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TOWARDS AN ESPON HIERARCHY OF FUNCTIONAL REGIONS?

CONTENT

ESPON should proceed like OECD and build an original hierarchy of territorial unit.

This new hierarchy would not replace the current official definition of Eurostat (NUTS) that is still relevant when works are produced for subjects related to EU regulations like structural funds. But this new hierarchy could be used for strategic planning and more generally work on territorial agenda and cohesion.

We propose to generate a coherent hierarchy of functional divisions with 5 levels quoted FUNC1 ... FUNC5 where we use the best compromise between conceptual coherence and minimization of cost for collection of data. Starting from a reference level FUNC3 (which could be equivalent to the current NUTS2/3) we focus the analysis of the creation of the level FUNC4 (which is the area of daily activity based on mixture of NUTS3/LAU1) and present more briefly the other levels.

14 pages



**ESPON M4D -
MULTI DIMENSIONAL DATABASE DESIGN & DEVELOPMENT**



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Introduction

1 A CENTRAL CHALLENGE FOR ESPON & TERRITORIAL COHESION

Currently, the ESPON Program is in an uncomfortable situation in terms of elaboration of regional data. On the one hand, the terms of reference oblige the researcher to produce the majority of data in the framework of official NUTS2 and NUTS3 delimitation, which mean that ESPON is a purely normative tool, in charge to complete EUROSTAT. On the other hand, ESPON researcher are asked to produce more relevant analysis for territorial agenda and territorial cohesion, that means to create new innovative tools and concepts, like it is supposed to be done in an organization like OECD. OECD has elaborated two levels of regions called TL2 and TL3 that are mixture of NUTS1/NUTS2 for TL2 and mixture of NUTS2/NUTS3 for TL3, with some additional modifications of details. These OECD regions are designed in order to use easily Eurostat data but are conceptually different and imply an idea of conceptual consistency.

It is important to precise immediately that different forms of conceptual consistency can be proposed in the choice of regions. We can at less propose three different concepts that can be used for the choice of territorial units.

- The EU normative criteria: Whatever the criticism that can be addressed to the NUTS unit, they are a piece of reality as long as funds are allocated according to these territorial divisions. It is especially true for the NUTS2 level that defines the regions of different objectives. But some other rules of EU are also taking into account the other NUTS levels. Accordingly, these levels are useful and relevant, but only for the end-users that focus on normative reality of EU. These levels cannot be modified by researcher because they are submitted to political rules and challenges.

- The Governance criteria: An alternative criteria could be the governance criteria, define by the choice of territorial units that are concrete levels of political organization with, for example, elections of representatives and existence of a certain degree of autonomy in financial terms for the development of territorial strategies. In this case, population of area does not matter at all and it can be fully relevant to put together territorial units with very different number of inhabitants but equivalent political meaning. In this framework, the level of state is crucial and we can easily define two

partition. The first partition is the "first territorial level of political significance under state level" for which we have to precise some criteria (Budget, elections ...) but is finally simple to define: in France, it is the region (NUTS2) in Germany the Länder (NUTS1) etc. An opposite approach is to start from the bottom and to choose the "smallest territorial level of political significance in each state". This smallest level will not fit necessarily to LAU2 levels because in many countries the LAU2 is not politically relevant and it can happen that this criteria jump to NUTS3, NUTS2... levels.

The Functional (or systemic) criteria: In this third approach, many variant are possible but we can roughly define this level as the fact that it put together pieces of territory that are strongly linked by internal flows (economic, social, environmental, ...) or that are characterized by common flows toward third-party territories. Using flows implies to introduce concepts of time and distance. Functional regions can be based on the frequency of flows (each day, each week, each year, ...) but also their span measured in kilometer (10, 20, 50 km), time (1h, 2h, 3h...) or cost (10€, 20€...). It is also possible to introduce criteria of complementarity, etc. What is important is that regions based on the functional criteria are considered as systems with a certain degree of autonomy as compared to external world.

2 A FUNCTIONAL HIERARCHY WITH 5 LEVELS

We propose to build a functional territorial division of EU territory with 5 levels, using as much as possible existing official data of Eurostat, but introducing collection at National Statistical Institute (NSI) levels when necessary

The meso-regional level (FUNC3) is defined first as it is the most easy to define and also the reference for the elaboration of upper and lower levels. In our opinion, it should be based on a mixture of NUTS2 and NUTS3 regions as it has been done many times before in ESPON. There are very few differences between the NUTS2/3 level of ESPON and what has been done previously by researchers (IGEAT, Géographie-cités,) and what is currently done by OECD with TL3 level. We can discuss some details but an agreement should not be difficult to find here. In terms of accessibility, these FUNC3 regions are inherited generally from the 19th century when they were associated to the time to reach the administrative capital and return at home in one day (Cf. French départements, Italian provinces, etc.).

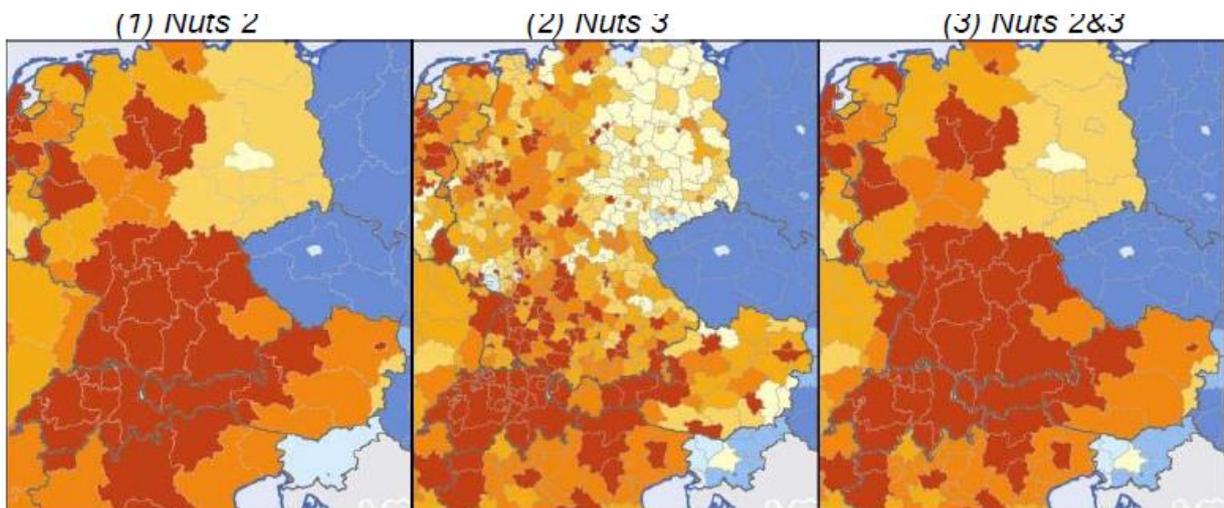


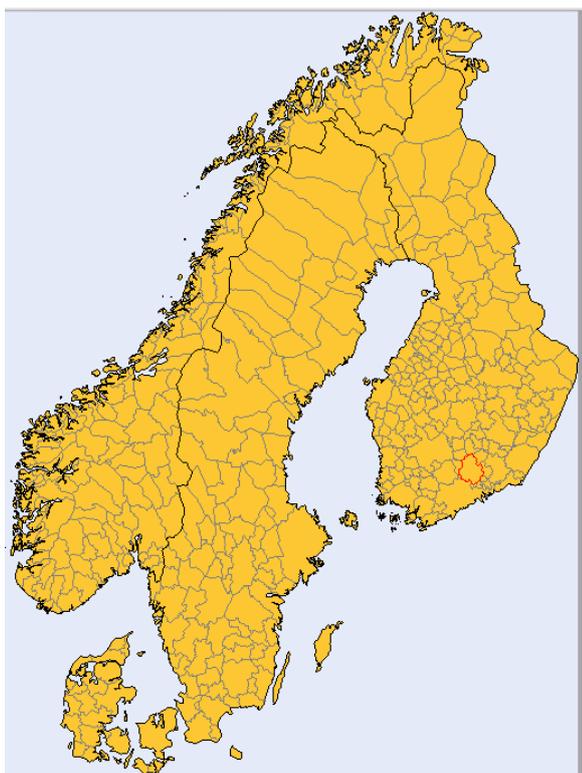
Figure 1 The definition of FUNC3 as mixture of NUTS2 and NUTS3

This Figure 1 is a classic example and is discussed in the report ESPON 3.4.3. MAUP.

The macro regional level (FUNC2) is also relatively easy to define if we consider it as using the same criteria of accessibility than FUNC3 but with the conditions of the XXI th century. It is area where people can go to the administrative centre and return by car in one day. It can be associated to a main city but also on a more polycentric structure with high density of internal exchanges. Many German Länder fit to this

criteria and it is reasonable to consider that in many case this level can be obtained by combination of NUTS2, NUTS1 and NUTS0, as it is precisely done by OECD for the TL2 level.

The infra-European level (FUNC1) is clearly more complicated to develop but can be defined conceptually as the “first level of significant functional organization under EU level”. What is certainly important to consider here is the location of major global cities that are gateway toward the rest of the world. And also internal differentiation of EU in terms of core, semi-periphery and periphery. The work proposed by Christian Vandermotten gives a first idea on how it could be done. It is important to keep in mind that state level is not taken into account here and that the implicit reference of the hierarchy (FUNC0) is the European Union (eventually enlarged to Switzerland, Norway, etc...).



The micro-regional level (FUNC4) is in our opinion the most complicated but important for the ESPON program as a whole. It can be defined in different ways but is related to the concepts of daily relations for labour, education, access to services. In other word, it sticks to different concepts like “labour market area” or “life basin” which exist more or less in all countries. The difficulty here is that this level will certainly not be equivalent to the LAU1 under construction by Eurostat and will certainly be rather a mixture of LAU1 and NUTS3 if we are looking for a pragmatic approximation. In chapter 3, I give some examples of first possibilities to be discussed.

Figure 2 A draft example of FUNC4 level for Nordic countries

Figure 2 has been elaborated by NORDREGIO for a study on labour market. It was used for the elaboration of a specific HyperAtlas application at the destination of Scandinavian ministers.



Figure 3 A draft example of FUNC4 level for France, Benelux and Germany

Figure 3 is a map of NUTS3 units, except for France where we have used the “Zones d’Emploi” which is the major reference level for all studies of spatial planning produced by the “Observatoire des territoires”. These territorial divisions are not too bad but some improvements are possible. In particular:

- *Luxembourg : necessary to divide at a lower level*
- *Belgium: OK?*
- *Netherlands : May be necessary to use a more local level\$*
- *Germany: it is necessary to aggregate cities and suburbs. I suppose that many researchers have proposed aggregates of kreisen in order to build labor area. Which one is the best?*
- *United Kingdom: clearly too big areas.*

The local level (FUNC5) is the smallest functional unit for which significant computation can be realized. It is certainly not equivalent to the LAU2 in all countries and should be in the majority of case based on a mixture of LAU2 and LAU1. As a good example, we can consider the French-Belgium border where the Belgium communes are typical FUNC5 but where the French Communes has to be aggregated in cantons in order to be compared to Belgium communes. Erik Gloersen has several ideas on this level.

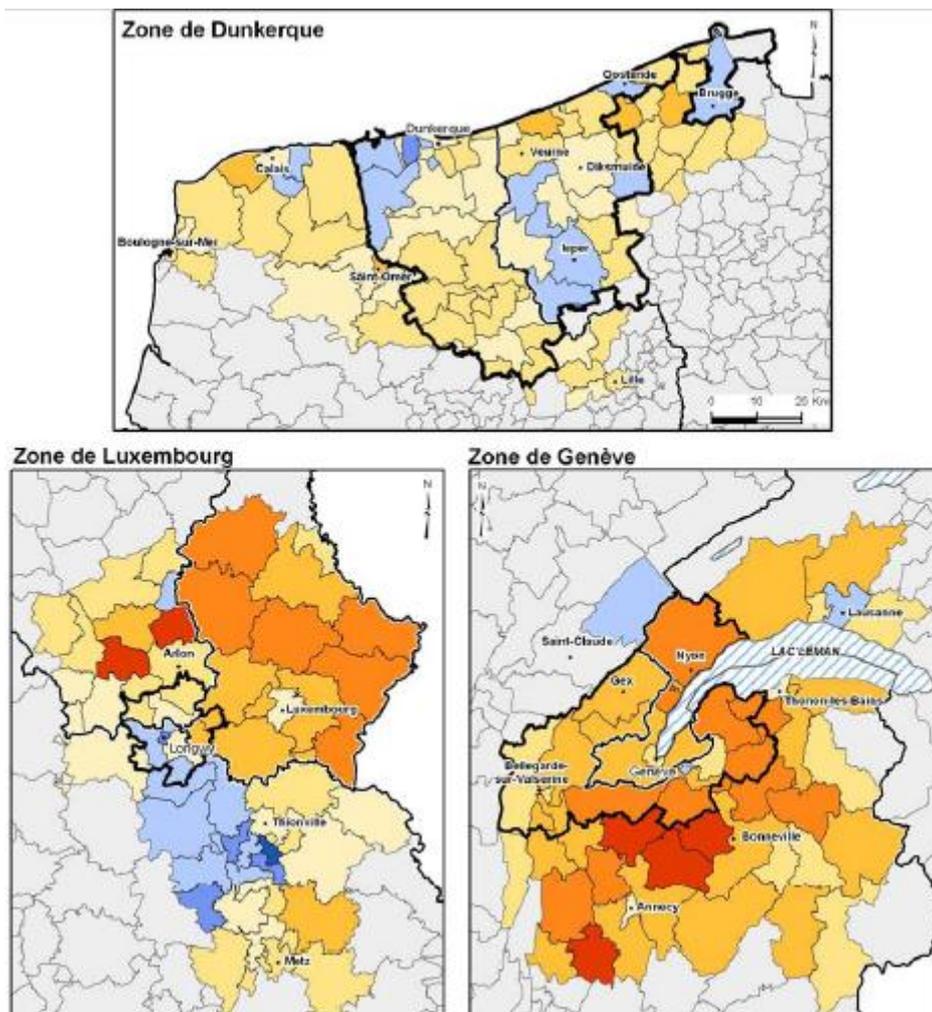


Figure 4 A draft example of FUNC5 level for cross border studies

Figure 4 has been realized by Gregory Hamez (university of Metz) and Sophie de Ruffray (University of Rouen, France) for a report on cross border areas of France realized for the DATAR. The authors explained that they have combined LAU1 and LAU2 limit in order to avoid MAUP problems. They have chosen the following units:

- Belgique : Commune
- France : Canton
- Luxembourg : Canton
- Suisse : District

3 REACTIONS OF CONTACTED EXPERTS

Answer from Moritz Lennert (28th June 2011)

Bonjour Claude,

Merci pour la proposition. En théorie, je pense qu'il est toujours intéressant de réfléchir sur de nouveaux découpages, et si cela se fera, tu sais que tu pourras compter sur notre soutien.

Ceci dit, je pense que vu les discussions à Budapest et d'autres échos, je pense qu'il vaudrait mieux que le projet DB se concentre pour l'instant sur la fourniture des données existantes, et, surtout, la mise à disposition de données LAU2.

Je pense qu'il existe déjà toute une série de découpages fonctionnels directement utilisables, soit à partir des NUTS 3, soit à partir des LAU2 et il me semble donc plus important de rendre disponibles des données pour ces derniers.

Je pense entre autre aux découpages suivants:

- MUA et FUA (Didier + nouveaux FUAs DG Regio) en LAU2 et en approximation NUTS 3
- Combinaisons NUTS 3 proposées dans le MAUP
- D'autres combinaisons NUTS 3 (ex: bassins fluviaux)

Je ne pense pas qu'il soit trop difficile d'intégrer ces combinaisons existantes d'unités de bases, mais pour l'instant l'unité de base LAU2 n'est pas suffisamment intégrée. Il faudrait donc, à mon avis, en faire la priorité, et peut-être mettre de côté (pour l'instant) la systématisation encore plus poussée des hiérarchies.

A bientôt,

Moritz

Answer from Klaus Spiekermann (14th July 2011)

Dear Claude,

Thank you for your email concerning a new hierarchy of functional territorial divisions. I am sorry for the late response.

In principle, I support the idea to replace the NUTS system by a more appropriate spatial division of Europe for analytical purposes. But there should be a couple of conditions fulfilled:

- The FUNC system should be agreed upon with Eurostat and DG Regio and maybe with OECD to guarantee that this would become a common reference framework for spatial research in Europe.
- There have to be institutional arrangements that the FUNC system will be maintained over time, i.e. somebody is taking care of a continuous stream of data into the system.
- The FUNC system should not be changed over time as it happens with the NUTS system.
- The FUNC system should be filled with historic data for at least the last two or three decades, i.e. somebody has to take responsibility for this.
- When developing the FUNC system, existing functional subdivisions of Europe such as from the OECD or in different EU member states should be taken into account to be as comparable as possible.
- The different levels of the FUNC system should be constructed as a distinct aggregation of NUTS/LAU units in order to fill the system with data from official statistics. There should be clear aggregation rules. Procedures have to be foreseen for the aggregation when the underlying NUTS/LAU system changes as it happens every couple of years.
- There should be also a set of clear rules to disaggregate from the FUNC levels to the NUTS/LAU zones of each FUNC zone. This is necessary because there might be the need to present results, in particular of scenarios/forecasts/impact assessments etc, not at the FUNC level but at the 'official' level of NUTS/LAU.
- At which FUNC level could a zone be constructed from NUTS/LAU zones from different countries? For FUNC1 only, or also for FUNC 2 or even FUNC 3?
- A comment more directly related to your proposal concerning the different FUNC levels is that if FUNC0 is EU or ESPON space, FUNC1 could be made up of the macro regions (Baltic Sea region, Danube region etc.) instead of linking it to the question of core and periphery.
- An important issue for us would be the question of what data would be available at what level. This comment is related to the SASI model, our regional economic model currently working at NUTS-3 level. Most important data, in particular regional economic data is available at NUTS-3 but not below. So, if we would adopt the SASI model to a FUNC system the question would be to what level. Your current FUNC 3 level is not feasible as we would lose important spatial

detail in countries such as Germany in which NUTS-3 regions would be replaced by NUTS-2 regions. Your current FUNC 4 level is probably not supported by economic data in countries in which this level is constructed on the base of LAU-1 zones. So, a solution would be to disaggregate economic data from NUTS-3 to LAU1/FUNC4. But again, some central institution has to be responsible to do this continuously. What I have said here for the SASI model is probably true for many regional economic analyses and modeling exercises, i.e. to lose spatial detail when going from NUTS-3 to FUNC3 and to run into problems of data availability when using FUNC4.

Best regards,
Klaus

Answer from Volker Schmidt-Seiwert (14th July 2011)

Dear Claude,

The late response of Klaus reminded me, that there was something left in my to-do list of last week.

In fact, the idea to zoom in the territory more deeply is obvious and functional areas are the starting point of this from the urban rural relation point of view and beyond. Beside the fact, that ESPON is asked to deepen and broaden territorial knowledge, not replacing EUROSTAT, but by searching for new and update information in the research scene doing fundamental research and by combing results of different sources and putting sometimes together things in territorial aspects for the first time.

Sticking on official statistics is and will be a prerequisite to do these efforts on the best possible base of data.

Leaving FUNC 5 on the level of municipalities as such (in Germany maybe on the basis of the about 4.660 Gemeindeverbände) I would like to start some reflections with FUNC 4 which I think, must be something in between local and regional, a bit of something like the EUROSTAT Urban Audit LUZ ++ (related to 2nd level cities). With the aggregation of Kreise in Germany you refer to a totally different territorial level. They should base on LAU2 and LAU 1 if existing in a country, to guarantee access to at least national data and when available to data of the Euro 2011 censuses in the future. The question is how a European project can deal with about 126.000 spatial units changing in time and delineation the fastest of all regional units (besides France, congratulation for this, where maybe 2 municipalities out of 36.000 changed in the last 10 years ;-)). In the other countries the lists of changes are legendary.

FUNC 3 in my opinion is covered quite well by NUTS 3 in most of the countries. In Germany, our Ministry and we keep on proposing the Raumordnungsregionen as suitable level, which are in fact aggregation of the existing NUTS 3 in functional respect, overcoming the Citystate problem of Berlin, Hamburg etc. They built the OECD TL3, introduced by the BBSR (I am not sure, if the Länder in Germany know, that some of the same do not longer exists in OECD regions at a glance). The pure mixture of NUTS 2 and 3 does not help any further in Germany, just keeping the functional problem unsolved. The same problem you have in Poland for example.

FUNC2 should be an aggregation of FUNC 3 for sure. Using TL 2 in Germany, which are the Bundesländer, would be too broad. If you aggregate TL3 functionally in Germany you will end up by NUTS 2, but having maintained the functional relation e.g. in Hamburg and would be by this the appropriate regional representation.

As Klaus did, I like to stress the fact, that ESPON itself should be careful doing things like this alone. The need of concerted action of institutions engaged is quite obvious, ESPON might give the first serve, but in the end EU KOMM and other must join and support the party. As the urban rural typology of the 5th Cohesion Report (an the versions before) show the concerted action of OECD, DG Regio and DG Agri guaranteed the success and the broader use as 'the' urban rural typology, now to be used in ESPON.

Best regards
Volker

Answer from Erik Gloersen (14th July 2011)

Dear Claude,

My apologies for replying so late, and thank to Klaus for the reminder.

Concerning the input you requested in the text, here is my proposal:

This map has been elaborated by NORDREGIO for a study on labor market. It was used for the elaboration of a specific HyperAtlas application as a supplement to the study ESPON for Nordic countries. It is to be noted that the Sweden operates with two labour market area delineations. One is descriptive and while the other is more prospective.

I agree with Volker that detailed discussions are needed to come up with labour market delineation in the different countries. They often do not have an official status, and there are sometimes competing approaches. Labour market area delineations are not quite up to date. However, I would challenge the idea that the urban rural typology would be a success. The note disseminated by ESPON and encouraging the TPGs to use this typology, among a series of others, is a schoolbook example of scientific dubious semantic drift. We are being told that data relative to "predominantly urban regions" and "predominantly rural regions" should be used to produce figures and statements on the "urban" and "rural" parts of Europe.

We are currently collecting LAU2 data for GEOSPECS, and find that the data is generally available but that data collection requires considerable efforts. The primary reason is that the datasets are not generally communicated by some national statistical offices. It is therefore necessary to go through national contacts and/or national authorities to get the data. In some countries, while 100% accurate data are not available, data of sufficient quality to identify the main patterns may be obtained. These data can be difficult to collect, as some partners are reluctant to communicate them. This confirms that communication on the purpose of data is of key importance. Furthermore, it is a reminder of the usefulness of metadata making it possible to identify statistical treatments that may, or may not, be carried out on the basis of individual datasets.

I would argue that the first level to be developed is the local one (FUNC 5). GEOSPECS has already come a long way on developing templates adapted to analyses and delineations based on LAU 2 units. We absolutely agree that the LAU2 is not the appropriate level for FUNC 5 in some countries, e.g. Slovenia.

Once the FUNC 5-level is in place, it will be easier to reflect on the different ways of grouping these local areas in FUNC 4-units and in other types of micro-regional units. It is important to emphasize that labour market areas are not the only types of functional areas.

With best regards,
Erik