   Eurostat   (https://ec.europa.eu/eurostat/cache/digpub/regions/#top   )   or   European   Parliament (https://www.europarl.europa.eu/thinktank/infographics/circulareconomy/public/index.html)
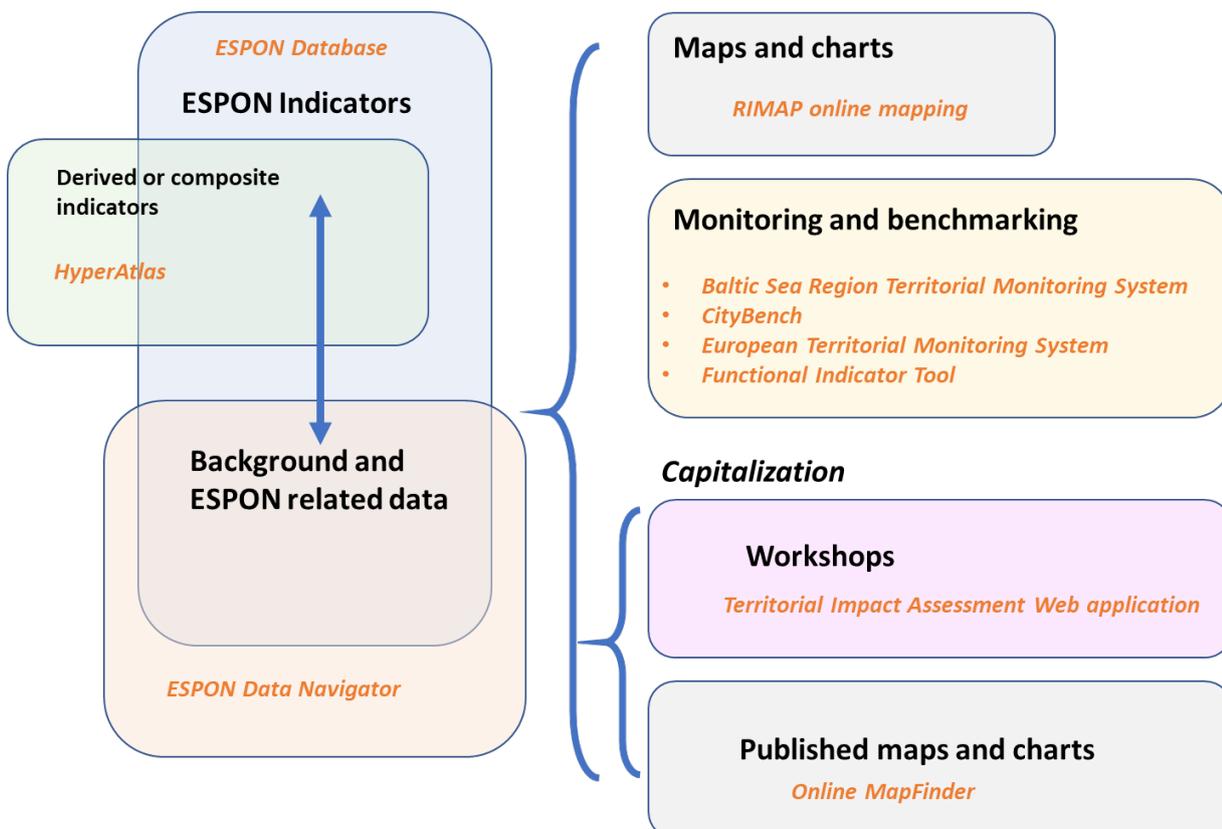
3 Annex - Background information on ESPON online tools

The information presented in this annex below was published in December 2020 as supporting information for the purpose of the preliminary market consultation. *Some parts have been updated.*

3.1 Introduction

According to the ESPON 2020 Cooperation programme, Specific Objective 3 foresees creation of analytical tools that ensure observation and monitoring of territorial structures, development trends and dynamics in different European types of territories[5]. The tools constitute and integrated online "ESPON toolbox", a consistent set of tools for territorial analyses (databases, analytical tools, tools for benchmarking, territorial impact assessment and mapping). Currently, ESPON website hosts 5 online tools: *Database Portal, Online MapFinder, TIA web application, European and Macro-regional Territorial Monitoring Tool (Mrs ESPON) and Functional areas tool (FUORE).* Online tools which have been developed during the ESPON 2013 program have been archived, but are still accessible (with limited functionalities). The ESPON toolbox is available through a dedicated webpage in the ESPON website and aim to support policy makers, practitioners and researchers with relevant territorial evidence (maps, data, short analysis, quick scans) in their various activities.

Figure 1. Conceptual schema of ESPON 2013 and ESPON 2020 online tools within the information flow

Source: ESPON EGTC

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[5] https://www.espon.eu/sites/default/files/attachments/Overview%20of%20ESPON%20tools.pdf

3.2 Challenges and ESPON EGTC's activities to overcome them

As many online tools are the inheritance of the ESPON 2013 programme, the current ESPON 2020 Cooperation Program foresees that these tools are updated and becoming more integrated with any new tools which are being developed during the ESPON 2020 programme. More specifically, "a review of existing tools shall result in a proposal on tools that will be maintained and/or developed or could be wounded up due to little use. Supporting this review of tools, a survey among ESPON users in all countries shall be carried through".

3.2.1 Challenge: ESPON online tools are outdated and lack integration

3.2.1.1 Outdated information/functionalities

The review of existing online tools developed within the ESPON 2013 programme has resulted in development of number of new online tools which:

- will effectively assimilate the old tools and provide updated information, functionalities and design. For instance, the *European and Macro-regional Territorial Monitoring Tool* will assimilate the *BSR-TeMo* and the *ETMS* tool.
- will provide a unique information and functionalities, responding to the demand of the Programm's member states

Due to lengthy public procurement procedures and complexity of the projects ESPON 2020 tools are gradually being published in the ESPON website with a peak towards the end of the programming period.

Although, a tremendous work has been done to update the online tools during the ESPON 2020 programme, still the fact that most of the tools are stand-alone tools, creates a basis for them to become outdated again in near future. The necessity for constant update cycles pose a huge challenge for the ESPON program as that would imply launching new projects again and again for updating the existing tools or creating new ones.

3.2.1.2 Lack of integration (too many online tools)

There is generally a lack of integration among tools – the ESPON website formally provides the single access point to all tools, but each tool has its own logic, technological platform and idea about the user experience. Thus, inevitably it is hard to navigate among the tools and, moreover, the integration of data flow among the tools is very weak, each tool is more like self-contained system.

The challenge here is to develop a conceptually different model which does not depend on creation of separate tools. In 2014 an independent review[6] by a contracted service provider was done to seek for solutions regarding the potential integration. The main conclusion was that with a few exceptions the online tools cannot be integrated into each other, because of technical challenges (different software's used) and because the purpose of each of tool differs. More feasible strategy would be to group them. A proposal on the prototype was developed (http://www.ersilia.org/espontools/) and to a large extent this suggestion was taken up and implemented in the redesign of the current ESPON website.

3.2.2 Challenge: ESPON online tools are not providing a satisfactory user experience

To understand the user experience with ESPON tools, different surveys were organized during the implementation of the ESPON 2020 programme, for instance, one being a survey to prepare the mid-terms evaluation of the ESPON 2020 programme, where survey questions also concerned the use of ESPON tools. However, the most prominent survey was carried out in 2017 and it was entirely dedicated to ESPON tools.

Data showed very clearly that the most familiar tools are *Online MapFinder*, *Database Portal* and the *TIA tool*, the rest being used only occasionally; 32% of respondents indicated that they are not familiar with any of the ESPON tools, although at the same time 50% of the respondents know other online tools, like those of Eurostat, OECD, etc.

The survey did not reveal much on how respondents have used the current ESPON tools practically and whether they have helped them in any way (most of the respondents skipped this part). Nevertheless, the respondents

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[6] ESPON study "Feasibility Study on ESPON on the web" (2014). Final Report available on demand, not publicly accessible

indicated that getting up to date information/data, making presentations and benchmarking territories would be the most common ways how to use online tools.

Some concrete examples were also given on the user experience:

- More help is needed on how to practically use the tools. Most of the respondents indicated that examples of using the tools and explaining the functionalities are needed, like FAQ pages.
- The respondents clearly indicated that for them online tools are needed to find maps and data, other things like, charts, analysis options are not regarded as so important.
- The tools are quite academic and sophisticated, not easy for use; regular update of the data would be crucial.
- Too often the tools are very general to be used in the daily work.
- More advertising is needed on what the tools really constitute, given that there is such a wealth of information therein.

3.3 Solutions – towards single ESPON portal

Looking ahead at the ESPON post-2020 programme, the intention of the EGTC is to offer a radically new approach to ESPON tools architecture. This is needed not only to overcome the challenges mentioned above, but also because other research and data-oriented institutions are constantly upgrading their visualization portfolio. For instance, in October 2020 Eurostat launched its "**Regions in Europe — statistics visualized**" tool[7] which offers a range of interactive visualisations accompanied by short texts that allow to get a deeper understanding of the situation across European regions. In addition, OECD launched its **"OECD Regions and Cities Data Visualisation**" tool[8] which is a web-platform that allows visualising maps and charts for a wide range of statistical indicators at the subnational scale.

In the landscape of constant online tool development and offer, it is essential to simplify things and engage users in a way that is unique and memorable. The EGTC would like to develop an architecture which is built on the following principles:

- Although there inevitably will be a need for specific functionalities, the overall architecture should be built around a single technological platform which provides a single access point. The idea is to avoid having separate self-contained tools where each function according to their own logic and access terms.
- Overall, it should be a platform which serves multiple purposes, most prominently, going beyond the standard expectation of showcasing data. The platform should provide means to access the wide range of variety of ESPON knowledge which comes in a form of data, maps, projects reports, handbooks, case studies, tutorials, atlases, policy briefs, scientific and methodological materials. The user should be provided with an opportunity to experience the wealth of knowledge ESPON possesses.
- At the heart of the of such platform should be a mapping interface which allows not only to visualize data on a map but can pull together and visualize different evidence ESPON has produced. There also should be a balance between the orientation towards people more experienced with the GIS software and those who are beginners in spatial analysis methods and tools.
- The update of the content should be built on automation as much as possible, also utilizing web services. The ESPON 2020 Database shall be an integral part of the new portal to ensure access and use of ESPON data.

- There should be a strong connection with different social media platforms, and ESPON tools should be accessible from different kind of digital devices

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[7] See: https://ec.europa.eu/eurostat/cache/digpub/regions/#top

[8] See: https://regions-cities-atlas.oecd.org/

Most people come to ESPON website to search for calls, projects and publications. Thus, people looking for maps, data or spatial analyses are minority, very likely not the general public, whereas ESPON knowledge base offers a huge potential in that domain. By now, the EGTC has collected some statistics on which online tools are being used the most, but there is limited knowledge on how exactly the tools have helped the users to solve problems. It might be the case that many have used the tools just to try them out and do some simple analysis without further intent to use the outcome.

The new solution should provide an incentive and technological means which increase the uptake of any generated results. Thus, a cutting-edge visualization tool should be introduced which allow the results of analysis to be seamlessly inserted in publications, presentations, policy documents, etc.

Figure 2. Illustration of main buildings blocks of the potential ESPON tools architecture in a post-2020 Cooperation Programme
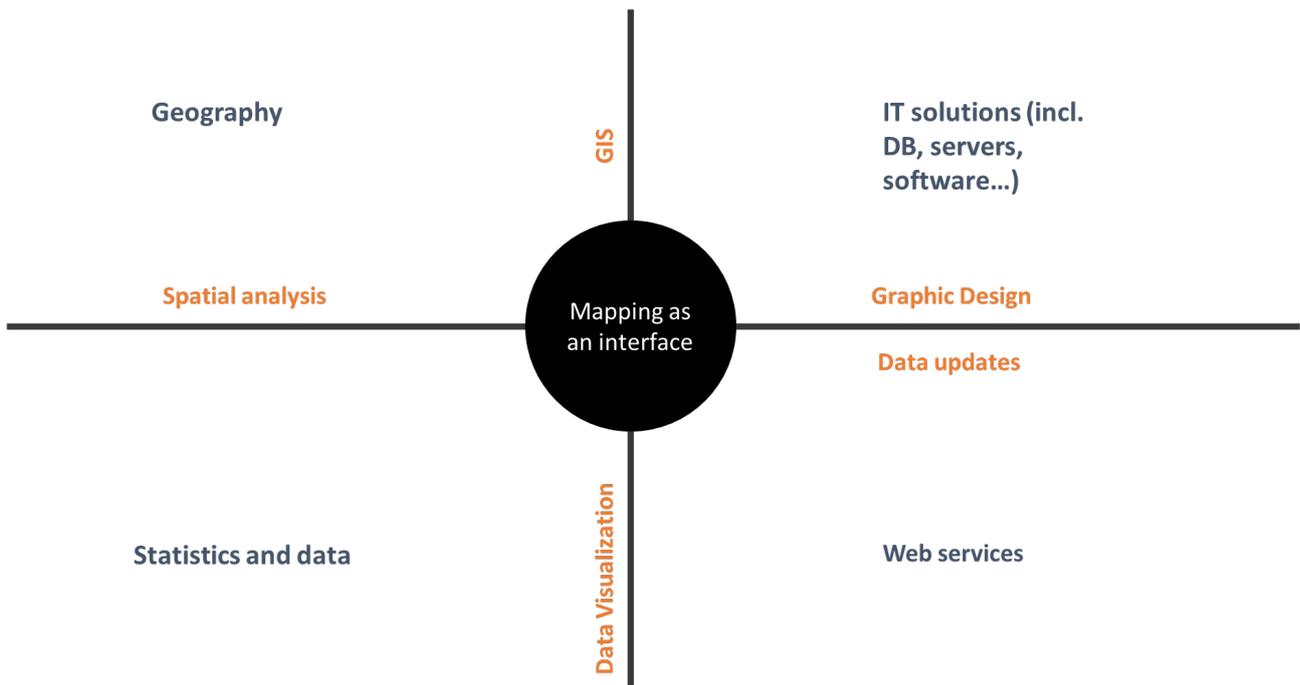
Source: ESPON EGTC

Regarding the mapping functionality, the EGTC is specifically looking at:

Data visualisation:

- The user should be able to visualise all data and indicators saved in the ESPON Database via maps, graphs, time series and predefined or user-defined study areas.

- The user should also be allowed to visualize all ESPON maps catalogue. It should be able to upload its own data and visualize them in combination with ESPON available data and indicators.

- The data visualisation functionalities should target the best of what is currently available on the market and already offered by other public institutions.

Data and maps access:

- The user should be able to tailor scales, legends and zoom-in for its maps

- It should be able to receive outputs from the Online Mapping tool in the form a print, print preview, save, save as, open, save and open map-settings, export.

- It should be able to download all data sets and indicators saved in the ESPON database

Data analysis:

- The user should be able to perform more or less sophisticated possibilities to analyse and interpret data.

User interface:

- The user interface should be user-friendly, clear and structured for general users with no experience with GIS software to present regional data in maps.

- The user interface could offer an expert module to go further in the use of sophisticated functionalities

Web and mobile application:

- The Online Mapping Tool will be hosted on one of the ESPON available servers and should be available via all of the commonly used Internet browsers.

- It should be designed from the beginning for mobile devices